南華大學企業管理學系管理科學碩士班碩士論文

A THESIS FOR THE DEGREE MASTER OF BUSINESSADMINISTRATION

MASTER PROGRAM IN MANAGEMENT SCIENCES

DEPARTMENT OF BUSINESS ADMINISTRATION

NANHUA UNIVERSITY

了解使用者對數位學習系統的滿意度和持續使用意圖: 以南華大學數位學習系統為例

UNDERSTANDING USERS' SATISFACTION AND CONTINUANCE INTENTION TOWARDS E-LEARNING SYSTEMS: NHU PORTAL AS EXAMPLE

指導教授：吳萬益 博士

ADVISOR: WANN-YIH WU Ph.D.

廖英凱 博士

YING-KAI LIAO Ph.D.

研究生：阮友英宇

GRADUATE STUDENT: NGUYEN HUU ANH VU

中　華　民　國　1　0　7　年　1　月

南 華 大 學

企業管理學系管理科學碩士班

碩 士 學 位 論 文

了解使用者對數位學習系統的滿意度和持續使用意圖:

以南華大學數位學習系統為例

研究生：Jeadan (陳文英宇)

經考試合格特此證明

口試委員：廖英凱

紀信光

林玲珊

指導教授：吳萬益 廖英凱

系主任(所長)：洪瑞彰

口試日期：中華民國 107 年 1 月 5 日

準碩士推薦函

本校企業管理學系管理科學碩士班研究生 阮友英宇 君在本系修業 1.5 年，已經完成本系碩士班規定之修業課程及論文研究之訓練。

1、在修業課程方面： 阮友英宇 君已修滿 39 學分，其中必修科目： 研究方法、管理科學等科目，成績及格(請查閱碩士班歷年成績)。

2、在論文研究方面：阮友英宇 君在學期間已完成下列論文：

(1)碩士論文：了解使用者對數位學習系統的滿意度和持續使用意圖: 以南華大學數位學習系統為例

(2)學術期刊：

本人認為阮友英宇 君已完成南華大學企業管理學系管理科學碩士班之碩士養成教育，符合訓練水準，並具備本校碩士學位考試之申請資格，特向碩士資格審查小組推薦其初稿，名稱：了解使用者對數位學習系統的滿意度和持續使用意圖: 以南華大學數位學習系統為例，以參加碩士論文口試

吳萬益

指導教授： 阮友英宇 簽章

中華民國 106 年 1 月 5 日

Letter of Recommendation for ABT Masters

NGUYEN HUU ANH VU, a student of NHU Master Program for Business Administration for 1.5 years, has completed all of the courses and theses required for graduation.

1. In terms of studies, NGUYEN HUU ANH VU has acquired 39 credits, passed all of the obligatory subjects such as Research Method, Management Science etc. (Please refer to transcript.)

2. In terms of theses, 武氏英芳 has completed the following:

   i. Master thesis : Understanding Users' Satisfaction And Continuance Intention Towards E-learning Systems: Nhu Portal As Example

   ii. Journal :

I believe that Nguyen Huu Anh Vu has already received full formative education of NHU Master Program for Business Management and is qualified to apply for Master's Degree Examination. Therefore, I hereby recommend his/her preliminary paper, Understanding Users' Satisfaction And Continuance Intention Towards E-learning Systems: Nhu Portal As Example, for the oral defense.

Academic Advisor: 吳萬益

Date: 2018.1.5

ACKNOWLEDGEMENTS

I wish to express my gratitude to Dr. Wann-Yih Wu and Dr. Ying-Kai Liao for his guidance on this project. I would like to acknowledge the financial help provided to me by Nanhua University's scholarship for MBA program. Furthermore, I would like to give sincerely thanks to lectures who were helping and motivating me to get a good result in my studies.Moreover, helping me understand the issues of economics and finance. Specially, I will never forget my life of studying in Nanhua.

Finally, on a more personal level, I would like to thank my family who encourage me since beginning. I give my thankful to all my friends at Nanhua University, especially Phuoc Thien, he giving me lots of advice on statistics issue, Hoa for helping me to translate questionnaire, for helping me to distribute the questionnaires.

NGUYEN HUU ANH VU

January 2018

Title of Thesis: Understanding Users' Satisfaction and Continuance Intention Towards E-learning Systems: Nhu Portal As Example

Department: Department Master Program in Management Sciences, Department of Business Administration, Nanhua University

Graduate Date: January 5th. 2018

Degree Conferred: M.B.A

Name of Student: Nguyen Huu Anh Vu Advisor: Wann-Yih Wu, Ph.D.

Ying – Kai Liao, Ph.D.

ABSTRACT

With its beneficial features such as cost-efficiency, delivery-effectiveness, self- management of learning, on-demand training, anywhere and anytime availability, e- learning has been applied widely in education. Based on Technology Acceptance Model (TAM), D&M Information Success Model (D&M model) and Information System Continuance Model (ISCM), this study seeks to develop a more comprehensive framework to explain about user satisfaction and continuance intention to use e-learning system in educational section. Based on the responses of 280 students in Nanhua University. Smart PLS and SPSS 20 were conducted to data analysis. In academia, our findings make some contributions The results suggest that users' continuance intention is determined by satisfaction, which in turn is jointly determined by perceived usefulness, perceived quality, perceived of value, perceived ease of use and cognitive absorption, self-efficacy, anxiety, Enjoyment, Subjective Norms, user satisfaction and continuance intention. our study proves that perceived usefulness is not the mere determinant of user

satisfaction. Another contribution is that some variables investigated in this study are rarely empirically explored before Furthermore, this study also shows the direct influence of perceived of value and Cognitive Absorption on users' continuance intention to use, which is usually ignored in the past researches. In practice, our research findings provide with more references to enhance e-learning system usage in educational section and suggestions for future research direction .

Keywords: TAM, e-learning, continuance intention, self-efficacy, cognitive absorption

關鍵字：科技接受模型、線上學習、繼續學習意願、認知專注、自我效能

TABLE OF CONTENTS

ACKNOWLEDGEMENTS I
ABSTRACT II
TABLE OF CONTENTS IV
LIST OF FIGURES VIII
LIST OF TABLES IX
CHAPTER ONE INTRODUCTION 1
1.1 Research Background and Motivation 1
1.2 Research objectives 2
1.3 Research Flow 3
CHAPTER TWO LITERATURE REVIEW 6
2.1 E-learning 6
2.1.1 Definition 6
2.1.2 The advantages of e-learning 7
2.1.3 E-learning categories 8
2.2 Theoretial of Background 10
2.1.1 D&M model (DeLone & McLean, 1990 & 2002) 10
2.2.2 Technology Acceptance Model, TAM (Davis, 1989) 11
2.2.3 Information system continuance model (ISCM) 12
2.3 Definition of Contructs 14
2.3.1 Perceived support 14
2.3.2 Perceived quality 15
2.3.3 Perceived usefulness and Perceived ease of use 16
2.3.4 Perceived of Value 16
2.3.5 Cognitive Absorption 16
2.3.6 Self Efficacy and Axiety 17
2.3.6.1 Self Efficacy 17
2.3.6.2 Anxiety 17
2.3.7 Enjoyment and Subjective norms 18

2.3.7.1 Enjoyment 18
2.3.7.2 Subjective norms 19
2.3.8 User Satisfaction and Continuance Intention 20
2.4 Hypothesis Development 20
2.4.1 Research Model Development 20
2.4.2 Perceived Support on Perceived usefulness and Perceived Ease of Use 22
2.4.3 Perceived of quality on Perceived usefulness and Perceived Ease of Use 22
2.4.4 Perceived usefulness on Perceived of value 23
2.4.5 Perceived usefulness on Cognitive Absorption 24
2.4.6 Perceived ease of use on Perceived of value 24
2.4.7 Perceived ease of use on Cognitive Absorption 24
2.4.8 Perceived of value on Cognitive Absorption 25
2.4.9 Perceived of value on Continuance Intention 26
2.4.10 Perceived of value on Satisfaction 26
2.4.11 Cognitive Absorption on Satisfaction and Continuance Intention 26
2.4.12 Self-efficacy on Perceived Usefulness and Pervceived of value 27
2.4.13 Axiety on Perceived Ease of Use and Cognitive Absorption 27
2.4.14 Enjoyment on Continuance Intention 28
2.4.15 Subjective norms on Continuance Intention 29
2.4.16 User Satisfaction on Continuance intention 29
CHAPTER THREE RESEARCH METHODOLOGY 31
3.1 Research framework 31
3.2 Research Hypotheses 32
3.3 Research design 33
3.3.1 Questionnaire design 33
3.3.2 Preliminary research 33
3.3.3 Formal research 34
3.4 Research Instruments 37
3.4.1 Perceived Support 37
3.4.2 Perceived quality 38

3.4.3 Perceived usefulness 39
3.4.4 Perceived ease of use 39
3.4.5 Perceived of Value 40
3.4.6 Cognitive Absorption 40
3.4.7 Self-Efficacy 41
3.4.8 Anxiety 42
3.4.9 Enjoyment 42
3.4.10 Subjective Norms 43
3.4.11 Satisfaction 43
3.4.12 Continuance Intention 44
3.5 Data Analysis Procedure 44
3.5.1 Descriptive Statistic Analysis 44
3.5.2 Reliability of the Measurement Variables 45
3.5.3 Partial least squares (PLS) 46
CHAPTER FOUR DATA ANALYSIS AND RESULTS 47
4.1 Descriptive analysis 47
4.1.1 Characteristics of Respondents 47
4.1.2 Measurement Results of Relevant Variables 49
4.2 Factor Analysis and Reliability Tests 55
4.2.1 Perceived Support 56
4.2.2 Perceived Quality 58
4.2.3 Perceived usefulness 59
4.2.4 Perceived Ease of Use 60
4.2.5 Perceived of Value 61
4.2.6 Cognitive Absorption 62
4.2.7 Self-Efficacy 63
4.2.8 Anxiety 64
4.2.9 Enjoyment 65
4.2.10 Subjective Norms 66
4.2.11 Satisfation 67

4.2.12 Continuance Intention 68
4.3 Evaluation of the Measurement Model 69
4.4 Evaluation of the Structural Model 71
CHAPTER FIVE CONCLUSION AND SUGGESTIONS 75
5.1 Research conclusion 75
5.2 Implications 79
5.2.1 Academic implication 79
5.2.1 Practical implications 81
5.3 Limitations and future directions 82
REFERENCES 83
APPENDIX 91
QUESTIONNAIRE 91

LIST OF FIGURES

Figure 1.1 The flow chart for this research 4

Figure 2.1 D&M Information Success Model.....11

Figure 2.2 .1 Technology Acceptance Model…… 12

Figure 2.2 2 Information System Continuance Model ……..... ..14

Figure 3.1 Research framework ..... ……31

Figure 3.2 The process research 36

Figure 4.1 SmartPLS Result.....71

LIST OF TABLES

Table 1 Description of the sample……48
Table 2 Perceived Support the sample cases show……49
Table 3 Perceived Quality the sample cases show…… .50
Table 4 Perceived Usefulness the sample cases show…… 51
Table 5 Perceived ease of use the sample cases show……51
Table 6 Perceived of Value the sample cases show…… ..52
Table 7 Cognitive Absorption the sample cases show…… ..52
Table 8 Self-Efficacy the sample cases show……..53
Table 9 Anxiety the sample cases show……..53
Table 10 Enjoyment, the sample cases show……54
Table 11 Subjective Norms the sample cases show ..……54
Table 12 Satisfation the sample cases show……54
Table 13 Continuance Intention the sample cases show……55
Table 14 The results of the factor analysis and reliability of Perceived Support.57
Table 15 The results of the factor analysis and reliability of Perceived Quality.58
Table 16 The results of the factor analysis and reliability of Perceived usefulness.....60
Table 17 The results of the factor analysis and reliability of Perceived Ease of Use…….....61
Table 18 The results of the factor analysis and reliability of Perceived of

Value……..62

Table 19 The results of the factor analysis and reliability of Cognitive Absorption……..…63

Table 20 The results of the factor analysis and reliability of Self-Efficacy…64

Table 21 The results of the factor analysis and reliability of

Anxiety…….65

Table 22 The results of the factor analysis and reliability of Enjoymment...66

Table 23 The results of the factor analysis and reliability of Subjective

Norms……...67

Table 24 The results of the factor analysis and reliability of Satisfaction……68

Table 25 The results of the factor analysis and reliability of Continuance Intention…….. 69

Table 26 Evaluation of the Measurement Model…….……70

Table 27 Evaluation of Structural Model and Hypothesis Testing……72

Table 28 The Results of Researc h Hypothesis…….……76

CHAPTER ONE
INTRODUCTION

1.1 Research Background and Motivation

E-learning can be defined as a self-persuaded and prompt learning condition using web to enhance the nature of learning by giving understudies access to assets and administrations, together with far off trade and joint effort (Docimini and Palumbo, 2013; Jeong and Hong, 2013). E-learning bolsters students with some unique capacities, for example, intuitiveness, solid pursuit, instantaneousness, physical versatility and arranging of instructive exercises, self-composed and self-coordinated learning, corporate preparing, customized learning, helpful method of conveying lesson and picking up information (Bidin and Ziden, 2013; Docimini and Palumbo, 2013; Jeong and Hong, 2013; Martin and Ertzberger, 2013; Viberg and Gronlung, 2013). E-learning has positive effect on the two addresses and understudies in that it emphatically influences the span of their consideration, learning and preparing constancy, and their demeanors towards organization and connection (Chen and Tseng, 2012; Ozdamli and Uzunboylu, 014). Past examinations have demonstrated that anyplace and whenever learning and access to data and correspondence are encouraged through utilizing e-learning (Chens and Tseng, 2012; Ho and Dzeng, 2010; Islam, 2013; Pena-Ayala, Sossa, and Mendez, 2014). Kratochvíl (2013) and Abachi and Muhammad (2013) take note of that all people entangled in e-learning are enamored with utilizing it towards learning as a result of flexible access regarding time, space, and pace and online community in learning. Regardless, interest for the

improvement of e-learning is progressively developing; still the requirement for explore on potential elements influencing e-learning reception like quality which is the core of instruction and preparing in all nations (Ehlers and Hilera, 2012), isfelt particularly with regards to creating nations (Masoumi &Lindstrom, 2012), a reality that warrants examination concerning it.

In this setting it is endeavored to present an incorporated model of TAM and DeLone and McLean's model for anticipating person's genuine utilization of e-learning systemin Iran. As Li, Duan, Fu, and Alford (2012) note. It is basic to test the connection between e-students' encounters, understandings, and their behavioral expectations to utilize, in light of the fact that framework utilize is an essential marker of the framework's prosperity.In 1992, DeLone and McLean suggested that user satisfaction is probably the most important factor of information system success., attitude is the most important factor to evaluate the success of information system and user satisfaction can be considered as attitude. Research findings also show that satisfaction will lead to positive word of mouth, repurchase and loyalty.

Therefore, in this thesis, basing on three models of TAM, D&M model and ISCM with supplementary sets of environmental and attitude constructs, we would like to propose a more comprehensive model to predict user satisfaction and continuance intention in e- learning. Hopefully, the proposed model will fill the mentioned research gap.

1.2 Research objectives

There are two purposes of this thesis. They are:

First of all, this study goals to better identify the antecedents which

contribute to the formation of e-learners' satisfaction and decision to continue using e-learning system in educational section. In addition to the relationship between these factors will also be explored.

Secondly, we would like to propose a more comprehensive framework for predicting user satisfaction and continuance intention which covers all four dimensions of e-learning system applied in educational section. They are e-learners, e-learning system, instructors and university.

1.3 Research Flow

In this study, we focus on the e-learning systems applied in educational section. To collect the data for analysis, PORTAL Learning website of Nanhua University, Chiayi Country, ROC (NHU PORTAL) are used as target systems. In order to develop the quality of e- learning systems, since 2014, the university has launched one new version of NHU PORTAL. There are two parts: study file task and alerts to remind the students of assignments deadline and study file unread message, which inform the students about new messages from instructors and school. Teaching/ learning materials can be uploaded onto NHU PORTAL in the form of Power Points, The research methodology used mainly quantitative. Survey area in Nanhua University Taiwan. The respondents are the students have age around 18 to 30 year old and studying in Nanhua University .

They were surveyed via email and direct surveys. Data analysis and hypotheses testing are analyzed with following techniques:

1. Factor Analysis
2. Reliability Test
3. Partial least squares (PLS)

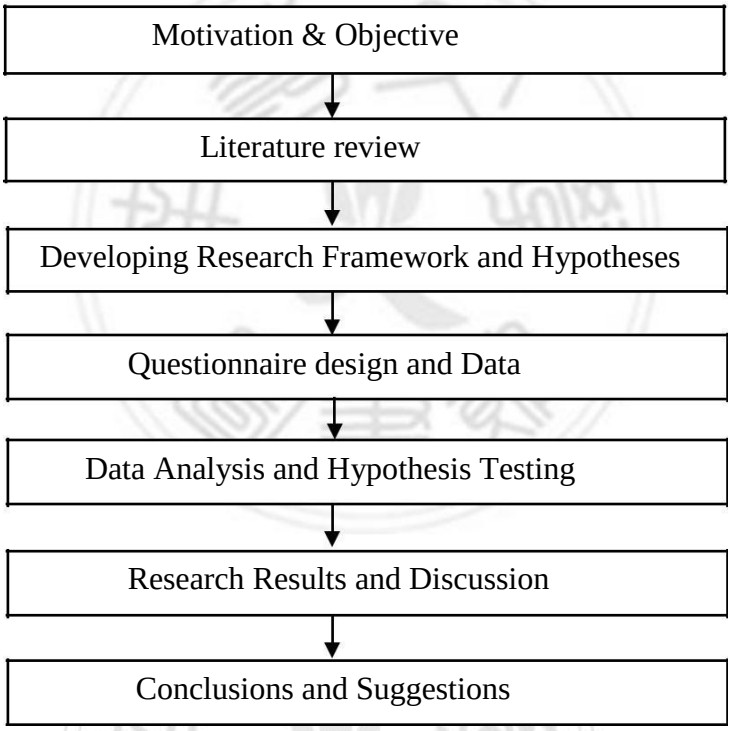

Figure 1.1 ***The flow chart for this research***

After analyzing data can give the conclusions and suggestions of this study. In addition to the table of contents, appendices and references, the subject consists of 5 chapters:

- Chapter one (Introduction): This is overview chapter on the research topic, introducing about research background, research objectives, research flow.
- Chapter two (Literature Review): This chapter will explain definition of based theories in this study and definition of each constructs
- Chapter three (Methodology): The content of this chapter is presenting research on the measurement methods and also discuss sampling plan, data collection procedures, and data analysis techniques.

- Chapter four (Result and Data analysis): Chapter four is show the statistical and descriptive results of this study. It is includes data collection, the basic characteristics of respondents, descriptive statistics of research items, and factor analysis, reliability test, SmartPLS result and result of moderators using PLS.
- Chapter five (Conclusion and Suggestion): Chapter five is presenting a summary of the significant findings and conclusions of this study.

CHAPTER TWO
LITERATURE REVIEW

In this chapter, we will discuss the relating literature, which includes: e-learning, underlying thesis and prior e-learning researches on user satisfaction and continuance intention.

2.1 E-learning

2.1.1 Definition

There are a wide range of meanings of e-learning. While a few writers expressly characterized e-learning, others indicated at a particular definition or perspective of e-learning in their article. In these definitions, e-learning is characterized in a wide range of routes, some through clashing perspectives of different definitions, and some equitable by just contrasting characterizing attributes and other existing terms (Moore, 2011). Specifically, Nichols (2013) characterized that e-learning as thoroughly being available by utilizing mechanical devices that are electronic, web-dispersed, or web-skilled. In any case, this definition were disagreeded by Ellis (2009). She trusted that e-learning not just covers content and instructional strategies conveyed by means of CD-ROM, the web or an intranet (Benson et al., 2002 Clark, 2012) yet additionally joins sound and video tape, satellite communicate and intuitive TV. Albeit innovative qualities were joined in the meaning of the term, Tavangarian, Leypold, Nolting, Roser, and Voigt (2008) and additionally Triacca et al. (2004) felt that it is lacking to utilize the innovation to portray e-learning. Tavangarina et al. (2004) incorporated the constructivist hypothetical model as a structure for their definition, which expressed that e-learning isn't just procedural yet in addition demonstrates some change of an

individual ordeal into the person's information through the information

2.1.2 The advantages of e-learning

E-learning refers to any kinds of the use of electronic devices for learning purpose, including the delivery of content via electronic media such as computer network, audio (or video tape), satellite broadcast, interactive TV, and so on (Shee & Wang, 2008). As learning has become more individualized, learner-centered, situated, partnership and ubiquitous; e-learning technology has become more personalized, user-centered, networked, ever-present and durable (Motiwalla, 2014). E-learning's characteristics fulfill the requirements for learning in a modern society and have created great demand for e-learning from business to institute of higher education (Sun et al., 2010). Bouhnik and Marcus (2016) state four advantages of e-learning:

- Learners have their own particular flexibility to choose when every lesson will be found out, students diminish learning time imperatives on speakers
- Learners have their own flexibility to express considerations and to make inquiries without confinement
- Learners have their own decisions of openness of courses' topics
- Learners have their own decisions of openness of courses' courses' associated materials.

  In addition, Capper (2009) additionally proposes five advantages to e-learning:

- Any time: the learning program is available whenever that is helpful..

- Any place: the members can get to the e-learning framework anyplace
- Asynchronous interaction: the association can be more concise and to-the-point, dialog can remain more on-track, since individuals can get an opportunity to make their reactions.
- Group cooperation: new shots are made for gatherings to cooperate by making shared electronic discussions.
- New instructive methodologies: all the more new choices and learning techniques turn out to be monetarily conceivable through online courses. They can furnish educators with one of a kind chances to impart developments in their own particular work to quick help of electronic gatherings and master workforce.

Moreover, Bouhnik et al. (2013), basing on the study with 33 college understudies who took an interest in separate course, expressed that e-learning has four favorable circumstances:

- Freedom to choose when each online lesson will be found out..
- Lack of reliance on the time requirements of the instructor..
- Freedom to express considerations, and make inquiries, without constraints
- The openness to the course's online materials at understudies' own decision

2.1.3 E-learning categories

Based on different delivery methods, e-learning can be divided into different typies. But the categories don’t necessarily stand alone and quite often they are linked to create a fuller, more comprehensive program delivery. Conklin (2011) categorized e-learning as following:

- Courses: this type of progression training generally utilizes a well ordered learning approach and is the most commonplace e-learning classification
- Casual learning: clients select their own sites, wikis or web search tools keeping in mind the end goal to grow, oversee and archive their insight. This is a flexible and dynamic category of learning that is often not recognized.
- Mixed taking in: a blend of classroom and web based learning – viable for broadening as well as fortifying face to face instruction.
- Groups: coordinates the social part of learning by making courses, for example, message sheets or online discussions for clients to remain current in their fields, issue unravel, offer arrangements or essentially discourse with peers.
- Knowledge management: involves capturing the knowledge that is generated in an organization and then making it available in an indexed, accessible format usually on the company intranet or secured website.
- Learning networks: refers to a loose grouping of communities, resources and people from companies within a profession or industry in order to enhance the dissemination of knowledge.
- Work-based e-learning: on-the-job training or integrated learning that's accessible at the moment it's needed.

2.2 Theoretial of Background

2.1.1 D&M model (DeLone & McLean, 1990 & 2002)

Delone and McLean (1992) played out an audit of IS connected research distributed amid the period 1981-1987, and made a scientific classification and intelligent model of IS achievement in light of this survey. This model incorporates six primary, information quality, use, user satisfaction, individual impacts and organizational impacts. Shortly after introduction, D&M model has received many intention of IS researchers. Ten years after the first version, this model has been cited by around 300 articles.

However, there were also modifications proposed to this model (Seddon & Kiew, 1996; Pitt et al., 1995; Seddonn, 1997; Jiang et al., 2002). Recognizing these debates, DeLone and McLean (2003) made some revisions to this model. The updated IS success model accepts service quality as construct. The variables of individual impact and organizational impact are replaced with net benefits because IS success can affect workgroups, industries and even societies (Myer et al., 1997; Seddon et al., 1999). The updated model also suggests that “Intention to use” can be a worthwhile alternative measure to “use” behavior in some contexts. In the new version, “use construct” is explained as followings: “use” must precede “user satisfaction” in a process sense, but positive experience with “use” will lead to greater “user satisfaction” in a causal sense. Increased user satisfaction will lead to a higher “use”.

The updated model has been widely used by IS researchers for understanding and measuring the dimensions of IS success.

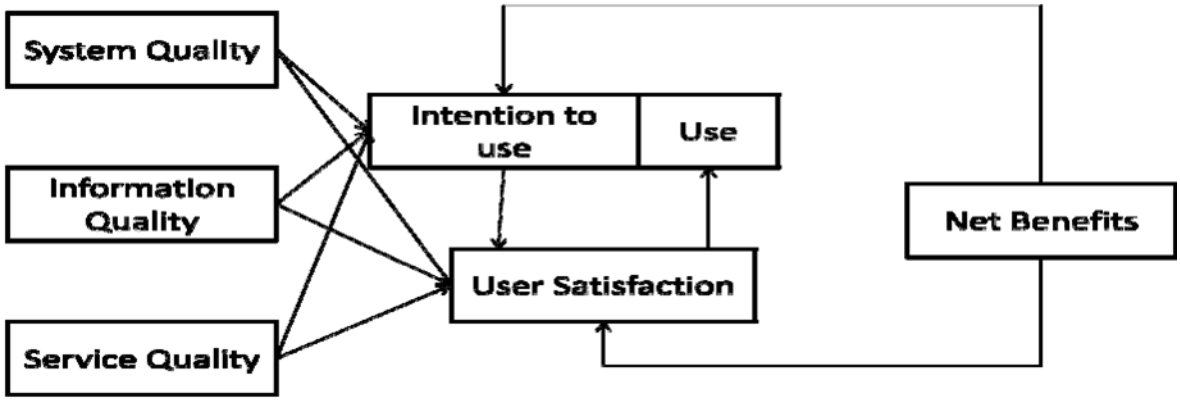

Figure 2.1 D&M Information Success Model (Delone & Mclean, 1992)

2.2.2 Technology Acceptance Model, TAM (Davis, 1989)

TAM model, Davis and his partners presented for the principal tine (Davis, 1989; Davis et al., 1989), means to clarify and foresee the client goal and acknowledgment conduct. This model is a hypothetical augmentation of Theory Reason Action (TRA, Fishbein and Ajzen, 1975) and Theory of Planned Behavior (TPB, Ajzen, 1991).

TRA is an outstanding hypothesis in social brain research field. Hypothesis proposes that individual's conduct is dictated by the person's aim to play out the conduct and thus, this aim is a component of his/her mentality toward the conduct and his/her subjective standard. TPB is the same to TRA. Be that as it may, this model proposes an extra develop, saw behavioral control. According to this model, behavioral goal is mutually dictated by demeanor and subjective standard, like TRA, yet with the expansion of saw behavioral control The original TAM (Davis, 1989) includes six constructs, which are external variables, perceived usefulness, perceived ease of use, attitude toward using, intention to use and actual use. In 1992, to enhance the explanation power of TAM model, “attitude” was dropped from TAM because it was found to be a weaken mediator.

(Davis et al., 1992; Szajna, 1996; Venkatesh & Davis, 2000). Since then, many constructs have been added to extend TAM such as computer self-efficacy (Compeau & Hggins, 2005), Internet Self- efficacy (Igbaria & Iivari, 1995; Eastein & LaRose, 2000; Joo et al., 2000; Hsu, Venkatesh & Davis, 20000; Battacherjee, 2000) or playfulness (Liu & Arnett, 2000; Moon & Kim, 2001; Hsu & Chiu, 2004). However, even in the original or modified version, perceived ease of use and perceived usefulness are posited to be primary drivers for technology acceptance, by which the impact of other external variables on behavioral intention is

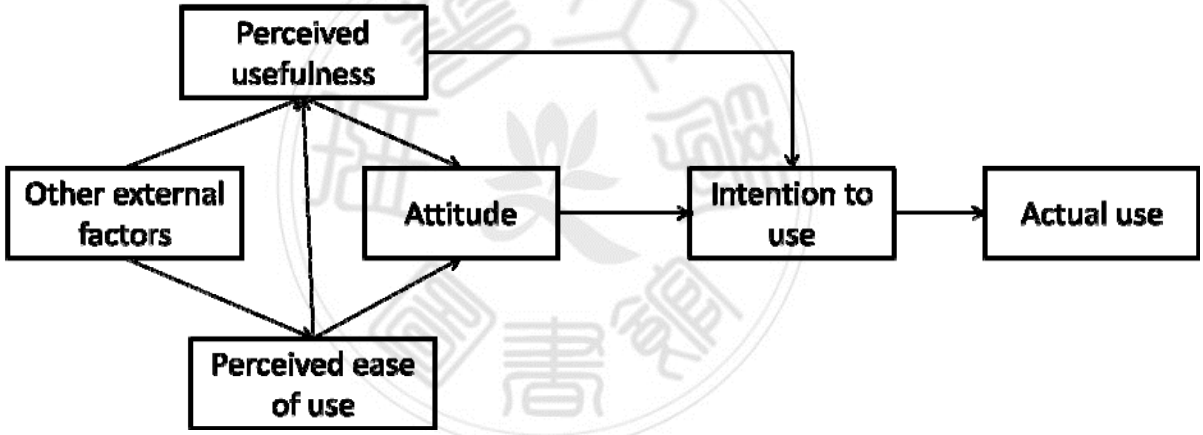

Figure 2.2 1 **Technology Acceptance Model (Davis et al., 1989)**

2.2.3 Information system continuance model (ISCM)

The ISCM was proposed by Bhattachejee (2001) based on the reasoning that the initial adoption of information systems by a user is not similar as the continued use of the extend TAM such as computer self-efficacy (Compeau & Hggins, 1995), Internet Self- efficacy (Igbaria & Iivari, 1995; Eastein & LaRose, 2000; Joo et al., 2000; Hsu, Venkatesh & Davis, 20000; Battacherjee,

2000) or playfulness (Liu & Arnett, 2000; Moon & Kim, 2001; Hsu & Chiu, 2004). However, even in the original or modified version, perceived ease of use and perceived usefulness are posited to be primary drivers for technology approval, by which the impact of other external variables on behavioral intention is fully mediated.

The ISCM was proposed by Bhattachejee (2001) based on the reasoning that theinitial adoption of information systems by a user is not the same as the continued use of the system, which is when the system can be considered successful (Kang & Lee, 2010). This model is based on the consumer's behavior theory of Expectancy - Confirmation (ECT) and the Technology Adoption Model (TAM).

ECT proposed that a consumer's repurchase intention is determined by his/her level in satisfaction with a product. Then, consumer satisfaction is determined by two major constructs, which are initial expectation about a product and the gap between those expectations and product performance. According to ECT, buyers develop expectations about a product first before their purchase. Their experience of the product later builds perception about its performance. This leads to the buyer either disconfirming or confirming the pre-purchase expectations by evaluating perceived performance against their pre purchase expectation. A buyers' expectations are confirmed when the product performs as expected, positively confirmed when it performs better than expected and disconfirmed when it performs worse than expected.

The model endeavors to explain the the users' intention to continue to use information system and is frequently alluded to as the "post reception"

show since it stretches out past the underlying acknowledgment organize. The succession of acknowledgment and proceeded with utilization of a framework by a client can be isolated into 5 arranges: (an) underlying desire preceding use, (b) acknowledgment and utilization of the systems (c) discernment improvement after use (d) evaluation of the first desire and the consequent satisfaction or dissatisfactio with the systems, and (e) shaping ofcontinuance intention to use the systems, on the off chance that they are satisfied with it. There are four constructs in ISCM model: Confirmation, perceived usefulness, satisfaction, IS continuance intention, among which perceived usefulness and satisfaction are indicated to be the most important predictors of actual continuance behaviors.

Figure 2.2 2 Information System Continuance Model (Bhatacherjee, 2000)

2.3 Definition of Contructs

2.3.1 Perceived support

In this research, Instructor support is defined such as the extent to which learners perceive that instructor is approachable, responds learners with response timely and motivate the learner to participate more in the activity on

e-learning system. University support is the extent to which the learners perceive that university/ education institution's culture, policies containing deployment in technology and facilities encourage and facilitate learners to use e-learning system. Tracing back to the first TAM model (Davis, 1989), external factors was interpreted to affect perceived ease of use and perceived usefulness while perceived support can also be considered as one of the external factors. Venkatesh et al. (2013) classified support as the facilitating conditions that affect intention. In the modified TAM model (Venkatesh et al., 2015) facilitating are believed to influence on intention to use through perceived ease of use and perceived usefulness

2.3.2 Perceived quality

In IS domain, perceived quality includes three dimensions: system quality, information quality, and service quality. System quality elaborates on the characteristics of system such as ease of use, flexibility and reliability, as well as system feature of instinct sophistication, flexibility and response time. Information system refers to the characteristics of the system outputs, which are management reports and web pages i.e.,relevance, precision, understandability, conciseness, completeness, currency, timeliness and usability. Service quality is defined as the quality characteristics of the service users receive from the systems. For example, responsiveness assurance, reliability visibility, empathy and etc. The measurement scale of SERVQUAL has been popularly used to measure IS service quality (DeLone & McLean, 2003; Petter et al., 2008).

2.3.3 Perceived usefulness and Perceived ease of use

Perceived usefulness is characterized as "how much a man trusts that utilizing a specific framework will upgrade his/her execution" and saw convenience is "how much a man trusts that utilizing a specific framework would be free of physical and mental endeavors" (Davis, 1989). At the point when specified above, saw handiness and saw usability are two imperative convictions in TAM.

2.3.4 Perceived of Value

The concept of perceived value is well established in the marketing literature, and has been used to examine variables that affect the future use of services and products as well as purchase decisions (Jamal & Sharifuddin, 2015). Perceived value offers a good theoretical background to assess an eco-travel package from a tourist's perspective (Pandža Bajs, 2015).

2.3.5 Cognitive Absorption

Based on flow theory (Csikszentmihalyi, 2010), cognitive absorption is conceptualized as a state of deep involvement with IT (Agarwal & Karahanna, 2008). Research recommends that cognitive absorption significantly affects trainees' behavioral intention to use the goal information system both directly and through its indirect effects by perceived usefulness and perceived ease of use (Agarwal & Karahanna, 2007; Saadé & Bahli, 2010; Scott & Walczak, 2009; Shang, Chen, & Shen, 2015).

2.3.6 Self Efficacy and Axiety

2.3.6.1 Self Efficacy

The self evaluation of competence in education is normally examined regarding apparent self-viability (Bandura, 2014), which alludes to how much an individual is certain that she can play out a specific undertaking or accomplish a particular point (Bandura, 2014). This certainty, or need hypothesis, has an effect on selection of exercises, level of endeavor consumed, and constancy of exertion. Truth be told, seen selfefficacy is the student's conviction that her/his execution can be enhanced through accomplishment related conduct. Self-viability alludes to "convictions in a single's capacities to compose and execute the strategy basic to create given accomplishments" (Bandura, 2014). Bandura (2006) additionally characterized self-viability as "generative ability in which psychological, social, and behavioral sub-aptitudes must be sorted out into coordinated approaches to fill a countless need" .

2.3.6.2 Anxiety

Perceived anxiety refers to an unpalatable passionate state or condition described by pressure, anxiety, and stress (Spielberger, Gorsuch, and Lushene, 2011). General sentiments of tension have been related with wide business related results, for example, stress and sentiments of work over-burden (Ganster and Schauebrock, 2009), and in addition convictions about one's capacity (Ghiselli, Campbell, and Zedeck, 1981). Computer anxiety is described as a full of feeling criticism, and has been characterized as a dread of utilizing PCs (Chua, Chen, and Wong,1999), particularly an enthusiastic dread of potential negative results, for example, harming the hardware or

seeming foolish. In this manner, the S.- S. Liaw, H.- M. Huang/Computers and Education 60 (2013) 14– 24 17 execution of members with a high level of PC nervousness may be poorer than those with next to zero computer anxiety.

2.3.7 Enjoyment and Subjective norms

2.3.7.1 Enjoyment

The conception of ENJOY is in agreement with intrinsical motivation (Ryan and Deci, 2000) and in the setting of data frameworks utilize it is characterized as "the degree to which the movement of utilizing a private framework is seen to be agreeable in its own right, beside any execution outcomes coming about because of framework client" (Park, Son, et al., 2012). It is vital when we clarifying e-learning reception. Abdullah and Ward (2016) likewise recognized past investigations that demonstrated that apparent ENJOY fundamentally impacts both PEOU and PU in e-learning. Different examinations additionally demonstrate that ENJOY rises understudies' goal to utilize e-learning (e.g. Cheng, 2012; Yang and Lin, 2011; Zare and Yazdanparast, 2013). As indicated by Abdullah and Ward (2016), eight out of eleven examinations (73%) found a noteworthy positive connection amongst ENJOY and PEOU in e-learning. Regarding the connection amongst ENJOY and PU, eight out of eight examinations (100%) demonstrated a critical and positive associate between the two develops. On the off chance that an understudy finds the utilization of an e-learning framework to be pleasant, he/she will probably have inspirational state of mind towards the usability and helpfulness of a framework (Al-Aulamie et al., 2012; Chen et al., 2013; Zare and Yazdanparast, 2013) and more noteworthy aim to utilize the framework

(Lee et al., 2005; Cheng, 2011, 2012). In all client sorts and e-learning settings, the normal impact of ENJOY on PEOU is 0.260. The normal impact of ENJOY on understudies' PEOU for e-learning framework is 0.341, which is a mean impact, as far as the rules that were proposed by Cohen (1992). Over all client sorts and e-learning

2.3.7.2 Subjective norms

As per Abdullah and Ward (2016), SN/SI has been utilized as a part of 32 considers, in 27 of which its association with TAM is affirmed. Fishbein and Ajzen (1975) alluded to SN as "a man's recognition that the vast majority who are critical to him figure he ought to or ought not play out the conduct being referred to." SN is characterized as "the degree to which an understudy sees weight from individuals from his or her condition to utilize e-learning frameworks" (Aguda-Peregrina,Hernandez-Garcia, and Pasc ual-Miguel, 2014) for the e-learning use setting. In a past report, SN and social impact were appeared to be the same and both are identified with the impact of social factors on innovation utilize (Venkatesh, Morris, Davis, and Davis, 2013). Venkatesh and Davis (2000) proposed the TAM2 display, which predicts that SN to has compelling on PU and aim to utilize innovation.

The consequences of their examination demonstrated that it is adversely identified with PU, yet that it decidedly and altogether impacts goal to utilize technology. Mathieson (1991) introduced that SN has no critical effect on goal, however Taylor and Todd (1995) found a huge encroach .

2.3.8 User Satisfaction and Continuance Intention

According to Udo et al. (2011), user satisfaction is an indication of the users belief in the potential of e-learning systems have a positive feeling. Basing on this definition, in this context, we define user satisfaction toward e-learning as the degree to which the customers believe that the potential of using the e-learning system leads to a positive feeling. And continuance intention is the user's intention to re-use the e-learning system in the future.

2.4 Hypothesis Development

2.4.1 Research Model Development

In this thesis, we argue that TAM proposes a model with "perceived usefulness and perceived ease of use" as mediators to explain how users accept a new information system. Nevertheless, it fails to mention how IS providers can maintain users' usage in the future. Whereas, D&M model indicates satisfaction and "use/ intention to use" are two important compute, for IS success. In this model, IS quality constructs are posited as the mere predictors. But according to many research findings, there are more external factors affecting success of information system (David, 1989; Wixom & Todd, 2005, Roca et al., 2006, Martinez –Torres et al., 2008; Cho et al., 2009; Wang & Wang, 2009; Saba, 2012). Meanwhile, D&M model inclusive initial use and continuous use are different. "Use" must precede "user satisfaction" and greater "satisfaction" will affect reversely, which leads to "increased use" (DeLone & McLean, 2003). Hence, it is erroneous for this model to measure "initial use" and "increase use" with similar construct "use/ intention to use". On the other hand, ISCM is grounded on the reason that

"initial adoption" of IS is different from "post adoption" and this model is more focused on "post adoption" behavior. It sets forward the hypotheses that satisfaction and perceived usefulness are two strongest predictors of IS continuance intention and perceived usefulness is one of the primary determinants of satisfaction. ISCM uses perceived usefulness as the post adoption expectation belief. But as per some researchers' arguments, users may form expectations about various dimensions such as system quality, support quality, consequence demonstrability (Hong et al., 2006; Islam)

With above arguments, we integrate TAM, D&M model and ISCM to develop a new model for predicting user satisfaction and continuance using intention in e-learning. Besides, considering e-learning in this study, we put two additional sets of constructs: attitudes (self-efficacy and anxiety) and perceived support (instructor support and university support) in the new model. Liaw et al. (2010) indicates that understanding and identifying learners' attitude is very important to design effective e-learning environments. Support from instructor and university are demonstrated to be the important motivations for learners to use e- learning system. (Peltier et al., 2013; Eom et al., 2016; Selim, 2012; Masrom, 2012). But limited research has investigated the impact of these factors for e-learning context. For this reason, we integrate four dimensions of e-learning system, learners, instructors and university in this research model. Hence, there are eight constructs in our framework including perceived quality, perceived support, perceived usefulness, perceived ease of use, self-efficacy, anxiety, satisfaction and continuance intention.

In the followings we will describe the constructs and propose our hypotheses.

2.4.2 Perceived Support on Perceived usefulness and Perceived Ease of Use

In this study, perceived support is explored systematically. This construct is measured with two dimensions which are instructor support and university support

In this research, Instructor support is defined as the degree to which students see that teacher is receptive, reacts students with reaction opportune and propel the student to take an interest more in the action on e-learning framework. College bolster is the degree to which the students see that college/instruction establishment's way of life, strategies incorporating organization in innovation and offices urge and encourage students to utilize e-learning framework. Following back to the principal TAM display (Davis, 1989), outside variables was considered to influence apparent erceived ease of use and perceived usefulness while perceived support can likewise be viewed as one of the outer components. Venkatesh et al. (2013) grouped support as the encouraging conditions that influence goal. In the changed TAM show (Venkatesh et al., 2015) encouraging are accepted to impact on goal to use through apparent perceived ease of use and perceived usefulness. Therefore, the hypotheses are:

H1a: Perceived support has positive influence on perceived usefulness

H1b: Perceived support has positive influences on perceived ease of use

2.4.3 Perceived of quality on Perceived usefulness and Perceived Ease of Use

These three dimensions are indicated to have different impact on IS

system. According to DeLone & McLean (2002), information quality and system quality can be the most important components to measure the success of a single system while service quality can be a more important variable for measuring overall success of IS department. DeLone and McLean (1992) also found that system quality and information quality have a direct influence on Perceived of Usefulness and Perceived Ease of use for e-learning context, this result has been empirically confirmed by many researches (Liaw, 2008; Roca et al., 2013; Wang & Chiu, 2015)

H2a : Perceived quality has positive influence on perceived usefulness

H2b : Perceived quality has positive influence on perceived ease of use

2.4.4 Perceived usefulness on Perceived of value

Zeithaml (1988) characterizes PV as "a general evaluation of the utility of an item (or service) in view of impression of what is gotten and what is given" (p. 14). In any case, perceived value is subjective and experiential in nature (Holbrook, 2015) and shoppers may utilize items to look for different sorts of significant worth, including utilitarian, enthusiastic and social esteem (Sheth, Newman, and Gross, 1991). Product labels provide a scope of advantages to customers, adding to impression of significant worth and handiness. For instance, buyers connect high hedonic incentive to an item named "organic" (Tagbat and Sirieix, 2010), as they expect that it tastes superior to its non-natural partner (McEachern and McClean, 2002), that it is better for the human body, that it is better for the Earth, and even that it is a more good determination.

H3a: Perceived usefulness has positive influence on Perceived of Value

2.4.5 Perceived usefulness on Cognitive Absorption

Prior research has studied the impact of perceived usefulness on cognitive absorption. In the World Wide Web context, Agarwal and Karahanna (2009) found that perceived usefulness had a significant effect on cognitive absorption. Saade´ and Bahli (2012) applied TAM, including cognitive absorption, in an empirical study to explain the acceptance of Internet-based learning systems. suggested that perceived usefulness was a stronger predictor of cognitive absorption.. In an investigation of determinants of studying in e-learning, Shang et al. (2012) additionally found a positive connection between these constructs.. These discoveries demonstrate that users view of the many-sided quality and the usefulness of the e-learning system are inuenced by how much they feel included and have a feeling of enjoyment

H3b : Perceived usefulness has positive influence on Cognitive Absorption

2.4.6 Perceived ease of use on Perceived of value

Perceived value incline towards users judgments, which in progression relies upon results, for example, pre-buy data, incidental judgments, and snapshot of procurement (Jamal and Sharifuddin, 2015). Zeithaml (1988, p. 14) characterized apparent incentive as 'the user's general assessment of the utility of an item in light of view of what is gotten and what is given'.

H4a : : Perceived Ease of Use has positive influence on Perceived of Value

2.4.7 Perceived ease of use on Cognitive Absorption

Control and interest were dropped from the five CA measurements due

to the ILS's plan and the setup of the investigation. Understudies were made a request to play out a particular errand which was short and basic. They were guided by the ILS and were given just two decisions, to proceed to finish the assignment or stop the session. This ILS direction evacuated understudy control. Interest was likewise truant since the understudies' on-line exercises were extremely restricted and investigation was unrealistic. The abnormal state of system guidance and repetitiveness also removed the element of interested

H4b: Perceived Ease of Use has positive influence on Cognitive Absorption

2.4.8 Perceived of value on Cognitive Absorption

The Internet allows educators to provide learners with new and innovative virtual environments in an attempt to stimulate and enhance their learning process .Besides, Internet or web technologies are important because they support management of information, facilitate/enhance communications among trainees and learners and provide tools to encourage creativity and initiative. Zeithaml (1988) defines PV as “an overall assessment of the utility of a service based on perceptions of what is received and what is given” (p. 14). However, perceived value is subjective and experiential in nature (Holbrook, 2005) and users use sytems to seek various types of value, including functional, emotional and Cognitive Absorption (Sheth, Newman, & Gross, 1991)

H5 : Perceived of value has positive influences on Cognitive Absorption

2.4.9 Perceived of value on Continuance Intention

People prefer a heighten value in their decision-making processes (Gupta & Kim, 2010). Many studies have confirmed the positive influences of perceived values on behavioral intention and actual behavior (Al-Debei et al., 2013; Sweeney, Soutar, & Johnson, 1997). We propose that specified types of perceived value can influence continuance intention.

H6a: Perceived of value has positive influence on Continuance Intention

2.4.10 Perceived of value on Satisfaction

Bojanic (2006) recommended that large amounts of perceived value result in purchase and ultimately higher levels of satisfaction. Spreng, Dixon, Olshavsky (2007) argued that value should be a direct antecedent of satisfaction. and Spreng (2013) observationally analyzed the relationships between perceived value, satisfaction,

H6b : Perceived of value has positive influences on Satisfaction

2.4.11 Cognitive Absorption on Satisfaction and Continuance Intention

They proposed that user satisfaction might be an outcome of the energetic conduct, and that more-fulfilled clients will tend to users will tend to continue e-learning system collaborations. Lin et al. (2009), or the investigation of continued use of a website, reported a direct relationship between perceived gladness and satisfaction. We contend that bringing cognitive absorption into EDT can improve our understanding of users'e-learning continuance intention.

H7a: Cognitive Absorption has positive influences on Satisfaction

H7b: Cognitive Absorption has positive influences on Continuance Intention

2.4.12 Self-efficacy on Perceived Usefulness and Pervceived of value

The impact of self-efficacy on perceived usefulness is proved in some previous e -learning researches (Ong et al., 2004; Ong et al., 2006). British Muslims should experience psychological and emotional benefits from signaling their consumption of halal-labeled products. Self-expression, as a psychological purpose, may induce British Muslims' IB and IP.

H8a: Self-efficacy has positive influence on perceived usefulness

H8b: Self-efficacy has positive influence on perceived of value

2.4.13 Axiety on Perceived Ease of Use and Cognitive Absorption

The more anxious users feel about using e-learning system, the more they will perceive e-learning system is hard to use. As defined above, perceived ease of use refers to the degree to which users believe that using e-learning would be free from physical and mental attempts. Consequently, anxiety will have negative effect on perceived ease of use. The equilibrium between the challenge of a task and the skills required to execute this task is commonly seen as a key antecedent to the emergence of a flow state (Csikszentmihalyi, 1990). When the level of difficulty under a specific task matches the skills, the individual is then able to perceive being in control of the task at hand, and can dedicate all their attention to its realization. The task must present sufficient challenges so that the resources of the individual are fully dedicated to its comprehension.

In contrast, when the difficulty outmatches of the skill, the individual is likely to be too anxious to achieve a flow state. Similarly, if the difficulty is too low for the given skill, the individual is likely to be bored and reduce motivation.

H9a : User Anxiety has direct negative influence on perceived ease of use

H9b : User Anxiety has direct negative influence on cognitive absorption

2.4.14 Enjoyment on Continuance Intention

Perceived enjoyment is defined as "the degree to which the action of utilizing a particular framework is seen to be pleasant in it's own particular right, beside any execution outcomes from framework utilize" (Venkatesh, 2011). Perceived enjoyment as a characteristic inspiration has been found to get a critical effect on an innovation acknowledgment, particularly for chedonic systems (Davis et al., 2002; Koufaris, 2012). When using a technology can bring them fun and delight, users will be characteristically spurred to receive it. As noted above, e-learning regularly has numerous stimulation intuitive capacities and users can frequently acquire incredible satisfaction when they utilize such systems. We would thus be able to expect that perceived enjoyment will enhance their full of feeling demeanor toward e-learning and increment their acknowledgment goal. In this manner, we recommend that:

H10 : Enjoyment has a positive effect on continuance intention to use e-learning

2.4.15 Subjective norms on Continuance Intention

Subjective norm refers to ‘‘the perceived social pressure to perform or not to perform the behavior”(Ajzen,2011).In another way, subjective norm is related to the normative beliefs about the expectation from other people. Many Internet users choose to use e-learning beause their friends are the users of e-learning system, and they recommend it to them. Hence, we propose that:

H11 : Subjective norms has a positive effect on Continuance intention to use e-learning

2.4.16 User Satisfaction on Continuance intention

Intention is the user’s intention to reuse the e-learning system in the future.

In IS field, user satisfaction is often linked to two important IS models: D&M IS success model (DeLone and McLean, 1989) and ISCM (Bhattachjee, 2001). DeLone & McLean (2003) implied that user satisfaction is an important measure of IS success and also the easiest and the most useful way to estimate IS success while ISCM model view it as the most important predictors of IS continuance intention (Bhattachjee, 2001). The effect of user satisfaction on continuance to use is likewise affirmed by other research discoveries. Bokhari (2005) played out a meta-investigation and experimentally embraced the relationship amongst satisfaction and continuance intention. In these regards, user satisfaction is a predominant factor that intention to continue using technology. Alongside this discovering, Cho et al. (2009) found that ser satisfaction has higher effect thanperceived usefulness on continuance intention. Particularly, in e-learning

circumstances, this causal link between these two constructs has been empirically supported (Hayashi et al., 2004; Chiu et al., 2005; Lin et al., 2005; Roca et al., 2006; Lee, 2010; Lin et al., 2011; Limayem and Cheung, 2011). Thus, we hypothesize:

H12: User satisfaction has positive influence on continuance intention.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Research framework

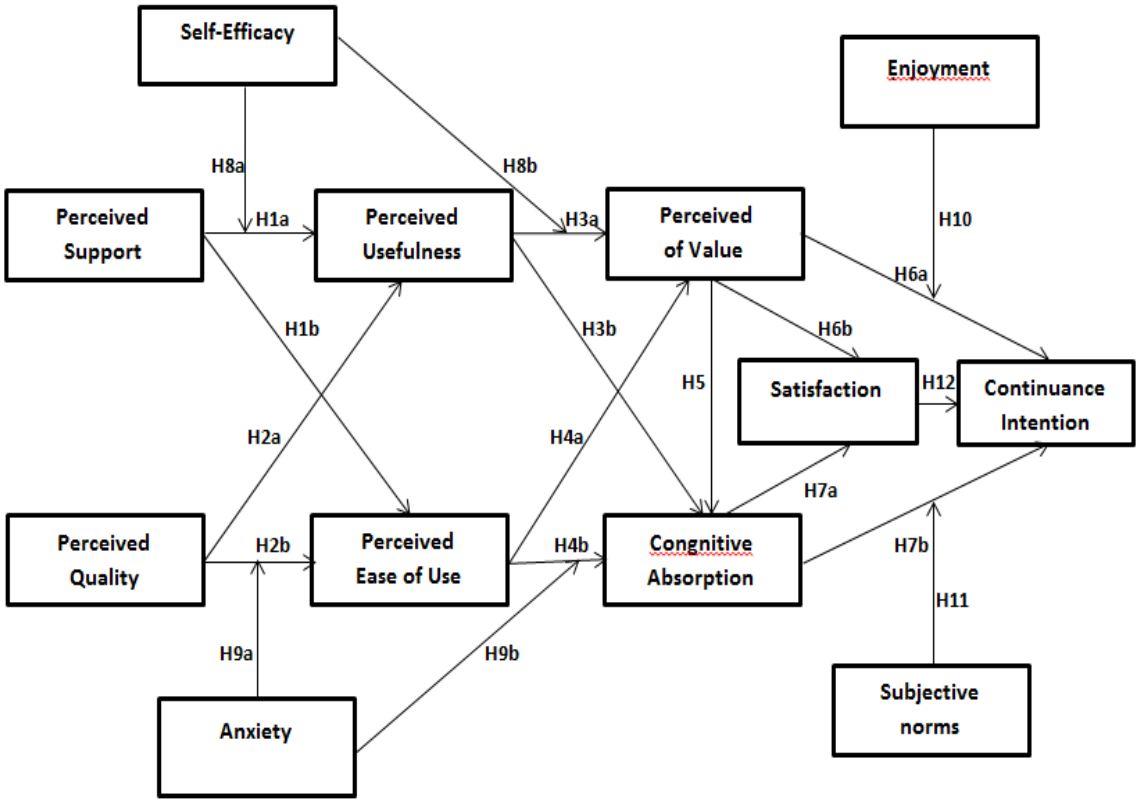

Figure 3.1 Research Framework

3.2 Research Hypotheses

Based on the hypotheses we proposed in previous chapter, our research is proposed as followings:

H1a: Perceived support has positive influence on perceived usefulness

H1b: Perceived support has positive influences on perceived ease of use

H2a : Perceived quality has positive influence on perceived usefulness

H2b : Perceived quality has positive influence on perceived ease of use

H3a : Perceived usefulness has positive influences on Perceived of Value

H3b : Perceived usefulness has positive influence on Cognitive Absorption

H4a : Perceived Ease of Use has positive influence on Perceived of Value

H4b: Perceived Ease of Use has positive influence on Cognitive Absorption

H5 : Perceived of Value has positive influences on Cognitive Absorption

H6a : Perceived of Value has a positive effect on continuance intention e-learning systems

H6b : Perceived of Value has a positive effect on satisfation e-learning systems

H7a : Cognitive Absorption has a positive effect on satisfaction e-learning systems

H7b : Cognitive Absorption has a positive effect on continuance intention e-learning systems

H8a : Self-Efficacy has positive effect on perceived usefulness

H8b : Self-Efficacy has positive effect on perceived of Value

H9a : User Anxiety has direct negative influence on perceived ease of use

H9b : User Anxiety has direct negative influence on cognitive absorption

H10 : Enjoyment has a positive effect on continuance intention to use e-

learning

H11 : Subjective norms has a positive effect on Continuance intention to use e-learning

H12: User Satisfaction has positive influence on continuance intention to use e-learning systems

3.3 Research design

This study uses quantitative research method. Quantitative research is to ask people to give their opinion in a structured way. The study will be conducted according to the following steps:

(1) Questionnaire design

(2) Preliminary research

(3) Formal research

3.3.1 Questionnaire design

(1) Strongly disagree

(2) Disagree

(3) Neutral

(4) Agree

(5) Strongly Agree

3.3.2 Preliminary research

Preliminary studies have proceeded in Nanhua University from five departments. The draft questionnaire was composed following the format of the services survey form created by Google Documents. Then, this questionnaire was shared via email to 100 and servey at school 190 peoples.

The result was obtained 280/290 reponses after about 4 weeks. The 280 samples will be used to assess preliminary the scale and research concepts before proceeding with formal study.

For a pretest assessment of the scale draft, 50 samples will be analyzed with SPSS 20 to considering reliability coefficient Cronbach's alpha and analysis discovered

The draft scale was assessed reliability through Cronbach's alpha coefficient. In addition, by observing column "the correlation coefficient variables - total" (Corrected Item-Total Correlation) of table "the Statistics table variables-total" (Item-Total Statistics), the bad variable will be removed if the variable correlation coefficient variations-total < 0.3 (Nunnally & Bernstein 1994). Scale is considered good if Cronbach's alpha is 0.7-0.8. In this research, measurement items with factor loadings greater than 0.6 were selected as members for a specific

3.3.3 Formal research

Formal Research is done by quantitative methods through questionnaire surveys with the measurement scales after considering the type of unsatisfactory variations.

The population in this study is student who study in Nanhua University that have experience about e-learning. People were chosen as respondents in order to decrease the confounding effect because of different population characteristics and also it is easier to collect the data. But, this study can't be generalized, experimental research is not intended to generalize the results of the study in a group that representing the people, but to know how the results of research in specific groups that represent homogeneous characteristics

(Malhotra, 2007). Nevertheless, Calder, Phillips, and Tybout (1981) argued that rigorous test of theory could be provided by any respondent group when the research goal is theory application.

Regarding sample size, research uses methods: Factorloading, Reliability test , SmartPLS so the sample size must ensure fit to use the above method. SmartPLS is useful for structural equation modeling in applied research projects especially when there are limited participants and that the data distribution is skewed, e.g., surveying female senior executive or multinational

This research intends to collect 280 samples. In order to exclude case the answer unsatisfactory and ensure minimum sample size of 50 , the questionnaire was prepared as 280 Data collection methods include:

(1) Survey via email with the questionnaire drafted following the format of the services survey form created by Google

(2) Survey directly with respondents study in Nanhua University

After 4 weeks, data was collected with 280 valid responses. The sample size of more than 200 elements are said to be suitable (Comrey & Lee, 1992) and can be applied to multivariate study in this case. Process research is summarized by Figure. 3.1

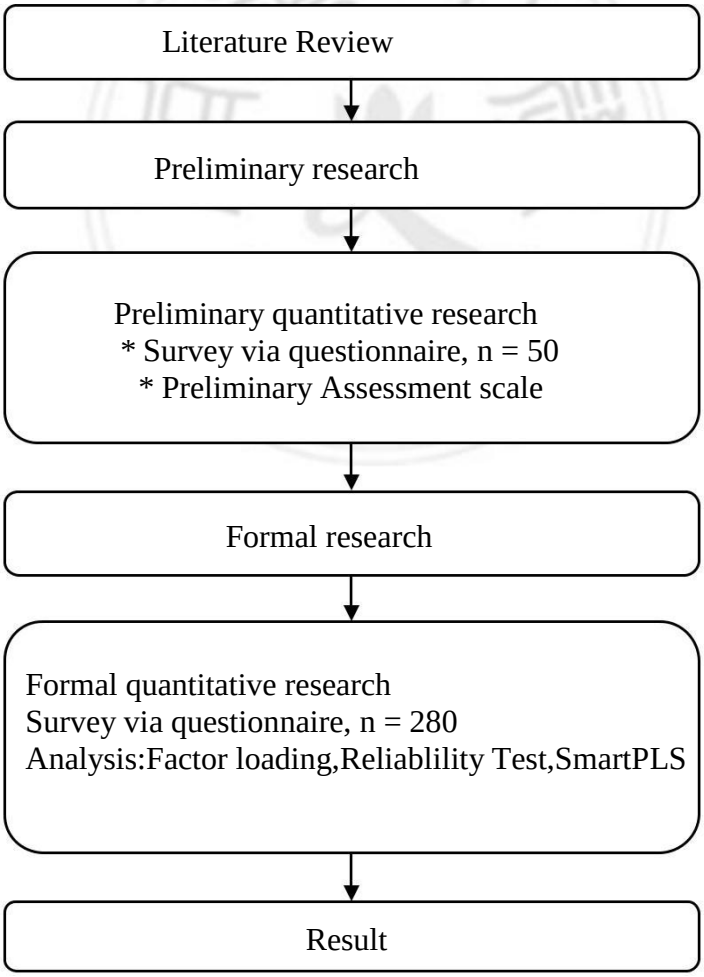

Figure 3.2 The process research

3.4 Research Instruments

This study identified 8 research constructs and 4 Moderators evaluated the inter-relationship among constructs. These constructs are Perceived Support, Perceived Quality, Perceived Ease of Use, Perceived Usefulness, Perceived of Value, Cognitive Absorption, Satisfaction, Continuance Intention, Self-Efficacy, Anxiety, Enjoyment, Subjective norms.

For each construct, the operational conceptions and measurement items were also identified. The detailed questionnaire items are shown in Appendix.

3.4.1 Perceived Support

The study identified Perceived Support toward continuance intention using e-learning systems.This factor is measured with 10 items modified from Udo et al., 2011 Al-Busaidi, 2008 Selim, 2007 Sample items measuring Perceived Support responds learners with response timely and motivate the learner to participate more in the activity on e-learning systems.

Udo et al., 2011 Al-Busaidi, 2008 Selim, 2007

[PS1] I received the comments on assignments or examinations for this course on a timely manner
[PS2] The instructor encourages and motivates me to use e-learning
[PS3] The instructor is active in teaching me the course subject via e-learning
[PS4] The instructor explains how to use the e- learning components
[PS5] My university highlights the importance of e-learning system on my curriculum
[PS6] My university strongly supports the use of e-learning system
[PS7] I can get technical support from the technicians when I have trouble

with e- learning system
[PS8] There are enough computers for me to use e-learning system
[PS9] E-learning system seems to give me information on how I should behave
[PS10] E-learnings system helped me understand the situation clearly andeasily while I was at home

3.4.2 Perceived quality

The study identified Perceived Quality toward continuance intention using e-learning systems.This factor is measured with 10 items modified Martinez-Torres et al., 200 Gable et al., 2008 Roca et al., 2006 Gable et al., 2008 Wang & Wang, 2009 Sample items measuring: perceived quality includes three dimensions: system quality, information quality, and service quality

Martinez-Torres et al., 200 Gable et al., 2008 Roca et al., 2006 Gable et al., 2008 Wang & Wang, 2009

[PQ1] E-learning system is always up and learning as necessary
[PQ2] E-learning system feedback quickly
[PQ3] E-learning system includes necessary features and functions to assist learning
[PQ4] E-learning system's materials is organized in a logical way
[PQ5] E-learning system provides with the information I need in time
[PQ6] E-learning system provides me with sufficient information for my job
[PQ7] E-learning system provides me with readable, clear and well formatted information
[PQ8] The reliability of output information from e-learning system is high
[PQ9] E-learning system has appropriate operating hours
[PQ10] E-learning system provides the right solutions to my request

3.4.3 Perceived usefulness

The study identified Perceived usefulness toward continuance intention using e-learning systems.This factor is measured with 5 items modified Perceived usefulness Roca et al., 2006 Martinez Torres et al., 2008 Sun et al., 2008 Sample items measuring: how much a man trusts that utilizing a specific framework will upgrade his/her execution" and saw convenience is "how much a man trusts that utilizing a specific systems.

Perceived usefulness Roca et al., 2006 Martinez Torres et al., 2008 Sun et al., 2008

[PU1] E-learning helps to save time
[PU2] E-learning helps to save cost
[PU3] E-learning helps me to be self reliable
[PU4] E-learning helps to improve my knowledge
[PU5] E-learning helps to improve my performance

3.4.4 Perceived ease of use

The study identified Perceived ease of use toward continuance intention using e-learning systems.This factor is measured with 5 items modified Perceived ease of use Roca et al., 2006 Sun et al., 2008 Sample items measuring: Learning to operatethe e-learning system is easy for me, I find the e-learning system easy to use.

Perceived ease of use Roca et al., 2006 Sun et al., 2008

[PEOU1] E-learning is easy to use
[PEOU2] E-learning is easy to learn

[PEOU3] E-learning is easy to access
[PEOU4] E-learning is easy to understand
[PEOU5] E-learning is convenient

3.4.5 Perceived of Value

The study identified Perceived of Value toward continuance intention using e-learning systems.This factor is measured with 5 items modified Perceived of Value Jamal & Sharifuddin, 2015 Pandža Bajs, 2015 Sample items measuring: to examine variables that affect the future use of services and products as well as purchase decisions.

Jamal & Sharifuddin, 2015 Pandža Bajs, 2015

[POV1] Using the e-learning service would give me a sense of accomplishment
[POV2] Using the e-learning service would give me a sense of self fulfillment
[POV3] Using the e--learning service would give me a sense of following the trend
[POV4] Using the e-learning service would give me a sense of intelligence
[POV5] Using the e-learning service would give me a sense of independence

3.4.6 Cognitive Absorption

The study identified Cognitive Absorption toward continuance intention using e-learning systems.This factor is measured with 5 items modified Cognitive Absorption fromCsikszentmihalyi, 2010 Agarwal & Karahanna, 2008 Agarwal & Karahanna, 2007; Saadé & Bahli, 2010; Scott & Walczak, 2009; Shang, Chen, & Shen, 2015 Sample items measuring: significantly affects trainees' behavioral intention to use the goal information system both directly

Csikszentmihalyi, 2010 Agarwal & Karahanna, 2008 Agarwal & Karahanna, 2007; Saadé & Bahli, 2010; Scott & Walczak, 2009; Shang, Chen, & Shen, 2015

[COA1] Time flies when I am using the e-learning system
[COA2] Most times when I get on to the e-learning system, I end up spending more time than I had planned
[COA3] When I am using the e-learning system I am able to block out most other distractions
[COA4] While using the e-learning system, I am absorbed in what I am doing
[COA5] I have fun interacting with the e-learning system

3.4.7 Self-Efficacy

The study identified Self-Efficacy toward continuance intention using e-learning systems.This factor is measured with 5 items modified Self-Efficacy from Roca et al., 2006 Wang & Wang, 2009 Sample items measuring: How much an individual is certain that she can play out a specific undertaking or accomplish a particular point (Bandura, 2014). .

Roca et al., 2006 Wang & Wang, 2009

[SE1] I feel confident using e-leaning systems
[SE2] I feel confident operating e-learning functions
[SE3] I feel confident using online learning contents
[SE4] I feel confident uploading home works and downloading learning contents
[SE5] I am confident of using the e-learning even if I have never used such a system before

3.4.8 Anxiety

The study identified Anxiety toward continuance intention using e-learning systems.This factor is measured with 5 items modified Anxiety from Sun et al., 2008 Roca et al., 2006 Sample items measuring: unpalatable passionate state or condition described by pressure, anxiety, and stress.

Sun et al., 2008 Roca et al., 2006

[AXIE1] I am anxious about having to use the new system soon
[AXIE2] I question why I need to use the new system in the future
[AXIE3] I am apprehensive about having to use the new system
[AXIE4] I am afraid of using the new system incorrectly
[AXIE5] Using e-learning let me feel nervous

3.4.9 Enjoyment

The study identified Enjoyment toward continuance intention using e-learning systems.This factor is measured with 3 items modified Enjoyment from Abdullah et al., 2016 Sample items measuring: Different examinations additionally demonstrate that ENJOY rises understudies' goal to utilize e-learning

Abdullah et al., 2016

[EJ1] I find using e-learning enjoyable
[EJ2] The actual process of using the e-learning is pleasant
[EJ3] I have fun using the e-learning

3.4.10 Subjective Norms

The study identified Subjective Norms toward continuance intention using e-learning systems.This factor is measured with 3 items modified Subjective Norms from Abdullah et al., 2016 Sample items measuring: as "a man's recognition that the vast majority who are critical to him figure he ought to or ought not play out the conduct being referred to." SN is characterized as "the degree to which an understudy sees weight from individuals from his or her condition to utilize e-learning systems.

Abdullah et al., 2016

[SN1] People who influence my behavior would think that I should use the e-learning
[SN2] People who are important to me would think that I should use e-learning

3.4.11 Satisfaction

The study identified Satisfation toward continuance intention using e-learning systems.This factor is measured with 5 items modified Satisfation from Roca et al., 2006 Sun et al., 2008 Sample items measuring: user satisfaction is an indication of the customer’s belief in the potential of a service control to a positive feeling . Satisfaction has been found to have a significant positive effect on actual use as well. Hassanzadeh et al. (2012) in their study uncovered the positive effect of satisfaction on actual use of e-learning systems.

Roca et al., 2006 Sun et al., 2008

[SAT1] I am satisfied with using e-learning as a learning assisted tool
[SAT2] I am satisfied with using e-learning functions
[SAT3] I am satisfied with learning contents
[SAT4] I am satisfied with multimedia instruction
[SAT5] I am satisfied with interactive e-learning functions

3.4.12 Continuance Intention

The study identified Continuance Intention This factor is measured with 5 items modified Continuance Intention Roca et al., 2016 Pitung and Lee., 2016 Sample items measuring: the user's intention to re-use the e-learning system in the future.

Roca et al., 2016 Pitung and Lee., 2016

[CI1] Assuming I had access to the e-learning, I intend to use it
[CI2] Given that I had access to the e-learning, I predict that I would use it
[CI3] I will keep using e-learning as regularly as I do now
[CI4] My intention is to continue using e learning than use any alternative meanns
[CI5] I plan to use the elearning in the future

3.5 Data Analysis Procedure

3.5.1 Descriptive Statistic Analysis

Factor Analysis and Reliability Tests

This study connected the chief segment factor analysis to recognize dimensionality and gather the data into specific components. After factor analysis was done, item-to-total correlation and internal consistency analysis (Cronbach's alpha) was utilized to affirm the ureliability of each research factors. Factor analysis can be utilized to investigate basic difference structure of correlation coefficients..

Item to total correlation and coefficient alpha were also assessed to identify the internal consistency and reliability of the constructs. Item to total correlation measures the correlation of each item to the sum of the remaining items. This approach assumes that the total score is valid and thus the extent to which the item correlates with the total score is indicative of convergent validity for the item.

The method of extracting coefficients to use is the principal components with the varimax perpendicular rotation and the pause when extracting the elements with an eigenvalue value equal 1. The scale is accepted factor loading more 0.6, is highly satisfactory for most of research purposes (Hair et al., 2006) and if α slower than 0.3, then it implies that there is low reliability

3.5.2 Reliability of the Measurement Variables

There are several criteria which must be followed in factor analysis and reliability test such as:

(1) KMO > 0.5 and Barlett p < 0.05

(2) Communality > 0.5

(3) Explained Variance (Accumulative) > 0.6

(4) Eigen Value > 1

(5) Difference Between Loading > 0.3

(6) Factor Loading > 0.6

(7) Cronbach's α > 0.7

(8) Item to Total Correlation > 0.5

3.5.3 Partial least squares (PLS)

In this research the Partial Least Squares path modeling algorithm was adopted for measurement model and the structural model. PLS is less restrictive in regard to its normal distibution assumption, sample size restriction according to Karin (2009) and multicollinearity situation than other options

R^2 >0.5

AVE >0.5

Conbrach's alpha>0.7

CR >0.6

CHAPTER FOUR
DATA ANALYSIS AND RESULTS

4.1 Descriptive analysis

4.1.1 Characteristics of Respondents

To collect the data for this research, a survey was conducted for four weeks with paper questionnaires. 290 questionnaires in total were distributed to Nanhua University undergraduate and graduate students. 280 responses were received (excluding 42 invalid and 20 incomplete responses). Thus, the valid response rate is 96.5%. The socio- demographic data for the sample is described as followings: 52.85% male to 47.14% female, mainly below the age of 25 (85.35%). Among them, 28.5% are students of College of Management; 18.5% from College of Technology, 15.0% from College of Humanities; 13.5% from College of Social science and 17.1% from College of art. The sample rates by college is correspondent to the ones mentioned in table 3.1, which show good representation. Besides, most of them spend from 20 to 30 hours per week on using internet (41.7%) and 74.28% use desk computer or laptop to log in NHU PORTAL. Table 4.1 presents the demographic description of the sample.

Table 1 Description of the sample

Variable	Categories	Frequency	Percentage rates (
Gender	Male	148	52.85%
	Female	132	47.14%

Duration of weekly internet use	No	%
Less than 20 hours 108	108	38.5%
From 20 to 30 hours	117	41.7%
More than 30 hours	55	19.6%
Age		
less than 25 years old	239	85.35%
From 25 – 39 years old	41	14.65 %
Device used in log in NHU PORTAL		
Desk computer/ lapop	218	74.28%
Smart phone	62	21.78%

Variable	Categories	Frequency	Percentage rates (%
College of Management		80	28.5%
College of Humanities		42	15.0%
College of Social science		38	13.5%
College of Art		48	17.1%
College of Technology		52	18.5%

4.1.2 Measurement Results of Relevant Variables

This section shows the descriptive statistics by questionnaire items for sample respondents. There are 10 items of Perceived Support and 10 items of Perceived Quality, 5 items of Perceived usefulness, 5 items of Perceived Ease of use, 5 items of Perceived of Value, 5 items of Cognitive Absorption, 5 items of Self-Efficacy,5 items of Anxiety, 3 items of Enjoyment, 2 items of Subjective Norms, 5 items of Satisfaction, 5 items of Continuance Intention.

As shown in Table 2 Perceived Support the sample cases show a range from 3.842 to 4.215 in the 5 -point Likert scales

Perceived Support		**Mean**	**Std. Dev**
Instructor support			
PS1	I received thecomments on assignmentsf for examinations for this course on a timely manner	3.380	0.835
PS2	The instructor encourages and motivates me to use e-learning	3.79	1.140
PS3	The instructor is active in teaching me the course subject via e-learning	3.520	0.890
PS4	The instructor explains how to use the e- learning components	3.80	1.165
University support			
PS5	My university highlights the importance of e-learning system on my curriculum.	3.670	0.862
PQ6	E-learning system provides me with sufficient information for my job	3.49	0.862
PS7	I often persuade my contacts on social networks to buy products that I like	3.380	0.835
PS8	On social networks, I often influence my contacts' opinions about products	3.520	0.890
PS9	On social networks, I often influence	3.600	0.929

	my contacts' opinions about products		
PS10	My friends tend to ask my advice about products on social networks	3.670	0.862

As shown in Table 3 for Perceived Quality the sample cases show a range from 3.39 to 4.03in the 5-point Likert scales.

Perceived Quality		**Mean**	**Std. Dev**
System Quality			
PQ1	E-learning system is always up and learning as necessary	4.03	1.275
PQ2	E-learning system feedback quickly	3.79	1.140
PQ3	E-learning system includes necessary features and functions to assist learning	3.95	1.305
PQ4	E-learning system's materials is organized in a logical way	3.80	1.165
Information Quality			
PQ5	E-learning system provides with the information I need in time.	3.77	1.039
PQ6	E-learning system provides me with sufficient information for my job	3.49	1.179
PQ7	E-learning system provides me with readable, clear and well formatted information	3.82	1.122
PQ8	The reliability of output information from e-learning system is high	3.53	1.025
Service Quality			
PQ9	E-learning system has appropriate operating hours	3.39	1.058
PQ10	E-learning system provides the right solutions to my request.	3.60	.994

As shown in Table 4 for Perceived Usefulness the sample cases show a range from 3.842 to 4.215 in the 5-point Likert scales

Table 4 .2 Descriptive Analysis for Questionnaire Items

Item	**Description (5 – point scale)**	**Mean**	**Std. Dev**
Perceived Usefulness			
PU1	E-learning helps to save time	3.933	1.230
PU2	E-learning helps to save cost	4.157	1.128
PU3	E-learning helps me to be self reliable.	3.97	0.985
PU4	E-learning helps to improve my	3.842	1.157
PU5	E-learning helps to improve my performance	4.215	1.221

As shown in, Table 5 for Perceived ease of use, the sample cases show a range from 3.765 to 4.091 in the 5-point Likert scales.

Item	**Description (5 – point scale)**	**Mean**	**Std. Dev**
Perceived Usefulness			
PEOU1	E-learning is easy to use	4.091	1.121
PEOU2	E-learning is easy to learn	3.786	1.003
PEOU3	E-learning is easy to access	3.786	1.003
PEOU4	E-learning is easy to understand	3.994	1.074
PEOU5	E-learning is convenients	4.010	1.088

As shown in Table 6 for Perceived of Value the sample cases show a range from 3.45 to 3.97 in the 5-point Likert scales.

Perceived of Value		Mean	Std. Dev
PVO1	Using the e-learning service would give me a sense of accomplishment	3.45	1.093
PVO2	Using the e-learning service would give me a sense of self fulfillment	3.36	1.056
PVO3	Using the e--learning service would give me a sense of following the trend	3.81	1.157
PVO4	Using the e-learning service would give me a sense of intelligence	3.97	1.211
PVO5	Using the e-learning service would give me a sense of independence	3.50	.980

As shown in Table 7 for Cognitive Absorption, the sample cases show a range from 3.24 to 3.37 in the 5-point Likert scales

Cognitive Absorption		Mean	Std. Dev
COA1	Time flies when I am using the e-learning system.	3.37	1.069
COA2	Most times when I get on to the e-learning system, I end up spending more time than I had planned.	3.30	.924
COA3	When I am using the e-learning system I am able to block out most other distractions.	3.24	.916
COA4	While using the e-learning system, I am absorbed in what I am doing	3.26	.921
COA5	I have fun interacting with the e-learning system	3.30	.932

As shown in, Table 8 for Self-Efficacy the sample cases show a range from 3.66 to 4.12 in the 5-point Likert scales

Self-Efficacy		Mean	Std. Dev
SE1	I feel confident using e-leaning systems.	4.02	1.776
SE2	I feel confident operating e-learning functions.	3.82	1.138
SE3	I feel confident using online learning contents.	3.95	1.178
SE4	I feel confident uploading home works and downloading learning contents	4.12	1.213
SE5	I am confident of using the e-learning even if I have never used such a system before	3.66	1.095

As shown in, Table 9 for Anxiety the sample cases show a range from 3.50to 3.98 in the 5-point Likert scales

Anxiety		Mean	Std. Dev
AXIE1	I am anxious about having to use the new system soon.	3.77	1.263
AXIE1	I question why I need to use the new system in the future.	3.51	1.049
AXIE1	I am apprehensive about having to use the new system.	3.84	1.208
AXIE1	I am afraid of using the new system incorrectly	3.50	1.030
AXIE1	Using e-learning let me feel nervous	3.98	1.190

As shown in Table 10 for Enjoyment, the sample cases show a range from 3.17 to 3.30 in the 5-point Likert scales

Enjoyment		Mean	Std. Dev
EJ1	I find using e-learning enjoyable	3.17	.856
EJ2	The actual process of using the e-learning is pleasant	3.30	.924
EJ3	I have fun using the e-learning.	3.24	.916

As shown in Table 11 for Subjective Norms the sample cases show a range from 2.93 to 3.08 in the 5-point Likert scales

Subjective Norms		Mean	Std. Dev
SN1	People who influence my behavior would think that I should use the e-learning	2.93	.791
SN2	People who are important to me would think that I should use e-learning	3.08	.862

As shown in Table 12 for Satisfation the sample cases show a range from 3.89 to 4.30 in the 5-point Likert scales

Satisfation		Mean	Std. Dev
SAT1	I am satisfied with using e-learning as a learning assisted tool	4.22	1.242
SAT2	I am satisfied with using e-learning functions	4.20	1.236
SAT3	I am satisfied with learning contents	4.30	1.266
SAT4	I am satisfied with multimedia instruction	3.91	1.149
SAT5	I am satisfied with interactive e-learning functions	3.89	1.143

As shown in Table 13 for Continuance Intention the sample cases show a range from 3.86 to 4.02 in the 5-point Likert scales

Continuance Intention		Mean	Std. Dev
CI1	Assuming I had access to the e-learning, I intend to use it	4.02	1.161
CI2	Given that I had access to the e-learning, I predict that I would use it	3.86	1.146
CI3	I will keep using e-learning as regularly as I do now	3.93	1.391
CI4	My intention is to continue using e learning than use any alternative meanns	3.95	1.400
CI5	I plan to use the e-learning in the future	3.88	1.336

4.2 Factor Analysis and Reliability Tests

To verify the dimensionality and reliability of the constructs, several data purification processes are conducted in this research, including factor analysis, correlation analysis, and coefficient alpha analysis. For factor analysis examines the basic structure of the data. Correlation analysis confirms the multi-collinearity among variables, and coefficient (Cronbach's) alpha accesses the internal consistency of each variable.

For each research construct, factor analysis is adopted first to select the items with higher factor loading, and then to compare with the theoretically suggested items. After factor analysis, item-to-total correlation, coefficient alpha, and correlation matrix are calculated to provide the internal consistency measurements to each constructs.

Factor analysis was conducted for all constructs as the data were taken and adapted from former research and following criterions were followed for the factor analysis:

- Factor loading: Higher than 0.6
- Kaiser Meyer Olkin Measure of Sampling Adequacy (KMO): Higher than 0.5
- & Bartlett‘s test Sig below than 0.05
- Eigen value: Higher than 1
- Explained variance (accumulative): Higher than 0.6
- Cronbach’s coefficient alpha (α): Higher than 0.7
- Item-to-total correlation: Higher than 0.5

The results of the factor analysis and reliability for each variable are shown in Table 16 to table 25

4.2.1 Perceived Support

There are total nine items in this construct using to explain the travel motivation, which are listed in below table 4.3. In general, the KMO value for all factors in this construct is 0.907 over 0.5. Bartlett test values is 0.000, which indicates correlations between the variables are significant. Hence it represents that data in this factor are well suitable to perform factor analysis. Table 4-3 presents the results of factor loadings for the measurements of Perceived Support factors. The results show that the variance explained by this factor is 62.824 %. The results also show that the Cronbach’s α value for the factor is 0.725 All variables within this factor have a high coefficient of item-to-total correlation (0.635~0.864).

Table 14 The results of the factor analysis and reliability of Perceived Support

Research Construct	*Research Item*	*FL*	*EV*	*AE*	*ITC*	*α*
Perceived Support KMO=0.907 BTV=0.000			3.846	62.824		0.725
	PS1 I received the comments on assignments or examinations for this course on a timely manner	0.936			0.864	
	PS3 The instructor is active in teaching me the course subject via e-learning	0.707			0.625	
	PS4 The instructor explains how to use the e- learning components	0.818			0.755	
	PS5 My university highlights the importance of e-learning system on my curriculum	0.773			0.713	
	PS6 My university strongly supports the use of e-learning system	0.689			0.635	
	PS7 I can get technical support from the technicians when I have trouble with e- learning system	0.710			0.654	
	PS8 There are enough computers for me to use e-learning system	0.791			0.728	
	PS9 E-learning system seems to give me information on how I should behave	0.825			0.759	
	PS10 E-learnings system helped me understand the situation clearly andeasily while I was at home	0.719			0.661	

FL= Factor Loading; EV= Eigen Value; AE= Accumulative Explained; ITC=Item to Total Correlation

Source: Original Study

4.2.2 Perceived Quality

There are total nine items in this construct using to explain the travel motivation, which are listed in below table 4.3. In general, the KMO value for all factors in this construct is 0.898 over 0.5. Bartlett test values is 0.000, which indicates correlations between the variables are significant. Hence it represents that data in this factor are well suitable to perform factor analysis. Table 4-3 presents the results of factor loadings for the measurements of Perceived Quality factors. The results show that the variance explained by this factor is 58.670 %. The results also show that the Cronbach's α value for the factor is 0.815 All variables within this factor have a high coefficient of item-to-total correlation (0.620~0.808).

Table 15 The results of the factor analysis and reliability of Perceived Quality

Research Construct	***Research Item***	***FL***	***EV***	***AE***	***ITC***	***α***
Perceived Quality KMO=0.891 BTV=0.000			3.972	58.670		0.815
	PQ1 E-learning system is always up and learning as necessary	0.801			0.739	
	PQ2 E-learning system feedback quickly	0.793			0.731	
	PQ4 E-learning system's materials is organized in a logical way	0.802			0.740	
	PQ5 E-learning system provides with the information I need in time	0.750			0.692	
	PQ6 E-learning system provides me with sufficient information for my job	0.876			0.808	

	PQ7 E-learning system provides me with readable, clear and well formatted information	0.811			0.748	
	PQ8 The reliability of output information from e-learning system is high	0.673			0.620	
	PQ9 E-learning system has appropriate operating hours	0.803			0.741	
	PQ10 E-learning system provides the right solutions to my request	0.791			0.728	

FL= Factor Loading; EV= Eigen Value; AE= Accumulative Explained; ITC=Item to Total Correlation
Source: Original Study

4.2.3 Perceived usefulness

There are total five items in this construct using to explain the travel motivation, which are listed in below table 4.3. In general, the KMO value for all factors in this construct is 0.915 over 0.5. Bartlett test values is 0.000, which indicates correlations between the variables are significant. Hence it represents that data in this factor are well suitable to perform factor analysis. Table 4-3 presents the results of factor loadings for the measurements of Perceived usefulness factors. The results show that the variance explained by this factor is 65.917 %. The results also show that the Cronbach's α value for the factor is 0.782 All variables within this factor have a high coefficient of item-to-total correlation (0.583~0.899).

Table 16 The results of the factor analysis and reliability of Perceived usefulness

Research Construct	*Research Item*	*FL*	*EV*	*AE*	*ITC*	*α*
			3.165	65.917		0.782
	PU1 E-learning helps to save time	0.788			0.727	
Perceived usefulness	PU2 E-learning helps to save cost	0.839			0.774	
KMO=0.915 BTV=0.000	PU3 E-learning helps me to be self reliable	0.631			0.583	
	PU4 E-learning helps to improve my knowledge	0.600			0.588	
	PU5 E-learning helps to improve my performance	0.918			0.899	

FL= Factor Loading; EV= Eigen Value; AE= Accumulative Explained; ITC=Item to Total Correlation
Source: Original Study

4.2.4 Perceived Ease of Use

There are total five items in this construct using to explain the travel motivation, which are listed in below table 4.3. In general, the KMO value for all factors in this construct is 0.905 over 0.5. Bartlett test values is 0.000, which indicates correlations between the variables are significant. Hence it represents that data in this factor are well suitable to perform factor analysis. Table 4-3 presents the results of factor loadings for the measurements of Perceived Ease of Usefactors. The results show that the variance explained by this factor is 65.020%. The results also show that the Cronbach's α value for the factor is 0.778 All variables within this factor have a high coefficient of item-to-total correlation (0.594~0.795).

Table 17 The results of the factor analysis and reliability of Perceived Ease of Use

Research Construct	*Research Item*	*FL*	*EV*	*AE*	*ITC*	*α*
			3.090	65.020		0.778
Perceived Ease of Use KMO=0.905 BTV=0.000	PEOU1 E-learning is easy to use	0.859			0.792	
	PEOU2 E-learning is easy to learn	0.863			0.795	
	PEOU3 E-learning is easy to access	0.791			0.728	
	PEOU4 E-learning is easy to understand	0.646			0.594	
	PEOU5 E-learning is convenient	0.756			0.695	

FL= Factor Loading; EV= Eigen Value; AE= Accumulative Explained; ITC=Item to Total Correlation
Source: Original Study

4.2.5 Perceived of Value

There are total five items in this construct using to explain the travel motivation, which are listed in below table 4.3. In general, the KMO value for all factors in this construct is 0.893 over 0.5. Bartlett test values is 0.000, which indicates correlations between the variables are significant. Hence it represents that data in this factor are well suitable to perform factor analysis. Table 4-3 presents the results of factor loadings for the measurements of Perceived of Value factors. The results show that the variance explained by this factor is 64.334%. The results also show that the Cronbach's α value for the factor is 0.751 All variables within this factor have a high coefficient of item-to-total correlation (0.627~0.816).

Table 18 The results of the factor analysis and reliability of Perceived of Value

Research Construct	*Research Item*	*FL*	*EV*	*AE*	*ITC*	*α*
			2.975	64.334		0.751
Perceived Ease of Use KMO=0.893 BTV=0.000	POV1 Using the e-learning service would give me a sense of accomplishment	0.886			0.816	
	POV2 Using the e-learning service would give me a sense of self fulfillment	0.732			0.675	
	POV3 Using the e--learning service would give me a sense of following	0.845			0.779	
	POV4 Using the e-learning service would give me a sense of intelligence	0.786			0.724	
	POV5 Using the e-learning service would give me a sense of independence	0.681			0.627	

FL= Factor Loading; EV= Eigen Value; AE= Accumulative Explained; ITC=Item to Total Correlation
Source: Original Study

4.2.6 Cognitive Absorption

There are total four items in this construct using to explain the travel motivation, which are listed in below table 4.3. In general, the KMO value for all factors in this construct is 0.865 over 0.5. Bartlett test values is 0.000, which indicates correlations between the variables are significant. Hence it represents that data in this factor are well suitable to perform factor analysis. Table 4-3 presents the results of factor loadings for the measurements of Cognitive Absorption factors. The results show that the variance explained by this factor is 56.216%. The results also show that the Cronbach's α value for

the factor is 0.732 All variables within this factor have a high coefficient of item-to-total correlation (0.688~0.782).

Table 19The results of the factor analysis and reliability of Cognitive Absorption

Research Construct	***Research Item***	***FL***	***EV***	***AE***	***ITC***	***α***
Cognitive Absorption KMO=0.865 BTV=0.000			2.881	56.216		0.732
	COA2 Most times when I get on to the e-learning system, I end up spending more time than I had planned	0.747			0.688	
	COA3 When I am using the e-learning system I am able to block out most other distractions	0.804			0.771	
	COA4 While using the e-learning system, I am absorbed in what I am doing	0.815			0.782	
	COA5 I have fun interacting with the e-learning system	0.765			0.734	

FL= Factor Loading; EV= Eigen Value; AE= Accumulative Explained; ITC=Item to Total Correlation
Source: Original Study

4.2.7 Self-Efficacy

There are total four items in this construct using to explain the travel motivation, which are listed in below table 4.3. In general, the KMO value for all factors in this construct is 0.858 over 0.5.

Bartlett test values is 0.000, which indicates correlations between the variables are significant. Hence it represents that data in this factor are well suitable to perform factor analysis. Table 4-3 presents the results of factor loadings for the measurements of Self-Efficacy factors.

The results show that the variance explained by this factor is 68.390%. The results also show that the Cronbach's α value for the factor is 0.847 All variables within this factor have a high coefficient of item-to-total correlation (0.571~0.721)

Table 20 The results of the factor analysis and reliability of Self-Efficacy

Research Construct	***Research Item***	***FL***	***EV***	***AE***	***ITC***	***α***
Self-Efficacy KMO=0.858 BTV=0.000			3.116	68.390		0.847
	SE2 I feel confident operating e-learning functions	0.783			0.721	
	SE3 I feel confident using online learning contents	0.671			0.617	
	SE4 I feel confident uploading home works and downloading learning contents	0.621			0.571	

FL= Factor Loading; EV= Eigen Value; AE= Accumulative Explained; ITC=Item to Total Correlation
Source: Original Study

4.2.8 Anxiety

There are total four items in this construct using to explain the travel motivation, which are listed in below table 4.3. In general, the KMO value for all factors in this construct is 0.858 over 0.5. Bartlett test values is 0.000, which indicates correlations between the variables are significant. Hence it represents that data in this factor are well suitable to perform factor analysis. Table 4-3 presents the results of factor loadings for the measurements of Anxiety factors.The results show that the variance explained by this factor is 69.207%. The results also show that the Cronbach's α value for the factor is

0.847 All variables within this factor have a high coefficient of item-to-total correlation (0.561~0.855).

Table 21 The results of the factor analysis and reliability of Anxiety

Research Construct	***Research Item***	***FL***	***EV***	***AE***	***ITC***	***α***
Anxiety KMO=0.910 BTV=0.000			3.415	69.207		0.886
	AXIE1 I am anxious about having to use the new system soon	0.820			0.755	
	AXIE2 I question why I need to use the new system in the future	0.837			0.770	
	AXIE3 I am apprehensive about having to use the new system	0.831			0.765	
	AXIE4 I am afraid of using the new system incorrectly	0.610			0.561	
	AXIE5 Using e-learning let me feel nervous	0.929			0.855	

FL= Factor Loading; EV= Eigen Value; AE= Accumulative Explained; ITC=Item to Total Correlation
Source: Original Study

4.2.9 Enjoyment

There are total two items in this construct using to explain the travel motivation, which are listed in below table 4.3. In general, the KMO value for all factors in this construct is 0.858 over 0.5. Bartlett test values is 0.000, which indicates correlations between the variables are significant. Hence it represents that data in this factor are well suitable to perform factor analysis. Table 4-3 presents the results of factor loadings for the measurements of Enjoyment factors.The results show that the variance explained by this factor is 51.387%. The results also show that the Cronbach's α value for the factor is

0.711All variables within this factor have a high coefficient of item-to-total correlation (0.552~0.631).

Table 22 The results of the factor analysis and reliability of Enjoyment

Research Construct	***Research Item***	***FL***	***EV***	***AE***	***ITC***	***α***
Enjoyment KMO=0.910 BTV=0.000			2.196	51.387		0.711
	EJ1 I find using e-learning enjoyable	0.600			0.552	
	EJ2 The actual process of using the e-learning is pleasant	0.686			0.631	

FL= Factor Loading; EV= Eigen Value; AE= Accumulative Explained; ITC=Item to Total Correlation

4.2.10 Subjective Norms

There are total two items in this construct using to explain the travel motivation, which are listed in below table 4.3. In general, the KMO value for all factors in this construct is 0.900 over 0.5. Bartlett test values is 0.000, which indicates correlations between the variables are significant. Hence it represents that data in this factor are well suitable to perform factor analysis. Table 4-3 presents the results of factor loadings for the measurements of Subjective Norms factors.The results show that the variance explained by this factor is 61.452%. The results also show that the Cronbach's α value for the factor is 0.808 All variables within this factor have a high coefficient of item-to-total correlation (0.678~0.713).

Table 23 The results of the factor analysis and reliability of Subjective Norms

Research Construct	*Research Item*	*FL*	*EV*	*AE*	*ITC*	*α*
Subjective Norms KMO=0.900 BTV=0.000			3.534	66.770		0.829
	SN1 People who influence my behavior would think that I should	0.738			0.678	
	SN2 People who are important to me would think that I should use	0.776			0.713	

FL= Factor Loading; EV= Eigen Value; AE= Accumulative Explained; ITC=Item to Total Correlation
Source: Original Study

4.2.11 Satisfation

There are total two items in this construct using to explain the travel motivation, which are listed in below table 4.3. In general, the KMO value for all factors in this construct is 0.897 over 0.5. Bartlett test values is 0.000, which indicates correlations between the variables are significant. Hence it represents that data in this factor are well suitable to perform factor analysis. Table 4-3 presents the results of factor loadings for the measurements of Satisfation factors.The results show that the variance explained by this factor is 69.207 %. The results also show that the Cronbach's α value for the factor is 0.886. All variables within this factor have a high coefficient of item-to-total correlation (0.772~0.791).

Table 24 The results of the factor analysis and reliability of Satisfaction

Research Construct	*Research Item*	*FL*	*EV*	*AE*	*ITC*	*α*
			3.219	69.207		0.886
Satisfation KMO=0.897 BTV=0.000	SAT1 I am satisfied with using e-learning as a learning assisted tool	0.860			0.790	
	SAT2 I am satisfied with using e-learning functions	0.861			0.791	
	SAT4 I am satisfied with multimedia instruction	0.844			0.772	
	SAT5 I am satisfied with interactive e-learning functions	0.845			0.773	

FL= Factor Loading; EV= Eigen Value; AE= Accumulative Explained; ITC=Item to Total Correlation
Source: Original Study

4.2.12 Continuance Intention

There are total two items in this construct using to explain the travel motivation, which are listed in below table 4.3. In general, the KMO value for all factors in this construct is 0.897 over 0.5. Bartlett test values is 0.000, which indicates correlations between the variables are significant.

Hence it represents that data in this factor are well suitable to perform factor analysis. Table 4-3 presents the results of factor loadings for the measurements of Satisfation factors.The results show that the variance explained by this factor is 62.853%. The results also show that the Cronbach's α value for the factor is 0.894. All variables within this factor have a high coefficient of item-to-total correlation (0.597~0.755).

Table 25 The results of the factor analysis and reliability of Continuance Intention

Research Construct	*Research Item*	*FL*	*EV*	*AE*	*ITC*	*α*
			2.901	62.853		0.894
Continuance Intention KMO=0.886 BTV=0.000	CI1 Assuming I had access to the e-learning, I intend to use it	0.750			0.688	
	CI3 I will keep using e-learning as regularly as I do now	0.824			0.755	
	CI4 My intention is to continue using e learning than use any alternative	0.652			0.597	
	CI5 I plan to use the elearning in the future	0.817			0.748	

FL= Factor Loading; EV= Eigen Value; AE= Accumulative Explained; ITC=Item to Total Correlation
Source: Original Study

4.3 Evaluation of the Measurement Model

Using the above criteria, the reliability and validity of the measurement model can be verified. As shown in the table 4-3, the coefficient of determination (R^2), for the 5 endogenous latent variables are as follows: 0.3087 for Perceived Usefulness , 0.5259 for Perceived of Value, 0.4197 for Perceived Ease of Use, 0.5381 for Cognitive Absorption and 0.5857 for Continuance Intention, These R^2 coefficients are considered to be substantial on moderate according to Schroer and Herterl (2009). The AVE of the constructs are ranged from 0.6641 to 0.8652, which are much higher than the benchmark of 0.5 as recommended. The Conbrach's alpha coefficients are ranged from 0.8444 to 0.9838, which have fulfill the criteria of 0.7, and

confirm the internal consistency of the measurement items. The CR coefficients are ranged from 0.9080 to 0.9846 , which are much higher than the criteria of 0.6, which suggest that the variance shared by the respective indicators is robust. Based on the above discussions, it can be concluded that the reliability and convergent validity of the research model is appropriate, which enables us to proceed to an evaluation of the structural model.

Table 26. Evaluation of the Measurement Model

Construct	AVE	CR	Cronbach's Alpha	R^2
Perceived Support	0.7195	0.9470	0.9431	-
Perceived Usefulness	0.7689	0.9433	0.9249	0.3087
Perceived of Value	0.7717	0.9311	0.9009	0.5259
Perceived Quality	0.6807	0.9846	0.9838	-
Perceived Ease of Use	0.6815	0.9143	0.8824	0.4197
Cognitive Absorption	0.8300	0.9512	0.9308	0.5381
Satisfaction	0.7703	0.9470	0.9341	-
Continuance Intention	0.8159	0.9466	0.9247	0.5857
Self- Efficacy	0.6641	0.9080	0.8741	-
Anxiety	0.6911	0.9179	0.8883	-
Enjoyment	0.8039	0.9248	0.8778	-
Subjective norms	0.8652	0.9277	0.8444	-

GoF: 0.5849

4.4 Evaluation of the Structural Model

The research hypotheses were tested using the parameter estimates of the path between research constructs. Using a specimen of 505, a non-parametric bootstrapping method was performed with 2500 sub-samples to acquire the factual essentialness of every way coefficient for theories testing. The goodness of-fit (GoF) record is utilized to quantify the general wellness between the information and the model. Following Vinzi et al. (2010), GoF more prominent than 0.36 is thought to be huge, 0.25 is described as medium, while 0.10 is portrayed as small The GoF of this structural model is 0.57,

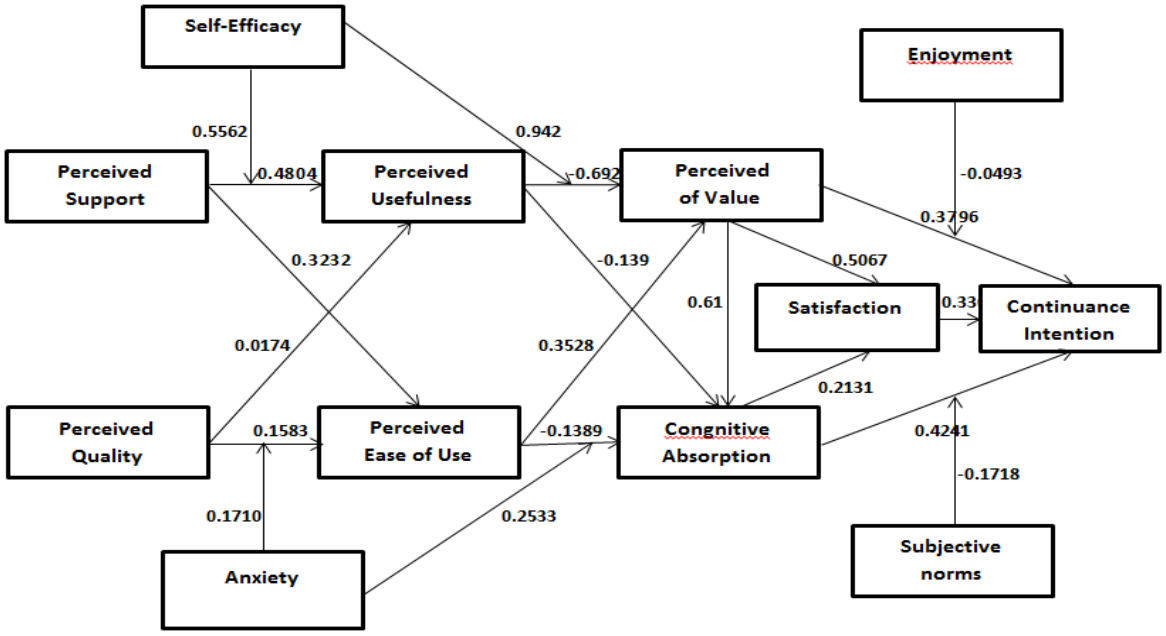

Figure 4-1 SmartPLS Result

which is thought to be large. This result affirmed that the basic model is suitable with predictive power.. The structural model as shown in Table 27

Table 27 Evaluation of Structural Model and Hypothesis Testing

No.	Path	Estimate Standardized	t value	p value
H1a	Perceived support → perceived usefulness	0.4804	7.0521	***
H1b	Perceived support → perceived ease of use	0.3232	12.9718	***
H2a	Perceived quality → perceived usefulness	0.0174	0.9374	-
H2b	Perceived quality → perceived ease of use	0.1583	2.4639	**
H3a	Perceived usefulness → perceived of value	-.0692	1.7458	-
H3b	Perceived usefulness → cognitive absorption	-.0139	0.6160	-
H4a	Perceived ease of use → perceived of value	0.3528	12.3008	***
H4b	Perceived ease of use → cognitive absorption	-0.1389	2.8162	**
H5	Perceived of value → cognitive absorption	0.6100	27.9092	***
H6a	Perceived of value → continuance intention	0.3796	5.5223	***
H6b	Perceived of value → satisfaction	0.5067	19.9429	***
H7a	Cognitive absorption → satisfaction	0.2131	8.9950	***
H7b	Cognitive absorption → continuance intention	0.4241	5.3978	***
H8a	Perceived support * self- efficacy → perceived usefulness	0.5562	5.0434	***
H8b	Perceived usefulness * self-efficacy → perceived of value	0.0942	1.5445	-
H9a	Perceived quality * anxiety → perceived ease of use	0.1710	2.2122	***
H9b	Perceived ease of use * anxiety →	0.2533	3.4046	***

	cognitive absorption			
H10	Perceived of value * enjoyment → continuance intention	-0.0493	0.4513	-
H11	Cognitive absorption * subjective norms → continuance intention	-0.1718	1.5967	-
H12	Satisfaction → continuance intention	0.3302	11.3115	***

The empirical results show that the Perceived support has significant influence on the perceived usefulness (β= 0.4804; t= 7.0521) and the perceived ease of use (β= 0.3232; t= 12.9718). Furthermore, the Perceived quality has significant influence on perceived ease of use (β= 0.1583; t= 2.4639) but the Perceived quality has no significant influence on the perceived usefulness (β=0.0174; t= 0.9374), Besisde that the results show the Perceived usefulness has no significant influence on perceived of value (β= -.0692; t= 1.7458) and cognitive absorption (β= -.0139; t= 0.6160). The results further shows that the Perceived ease of use has significant influence on perceived of value (β= 0.3528; t= 12.3008) but the Perceived ease of use has negative significant influence on cognitive absorption (β= -0.1389; t= 2.8162). The Perceived of value has significant influence on the cognitive absorption (β= 0.6100; t= 27.9092) and continuance intention ((β= 0.3796; t= 5.5223).In Additional The Perceived of value has significant influence on the satisfaction (β= 0.5067; t= 19.9429) .The results also show that the cognitive absorption has significant influence on the satisfaction (β= 0.2131; t= 8.9950) and continuance intention (β= 0.4241; t= 5.3978)

The moderator self- efficacy of Perceived support has significant influence on perceived usefulness (β= 0.5562; t= 5.0434) but The moderator self- efficacy of Perceived usefulness has no significant influence on perceived of value (β= 0.0942 t= 1.5445). Furthermore, The moderator anxiety of Perceived quality has significant influence on perceived ease of use (β= 0.1710, t= 2.2122) and The moderator anxiety of Perceived ease of use has significant influence on cognitive absorption (β= 0. 2533, t= 3.4046). The moderating effects enjoyment of Perceived of value has no significant influence on continuance intention (β= -0.0493, t= 0.4513) and The moderating effects subjective norms of Cognitive absorption has no significant influence on continuance intention (β= -0.1718, t= 1.5967) The results that the Satisfaction has significant influence on the continuance intention (β= 0.3302, t= 11.3115).

This results seem to suggest that student with higher level of thinking moderate on influence on the cognitive based. On the other hand, consumer with higher level of feeling moderate on influence hedonic.

CHAPTER FIVE
CONCLUSION AND SUGGESTIONS

This chapter will summarize the result after analyzing the data and making the contributions and limitations of the study in the context of Nanhua University PORTAL (NHU PORTAL). We make further discussions on findings of the research and managerial implication. Additionally, the deficiencies and limitation of the study are pointed out, which can be considered as the suggestions for future research direction. This chapter will be divided three section:

(1) Research conclusion
(2) Research contribution
(3) Limitations and Future Research Directions

5.1 Research conclusion

This study investigates to find out the factors affecting users satisfaction and continuance intention toward E-learning systems in NHU Portal. It also examines attribute of the moderators: Self-efficacy, Anxiety, Enjoyment, Subjective Norms. And through the study result to understand deeply the factors affecting users satisfaction and continuance intention toward E-learning systems in NHU Portal.. And then can improve the design and development functions and services suitable to students in Nanhua University. As shown in table 5.1, the result of hypothesis testing after analysis include: hypothesis H1a, H1b,H2b, H4a, H4b, H5, H6a, H6b,H7a, H7b, H8a, H9a, H9b, H12 are supported, Hypothesis H2a, H3a, H3b ,H8b, H10, H11 are not support.

Table 28 The Results of Research Hypothesis

Hypo	Path	p- value
H1a	Perceived support has positive influence on perceived usefulness	Support
H1b	Perceived support has positive influences on perceived ease of use	Support
H2a	Perceived quality has positive influence on perceived usefulness	Not Support
H2b	Perceived quality has positive influence on perceived ease of use	Support
H3a	Perceived usefulness has positive influences on Perceived of Value	Not Support
H3b	Perceived usefulness has positive influence on Cognitive Absorption	Not Support
H4a	Perceived Ease of Use has positive influence on Perceived of Value	Support
H4b	Perceived Ease of Use has positive influence on Cognitive Absorption	Support
H5	Perceived of Value has positive influences on Cognitive Absorption	Support
H6a	Perceived of Value has a positive effect on continuance intention e-learning system	Support
H6b	Perceived of Value has a positive effect on satisfation e-learning system	Support
H7a	Cognitive Absorption has a positive effect on satisfaction e-learning system	Support
H7b	Cognitive Absorption has a positive effect on continuance intention e-learning system	Support
H8a	Self-Efficacy has positive effect on perceived usefulness	Support
H8b	Self-Efficacy has positive effect on perceived of Value	Not Support
H9a	User Anxiety has direct negative influence on perceived ease of use	Support
H9b	User Anxiety has direct negative influence on cognitive absorption	Support

H10	Enjoyment has a positive effect on continuance intention to use e-learning	Not Support
H11	Subjective norms has a positive effect on Continuance intention to use e-learning	Not Support
H12	User Satisfaction has positive influence on continuance intention to use e-learning system	Support

According to the results presented in Table 5.1, Perceived support is influenced positively by Perceived ease of use and Perceived usefulness. It also affects positively to intention toward e-learning. In addition, the results also indicate a positive relationship between Perceived ease of use and Perceived usefulness. Many previous studies have used the model to apply the technology to find out factors affecting the e-learning oriented, they have proven perceived usefulness, perceived ease of use is the second most important factor in understanding customer behavior goods in the application of new technologies. Previous researchers indicated that there are indirect relationship between perceived usefulness, perceived ease of use and continuance intention. This relationship is mediated by user satisfaction. Our research findings are similar to the existing literature review. Perceived ease of use and perceived usefulness are shown to have significant positive impact on user satisfaction. That is, the easier and the more useful the users find e-learning system is to use, the more satisfied they feel. Moreover, prior researchers found that among the predictors of user satisfaction, perceived usefulness is the dominant one (Hayashi et al., 2004; Roca et al., 2006; Al-Busaidi, 2012). However, our study shows different results. Perceived ease of use is proved to influence on user satisfaction more than perceived usefulness. A possible explanation for this result is that our study did survey

on NHU PORTAL learning system. Different from e-learning systems used in previous research, PORAL learning system of Nanhua University are not optional but mandatory to use in all the courses.

Besides that, Perceived quality has no significant influences on perceived ease of use (β=0.0174; t= 0.9374) but Perceived quality has positive influence on perceived ease of use. Perceived usefulness has no significant influences on Perceived of Value (β= -.0692; t= 1.7458) and Cognitive Absorption (β= -.0139; t= 0.6160). Perceived Ease of Use has positive influence on Perceived of Value .Perceived Ease of Use has positive influence on Cognitive Absorption ,Perceived of Value has positive influences on Cognitive Absorption, Perceived of Value has a positive effect on continuance intention e-learning system, Perceived of Value has a positive effect on satisfation e-learning system, Cognitive Absorption has a positive effect on satisfaction e-learning systems. As expected, the relationship between perceived support on perceived ease of use and perceived usefulness are proved to be significantly positive in this study, which means that the instructor support and university support are of the important factors to the success of e-learning system. This result supports the arguments of Eom et al. (2006), Selim et al. (2007) and Wagner et al. (2008). Besides, anxiety is shown to have negative effect on perceived ease of use and perceived usefulness. This result is also confirmed by existing literatures (Huang et al., 2005; Raaij, 2008; Saadé et al., 2009).

Moreover, self-efficacy is found to influence positively on perceived ease of use, which is similar to the prior researcher findings (Roca et al., 2006; Chung et al., 2010; and Cheng et al., 2011). However, different from the findings of Ong et al. (2004) and Ong et al. (2006), the impact of

self-efficacy on perceived usefulness is shown to be insignificant. According to the statistics results, the sampled students' self-efficacy is quite high while their satisfaction towards the NHU PORTAL learning system .The results may come from the following cause. Users with high self-efficacy have orientation to highly expect for the perceived usefulness of e-learning system, which will lead to an increasing gap between their expectation and their perceived usefulness of NHU PORTAL e-learning system. Therefore, the user satisfaction will be decreased accordingly (Hayashi et al., 2004). But Self-Efficacy has no significant effect on perceived of Value (β= 0.0942 t= 1.5445). and User Anxiety has direct negative influence on cognitive absorption. Enjoyment has no significant effect on continuance intention to use e-learning (β= -0.0493, t= 0.4513) Subjective norms has no significant effect on Continuance intention to use e-learning (β= -0.1718, t= 1.5967) and User Satisfaction has positive influence on continuance intention to use e-learning system.

5.2 Implications

The findings of the present study have various implications for both academia and practice.

5.2.1 Academic implication

A lot of studies have been done on e-learning system in educational section, among which D&M IS success model, TAM, ECT theory and ISCM have been applied widely. However, each of these theories has their own shortcomings.

Therefore, we integrate TAM, D&M IS model and ISCM model to develop a comprehensive model for predicting e-learners' satisfaction and continuance intention to use e-learning systems. Different from TAM model,

our framework focuses on the e-learners' post adoption instead of initial acceptance. Our research findings also indicate that there are more factors influencing on the success of e-learning systems rather than IS-related constructs proposed in D&M IS success model. Besides, our study proves that perceived usefulness is not the mere determinants of user satisfaction.

Another contribution is that there are some variables that are hardly explored in the previous studies. Our research framework covers four dimensions regarding to the e- learning system in educational section including systems, learners, instructor, and university, which hardly been studied before. Besides, seldom have prior researchers done empirical analysis of the impact of instructor support and university support in the context of e-learning.We found two new moderators has a positive relaotionship with continuance intention. There are subjective norms and enjoyment

Furthermore, this study to use, which is usually ignored in the past researches. Also, the research findings emphasize the mediated role of user satisfaction in the relationship of perceived of value and conigitive absorption with users' continuance intention to use.

Finally, some comparisons are made b dy also proves direct influence of perceived of value on users' continuance intention. Beside that we proves direct influence of Cognitive Absorption on users' continuance intention between the current study and our prior research (Tang et al., 2014). As this research is extended from the previous one, there are some similarities between them. Some constructs were re- used such as anxiety and self- efficacy. However, basically, they are based on different objectives. While the current one aims at identifying the predictors of the continuance intention to use e-learning systems and e-learners' satisfaction in educational

section, the previous one aims to clarify the antecedents of intention to use and consequences of using e-learning systems in organizational environment.

5.2.1 Practical implications

Since perceived of value is one of the most important antecedents of user satisfaction and continuance intention, administrators can increase the user satisfaction and re-usage intention by improving their beliefs of how user-friendly the target e-learning systems are. Besides, perceived of value also plays a key role. Hence, administrators canimprove the users' beliefs that using the e-learning system will enhance their learning performance and effectiveness as well.

As users' anxiety, self-efficacy have the direct impact on perceived ease of use and perceived usefulness. , enjoyment and subjective norms have the direct impact on continuance intention The administrators should have policy to give clear instruction to the learners in using the e-learning system, which can reduce their anxiety and increase their confidence. Learners' self-efficacy will be improved accordingly.The leaner feel happy and fun when using e-learning systerms support for their study. Beside that they find the standards of systems make them easy to use and save time with step by step learn through using experience e-learning systems in NHU PORTAL with new version 2014.

Moreover, the administrators should improve the attributes of the target system. Regarding to the information quality, the quality provided by the system should be clear, understandable and relevant. For service quality and system quality, managers should develop system with a reliable and prompt service and good user interface consistency.

Furthermore, instructors should motivate the e-learners to use e-learning systems regularly by emphasizing the benefits of usage and give clearer explanation about the materials uploaded. University management should highlight the importance of using e- learning and offer prompt assistance to solve e-learners' difficulties.

5.3 Limitations and future directions

Although we have tried our best in this study, biases cannot be completely avoided due to our subjects and instruments. In order for improving in the future research, the shortcomings of this study are mentioned as followings.

First of all, the NHU PORTAL system is the target e-learning system which we used to conduct data collection. However, as each system possesses different specification, the proposed research framework can be applied to test different systems in the future.

Besides, our sample population mainly focuses on the full time undergraduate students, who almost at the same age and with no working experience. As a result, this convenience sampling may limit the generalizability of the findings to the whole population. For example, our study ignores the part-time students while there are chances that the working experience will cause different results to research findings.Furthermore, due to the design of questionnaires, our study neglects the difference in internet usage habits among sampled students, which can be improved in future research.

For future research directions, there are some suggestions. Future research can study more about how users with different perceived of value and congnitive absorption will influence on the research results and whether the research findings are consistent if this research framework is tested

REFERENCES

Ajzen, I. (2002). Perceived Behavioral Control, Self-Efficacy, Locus of Control, and the Theory of Planned Behavior1. *Journal of applied social psychology*, *32*(4), 665-683.

Al-Busaidi, K. A. (2012). Learners' Perspective on Critical Factors to LMS Success in Blended Learning: An Empirical Investigation. *Communications of the Association for Information Systems*, *30*(1), 2.

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the academy of marketing science*, *16*(1), 74-94.

Bailey, J. E., & Pearson, S. W. (1983). Development of a tool for measuring and analyzing computer user satisfaction. *Management science*, *29*(5), 530-545.

Bandura, A. (1986). Social foundations of thought and action. *Englewood Cliffs, NJ*.

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological bulletin*, *88*(3), 588.

Bhatnagar, A., & Ghose, S. (2004). An Analysis of Frequency and Duration of Search on the Internet. *The Journal of Business*, *77*(2), 311-330.

Bhattacherjee, A. (2001). Understanding information systems continuance: an expectation- confirmation model. *MIS quarterly*, *25*(3), 351-370.

Blunch, N. (2012). *Introduction to structural equation modeling using IBM SPSS statistics and AMOS*. Sage.

Bokhari, R. H. (2005). The relationship between system usage and user satisfaction: a meta-analysis. *Journal of Enterprise Information Management*, *18*(2), 211-234.

Bouhnik, D., & Marcus, T. (2006). Interaction in distance-learning courses. *Journal of the American Society for Information Science and Technology*, *57*(3), 299-305.

Brown, I. T. (2002). Individual and technological factors affecting perceived ease of use of web-based learning technologies in a developing country. *The Electronic Journal of Information Systems in Developing Countries*, *9*.

Brown, S. A., Massey, A. P., Montoya-Weiss, M. M., & Burkman, J. R. (2002). Do I really have to? User acceptance of mandated technology. *European journal of information systems*, *11*(4), 283-295.

Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit.*Sociological Methods & Research*, *21*(2), 230-258.

Byrne, B. M. (2013). *Structural equation modeling with LISREL, PRELIS, and SIMPLIS: Basic concepts, applications, and programming*. Psychology Press.

Behaviour & Information Technology, 30(1), 77-89. sMarakas, G., Yi, M., & Johnson, R. (1996). The multilevel construct of computer self-efficacy: an empirical investigation at the general and task-specific levels.

Capper, J. (2001). E-learning growth and promise for the developing orld.*TechKnowLogia*, *2*(2), 7-10.

Chen, H. J. (2010). Linking employees'e-learning system use to their overall job outcomes: An empirical study based on the IS success model. *Computers & Education*, *55*(4), 1628-1639.

Cheng, B., Wang, M., Moormann, J., Olaniran, B. A., & Chen, N. S. (2012). The effects of organizational learning environment factors on e-learning acceptance. *Computers & Education*, *58*(3), 885-899.

Cheng, Y. M. (2011). Antecedents and consequences of e-learning acceptance. *Information Systems Journal*, *21*(3), 269-299.

Chiu, C. M., Chiu, C. S., & Chang, H. C. (2007). Examining the integrated influence of fairness and quality on learners' satisfaction and Web-based learning continuance intention. *Information Systems Journal*, *17*(3), 271-287.

Chiu, C. M., Hsu, M. H., Sun, S. Y., Lin, T. C., & Sun, P. C. (2005). Usability, quality, value and e-learning continuance decisions. *Computers & Education*, *45*(4), 399-416

Cho, V., Cheng, T. C. E., & Hung, H. (2009). Continued usage of technology versus situational factors: An empirical analysis. *Journal of Engineering and Technology Management*, *26*(4), 264-284.

Chung, J. E., Park, N., Wang, H., Fulk, J., & McLaughlin, M. (2010). Age differences in perceptions of online community participation among non-users: An extension of the Technology Acceptance Model. *Computers in*

Human Behavior, *26*(6), 1674-1684.

Churchill Jr, G. A., & Surprenant, C. (1982). An investigation into the determinants of customer satisfaction. *Journal of Marketing research*, 491-504.

Clark, R. (2002). Six principles of effective e-learning: What works and why. *The E- Learning Developer's Journal*.

Compeau, D. R., & Higgins, C. A. (1995). Computer self-efficacy: Development of a measure and initial test. *MIS quarterly*, 189-211.

Conklin, W., & Robbins-McNeish, N. (2007). The Evolution of E-learning in Diversity.

The Diversity Factor, *15*(1), 33-40.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.

DeLone, W. H., & McLean, E. R. (1992). Information systems success: the quest for the dependent variable. *Information systems research*, *3*(1), 60-95.

DeLone, W. H., & McLean, E. R. (2002, January). Information systems success revisited. In *System Sciences, 2002. HICSS. Proceedings of the 35th Annual Hawaii International Conference on* (pp. 2966-2976). IEEE.

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: a ten-year update. *Journal of management information systems*, *19*(4), 9-30.

Devaraj, S., Fan, M., & Kohli, R. (2002). Antecedents of B2C channel satisfaction and preference: validating e-commerce metrics. *Information systems research*, *13*(3), 316- 333.

Ellis. R (2009). Down with boring e-learning! Interview with e-learning guru Dr. Michael W.Allen. Learning circuits, Retrieved from

Eom, S. B., Wen, H. J., & Ashill, N. (2006). The Determinants of Students' Perceived Learning Outcomes and Satisfaction in University Online Education: An Empirical Investigation*. *Decision Sciences Journal of Innovative Education*, *4*(2), 215-235.

Gable, G. G., Sedera, D., & Chan, T. (2008). Re-conceptualizing information system success: the IS-impact measurement model. *Journal of the*

Association for Information Systems, *9*(7), 377-408.

Hair, J. F., Anderson, R. E., Tatham, R. L., & William, C. (1998). Black (1998), Multivariate data analysis.

Hair, J.F., Anderson, R.E., Tatham, R.L., & Black, W.C. (2008) Multivariate Data Analysis, (7th ed.). Prentice Hall Publisher, Upper Saddle River, New Jersey

Hayashi, A., Chen, C., Ryan, T., & Wu, J. (2004). The role of social presence and moderating role of computer self efficacy in predicting the continuance usage of e- learning systems. *Journal of Information Systems Education*, *15*, 139-154.

Ho, L. A., & Kuo, T. H. (2010). How can one amplify the effect of e-learning? An examination of high-tech employees' computer attitude and flow experience. *Computers in Human Behavior*, *26*(1), 23-31.

Hong, S., Kim, J., & Lee, H. (2008). Antecedents Of Use-Continuance In Information Systems: Toward An Intergrative View. *Journal of Computer Information Systems*, *48*(3), 61.

Hong, S., Thong, J. Y., & Tam, K. Y. (2006). Understanding continued information technology usage behavior: a comparison of three models in the context of mobile internet. *Decision Support Systems*, *42*(3), 1819-1834.

Hrastinski, S. (2008). Asynchronous and synchronous e-learning. *Educause quarterly*, *31*(4), 51-55.

Hu, L. T., & Bentler, P. M. (1995). Evaluating model fit.

Huang, H. M., & Liaw, S. S. (2005). Exploring users' attitudes and intentions toward the web as a survey tool. *Computers in human behavior*, *21*(5), 729-743.

Johnson, R. D., Hornik, S., & Salas, E. (2008). An empirical examination of factors contributing to the creation of successful e-learning environments. *International Journal of Human-Computer Studies*, *66*(5), 356-369.

Lai, T. L. (2004). Service quality and perceived value's impact on satisfaction, intention and usage of short message service (SMS). *Information Systems Frontiers*, *6*(4), 353- 368.

Larsen, T. J., Sørebø, A. M., & Sørebø, Ø. (2009). The role of task-technology fit as users' motivation to continue information system use. *Computers in*

Human Behavior, *25*(3), 778-784.

Lee, M. C. (2010). Explaining and predicting users' continuance intention toward e- learning: An extension of the expectation–confirmation model. *Computers & Education*, *54*(2), 506-516.

Leso, T., & Peck, K. L. (1992). Computer anxiety and different types of computer courses.*Journal of Educational Computing Research*, *8*(4), 469-478.

Levy, Y. (2007). Comparing dropouts and persistence in e-learning courses. *Computers & education*, *48*(2), 185-204.

Liao, C., Chen, J. L., & Yen, D. C. (2007). Theory of planning behavior (TPB) and customer satisfaction in the continued use of e-service: An integrated model. *Computers in Human Behavior*, *23*(6), 2804-2822.

Liao, C., Palvia, P., & Chen, J. L. (2009). Information technology adoption behavior life cycle: Toward a Technology Continuance Theory (TCT). *International Journal of Information Management*, *29*(4), 309-320.

Liaw, S. S. (2008). Investigating students' perceived satisfaction, behavioral intention, and effectiveness of e-learning: A case study of the Blackboard system. *Computers & Education*, *51*(2), 864-873.

Liaw, S. S., Huang, H. M., & Chen, G. D. (2007). An activity-theoretical approach to investigate learners' factors toward e-learning systems. *Computers in Human Behavior*, *23*(4), 1906-1920.

Liaw, S. S., Huang, H. M., & Chen, G. D. (2007). Surveying instructor and learner attitudes toward e-learning. *Computers & Education*, *49*(4), 1066-1080.

Limayem, M., & Cheung, C. M. (2008). Understanding information systems continuance: The case of Internet-based learning technologies. *Information & Management*, *45*(4), 227-232.

Lin, C. S., Wu, S., & Tsai, R. J. (2005). Integrating perceived playfulness into expectation- confirmation model for web portal context. Information & Management, 42(5), 683-693.

Lin, K. M., Chen, N. S., & Fang, K. (2011). Understanding e-learning continuance intention: a negative critical incidents perspective.

Limayem, M., & Cheung, C. M. (2011). Predicting the continued use of

Internet-based learning technologies: the role of habit. *Behaviour & Information Technology*, *30*(1), 91-99.

Martínez-Torres, M. R., Toral Marín, S. L., Garcia, F. B., Vazquez, S. G., Oliva, M. A., & Torres, T. (2008). A technological acceptance of e-learning tools used in practical and laboratory teaching, according to the European higher education area 1. Behaviour & Information Technology, 27(6), 495-505.

Masrom, M., Zainon, O., & Rahiman, R. (2008). Critical success in e-learning: an examination of technological and institutional support factors. *International Journal of Cyber Society and Education*, *1*(2), 131-142.

Moore, J. L., Dickson-Deane, C., & Galyen, K. (2011). e-Learning, online learning, and distance learning environments: Are they the same?. *The Internet and Higher Education*, *14*(2), 129-135.

Negash, S., Ryan, T., & Igbaria, M. (2003). Quality and effectiveness in web-based customer support systems. *Information & Management*, *40*(8), 757-768.

Nichols, M. (2003). A theory for eLearning. *Educational technology & society*, *6*(2), 1-10.

Nistor, N., & Neubauer, K. (2010). From participation to dropout: Quantitative participation patterns in online university courses. *Computers & Education*, *55*(2), 663- 672.

Ong, C. S., & Lai, J. Y. (2006). Gender differences in perceptions and relationships among dominants of e-learning acceptance. *Computers in Human Behavior*, *22*(5), 816-829.

Ong, C. S., Lai, J. Y., & Wang, Y. S. (2004). Factors affecting engineers' acceptance of asynchronous e-learning systems in high-tech companies. *Information & management*, *41*(6), 795-804.

Park, J. H., & Choi, H. J. (2009). Factors Influencing Adult Learners' Decision to Drop Out or Persist in Online Learning. *Educational Technology & Society*, *12*(4), 207-217.

Saba, T. (2012). Implications of E-learning systems and self-efficiency on students outcomes: a model approach. *Human-centric Computing and Information Sciences*, *2*(1), 1-11.

Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the

fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of psychological research online*, *8*(2), 23-74.

Seddon, P. B. (1997). A respecification and extension of the DeLone and McLean model of IS success. *Information systems research*, *8*(3), 240-254

Selim, H. M. (2007). Critical success factors for e-learning acceptance: Confirmatory factor models. *Computers & Education*, *49*(2), 396-413.

Singh, R. (2009). Does my structural model represent the real phenomenon?: a review of the appropriate use of Structural Equation Modelling (SEM) model fit indices. *Marketing Review*, *9*(3).

Sørebø, Ø., Halvari, H., Gulli, V. F., & Kristiansen, R. (2009). The role of self-determination theory in explaining teachers' motivation to continue to use e-learning technology. *Computers & Education*, *53*(4), 1177-1187.

Sun, P. C., Tsai, R. J., Finger, G., Chen, Y. Y., & Yeh, D. (2008). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & Education*, *50*(4), 1183-1202.

Tang, Ling-Lang, Che-Han Hsu, and Oanh Chau Kiet, (2014). E-learning Use Behavior: Intention to Use and Impact. In *International Conference on Innovation and Management*, Bangkok, Thailand.

Tavangarian, D., Leypold, M. E., Nölting, K., Röser, M., & Voigt, D. (2004). Is e-learning the Solution for Individual Learning. *Electronic Journal of E-learning*, *2*(2), 273-280.

Triacca, L., Bolchini, D., Botturi, L., & Inversini, A. (2004). MiLE: systematic usability evaluation for e-learning Web applications. In *World Conference on Educational Multimedia, Hypermedia and Telecommunications* (Vol. 2004, No. 1, pp. 4398-4405).

Tyler-Smith, K. (2006). Early attrition among first time eLearners: A review of factors that contribute to drop-out, withdrawal and non-completion rates of adult learnersundertaking eLearning programmes. *Journal of Online learning and Teaching*, *2*(2), 73- 85.

Udo, G. J., Bagchi, K. K., & Kirs, P. J. (2011). Using SERVQUAL to assess the quality of e-learning experience. *Computers in Human Behavior*, *27*(3), 1272-1283.

Van Raaij, E. M., & Schepers, J. J. (2008). The acceptance and use of a virtual learning environment in China. *Computers & Education*, *50*(3), 838-852.

Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision sciences*, *39*(2), 273-315.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.

Wagner, N., Hassanein, K., & Head, M. (2008). Who is responsible for E-Learning Success in Higher Education? A Stakeholders' Analysis. *Journal of Educational Technology & Society*, *11*(3).

Wixom, B. H., & Todd, P. A. (2005). A theoretical integration of user satisfaction and technology acceptance. *Information systems research*, *16*(1), 85-102.

APPENDIX
QUESTIONNAIRE

Section 1. Perceived Support(從線上學習系統所得到的幫助)	**Levels of agreement (Mức độ hài lòng)**				
. Please take a short look on the questions below related with the **Perceived Support** and then **CIRCLE** the level of agreement on each of the items below base on your opinion.	**Strongly disagree (Hoàn toàn không**	**Disagree (Đồng ý)**	**Neutral (Trung lập)**	**Agree (Đồng ý)**	**Stongly agree (Hoàn toàn đồng ý)**
Intructor Support					
I received the comments on assignments or examinations for this course on a timely manner (從線上學習系統所得到的幫助)	1	2	3	4	5
The instructor encourages and motivates me to use elearning (我已及時收到許多關於課程作業或考試的意見)	1	2	3	4	5
The instructor is active in teaching me the course subject via e-learning (指導人熱情教我通過線上學習系統)	1	2	3	4	5
The instructor explains how to use the e- learning components (指導人解釋如何在線上學習系統使用各部分)	1	2	3	4	5
University Support					
My university highlights the importance of e-learning system on my curriculum (我大學強調在課程中線上教育系統的重要性)	1	2	3	4	5
My university strongly supports the use of e-learning system (我學校強烈支持使用線上學習系統)	1	2	3	4	5
I can get technical support from the technicians when I have trouble with e- learning system (當運到問題的時候,我可以收到技術員的技術幫助)	1	2	3	4	5
There are enough computers for me to use e-learning system (有足夠的電腦讓我使用線上學習系統)	1	2	3	4	5
E-learning system seems to give me information on how I should behave (該系統似乎給我如何使用的方法)	1	2	3	4	5
E-learnings system helped me understand the situation clearly andeasily while I was at home (在家時，線上學習系統也幫我瞭解清楚與容易的知識)	1	2	3	4	5

Section 2. Perceived Quality (認知質量)	**Levels of agreement (Mức độ hài lòng)**				
. Please take a short look on the questions below related with the **Perceived Quality** and then **CIRCLE** the level of agreement on each of the items below base on your opinion.	**Strongly disagree (Hoàn toàn không**	**Disagree (Đồng ý)**	**Neutral (Trung lập)**	**Agree (Đồng ý)**	**Stongly agree (Hoàn toàn đồng ý)**
System Quality					
E-learning system is always up and learning as necessary (線上學習系統不斷升級學習的內容)	1	2	3	4	5
E-learning system feedback quickly (線上學習系統快速回應給我)	1	2	3	4	5
E-learning system includes necessary features and functions to assist learning (線上學習系統包括補助學系的必備功能與性能)	1	2	3	4	5
E-learning system's materials is organized in a logical way (線上學習系統的材料都用合理方式組成的)	1	2	3	4	5
Information Quality					
E-learning system provides with the information I need in time (線上學習系統及時提為我提供我需要的訊息)	1	2	3	4	5
E-learning system provides me with sufficient information for my job (線上學習系統為我提供充滿關於工作的訊息)	1	2	3	4	5
E-learning system provides me with readable, clear and well formatted information (線上學習系統為我提供易讀、易懂、格式良好的訊息)	1	2	3	4	5
The reliability of output information from e-learning system is high (線上學習系統提供的訊息都有高信度)	1	2	3	4	5
Service Quality					
E-learning system has appropriate operating hours (線上學習系統的活動時間符合我)	1	2	3	4	5
E-learning system provides the right solutions to my request (線上學習系統為我提供符合要求的正確解決方法)	1	2	3	4	5

Section 3. Perceived Usefulness (關於使用線上學習系統的知覺有用)	**Levels of agreement (Mức độ hài lòng)**				
. Please take a short look on the questions below related with the **Perceived Usefulness** and then **CIRCLE** the level of agreement on each of the items below base on your opinion.	**Strongly disagree (Hoàn toàn không**	**Disagree (Đồng ý)**	**Neutral (Trung lập)**	**Agree (Đồng ý)**	**Stongly agree (Hoàn toàn đồng ý)**
E-learning helps to save time (線上學習可節省時間)	1	2	3	4	5
E-learning helps to save cost (線上學習可省錢)	1	2	3	4	5
E-learning helps me to be self reliable (線上學習讓我自信自學)	1	2	3	4	5
E-learning helps to improve my knowledge (線上學習幫我提高自己的見識)	1	2	3	4	5
E-learning helps to improve my performance (線上學習幫我改善我學習的效率)	1	2	3	4	5

Section 4. Perceived ease of use (知覺易用)	**Levels of agreement (Mức độ hài lòng)**				
. Please take a short look on the questions below related with the **Perceived ease of use** and then **CIRCLE** the level of agreement on each of the items below base on your opinion.	**Strongly disagree (Hoàn toàn không**	**Disagree (Đồng ý)**	**Neutral (Trung lập)**	**Agree (Đồng ý)**	**Stongly agree (Hoàn toàn đồng ý)**
E-learning is easy to use (線上學習容易使用)	1	2	3	4	5
E-learning is easy to learn (線上學習容易學習)	1	2	3	4	5
E-learning is easy to access (線上學習容易進入系統)	1	2	3	4	5
E-learning is easy to understand (線上學習容易理解問題)	1	2	3	4	5
E-learning is convenient (線上學習很方便)	1	2	3	4	5

Section 4. Perceived of Value (知覺價值)	**Levels of agreement (Mức độ hài lòng)**				
. Please take a short look on the questions below related with the **Perceived of Value** and then **CIRCLE** the level of agreement on each of the items below base on your opinion.	**Strongly disagree (Hoàn toàn không**	**Disagree (Đồng ý)**	**Neutral (Trung lập)**	**Agree (Đồng ý)**	**Stongly agree (Hoàn toàn đồng ý)**
Using the e-learning service would give me a sense of accomplishment (使用線上學習會給我一種成就感)	1	2	3	4	5
Using the e-learning service would give me a sense of self fulfillmen (使用線上學習會給我一種完成某件事的感覺)	1	2	3	4	5
Using the e--learning service would give me a sense of following the trend (使用線上學習會給我一種隨著趨勢的感覺)	1	2	3	4	5
Using the e-learning service would give me a sense of intelligence (使用線上學習會給我有一種智慧感)	1	2	3	4	5
Using the e-learning service would give me a sense of independence (使用線上學習會給我一種獨立學習的感覺)	1	2	3	4	5
Section 5. Cognitive Absorption (關於所得到的認識)					
Time flies when I am using the e-learning system (使用線上學習系統讓我感覺時間過去很快)	1	2	3	4	5
Most times when I get on to the e-learning system, I end up spending more time than I had planned (大部分進入線上學習系統的時，我會比計劃花更多時間)	1	2	3	4	5
When I am using the e-learning system I am able to block out most other distractions (使用線上學習系統時，我可以阻止許多其他干擾)	1	2	3	4	5
While using the e-learning system, I am absorbed in what I am doing (使用線上學習系統時，我被陷入在做的事情)	1	2	3	4	5
I have fun interacting with the e-learning system (當與線上學習系統交互時，我感覺愉快)	1	2	3	4	5

Section 6. Self-Efficacy (自信)	**Levels of agreement (Mức độ hài lòng)**				
. Please take a short look on the questions below related with the **Self-Efficacy** and then **CIRCLE** the level of agreement on each of the items below base on your opinion.	**Strongly disagree (Hoàn toàn không**	**Disagree (Đồng ý)**	**Neutral (Trung lập)**	**Agree (Đồng ý)**	**Stongly agree (Hoàn toàn đồng ý)**
I feel confident using e-leaning systems (我有信心使用線上學習系統)	1	2	3	4	5
I feel confident operating e-learning functions (我有信心操作線上學習系統的功能)	1	2	3	4	5
I feel confident using online learning contents (我有信心使用線上學習系統的內容)	1	2	3	4	5
I feel confident uploading home works and downloading (我有信心上傳在家做的作業與下載學習內容)	1	2	3	4	5
I am confident of using the e-learning even if I have never used such a system before (我相信使用線上學習，甚至以前我從來還沒使用過這樣的系統)	1	2	3	4	5

Section 7. Anxiety (擔心)	**Levels of agreement (Mức độ hài lòng)**				
. Please take a short look on the questions below related with the **Anxiety** and then **CIRCLE** the level of agreement on each of the items below base on your opinion.	**Strongly disagree (Hoàn toàn không**	**Disagree (Đồng ý)**	**Neutral (Trung lập)**	**Agree (Đồng ý)**	**Stongly agree (Hoàn toàn đồng ý)**
I am anxious about having to use the new system soon (我擔心使用線上學習系統的事太新穎)	1	2	3	4	5
I question why I need to use the new system in the future (我自問為什麼未來我需要使用這個新系統)	1	2	3	4	5
I am apprehensive about having to use the new system (我發憷使用這個新系統)	1	2	3	4	5
I am afraid of using the new system incorrectly (我害怕這個不高精度的新系統)	1	2	3	4	5
Using e-learning let me feel nervous (使用線上學習系統讓我覺得緊張)	1	2	3	4	5

Section 8. Enjoyment (快樂)	**Levels of agreement (Mức độ hài lòng)**				
. Please take a short look on the questions below related with the **Enjoyment** and then **CIRCLE** the level of agreement on each of the items below base on your opinion.	**Strongly disagree (Hoàn toàn không**	**Disagree (Đồng ý)**	**Neutral (Trung lập)**	**Agree (Đồng ý)**	**Stongly agree (Hoàn toàn đồng ý)**
I find using e-learning enjoyable (我覺得使用線上學習系統非常有趣)	1	2	3	4	5
The actual process of using the e-learning is pleasant (使用線上學習系統的實際上讓我覺得滿意)	1	2	3	4	5
I have fun using the e-learning (我高興使用線上學習系統)	1	2	3	4	5

Section 9. Subjective Norms (收到知識)	**Levels of agreement (Mức độ hài lòng)**				
. Please take a short look on the questions below related with the **Subjective Norms** and then **CIRCLE** the level of agreement on each of the items below base on your opinion.	**Strongly disagree (Hoàn toàn không**	**Disagree (Đồng ý)**	**Neutral (Trung lập)**	**Agree (Đồng ý)**	**Stongly agree (Hoàn toàn đồng ý)**
People who influence my behavior would think that I should use the e-learning (可影響我行為的人會認為我應使用線上學習系統)	1	2	3	4	5
People who are important to me would think that I should use e-learning (關係我的人會認為我應使用線上學習系統)	1	2	3	4	5

Section 10. Satisfaction (滿意度)	**Levels of agreement (Mức độ hài lòng)**				
. Please take a short look on the questions below related with the **Satisfation** and then **CIRCLE** the level of agreement on each of the items below base on your opinion.	**Strongly disagree (Hoàn toàn không**	**Disagree (Đồng ý)**	**Neutral (Trung lập)**	**Agree (Đồng ý)**	**Stongly agree (Hoàn toàn đồng ý)**
I am satisfied with using e-learning as a learning assisted tool (我對使用線上學習系統為幫助學習工具的事覺得滿意)	1	2	3	4	5
I am satisfied with using e-learning functions (我對使用線上學習系統功能的事覺得滿意)	1	2	3	4	5
I am satisfied with learning contents (我對這個學習系統的內容覺得滿意)	1	2	3	4	5
I am satisfied with multimedia instruction (我對多設施的指南覺得滿意)	1	2	3	4	5
I am satisfied with interactive e-learning functions (我對各線上學習系統的交互功能覺得滿意)	1	2	3	4	5

Section 11. Continuance Intention (擴展使用)	**Levels of agreement (Mức độ hài lòng)**				
. Please take a short look on the questions below related with the **Continuance Intention** and then **CIRCLE** the level of agreement on each of the items below base on your opinion.	**Strongly disagree**	**Disagree (Đồng ý)**	**Neutral (Trung lập)**	**Agree (Đồng ý)**	**Stongly agree (Hoàn toàn**
Assuming I had access to the e-learning, I intend to use it (當我進入線上學習系統時，我會廣泛使用它的範圍)	1	2	3	4	5
Given that I had access to the e-learning, I predissct that I would use it (當我有登入線上學習系統的權，我猜我會使用它)	1	2	3	4	5
I will keep using e-learning as regularly as I do now (我會樣現在一樣繼續勻使用線上學習系統)	1	2	3	4	5
My intention is to continue using e learning than use any alternative means (我的目標是繼續使用線上學習系統，而不是使用其他系統)	1	2	3	4	5
I plan to use the elearning in the future (我計劃未來使用線上學習系統)	1	2	3	4	5

I sincerely appreciate your time and efforts to answer the following questions. Your answer will be treated in strict confidential. For our information, would you please indicate your response on the following questions:

Chân thành cảm ơn các bạn đã dành thời gian hoàn thành phiếu khảo sát. Những thông tin này sẽ được giữ kín và chỉ phục vụ cho bày nghiên cứu của tôi. Mời bạn vui lòng cung cấp thêm những thông tin dưới đây:

Gender (giới tính) □ Male (nam) □ Female (nữ)

Age (tuổi)

□ Less than 20 □ From 21-30 □ From 31-40 □ From 41-50 □ More than 50

Dưới 20 Từ 21-30 Từ 31-40 Từ 41-50 Trên 60

Education (Giáo dục)

□ High school □ College □ University □ Master □ Master above

Phổ thông Cao đẳng Đại học Thạc sĩ Thạc sĩ trở lên

Department(Khoa)

□ Department of Mangement (管理學系)

□ Department of Humanities (人資學系)

□ Department of Social science (社會學系)

□ Department of Technology (技術科技學系)

□ Department of Art (美術與繪畫學系)

How often do you use e-learning systems (你經常使用線上學習系統嗎？)

□ Less than once every week (Ít hơn 1 lần/tuần)

□ Once to three times every week (Từ 1 đến 3 lần/tuần)

□ Four times or more every week(Từ 4 lần trở lên/tuần)