FACTORS INFLUENCING BEHAVIOURAL INTENTION TO ADOPT MOBILE E-BOOKS AMONG UNDERGRADUATES: UTAUT2 FRAMEWORK

BY

CHANG PUI YEE
NG MIN QI
SIM HAU YONG
YAP JING WEE
YIN SUET YEE

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DEPARTMENT OF COMMERCE AND ACCOUNTANCY

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DECLARATION

We hereby declare that:

(1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the research project.

(4) The word count of this research report is 10595.

Name of Student:	Student ID:	Signature:
1. Chang Pui Yee	13ABB00095	_____
2. Ng Min Qi	13ABB00528	_____
3. Sim Hau Yong	13ABB00707	_____
4. Yap Jing Wee	13ABB00137	_____
5. Yin Suet Yee	13ABB00327	_____

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LIST OF ABBREVIATIONS

BI	Behavioural Intention
DOI	Diffusion of Innovation
DTPB	Decomposed Theory of Planned Behavior
DV	Dependent Variable
EE	Effort Expectancy
FC	Facilitating Condition
HM	Hedonic Motivation
HT	Habit
IDT	Innovation Diffusion Theory
IV	Independent Variable
MLR	Multiple Linear Regressions
MM	Motivational Model
MPCU	Model of PC Utilization
PE	Performance Expectancy
PLS	Partial Least Square
PV	Price Value
SCT	Social Cognitive Theory
SEM	Structural Equation Modeling
SI	Social Influence
TAM	Technology Acceptance Model
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
USM	Universiti Sains Malaysia
UTAUT	Unified Theory of Acceptance and Use of Technology
UTAUT2	Unified Theory of Acceptance and Use of Technology 2

VIF	Variance-Inflation Factor

PREFACE

Together with the development of wireless internet technology, mobile e-book comes up as a new application of internet technology. Mobile e-book has changed the users' reading style. It fulfills the need of better reading experience and eliminates the inconvenience of printed books. Mobile penetration rate is high in Malaysia and the mobile internet users keep on growing. This phenomenon explores an opportunity for Malaysians to adopt mobile e-book. However, e-book usage among Malaysians is considered moderately low. Therefore, this study is conducted in order to investigate the factors affecting users' behavioural intention (BI) of mobile e-book adoption.

ABSTRACT

Mobile e-book is an emerging product within m-commerce. However in Malaysia, the mobile e-book's adoption rate still remained at low level. Therefore, this study aims to examine factors affecting the users' behavioural intention (BI) of mobile e-book adoption by adapting the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2). Survey questionnaires were distributed and collected from a sample of 260 undergraduates from one local university in Penang. This study employed multiple linear regressions (MLR) to test the hypothesis. The findings indicated that performance expectancy (PE), hedonic motivation (HM), price value (PV) and habit (HT) have significant and positive relationship on BI to adopt mobile e-book. Contrary to expectations, effort expectancy (EE), social influence (SI) and facilitating condition (FC) does not have significant influence on BI towards mobile e-book adoption. These findings can provide valuable insights to the e-book application developers and marketers.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

This chapter demonstrates the research background and problem statement at the first section. Next, research objectives and questions, as well as hypotheses are developed. At the last section, significances of the study are discussed.

1.1 Research Background

In recent years, there are increasing numbers of smartphone users around the world. The World Bank (as cited in Wong, 2014) found that mobile penetration of Malaysia ranked fourth among Southeast Asia which is leading by Cambodia, Singapore and Vietnam. Smartphone penetration in Malaysia has reached 63% in 2013 (TheStar, 2013). According to statistics issued by Malaysian Communications and Multimedia Commission in 2012, the major users of smartphone fall under the age of 20-24. This indicates that most of the smartphone users are teenagers. In 2009, Digital Media has issued a report stated that there were 100.8 mobile phone for every 100 people in Malaysia which means that one Malaysian possesses at least one mobile phone (Hussin , Manap, Amir, & Krish, 2012). Individuals in Malaysia use smartphone to send or receive email, download mobile application, surf internet, reading e-books and so on. Besides that, the number of mobile internet users has been increasing every year. According to Minister of Communication Dato' Seri Utama Dr. Rais Yatim stated that Malaysia has 10 million mobile internet service subscribers in 2011 ("Malaysia, 17.5 Million," 2011). The growth of mobile smartphone and mobile internet service provides an opportunity for the expansion and development of e-book

market (Ho, Lu, & Lin, 2013). Technological advancement has changed the consumers' reading style (Jung, Chan, Park, & Kim, 2011). According to Google study (as cited in Wong, 2014b), there is 28% of Malaysians read e-books through smartphone.

E-book has been defined in many different perspectives. Eileen and Musto's study (as cited in Jin, 2014) demonstrated that e-books are defined as digitised version of book-length publications that are consisted of words and images. Connaway (as cited in Ismail & Zainab, 2005) stated that e-book is an e-text in the form of digital format which can be viewed through internet technology. Ratten (2010) defined e-books as mobile devices that provide convenience for people to acquire books regardless of time and place. E-books are almost identical with printed books. The difference is that books are printed on paper while e-books can be downloaded via electronic devices from any location (Sena, 2011).

E-books are one of the components of m-commerce. It is an extension of e-commerce, which business transactions are carried out in a mobile environment with mobile devices (Chong, Chan, & Ooi, 2012). It enables people accessing to books easily in soft copy (Ratten, 2010). It provides a wide variety of products and services such as m-advertising m-banking, m-learning, m-purchase and m-computing.

Mobile e-books enable users or undergraduates to do their revision and reading anytime and anywhere. This is because the size of mobile e-book is smaller and lighter if compared to the traditional printed books (Alexander, 2012). Besides, using mobile e-book can also support the awareness to save our mother earth because the activities of cutting down the trees can be reduced by replacing the traditional printed book with mobile e-book. In other words, it may help to avoid deforestation which is required in the production process of traditional printed book. Since mobile e-book can be purchased through internet, users or undergraduates could save the time to travel to somewhere like bookstore to purchase the book needed.

In the future, it is foreseen that people would replace the printed textbook with e-textbook in the classroom. This is due to the fact that handheld mobile e-books have the characteristics of high-resolution, easy-to-read screens, easy to receive as well as able to send out the file through smartphone. Better yet, mobile devices like smartphones have greater memory to store many book files at once (Roose, 2014) .In order to achieve the vision 2020, technology, e-learning and e-knowledge of nations must be enhanced. Thus e-book plays an important role in Malaysia and it is expected that e-book will become a trend throughout the worldwide.

UTAUT2 model is the modified version of Unified Theory of Acceptance and Use of Technology (UTAUT) model. The original model is formulated by Venkatesh, Moris, Davis, and Davis (2003) which holds four key constructs: PE, EE, SI and FC. Three more constructs have been added into UTAUT2 model which are HM, PV and HT. According to Venkatesh et al. (2012), UTAUT2 enhances the applicability of UTAUT from organizational to a consumer use context.

1.2 Problem Statement

Roesnita and Zainab (as cited in Letchumanan & Tarmizi, 2010) commented that the adoption rate of e-book in Malaysia still remains at low level. Their research also found that most of the students prefer to read printed books rather than e-books due to the reasons that printed books allow them to highlight and easier to use and understand. They also face visual problems and difficulty to read book through small screen of mobile devices.

Previous study regarding the mobile e-book's adoption has been conducted in South Korea by Lee (2013). The study investigated the e-book adoption through the integration of Diffusion of Innovation (DOI) Theory and Technology Acceptance Model (TAM) with innovation resistance model (Lee, 2013). Furthermore, another

related study conducted by Poon (2014) in Hong Kong which determined BI of college students in e-books' adoption by using TAM integrated with personal innovativeness, SI, perceived cost and environmental consciousness. Besides that, Quan-Haase and Kim (2011) examined how the social networks influence the adoption of e-book by utilising diffusion of innovation model.

Majority of the prior studies regarding the acceptance of mobile technology were related to the products and services other than e-book like m-commerce (Zhang, Zhu, & Liu, 2012), m-learning (Tan, Ooi, Leong, & Lin, 2014), m-banking (Lin, 2011), m-shopping (Agrebi & Jallais, 2015). Moreover most of these studies were conducted in overseas. Considering the high mobile penetration rate, there is a scarcity of studies regarding the BI to adopt mobile e-book. For example, previous studies conducted in Malaysia that are related to e-book are Salleh and Alwi (2014) which investigated the reading habits of Polytechnic lecturers between e-book and hardcopy book; Lim, Hong, and Aziz (2014) explored the effects of three e-book format on student achievement in university; Noor, Embong, and Abdullah (2012) examined preference and experience of students in using e-book. Furthermore, Fahmy, Haslinda, Roslina, and Fariha (2012) studied the quality of e-book software; Roslina, Fahmy, Fariha, Haslinda, Yacob, Sukinah, and Suhana (2013) determined the impact of e-book on school children's learning style.

UTAUT 2 model has not been used in the study for users' BI of mobile e-book. Most of the past study regarding the BI focused on other models like TAM (Bigné, Sanz, Ruiz, & Aldás, 2010), UTAUT (Herrero & San Martin, 2012), and theory of planned behavior (TPB) (Greaves, Zibarras, & Stride, 2013). Social cognitive theory (SCT) has been used in the research about the adoption of e-book by Ratten (2010).

1.3 Research Objectives

1.3.1 General Objective

This study is to investigate the suitability of UTAUT 2 model in studying the BI to adopt mobile e-book.

1.3.2 Specific Objectives

Specific objectives are as follows:

1. To examine the relationship between PE and the BI to adopt mobile e-book.

2. To determine the relationship between EE and the BI to adopt mobile e-book.

3. To analyze the relationship between SI and the BI to adopt mobile e-book.

4. To describe the relationship between FC and the BI to adopt mobile e-book.

5. To explain the relationship between HM and the BI to adopt mobile e-book.

6. To analyze the relationship between PV and the BI to adopt mobile e-book.

7. To examine the relationship between HT and the BI to adopt mobile e-book.

1.4 Research Questions

Research questions are as follows:

1. What is the relationship between PE and the BI to adopt mobile e-book?
2. What is the relationship between EE and the BI to adopt mobile e-book?
3. What is the relationship between SI and the BI to adopt mobile e-book?
4. What is the relationship between FC and the BI to adopt mobile e-book?
5. What is the relationship between HM and the BI to adopt mobile e-book?
6. What is the relationship between PV and the BI to adopt mobile e-book?
7. What is the relationship between HT and the BI to adopt mobile e-book?

1.5 Significance of Study

From a theoretical view, this study can contribute to future researches by applying the UTAUT2 model in the study of BI on mobile e-book's adoption. This will help researchers in understanding the most important drivers influencing the

users' BI of mobile e-book adoption for further methodological research. In addition, the study helps to investigate the correlation between the seven constructs of UTAUT2 and BI to adopt mobile e-book. Besides that, there is little research on BI to adopt mobile e-books by using UTAUT2. Therefore employing UTAUT2 model in this study can provide evidence to further prove the applicability of UTAUT2 in related research.

From a practical view, understanding about which factors have the strongest significant influence the BI to adopt mobile e-books is important for developers and marketers. This study will provide valuable insight to the e-book application developers in designing better and useful features of mobile e-books application and help e-book application marketers to develop their marketing strategies that enhance the usage of e-book. Book industry should understand how the mobile technology advancement can help them to increase their sales. The enhanced accessibility, quality and usability of mobile e-book can increase its consumers' adoption. Consequently, popularity of mobile e-book can be increased and reading culture among Malaysia will be boosted up.

1.6 Chapter Layout

Chapter 1 demonstrates the background, problem statement, objectives as well as the importance of the study. Chapter 2 explains all the variables of UTAUT2 by adopting past studies. Theoretical foundation of UTAUT2 model will be laid out and hypotheses will be developed here. Furthermore, there will be a formulation for research design, methodology for sampling procedures, collection of data and measurement of constructs in chapter 3. In chapter 4, analysis of data and interpretation of results will be conducted. Lastly, final chapter sums up the major findings, implications, limitations together with recommendations for future purposes.

1.7 Conclusion

Research background, problems statement, objectives and significances of this study have been discussed. The rationale of conducting this study is clarified. Chapter 2 will provide a comprehensive literature review related to UTAUT2 model.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

In this chapter, the theoretical framework employed and reviews of previous studies are described. Furthermore, this chapter also develops the theoretical model and hypotheses.

2.1 Review of the Literature

Previous empirical studies are discussed and the relationships between the seven independent variables (PE, EE, SI, FC, HM, PV and HT) and the dependent variable (BI) are demonstrated in this section.

2.1.1 Behavioral Intention (BI)

BI is defined as a "function of both attitudes and subjective norms about the target behavior, predicting actual behavior" (Pickett, Ginsburg, Mendez, Lim, Blankenship, Foster, Lewis, Ramon, Saltis, & Sheffield, 2012, p. 339-354). The willingness of a person to perform a particular behavior can be examined by his or her BI. In this study, BI is used to describe how great the users' desire to adopt mobile e-book. Zhang, Zhu, and Liu (2012), stressed that BI is the most significant factor that influences one's actual behavior in TAM theory.

2.1.2 Performance Expectancy (PE)

PE refers to "the degree to which using a technology will provide benefits to consumers in performing certain activities" (Venkatesh et al., 2012, p. 157-178). A study conducted by Oliveira, Faria, and Thomas (2014) demonstrated that PE positively influences BI to adopt m-banking. The online survey was targeted on the mobile phone users at a public university in Portugal and validated by partial least square (PLS). Besides that, a recent study conducted by Slade, Williams, Dwivedi and Piercy (2014) discovered that PE has a positive influence on BI to adopt m-payment. The data was gathered from UK consumers by using online survey and was analysed by regression analysis. Shi (2009) asserted that PE has positive influence on BI to use smart phone online application software. Survey questionnaire was used on smart users from different industry and the hypothesis was validated by (structural equation modeling) SEM. Furthermore, Lin, Zimmer, and Lee (2013) found that PE positively affected BI to adopt podcasting, based on survey distributed to teachers and students in a Northeastern United States college via email and evaluated using PLS. Martins, Oliveira, and Popovič (2014) conducted survey via email targeted students and ex-students from a Portugal university. The data was analysed using SEM and they discovered that PE was positively related to BI toward internet banking adoption.

2.1.3 Effort Expectancy (EE)

EE is "the degree of ease/effort associated with consumers' use of the technology" (Venkatesh et al., 2012 p. 157-178). Chang (2013) discovered that EE has a positive relationship with BI of using library mobile applications. This study's data comes from survey questionnaire on undergraduate and

graduate student in the eastern Taiwan and analysed by SEM. Besides that, the findings from Teo, Tan, Ooi, Hew, and Yew (2015) provided evidence that EE has positive influence on BI to utilize m-payment. Survey questionnaire was used to gather data from university student of the largest university in Malaysia. SEM approach was employed to validate the hypothesis. Tai and Ku (2013) proved that EE has significant positive influence on intention of stock investors to adopt mobile stock trading, based on online survey collected from Taiwan stock investors and tested using PLS regression. Besides that, Alharbi and Drew (2014) found that EE positively affected the students' BI to employ m-learning system based on the result from online survey conducted among respondents in Griffith University. The research model was validated by using quantitative empirical method. AlAwadhi and Morris (2008) carried out a questionnaire survey on undergraduate and postgraduate students at Kuwait University and employed Logistic Regression to analyse data. They revealed that there is a positive relationship between EE and BI to employ e-government services. Moreover, Im, Hong, and Kang (2011) found that EE positively influenced BI toward MP3 players adoption and internet banking usage. The survey targeted on people in Korea and U.S. and analysed by using covariance SEM.

2.1.4 Social Influence (SI)

SI refers to "the consumers perceive that important others (e.g. family and friends) believe that they should use a particular technology" (Venkatesh et al, 2012 p. 157-178). Jaradat and Rababaa (2013) collected data from Jordan public university students via survey questionnaire and discovered that SI positively influences the users' BI on m-commerce adoption and usage, using SEM. Furthermore, Alwahaishi and Snasel (2013) proved that SI has positive impact on BI towards adoption and use of mobile internet. Online

survey was conducted to collect data from mobile users of Saudi Arabia. The data was then analysed by employing SEM approach. Yu (2012) also highlighted that SI positively influences people intention to adopt m-banking, based on survey questionnaire collected from people in major Taipei downtown areas and evaluated using PLS regression. According to Jawad and Hassan (2015), SI was found to be positive related to BI toward mobile learning adoption. The data was collected from students and lecturers in Iraq higher education and analysed by using regression model. Moreover, Chong, Chan, and Ooi (2012) demonstrated that SI was the determinant which positively predicted BI to employ mobile commerce. The questionnaire survey was carried out against Chinese and Malaysian consumers in certain Malaysia mobile phone shops and data was evaluated using exploratory factor analysis.

2.1.5 Facilitating Conditions (FC)

FC is defined as "the consumers' perceptions of the resources and support available to perform a behavior" (Venkatesh at al., 2012, p. 157-178). SEM was used by Yang (2010) to test the hypothesized relationship. It has shown that FC is positively related to BI to use mobile shopping services. The results are based on online survey collected from U.S. mobile services users. Besides that, Zhou (2008) also found that FC will positively influence BI to adopt m-commerce. Questionnaire survey has been employed on mobile users in universities, China Unicom service, China Telecom service halls and China Mobile service halls, and the data is analyzed by using SEM software. Thomas, Singh, and Gaffar (2013) also found that FC is positively related to BI to adopt m-learning. The data was gathered through web survey from university students in University of Guyana and it was analyzed by SEM. Also, Chong (2013) found that FC is positively related to BI to adopt m-commerce by using MLR. The results are based on survey questionnaires

conducted in China. This result was in line with Yeoh and Chan (2011), who has stated that by using MLR, FC and BI are positively related for internet banking adoption. Questionnaire has been conducted in three areas which are Cheras, Ampang and Pudu.

2.1.6 Hedonic Motivation (HM)

HM is defined as "the pleasure or enjoyment derived from using a technology" (Venkatesh et al., 2012, p. 157-178). Bere (2014) has found that HM and BI to employ m-learning is positively related. Questionnaire was used to collect data from third year diploma Information Technology students at a university in South Africa and multiple regression analysis was employed to analyse the data. Harsono and Suryana (2014) conducted questionnaire to collect data from regular college students in Bandung and employing Smart-PLS to analyze the data. The results shown that HM positively influences the BI to use social media. Besides that, Alalwan, Dwivedi and Williams' (2014) study employed self-administrative questionnaire to collect data from Jordanian banking customers. SEM was used to analyse the data. The results proved that HM has positive impact on the consumers' intention and use of internet banking in Jordan. According to Escobar-Rodríguez and Carvajal-Trujillo (2013), HM is found to be positively related to BI to purchase online airline ticket. The data was collected from individuals in Spain by using questionnaires and analyzed by using SEM. Also, an online survey has been conducted by Raman and Don (2013) to collect data from undergraduates' students in University Utara Malaysia and employing PLS to analyse the data. The results indicated that HM and BI has a positive relationship to adopt Learning Management System.

2.1.7 Price Value (PV)

PV refers to "consumers' cognitive tradeoff between the perceived benefits of the applications and the monetary cost of using them" (Dodds et al., 1991, p. 307-319). Yang (2013) collected data from undergraduate students in China by using web-based survey. The data was analyzed by using PLS and the findings showed that PV positively influences the BI to adopt mobile learning of undergraduate students. Furthermore, Xu s' (2014) study carried out web-based survey to collect data from social network game players in China. SEM was adopted to analyse the data. The outcomes proved that PV has positive impact on users' continuance intention in online gaming. Besides that, Dhulla and Mathur (2014) also found that PV has positive influence on BI to adopt cloud computing, based on the questionnaire survey conducted on tertiary level students from management course in Mumbai. The data was analyzed by using Pearson Correlation. Apart from that, the finding of Arenas-Gaitán, Peral-Peral, and Ramón-Jerónimo (2015) also demonstrated that PV is positively related to elder people's BI to accept internet banking, based on the survey questionnaire conducted on students over 55 years old of a university in the south of Spain. The data was analysed by using WarpPLS 3.0. This result is also in consistent with Unyolo (2012), which has found that by using SEM model, PV has a positively relationship with BI to adopt mobile money. The data collection method is telephone survey questionnaire on Airtel Malawi mobile subscribers.

2.1.8 Habit (HT)

HT refers "the extent to which people tend to perform behaviors automatically because of learning" (Limayem et al., 2007, p. 705-737). According to an empirical study performed by Wong et al. (2014), they

noticed that HT has a positive influence on BI to adopt mobile TV, based on survey questionnaires distributed to students at the private university in Malaysia and was examined using PLS structural equation modeling (PLS-SEM). In addition, HT has been proved by Chong and Ngai (2013), who found that HT has positive influence on BI to adopt location-based social media for travel planning. Data was collected via survey questionnaires in various mobile phone shops in China's shopping mall and was analyzed using PLS regression. Lewis et al. (2013) in their findings revealed that HT has a positive influence on BI to use technology in higher education classrooms, based on online survey collected from business faculty members who teaching full time, face-to-face at Southeastern University in the United States and was validated using Smart-PLS. Similarly, Oechslein, Fleischmann, and Hess (2014) through online questionnaire collected from students at German university, they found that HT positively influences BI to accept social recommender systems. SEM was employed to test the research hypothesis. By utilising UTAUT2 research model, Liao, To, Liu, Kuo, and Chuang (2011) also reported that HT was one of the constructs that has positive relationship on BI to use web portals. They collected data via online questionnaire on bulletin board systems and the data was validated using SEM.

2.2 Review of Relevant Theoretical Models

In 2003, Venkatesh, Morris, Davis, and Davis have formulated the UTAUT. UTAUT is a model derived from the combination of eight theories (refer to Table 2.1). UTAUT has been used by many scholars to analyse the BI to use technology and technology use in organizational context. UTAUT is composed of four variables, which including PE, EE, SI and FC. UTAUT showed variance explained in BI to use technology (70 percent) and technology use (50 percent) (Venkatesh et al., 2003).

Table 2.1 Models and contructs with those of the UTAUT

Theory/ model	Authors and year	Core variables
Theory of reasoned action (TRA)	Fishbein & Ajzen (1975)	Attitude towards behavior Subjective norm
Technology acceptance model (TAM)	Davis (1989); Davis, Bagozzi, & Warshaw (1989)	Perceived usefulness Perceived ease of use Subjective norm
Motivational model (MM)	Davis, Bagozzi, & Warshaw (1992)	Extrinsic motivation Intrinsic motivation
Theory of planned behavior (TPB)	Azjen (1991); Schifter & Ajzen (1985)	Attitude towards behavior Subjective norm Perceived behavioral control
Decomposed theory of planned behavior (DTPB)	Taylor & Todd (1995)	Attitude towards behavior Subjective norm Perceived behavioral control Perceived usefulness
Model of PC utilization (MPCU)	Thompson, Higgins, & Howell (1991)	Job fit Complexity Long-term consequences Affect towards use Social factors Facilitating conditions
Innovation diffusion theory (IDT)	Moore & Benbasat (1991)	Relative advantage Ease of use Image Visibility Compatibility Results demonstrability Voluntariness of use

Socio-cognitive theory (SCT)	Compeau & Higgins (1995)	Outcomes expectations – performance Outcomes expectations – personal Affect Anxiety

Adapted from: Escobar-Rodriguez & Carvajal-Trujillo (2014).

Originally, UTAUT model acted as a baseline model to describe employee technology acceptance and use. Due to the increasing number of technology applied in non-organizational setting, Venkatesh, Thong, and Xu (2012) extended UTAUT to a more consumer oriented theory named UTAUT2. UTAUT2 consists of original UTAUT elements and three additional variables: HM, PV and HT.

Attentions on prior studies mainly employed UTAUT2 model in the research areas other than mobile. Raman and Don (2013) applied UTAUT2 model to assess pre-service teachers' technology acceptance. They discovered that PE, EE, SI, FC and HM significantly influence the acceptance of pre-service teachers towards Learning Zone. Oechslein, Fleischmann, and Hess (2014) utilized UTAUT2 in exploring user acceptance of social recommender systems. The findings showed that PE, EE, SI and HT positively affect the BI to use social recommender system. Lewis, Fretwell, Ryan, and Parham (2013) on the other hand, employed UTAUT2 to analyze the adoption of technologies in the higher education classroom. They discovered that the factors which significantly influence higher educational professors to use classroom technologies are PE, SI and HT.

Table 2.2 Definitions of the UTAUT2 variables

Variables	Original UTAUT definition	UTAUT2 definition
Performance Expectancy	"the degree to which an individual believes that using the	"the degree to which using a technology will provide

(PE)	system will help him or her to attain gains in performance" (Venkatesh et al., 2003)	benefits to consumers in performing certain activities" (Venkatesh et al., 2012)
Effort Expectancy (EE)	"the degree of ease associated with the use of the system" (Venkatesh et al., 2003)	"the degree of ease/effort associated with consumers' use of the technology" (Venkatesh et al., 2012)
Social Influence (SI)	"the degree to which an individual perceives that important others believe he or she should use the new system" (Venkatesh et al., 2003)	"the consumers perceive that important others (e.g. family and friends) believe that they should use a particular technology" (Venkatesh et al, 2012)
Facilitating Conditions (FC)	"the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system" (Venkatesh et al., 2003)	"the consumers' perceptions of the resources and support available to perform a behavior" (e.g. Brown & Venkatesh, 2005; Venkatesh et al., 2003)
Hedonic motivation (HM)	Not considered	"the pleasure or enjoyment derived from using a technology" (Venkatesh at al., 2012)
Price Value (PV)	Not considered	"consumers' cognitive tradeoff between the perceived benefits of the applications and the monetary cost of using them" (Dodds, Monroe, & Grewal, 1991)
Habit (HT)	Not considered	"the extent to which people

		tend to perform behaviors automatically because of learning" (Limayem, Hirt, & Cheung, 2007)

Adopted from: Escobar-Rodriguez & Carvajal-Trujillo (2014).

Table 2.2 shows the definition of original UTAUT variables and UTAUT2 variables. UTAUT variables are more organizational context while UTAUT2 variables are more focus on consumer use context.

UTAUT2 consists of seven constructs as independent variables, BI as mediating variable and use behaviour as dependent variable. However, this study eliminates use behavior from the analysis because it is impractical to ascertain the actual adoption of e-books for this research. It is ridiculous to take a look at the students' phone and record the actual usage of the students using the e-book applications (Lai & Lai, 2010). Furthermore, BI is a better measurement than use behavior because mobile e-book is still at an infancy stage in Malaysia.

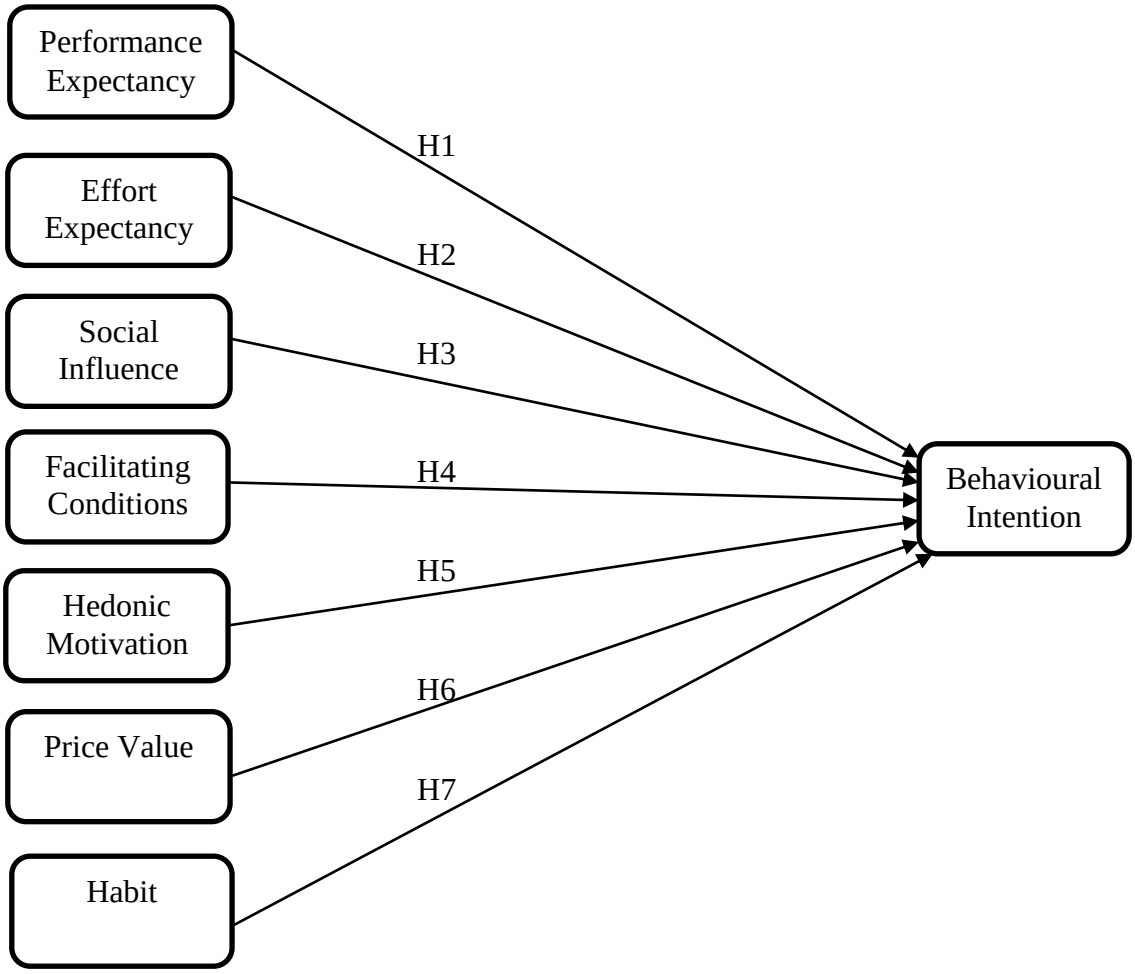
Moreover, the moderators used to test the BI stated in UTAUT2 model which are gender, age and experience are also excluded for this research. Since this study only focuses on users' BI to adopt mobile e-book, previous experience in using mobile e-book is irrelevant. Besides that, the reason of excluding age as moderator is because the target respondents are undergraduate students who aged below 25 years old. Lastly, most of the previous study found that gender has no impact on BI (Wong, Tan, Loke, & Ooi, 2014).

Therefore, this study adapted the UTAUT2 model by removing the use behavior and moderating variables to determine whether the seven elements in UTAUT2 will influences the BI of undergraduates to adopt mobile e-book.

2.3 Proposed Conceptual Framework

Figure 2.1 demonstrates the proposed conceptual framework of this research.

Figure 2.1: UTAUT2 Model



Adapted from: Venkatesh et al., (2012).

2.4 Hypothesis Development

Seven hypotheses are developed and as follows:

H1: There is a positive relationship between PE and BI to adopt mobile e-book

H2: There is a positive relationship between EE and BI to adopt mobile e-book

H3: There is a positive relationship between SI and BI to adopt mobile e-book

H4: There is a positive relationship between FC and BI to adopt mobile e-book

H5: There is a positive relationship between HM and BI to adopt mobile e-book

H6: There is a positive relationship between PV and BI to adopt mobile e-book

H7: There is a positive relationship between HT and BI to adopt mobile e-book

2.5 Conclusion

This chapter takes previous studies as reference and explains the fundamental of UTAUT2 model. Also, there is a suggestion for a conceptual framework and the hypotheses have been developed. The next chapter will explore the research methodology in order to test the hypotheses developed.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction

This chapter describes the research design, population, sample and sampling techniques of the study. In addition, variables and measurements, data collection and analysis method is clarified.

3.1 Research design

The research methodology for this study is survey. A quantitative survey has been conducted to analyse the factors influencing BI to adopt mobile e-book among undergraduates utilising the UTAUT2 variables which are PE, EE, SI, FC, HM, PV and HT. This survey aims to collect large volume of data from a population to investigate the relationships among variables of the population. Using survey strategy is able to describe "who", "what", "where", "how much" and "how many" questions in economical way (Saunders, Lewis, & Thornhill, 2009).

A cross-sectional approach has been conducted in this research with individual as the unit of analysis. Cross-sectional study enables effective delivery of the study (Ratten, 2010). Besides that, it is appropriate for the research purpose and affirmation of research question (Ratten, 2010).

3.2 Data Collection Method

3.2.1 Primary Data

Structured questionnaire has been employed to collect data for this study. According to Wilson (as cited in Holmes, Byrne & Rowley, 2013), it is easier for respondents to answer questions asked and to analyze the data by using closed-end type of questions.

3.3 Sampling Design

3.3.1 Target Population

This study targeted on undergraduates who own mobile devices in Malaysia. University students are the group that has the highest potential to use mobile e-book (Wong et al., 2014). Besides that, Yang's study (as cited in Wong et al., 2014) stressed that university students are also perceived as the beginners to first adopt new technology.

3.3.2 Sampling Frame and Sampling Location

It is impractical to measure the entire population of undergraduates in Malaysia due to the time and budget constraints (Saunders et al., 2009). Therefore, to generate appropriate general conclusion, sample is selected from a population.

A sample has been drawn from undergraduates of Universiti Sains Malaysia (USM) which is one of the public universities in Malaysia. According to Letchumanan and Tarmizi (2011), USM is one of the local universities that provide e-book service. It is served as the reference materials for the university students in its library. Undergraduates at USM will be most likely to use mobile e-book. Besides that, USM comprises of target respondents needed from different races, religions, backgrounds and cultures. Therefore, the sample can fairly represent the population from 14 states in Malaysia (Wong et al., 2014).

3.3.3 Sampling Elements

The sampling element of this study is undergraduates of USM.

3.3.4 Sampling Technique

When the actual sampling frame cannot be obtained, non-probability sampling technique is used (Leong, Ooi, Chong, & Lin, 2013a). Convenience sampling is employed in this study due to availability and ease of data collection (Chow & Frazer, 2003). The chosen of respondents depends on the willingness to participate. Besides, Suri (2011)'s study found that convenience sampling is a sampling method that is easy to access and economical to conduct. Malhotra, Hall, Shaw, and Crisp (as cited in Chow & Frazer, 2003) stated that convenience sampling is appropriate sampling method when time and budget constraint faced.

3.3.5 Sampling Size

According to Hinkin (1995), a preferable sample size should consist of an item-to-response ratio of at least 1:4 to maximum 1:10 for each variable in order to obtain useful estimation. Since the questionnaire consists of 34 items, item-to-response ratio of an average of 1:7 will generate 238 respondents. A total of 260 questionnaires have been distributed to the undergraduates.

3.4 Research Instruments

Self-administered questionnaires survey has been distributed face-to-face to the students from different faculties and libraries of USM in Penang. The survey has been conducted on May 2015 and it took 2 days to complete. Each respondent used around 8 minutes to fill up the questionnaire and it was collected immediately after they completed.

The validity of the questionnaire items has been confirmed by seeking the advice from master and PhD students who expert in mobile area at UTAR, Kampar. After the validation of questionnaire, pilot test has been conducted to eliminate any inconsistency and examine the readability of the content, format and design of the questionnaire (Alamro & Rowley, 2011). The questionnaire has been piloted by thirty undergraduates who study at UTAR, Kampar instead of USM, which is the sampling location for final data collection. This study excludes the respondents who participated in the pilot test from final test. Although the sampling location for pilot test (UTAR) and final data collection (USM) are different, the respondents in both tests have almost identical characteristics. All of them are undergraduates and all the undergraduates from these two universities are from different states of Malaysia.

University students who study in UTAR and USM are having the similar perception. Therefore, no significant biases existed in this study.

3.5 Constructs Measurement

In this study, the independent variables are PE, EE, SI, FC, HM, PV and HT whereas the dependent variable is BI. The definitions of the constructs have been discussed in Chapter 2. The questionnaire consists of 34 items, where 30 items for independent variables and 4 items for dependent variable. The measurements of 30 items for independent variables are adapted from Venkatesh et al. (2012), Alharbi and Drew (2014), Gerhart, Peak, and Prybutok (2015), Thomas et al. (2013) and Yang (2010). The measurement of remaining 4 items for dependent variable are adapted from Venkatesh et al. (2012), and Lin, Zimmer, and Lee (2013).The items are adapted from previous study to confirm the reliability and validity of the constructs (Leong, Hew, Tan, & Ooi, 2013b). All variables have been measured by using interval level of measurement and the scale of measurement is 7 points likert scale, ranging from 1=strongly disagree and 7=strongly agree.

3.6 Data Processing

Out of the 260 questionnaires distributed and collected, 10 sets of questionnaire were eliminated due to reason of partial response and invalid data and therefore there were only 250 sets of usable questionnaire. The collected data were analysed through SAS Enterprise Guide 5.1.

3.7 Data Analysis

3.7.1 Descriptive Analysis

The purpose of conducting descriptive statistic is to examine demographic profile of respondents and measure central tendencies of the constructs. The characteristics of target respondents have been described in table by using frequency and percentage. The mean and standard deviation of every construct have been calculated and interpreted. Descriptive statistics especially mean and standard deviation have the purpose of assessing construct in questionnaire. Mean and standard deviation of each item should approximately within the Likert scale (Othman, Teh, Sulaiman, Ibrahim, & Razha-Rashid, 2011).

3.7.2 Scale Measurement

The data collected has been examined by using reliability and normality test. The purpose of reliability test is to ensure the previous scales were reliable to use in this study (Yang & Kim, 2012). Based on the suggestion of Nunnally (1978), the reliability of the constructs has been validated by Cronbach's alpha of greater than 0.7. In order to ensure the data is normal distribution, all the skewness and kurtosis statistics must ranging from -2 to +2 recommended by Mardian (1985).

3.7.3 Inferential Analysis

Multiple linear regressions (MLR) has been employed to determine the relationship between the independent variables and dependent variable. The reason of

using MLR is because there are more than one independent variable influence the dependent variables (Nathans, Oswald, & Nimon, 2012). When p-value is less than 0.05, MLR is significant (Polat & Bingol, 2013).

According to Hair et al. (as cited in Awwad & Neimat, 2010), it is necessary to ensure the collected data does not violate the key assumptions of MLR which including multicollinearity, linearity and normality. Pearson correlation analysis, tolerance and variance-inflation factor (VIF) have been used to assess multicollinearity problem. For Pearson correlation analysis, Field (as cited in Toh, Marthandan, Chong, Ooi, & Arumugam, 2009) elaborated that in order to abstain from multicollinearity, the correlation coefficient should not excess 0.8. For tolerance and VIF, Hair et al.'s (as cited in Awwad & Neimat, 2010) study stated that multicollinearity problem exists if any variable has a tolerance value below 0.1 or VIF value above 10.0.

3.8 Conclusion

This chapter described the research design, sampling techniques, measurement of variables, data collection method and analysis method. The following chapter will discussed results of data analysis.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

The outcomes of pilot test are demonstrated in this chapter. Moreover, this chapter also describes the result of descriptive analysis, inferential analysis and scale measurement.

4.1 Pilot Test Analysis

Pilot sample was examined for the reliability and normality test.

4.1.1 Reliability Test

Table 4.1: Reliability Statistic of Pilot Test

Variable	Construct	Conbach's alpha	Number of Item
IV 1	PE	0.8735	4
IV 2	EE	0.9206	4
IV 3	SI	0.8489	5
IV 4	FC	0.9225	5
IV 5	HM	0.9809	4
IV 6	PV	0.9208	4
IV 7	HT	0.9431	4
DV	BI	0.9450	4

Source: Developed for the research

Table 4.1 illustrates the reliability statistic of pilot test. The reliability of the pilot sample was met because Conbach's alpha values of all variables are above 0.7.

4.1.2 Normality Test

Table 4.2: Normality Statistic of Pilot Test

Constructs	Items	Skewness	Kurtosis
PE	PE 1	-0.6235	-0.7263
	PE 2	-0.2799	-0.2835
	PE 3	0.2503	-0.3976
	PE 4	0.0764	-0.5707
EE	EE 1	-0.9155	0.7546
	EE 2	0.2053	-0.4376
	EE 3	-0.0210	-0.2964
	EE 4	-0.5623	0.5762
SI	SI 1	-1.3469	2.9322
	SI 2	-1.0698	1.3787
	SI 3	-0.7823	0.7056
	SI 4	-0.4697	0.6411
	SI 5	-0.0215	1.3974
FC	FC 1	-0.2547	-0.2909
	FC 2	-0.6122	-0.2764
	FC 3	-0.4682	0.8480
	FC 4	-0.0394	0.6560
	FC 5	0.1976	0.3138
HM	HM 1	-0.5435	0.4287
	HM 2	-0.5902	0.5659

	HM 3	-0.6535	0.2227
	HM 4	-0.5001	-0.0336
PV	PV 1	0.9928	2.0410
	PV 2	0.3778	0.9872
	PV 3	-0.8448	0.5741
	PV 4	0.7562	0.9619
HT	HT 1	0.0880	-0.4246
	HT 2	-0.2331	-0.7526
	HT 3	-0.0275	-0.4920
	HT 4	0.0476	-0.6401
BI	BI 1	-0.6192	0.1907
	BI 2	-0.5694	-0.2132
	BI 3	-0.2378	-0.7908
	BI 4	-0.2043	-0.4758

Source: Developed for the research

Table 4.2 illustrates the normality statistic of pilot test. According to table, all the skewness values and most of the kurtosis values are within the range between -2 to +2. The kurtosis values for SI 1 and PV 1 are above the suggested level of +2. However, these two items was still incorporated in the questionnaire to prevent missing data (Pahnila, Siponen, & Zheng, 2011).

4.2 Descriptive Analysis

4.2.1 Demographic Profile of Respondents

260 sets of questionnaire were distributed and collected. However, there were only 250 of usable questionnaires. Thus, the usable response rate of the survey is 96.15 per cent. This section describes the characteristic of 250 respondents.

Table 4.3: Respondents' Gender

Category	Frequency	Percent (%)
Female	166	66.4
Male	84	33.6
Total	250	100.0

Source: Developed for the research

Table 4.3 illustrates the frequency and percentage of gender of 250 respondents. There are 166 (66.4%) female respondents and 84 (33.6%) male respondents. This result indicates that there is a large difference of respondents in terms of gender because percentage of number of male respondents is lower than female respondents by 32.8%.

Table 4.4: Respondents' Age Groups

Age group	Frequency	Percent (%)
19 to 22 years	179	71.60
23 to 26 years	71	28.40
Total	250	100.0

Source: Developed for the research

Table 4.4 demonstrates the frequency and percentage of the two age groups of respondents. There are 179 (71.60%) respondents who are 19 to 22 years old and 71 (28.40%) respondents age between 23 and 26 years old. This result indicates that most of the respondents are undergraduates who age from 19 to 22 years old.

Table 4.5: Respondents' Ethnicity Groups

Ethnicity	Frequency	Percent (%)
Malay	116	46.40
Chinese	116	46.40
Indian	13	5.20
Others	5	2.00
Total	250	100.0

Source: Developed for the research

Table 4.5 presents the frequency and percentage of four ethnicity groups of respondents. Among the undergraduates, there are 116 (46.40%) Malay, 116 (46.40%) Chinese, 13 (5.20%) Indian, and only 5 (2.00%) from other ethnicities such as Punjabi, Sikh, Bugis and Dusun. This result indicates that majority of respondents are Malay and Chinese undergraduates.

Table 4.6: Respondents' Education Level

Pursuing Bachelor Degree Course?	Frequency	Percent (%)
Yes	250	100
No	0	0
Total	250	100.0

Source: Developed for the research

Table 4.6 exhibits the frequency and percentage of education level of respondents. From the results, all the respondents are currently pursuing bachelor degree course.

Table 4.7: Respondents' Current Hometown

State	Frequency	Percent (%)
Northern Region	130	52.00
East Coast Region	21	8.40
Central Region	35	14.00
Southern Region	43	17.20
East Malaysia	21	8.40
Total	250	100.00

Source: Developed for the research

Table 4.7 expresses the frequency and percentage of current hometown of respondents. It shows that there are 130 (52.00%) respondents from Northern Region, 21 (8.40%) from East Coast Region, 35 (14.00%) from Central Region, 43 (17.20%) from Southern Region and 21 (8.40%) from East Malaysia. Based on the results, majority of the respondents are undergraduates from Northern Region.

Table 4.8: Ownership of Mobile Devices of Respondents

Own Mobile Devices?	Frequency	Percent (%)
Yes	250	100
No	0	0
Total	250	100

Source: Developed for the research

Table 4.8 shows the frequency and percentage of ownership of mobile devices by respondents. This result indicates that all the respondents have mobile devices.

They have the higher chances to use mobile e-book than respondents who do not have mobile devices (Leong, Ooi, Chong, & Lin, 2013).

Table 4.9: Accessibility of Internet on Respondents' Mobile Devices

Have Internet Access on Mobile Devices?	**Frequency**	**Percent (%)**
Yes	237	94.80
No	13	5.20
Total	250	100.0

Source: Developed for the research

Table 4.9 demonstrates the frequency and percentage of accessibility of internet on mobile devices by respondents. There are 237 (94.80%) of respondents have internet accesses on their mobile devices and only 13 (5.20%) of respondents do not have internet access on their mobile devices. Thus, it indicates that majority of respondents are easy to access internet through their devices.

Table 4.10: E-book Application on Respondents' Mobile Devices

Have E-books Application On Mobile Devices?	**Frequency**	**Percent (%)**
Yes	114	45.60
No	136	54.40
Total	250	100.0

Source: Developed for the research

Table 4.10 presents the frequency and percentage of e-book application on respondents' mobile devices. There are 114 (45.60%) of respondents have e-book application in their mobile devices and the remaining 136 (54.40%) do not have. This

result indicates that more than half of respondents do not own e-book application on their devices.

Table 4.11: Experience of respondents with Mobile E-book

Used Mobile E-books before?	**Frequency**	**Percent (%)**
Yes	166	66.40
No	84	33.60
Total	250	100.0

Source: Developed for the research

Table 4.11 exhibits the frequency and percentage of respondent's experience with mobile e-books. There are 166 (66.40%) of respondents have experience with mobile e-books and the remaining 84 (33.60%) of respondents do not have. The main reasons of undergraduate at USM don't read books on mobile devices are including prefer to read hardcopy books as in holding than e-books, don't have interest or don't like it, battery consuming on devices and hard to read due to the small size of screen of devices. However, it still indicates that majority of undergraduates at USM used mobile e-books before. This study includes both experience and inexperience users. The reason for including experience users in this study is because it is consistent with the study conducted by Wong et al. (2014) and Cheng (2014), which included the respondents who have and do not have prior experience in determining the BI. Besides, this study also includes inexperience users due to they are able to provide information about the potential use of mobile e-book (Al-Suqri, 2014).

4.2.2 Central Tendencies Measurement of Construct

Table 4.12: Central Tendencies Measurements

Variables		Mean	Standard Deviation
Performance Expectancy			
PE 1	I feel mobile e-book is useful in my daily life.	4.9160	1.0243
PE 2	Mobile e-book improves the convenience of my study.	5.0560	1.0004
PE 3	Mobile e-book lets me do study related tasks more quickly.	4.9680	1.0485
PE 4	Using mobile e-book helps me to learn better.	4.8000	1.0258
Effort Expectancy			
EE 1	Learning how to use mobile e-book is easy for me.	5.1160	1.1006
EE 2	My interaction with mobile is clear and understandable.	4.8640	1.0362
EE 3	I find mobile e-book is easy to use.	5.0800	1.0305
EE 4	It is easy for me to become skilful at using mobile e-book.	5.0320	1.0370
Social Influence			
SI 1	People who are important to me think that I should use mobile e-book.	4.1960	1.0246
SI 2	People who influence my behaviour think that I should use mobile e-book.	4.1720	1.0132
SI 3	People whose opinions I value prefer that I use mobile e-book.	4.2440	1.0682
SI 4	I would use mobile e-book if most of	4.4440	1.1817

	my friends are using mobile e-book.		
SI 5	University lecturers are supportive of the use of mobile e-book.	4.3280	1.2175
Facilitating Condition			
FC 1	I have the resources necessary to use mobile e-book.	4.6440	1.0927
FC 2	I have the knowledge necessary to use mobile e-book.	4.7480	1.0241
FC 3	Mobile e-book is compatible with other technologies I use.	4.8080	1.0115
FC 4	I can get help from others when I have difficulties using mobile e-book.	4.7120	1.0243
FC 5	My university campus has support for mobile e-book.	4.4000	1.1477
Hedonic Motivation			
HM 1	Using mobile e-book is enjoyable.	4.7640	0.9961
HM 2	Using mobile e-book is entertaining.	4.7480	0.9962
HM 3	Using mobile e-book is satisfying.	4.8120	1.0416
HM 4	Using mobile e-book makes me feel pleased.	4.6960	1.0392
Price Value			
PV 1	Mobile e-book is reasonably priced.	4.3600	1.0932
PV 2	Mobile e-book is good value for the money.	4.3720	1.0459
PV 3	At the current price, mobile e-book provides a good value.	4.3840	0.9841
PV 4	Mobile e-book is affordable.	4.4520	1.0753
Habit			
HT 1	The use of mobile e-book has becomes a habit for me.	3.9960	1.2239

HT 2	I will get addicted to use mobile e-book.	3.7520	1.2810
HT 3	I must use mobile e-book.	3.7240	1.3171
HT 4	Using mobile e-book has become natural for me.	3.9440	1.2177
Behavioural Intention			
BI 1	I intend to use mobile e-book in the future.	4.8520	1.0481
BI 2	I will always try to use mobile e-book in my daily life.	4.6400	1.0597
BI 3	I plan to use mobile e-book frequently.	4.5880	1.1311
BI 4	I intend to take full advantage of mobile e-book.	4.7600	1.0969

Source: Developed for the research

Table 4.12 illustrates the central tendencies measurements of each of the constructs. The mean values for PE range from 4.8000 to 5.0560, EE range from 4.8640 to 5.1160, SI range from 4.1720 to 4.4440, FC range from 4.4000 to 4.8080, HM range from 4.6960 to 4.8120, PV range from 4.3600 to 4.4520, HT range from 3.7240 to 3.9960 and BI range from 4.5880 to 4.8520. This result indicated that majority of the respondents chose to disagree, neutral and agree with the items in the questionnaire.

According to Table 4.12, the highest standard deviation was the third statement of HT (HT 3) which had the value of 1.3171 whilst the lowest standard deviation was the third statement of PV (PV 3) which had the value of 0.9841. This result indicates that the values of standard deviation for all variables are above 0.9 but less than 1.3171.

4.3 Scale Measurement

4.3.1 Reliability Test

Table 4.13: Reliability Statistics

Variable	Constructs	Cronbach's Alpha	Number of Item
IV 1	PE	0.8877	4
IV 2	EE	0.9089	4
IV 3	SI	0.8506	5
IV 4	FC	0.7972	5
IV 5	HM	0.9192	4
IV 6	PV	0.8750	4
IV 7	HT	0.8762	4
DV	BI	0.9195	4

Source: Developed for the research

Table 4.13 shows the results of reliability test. Among those IVs, HM had the highest Cronbach's alpha with the value of 0.9192 while FC had the lowest value of 0.7972. The values of Cronbach's coefficient alpha for all variables were above the acceptable value of 0.7, which suggested by Nunnally. Thus, it indicated the good reliability and validity of the scale.

4.3.2 Normality Test

Table 4.14: Normality Statistics

Constructs	Items	Skewness	Kurtosis
PE	PE 1	0.5537	-0.1611
	PE 2	-0.2996	0.1205
	PE 3	0.3803	-0.3877
	PE 4	0.4996	0.0079
EE	EE 1	0.0596	-0.1223
	EE 2	0.3846	-0.0403
	EE 3	0.1051	0.3158
	EE 4	0.2407	-0.4110
SI	SI 1	0.0505	1.2934
	SI 2	-0.0474	1.1714
	SI 3	-0.1415	1.2806
	SI 4	-0.2847	0.6641
	SI 5	0.0493	0.5695
FC	FC 1	0.0367	0.2061
	FC 2	0.1373	0.3198
	FC 3	0.2054	-0.0830
	FC 4	-0.0312	0.6282
	FC 5	0.0868	1.0199
HM	HM 1	0.5620	-0.0983
	HM 2	0.2286	0.7063
	HM 3	0.4264	-0.0209
	HM 4	0.3761	0.4473
PV	PV 1	0.0648	0.8120
	PV 2	0.2269	0.6093
	PV 3	0.0342	0.8539

	PV 4	0.0960	1.1182
HT	HT 1	0.2727	0.5550
	HT 2	0.1730	0.3019
	HT 3	-0.1384	0.1760
	HT 4	-0.2554	0.6263
BI	BI 1	-0.0378	0.9612
	BI 2	0.2301	0.7085
	BI 3	0.2245	0.3858
	BI 4	0.1938	0.4596

Source: Developed for the research

Table 4.14 illustrates the skewness and kurtosis values of the constructs. Among those IVs, the greatest skewness value is 0.5620 for HM 1 and the lowest skewness value is -0.2996 for PE 2. In addition, the greatest kurtosis value is 1.2934 for SI 1 and the lowest kurtosis value is -0.4110 for EE 4. Since the skewness and kurtosis statistics falls within the range from -2 to +2 as recommended by Mardian, all the constructs are normally distributed.

4.4 Inferential Analysis

4.4.1 Multicollinearity Test

Table 4.15: Collinearity Statistics

Construct	**Collinearity Statistics**	
	Tolerance	**Variance Inflation**
Intercept		0
PE	0.5507	1.8159

EE	0.4656	2.1479
SI	0.6287	1.5906
FC	0.4641	2.1548
HM	0.5028	1.9887
PV	0.7970	1.2548
HT	0.6226	1.6061

Source: Developed for the research

Table 4.15 illustrations the outcome of tolerance and variation inflation factors (VIF) test. Based on Table 4.13, all of the tolerance values are greater than 0.10 and VIF values are less than 10. Therefore, there is no multicollinearity problem existed in this study.

Table 4.16: Pearson Correlation Coefficients Matrix

Variable	**PE**	**EE**	**SI**	**FC**	**HM**	**PV**	**HT**	**BI**
PE	1.0000							
EE	0.5109	1.0000						
SI	0.4312	0.2371	1.0000					
FC	0.4479	0.6312	0.4850	1.0000				
HM	0.5635	0.5762	0.3808	0.5173	1.0000			
PV	0.2026	0.2514	0.3160	0.3501	0.3054	1.0000		
HT	0.4709	0.3154	0.4347	0.3982	0.4975	0.3654	1.0000	
BI	0.4651	0.3885	0.3029	0.3426	0.5494	0.3552	0.5284	1.0000

Source: Developed for the research

Table 4.16 shows the result of Pearson correlation analysis. According to Table 4.14, the highest correlation value is found between EE and FC with a value of 0.6312, which below correlation value of 0.80. Thus, there is no multicollinearity problem among the IVs.

4.4.2 Multiple Linear Regression (MLR)

Table 4.17: Model Summary

Model	R	R^2	Adjusted R2	Standard Error of the Estimate
1	0.7502	0.4225	0.4058	0.5628

Source: Developed for the research

From Table 4.17, it has shown that R^2 value of 0.4225 means that 42.25% of the changes in undergraduate's BI to adopt mobile e-books (DV) can be explained by all the 7 IVs. On the other hand, the remaining 57.75% of the changes can be explained by other elements which are not included in this study.

Table 4.18: ANOVA of Multiple Linear Regression for Behavioural Intention

	Sum of Square	Df	Mean Square	F	Pr > F
Model	99.6442	7	14.2349	25.29	<.0001
Error	136.2058	242	0.5628		
Total	235.8500	249			

Source: Developed for the research

From Table 4.18, the result revealed that F-value for this study is significant with a value of 25.29 because p value less than 0.05. This result demonstrates that at least one of the 7 IVs have significant relationship with the undergraduates' BI to adopt mobile e-books. Thus, research model that used in this study is fit.

Table 4.19: Parameter Estimates of Construct

Construct	df	Parameter Estimate	Standardised Estimate	Standard Error	t	Pr > |t|
Intercept	1	0.9063	0	0.3635	2.49	0.0133
PE	1	0.1607	0.1464	0.0723	2.22	0.0271
EE	1	0.0765	0.0733	0.0748	1.02	0.3071
SI	1	-0.0222	-0.0199	0.0686	-0.32	0.7471
FC	1	-0.0857	-0.0694	0.0885	-0.97	0.3339
HM	1	0.3037	0.2851	0.0734	4.14	<.0001
PV	1	0.1626	0.1497	0.0595	2.74	0.0067
HT	1	0.2496	0.2761	0.0560	4.46	<.0001

Source: Developed for the research

From Table 4.19, 4 IVs which are PE (p=0.0271), HM (p<.0001), PV (p=0.0067) and HT (p<.0001) have significant and positive effect on the undergraduate' BI to adopt mobile e-book as the p-value is less than 0.05. In other words, H1, H5, H6, and H7 are supported. On the other hand, EE, SI and FC do not have significant influence on BI. This showed that H2, H3, and H4 are not supported.

Consequently, MLR equation is formulated as below:

BI = 0.9063 + 0.1607 PE + 0.0765 EE - 0.0222 SI - 0.0857 FC + 0.3037 HM + 0.1626 PV + 0.2496 HT

4.5 Conclusion

This chapter discusses the statistic result of the data analysis. The following chapter will describe the major findings, limitations, recommendations and the implications of the study.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATION

5.0 Introduction

This chapter summarizes about what have been discussed in the previous chapter which are the statistical analysis and major findings. Besides, this chapter also discusses about the implication of the study in terms of managerial and practical implication. Furthermore, limitations, recommendations and conclusion of the whole study will be laid out in this final chapter.

5.1 Summary of Statistical Analysis

5.1.1 Summary of Descriptive Analysis

According to the 250 sets of questionnaires collected, there are more female (66.4%) respondents compared to male (33.6%) respondents. The age groups of the respondents are concentrated at the range of 19 to 22 years old which is as high as 71.6%. An equal percentage of the respondents were found to be Malay and Chinese. All of them are currently pursuing a bachelor degree course and also own mobile devices. Most of the respondents' (94.8%) mobile devices are able to access to internet. Less than half (45.6%) of the respondents have e-book application on their mobile devices and more than half (66.4%) of the respondents have experienced with the mobile e-books.

5.1.2 Summary of Inferential Analysis

Table 5.1: Summary of Inferential Analysis

Hypotheses	Standardised Estimate	Multiple Linear Regression	
	Result	Result	Remarks
H1: There is a positive relationship between PE and BI to adopt mobile e-books.	0.1464	0.0271	Supported
H2: There is a positive relationship between EE and BI to adopt mobile e-books.	0.0733	0.3071	Not Supported
H3: There is a positive relationship between SI and BI to adopt mobile e-books.	-0.0199	0.7471	Not Supported
H4: There is a positive relationship between FC and BI to adopt mobile e-books.	-0.0694	0.3339	Not Supported
H5: There is a positive relationship between HM and BI to adopt mobile e-books.	0.2851	<.0001	Supported
H6: There is a positive relationship between PV and BI to adopt mobile e-books.	0.1497	0.0067	Supported
H7: There is a positive relationship between HT and BI to adopt mobile e-books.	0.2761	<.0001	Supported

Source: Developed for the research

Based on the outcomes shown in Table 5.1, PE, HM, PV, and HT have a positive and significant relationship with BI. In other words, this indicated that H1, H5, H6, and H7 are supported. On the other hand, EE, SI and FC were found to have insignificant relationship with BI. This showed that H2, H3, and H4 are not supported.

5.2 Discussion of major findings

5.2.1 The Relationship between Performance Expectancy (PE) and Behavioural Intention (BI) to Adopt Mobile E-books

As expected, the results from data analysis clearly show that PE is positively related to the BI to adopt mobile e-book. This result is in line with the findings of Oliveira et al. (2014), Slade et al. (2014), Shi (2009), Lin et al. (2013), and Martins et al. (2014), which validated that PE has a positive relationship with BI.

Undergraduates feel that using mobile e-book is useful and helpful in their learning activities when it improves their study performance and work productivity. In addition, mobile e-book enhances convenience of undergraduates' study. Portability and flexibility of mobile e-book device enable the undergraduates to read book anywhere and anytime. This leads to the positive perception of mobile e-book and reinforces the intention to use mobile e-book. As a result, H1 is supported.

5.2.2 The Relationship between Effort Expectancy (EE) and Behavioural Intention (BI) to Adopt Mobile E-books

Interestingly, this study discovered that EE has insignificant relationship with the BI in the adoption of mobile e-book. This is not consistent with the past studies conducted by Chang (2013), Teo et al. (2015), Tai et al. (2013), Alharbi et al. (2014), AlAwadhi et al. (2008), and Im et al. (2011), which confirmed that EE has a positive relationship with BI.

Undergraduates view that mobile e-book is easy to learn and use. However, easy operation of mobile e-book has no significant effect on the people's motivation

to adopt mobile e-book. This may be due to the familiarity of using mobile phone in their daily life. The other possible reason is the mobile e-book is well designed so that the people do not require much effort to use it. Thus, H2 is not supported.

This result is aligned with the finding of Oliveira et al. (2014). Oliveira et al. (2014)'s study found that EE has insignificant relationship with BI in relation to mobile banking adoption because the users view that mobile phone is easy to use and therefore do not require much effort to adopt mobile banking too.

5.2.3 The Relationship between Social Influence (SI) and Behavioural Intention (BI) to Adopt Mobile E-books

Contradicting to the findings by Jaradat et al. (2013), Alwahaishi et al. (2013), Yu (2012), Jawad et al. (2013), and Chong et al. (2012), which proved that SI has a positive relationship with BI, this study reported different results. SI was found to have insignificant relationship with BI to adopt mobile e-book.

This show that influences from others will not have impact on undergraduates' intention to use mobile e-book. Undergraduates are likely to make independent decision without the influences from people surrounding them like family members, friends, and lecturers. They do not think that their opinions are important in the BI of mobile e-book adoption. The information about mobile e-book is easily obtained from internet and this may reduce the reliability of undergraduates on others' opinion. Hence, H3 is not supported.

On the other hand, this finding is in agreement with the findings of Martín and Herrero (2012) and Fuksa (2013). The study of Martín and Herrero (2012) supported that SI has insignificant relationship with the online purchase intention. This can be justified that the people depend lesser on the social environment to search information

as internet has become a general tool as source of information. Martín et al. (2012) also commented that utility factors like performance and effort expectancy are more important than SI due to the extrinsic nature of online purchases. Fuksa's (2013) study found that SI is insignificantly related to BI mobile internet usage due to the reason that neutral influence of media and society on decision to determine the mobile internet adoption.

5.2.4 The Relationship between Facilitating Conditions (FC) and Behavioural Intention (BI) to Adopt Mobile E-books

Surprisingly, there is insignificant relationship between FC and BI to adopt mobile e-book. This result disagree with the findings from Yang (2010), Zhou (2008), Thomas et al. (2013), Chong (2013), and Yeoh et al. (2011), which suggested that SI has a positive relationship with BI.

The reason of insignificant influence of FC toward BI of mobile e-book adoption is this construct may act as a limiting factor when the users do not perceive the availability of required resources. Some knowledge and resources like the usage knowledge of related applications and websites, and the whole-day accessible WIFI are the necessary requirement to adopt mobile e-book. However not all users possess the relevant knowledge and resources. When they do not own or perceive the availability of those knowledge and resources, the BI for mobile e-book adoption will be restricted. Universities of Malaysia do not have well-equipped support for mobile e-book. This explains why students are not able to use mobile e-book. Therefore, H4 is not supported.

However, the result is agreed with the findings of Slade et al. (2014) and Arenas-Gaitán et al. (2015). FC is shown to have an insignificant relationship with BI from both of the studies. Slade et al. (2014) stated that FC has an insignificant

influence on BI to use m-payment because most of the respondents are non-users of m-payment and therefore they are unable to determine whether they have the resources needed to use mobile payment. On the other hand, Arenas-Gaitán et al. (2015) commented that FC is insignificant related to BI on internet banking adoption by elder people. This is because website quality perception is being viewed as a more important determinant if compared to FC.

5.2.5 The Relationship between Hedonic motivation (HM) and Behavioural Intention (BI) to Adopt Mobile E-books

HM has a positive relationship on BI for mobile e-book adoption. This result is aligned with the research done by Bere (2010), Harsono et al. (2014), Alalwan et al. (2014), Escobar-Rodríguez et al. (2013), and Raman et al. (2013), which found that HM has a positive relationship with BI.

HM is the most significant factor in determining BI of mobile e-book adoption. Mobile e-books seem to be entertaining, satisfying and enjoyable for the users. Undergraduates use mobile e-book not only for learning purposes, but also for entertainment. With the mobile technology development, undergraduates are able to read book that contain digital media such as videos and pictures. Stimuli obtained from enjoyment have positive linkage on usage intention. Therefore the HM offered by mobile e-book is able to motivate the users to adopt it. As a result, H5 is supported.

5.2.6 The Relationship between Price Value (PV) and Behavioural Intention (BI) to Adopt Mobile E-books

The result in this study verified that PV positively influences the BI to adopt mobile e-book among undergraduates. The result was consistent with previous

empirical findings conducted by Yang (2013), Xu (2014), Dhulla et al. (2014), Arenas-Gaitán et al. (2015), and Unyolo (2012), which asserted that PV has a positive relationship with BI.

The undergraduates consider mobile e-book is reasonably priced and affordable. They also regard mobile e-book provides a good value at the current price. PV is a factor that directly influencing the BI for using mobile e-book. If the price of mobile e-book is set higher than its value, BI for using it will be affected. Hence, the result revealed that H6 was supported.

5.2.7 The Relationship between Habit (HT) and Behavioural Intention (BI) to Adopt Mobile E-books

The positive relationship between HT and BI to adopt mobile e-book was validated by the result of this study. The finding was coherent with Wong et al. (2014), Chong et al. (2013), Lewis et al. (2013), Oechslein, Fleischmann, and Hess (2014), and Liao, To, Liu, Kuo, and Chuang (2011), which proved that HT has positive influence on BI.

Future use of mobile e-book is significantly linked with the habitual behaviour of previous use. When undergraduates use mobile e-book on a routine basis, this will become a habit and eventually facilitate the mobile e-book adoption. It is assumed that undergraduates are more frequent in reading if compared to others. Therefore, it is not surprising that majority of the undergraduates feel natural and common to use mobile e-book. This revealed that H7 was supported.

5.3 Implications of the Study

5.3.1 Theoretical Implications

From a theoretical perspective, this research confirms that UTAUT2 model is appropriate in the study of BI on mobile e-book's adoption. R^2 value of this study is 0.4225, which indicated that the seven independent variables are able to explain 42.25% of the changes in BI of mobile e-book adoption of undergraduates. Besides that, among the seven constructs of UTAUT2 model, four of them were proven to be significant to the BI in the mobile e-book adoption. Therefore, the applicability and validity of UTAUT2 in the study related to mobile e-book adoption are demonstrated.

The second theoretical implication of this study is to identify the main factors that have impact on BI of mobile e-book adoption. This study concluded that HM is the most significant factor, followed by HT, PV and PE. On the other hand, this study noticed that EE, FC and SI are not significantly related to the BI to adopt mobile e-book.

Furthermore, this study also enriches the current mobile related studies. There are limited theory-based studies which investigate mobile e-book adoption by using UTAUT2 model. Most of the studies employed previous models like TAM in the related research. Therefore this study can contribute as a reference for future research.

5.3.2 Managerial Implications

Overall UTAUT2 model is important for business practitioners who are involved in designing, promoting, and selling mobile e-books. According to the results generated, R^2 has value of 42.25%. Except for EE, SI and FC, the other

variables which are HM, HT, PV and PE positively and significantly influence the BI of mobile e-book adoption. Therefore, these findings partially assure the validity of UTAUT2 model in demonstrating the BI in adopting mobile e-book.

Considering that HM has the most significant influence on BI in adopting mobile e-book, business practitioners should pay utmost attention on this factor in promoting the application of mobile e-book. Mobile e-book should be designed in a way that can provide more enjoyment, satisfaction, and entertaining elements. For example, e-book application should be improved by incorporating other creative digital media such as videos, news, music and audios to enhance the enjoyment and interesting elements of learning process.

HT is the second most significant factor of users' adoption BI. This study suggests that mobile e-book marketers should encourage the culture of using mobile e-book through various campaigns like advertisement that telling the public about the advantages of mobile e-book, and promotion that offering free mobile e-book. This can cultivate the habit of using mobile e-book. At the same time, they should eliminate any perceived resistance that is faced by the potential users. Many people may worry about the risk of non on-time delivery and damage in the process of purchasing e-book. Thus e-book providers should consider about the risk perceived by buyers and enhance the security and reliability of the purchasing process. For example, the providers can implement some security tools like Mobile Transaction Assurance Seal to enhance the potential users' perceived security.

Based on the result, PE is the next significant factor that the e-book application designer should focus on. Application designers should ensure the functions of mobile e-book fulfill the needs of consumers. Information about usefulness of mobile e-book should be delivered to the public from time to time through various channels like magazine, newspaper, and advertisement. This can enhance the awareness of public regarding the positive use-performance of mobile e-book.

PV is the last significant factor that influences the BI. The price of mobile e-book should remain at acceptable and reasonable level so that it will be able to compete with or even replace the printed book. Consumers will only think that the products purchased truly proffer value for their money if the price labeled on the products match with its perceived value. The perceived value can be enhanced by improving the HM and PE of mobile e-book due to the fact that these variables are able to provide pleasure and utility to consumers.

Since EE, SI and FC are insignificantly related with BI to adopt mobile e-book, business practitioners should find some ways to improve these variables. For EE, mobile e-book developer should make e-book become user friendly interface by designing an easy access manual button and removing the complexities of registration process. For example, users should be allowed to use their Facebook account to sign up a new account to purchase e-book. On the other hand, instead of only focusing on the internal SI, mobile e-book may pay more attention on the external SI which includes various types of media and social network. The marketers can promote the advantages of mobile e-book through Facebook, Twitter, and YouTube. To enhance FC to become one of the significant factors to the BI of mobile e-book adoption, users are encouraged to fully utilize the available resources. The government and university authorities should consistently upgrade and enhance the facilities to promote the usage of mobile e-book. Technical facility and support such as WiFi and the speed of internet connection should be improved. This can assist the user to access the mobile e-book regardless anywhere and anytime.

5.4 Limitations of the Study

There are a few limitations in this study. The first limitation is the sample of the survey only consisted of undergraduates. Undergraduates might not necessarily

represent the BI of the whole population in the adoption of mobile e-book. Undergraduate is not the only group that will adopt mobile e-book. Therefore, the result generated might be biased and not able to show the actual significant variables that affect the BI on mobile e-book adoption.

Second, this study only used UTAUT2 framework to investigate the factors on the BI for mobile e-book adoption. From the data analysis, it shows that R^2 (42.25%) is at a moderate level. Additional variables may be needed to improve the value of R^2.

Furthermore, employing cross-sectional approach in this survey could be another limitation. Longitudinal approach was used in the original UTAUT2 study conducted by Venkatesh et al. (2012). Perception might change over time. However, the survey that was performed at a single point of time might not be able to measure these changes.

Lastly, the sampling location of pilot test is not similar to final data collection. This research targeted on undergraduates who study at USM, but pilot test was distributed to UTAR undergraduates. Respondents from different areas would generate different results. BI of an individual may vary with the culture and environment. Therefore, the results of pilot test are less persuasive in this study.

5.5 Recommendations for Future Research

Future studies should involve a wider population in the survey. It should not be only targeted to undergraduates. In other words, respondents from various industries such as engineering and medical, as well as those from different education level and academic qualifications should be included to reflect different opinions of potential users. Respondents from different group might have different perceptions toward the mobile e-book adoption. Therefore including various groups of

respondents can increase the validity and generalizability of the result. Consequently, BI in the adoption of mobile e-book will be better and more accurately predicted.

In addition, future researchers should consider extending UTAUT2 model or integrating UTAUT2 model with other factors such as perceived security. Purchases of mobile e-book involve electronic exchange of financial information. Perceived security of the information exchange is an important determinant of mobile e-book adoption. Thus, including perceived security in the study can help to obtain better understanding of the acceptance on mobile e-book adoption. Besides that, text readability should be included in future research due to majority of the respondents stated in the questionnaire that screen size is one of the factors that affecting BI.

Besides that, similar study is recommended to be conducted by using longitudinal approach. Future research should investigate adoption intention in more than one stage. As a result, behavioral intention to adopt new technology over time can be estimated. Moreover, longitudinal approach can also help to infer causality and stabilize the relationship between variables when the correlation of the indicators and outcomes is weak. For example, EE in this study was found to have a positive but insignificant influence with BI. This result might be changed in longitudinal research.

Last but not least, future researchers ought to conduct both the pilot test and final test in similar sampling location. Sample collected from pilot test should be able to represent the target respondents of a study. By this way, the result of pilot test will be more accurate, consistent, and relevant to the study because it reflects the similar characteristic of research subjects. Measurement error could be minimized as well. As a result, the pilot test could enhance the study design effectively before the performance of large-scale research. For example, the sample of pilot test should be collected from USM undergraduates who are the target respondents of this study. Future researchers should conduct pilot test on target respondents.

5.6 Conclusion

This research helps to enhance the understanding of BI of mobile e-book adoption in this continuous changing mobile environment. It has fully achieved all the objectives and is able to answer all research questions. R^2 value of 0.4225 indicated that UTAUT2 is suitable and applicable in this kind of study. Furthermore, this study has found out that PE, HM, PV and HV are significant while EE, FC and SI are insignificant to BI. In conclusion, UTAUT2 was proven to be an appropriate model to predict the BI in the adoption of mobile e-book.

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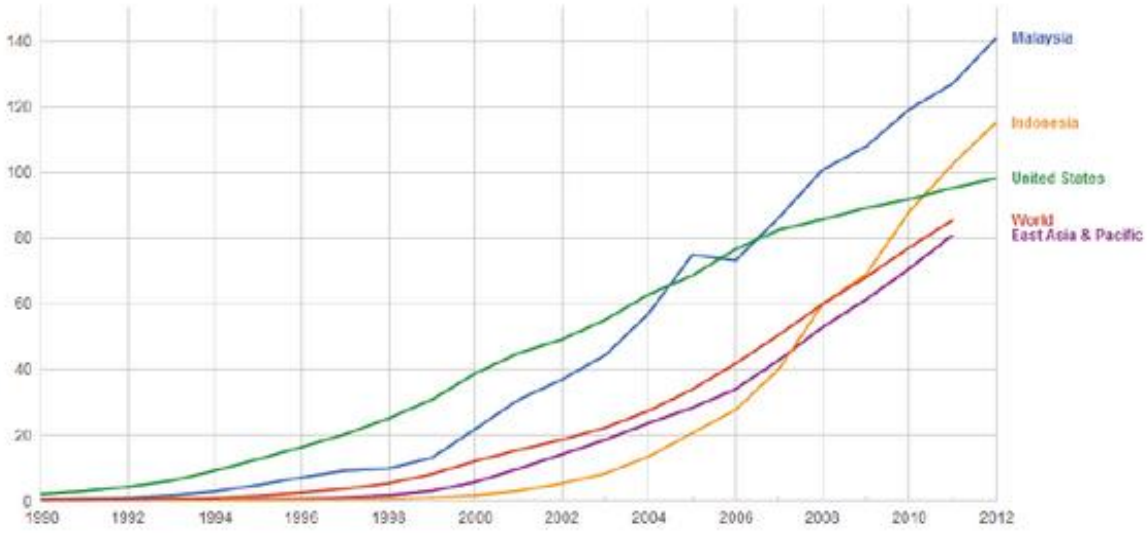
APPENDICES

Appendix A



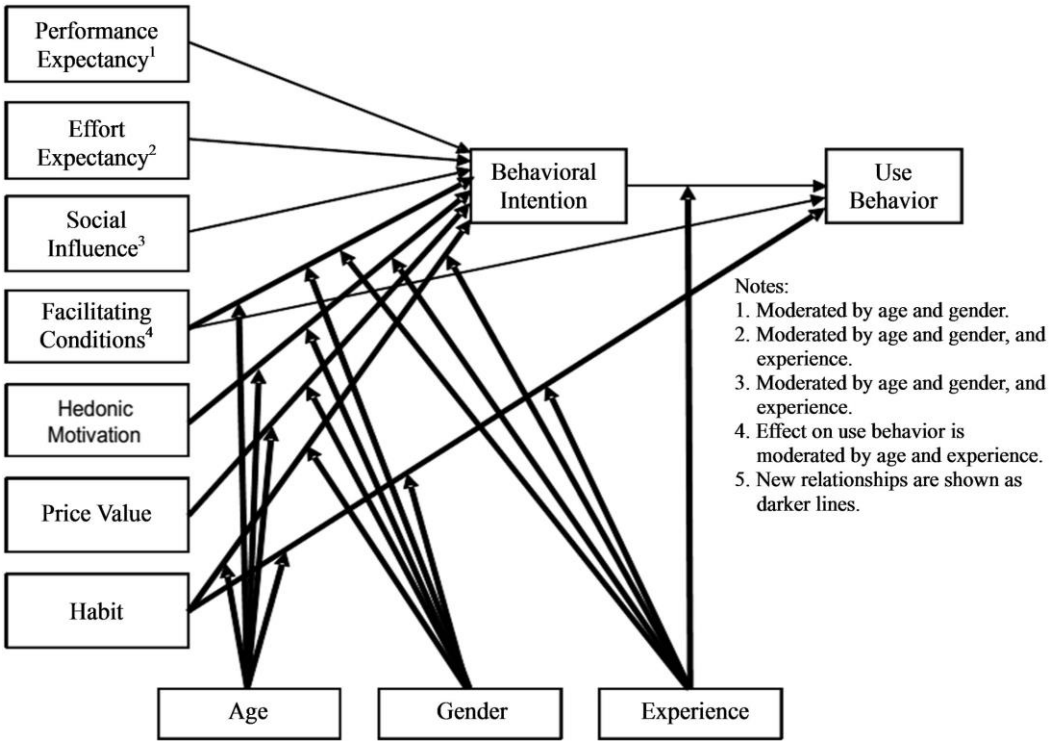
Appendix A illustrated mobile penetration rate in Malaysia compared to other countries.

Appendix B

	Percentage of hand phone users					
Age classes for 2008 -2011	2008	2009	2010	2011	2012	Age classes for 2012
Below 15	2.8	2.3	3.4	1.9	1.8	Below 15
15-19	12.3	12.4	10.9	10.4	11.4	15-19
20-24	18.8	20.0	17.3	17.6	17.3	20-24
25-29	15.8	15.9	15.9	16.5	15.8	25-29
30-34	13.3	14.2	13.5	13.4	13.8	30-34
35-39	9.4	9.3	10.1	9.8	10.8	35-39
40-44	9.9	8.1	9.2	10.3	9.2	40-44
45-49	6.3	5.9	6.5	6.6	6.5	45-49
					5.4	50- 54
					3.3	55-59
50 and above	11.3	11.8	13.3	13.4	1.9	60-64
					2.9	65 and above

Appendix B illustrated the percentages of hand phone users in different age groups.

Appendix C



Appendix C illustrated the UTAUT2 model (Venkatesh et al., 2012).

Appendix D

Authors	Year	Research Problem	Research Objective	Target Population	Method	Analysis technique	Survey item	Result
Performance Expectancy (PE)								
Slade, Williams, Dwivedi, & Piercy	2014	Low worldwide adoption of near field communication m-payments	To determine factors affecting adopting of near field communication m-payments	UK consumers	Online survey	Regression analysis	244	Performance expectancy has positive influence on behavioural intention
Oliveira, Faria, Thomas, & Popovič	2014	Changing technologies and consumer preference have a significant impact on the success of a bank's service distribution strategies	To provide a comprehensive insight into the decision factors affecting the adoption of m-banking	Public university students in Portugal	Online survey	PLS	730	Performance expectancy has positive influence on behavioural intention
Shi	2009	Users' intention and behavior determine the success and innovation orientation of the	To determine the acceptance of user on Smart Phone Online Application Software	People who are sensitive and applicable to the smart phone online application software	Survey questionnaire	SEM	700	Performance expectancy has positive influence on behavioural intention

		software.						
Lin, Zimmer, & Lee	2013	Teachers and students exhibit different patterns of adopting podcasts for educational tasks	To examine the importance of contributing factors to intention to adopt podcasting and the causal relationships among these factors, depending on the roles of teachers or students	Teachers and students from a Northeastern United States college	Online survey	PLS	290	Performance expectancy positively affected behavioural intention to adopt podcasting among teachers and students
Martins, Oliveira, & Popovic	2014	Little research on success factors and resistance factors that drive customers to adopt internet banking	To combine UTAUT and perceived risk in explaining customers' intention to adopt and use internet banking	Students and ex-students from a Portugal university	Online survey	SEM	249	Performance expectancy was positively related to behavioural intention towards internet banking adoption
Effort Expectancy (EE)								

Chang	2013	How to stimulate intention for use of library apps and how to meet user need	To integrate the UTAUT with task technology fit to explain users' behavioral intention of using library mobile application in university libraries	Undergraduate and graduate students in the eastern Taiwan	Questionnaire	SEM	363	Effort expectancy has positive influence on behavioural intention
Teo, Tan, Ooi, Hew, & Yew	2015	There is still short of empirical validation within the context of mobile consumer.	To uncover the effects of perceived transaction convenience (PTC) and perceived transaction speed (PTS) on unified theory of acceptance and use of technology (UTAUT) in the context of m-payment.	University students	Questionnaire	SEM	400	Effort expectancy has positive influence on behavioural intention
Tai & Ku	2013	Little research on the factors affecting stock	To identify the factors affecting stock investors'	Taiwan stock investors	Online survey	PLS	657 (327)	Effort expectancy has significant positive influence on stock

		investors' intentions to adopt mobile stock trading	intentions to adopt mobile stock trading					investors' intention to use mobile stock trading
Alharbi & Drew	2014	Mobile learning is not yet well defined in the literature	To develop a framework that assists in understanding students' behavioural intention to use mobile learning-system	Students in Griffith University	Online survey	Quantitative empirical method	204 (124)	Effort expectancy positively affected the students' behavioural intention to employ m-learning system
AlAwadhi & Morris	2008	Little research on factors that determine e-government services adoption in developing countries	To explore factors that determine e-government services adoption in developing countries	Kuwait University undergraduate and postgraduate students	Questionnaire survey	Logistic regression	880	Effort expectancy has positive impact on behavioural intention to employ e-government services.
Im, Hong, & Kang	2011	Lack understanding of culture on technology adoption	To investigate the role of culture in technology acceptance	People in Korea and U.S.	Questionnaire survey	Covariance SEM	501	Effort expectancy positively influenced behavioural intention towards MP3 players adoption and internet banking usage
Social Influence (SI)								

Alwahaishi & Snasel	2013	Little research on ICT acceptance	To probe the consumers' acceptance of ICT	Users from Saudi Arabia	Online survey	SEM	250 (238)	Social influence has positive impact on behavioural intention towards adoption and use of mobile internet
Yu	2012	Little research on mobile banking	To investigate what affecting individuals to adopt mobile banking	People in major Taipei downtown areas	Questionnaire survey	PLS	(441)	Social influence positively to adopt mobile banking
Jaradat & Rababaa	2013	Money spent on investment may affect consumers' acceptance and usage of m-commerce	To investigate the key factors that affect the intention to accept and the use of M-commerce	Jordan public university students	Questionnaire survey	SEM	447 (375)	Social influence positively influences the users' behavioural intention on m-commerce adoption and usage
Jawad & Hassan	2013	Little research on mobile learning	To investigate the factors that affect the acceptance of mobile learning in higher education context	Students and lecturers in Iraq higher education	Questionnaire survey	Regression analysis	370	Social influence was positive related to behavioural intention towards mobile learning adoption.

Chong, Chan, & Ooi	2012	Little research on the strategies and applications of m-commerce	To predict consumers' decision to adopt m-commerce	Chinese and Malaysian consumers in certain Malaysia mobile phone shops	Questionnaire survey	Exploratory factor analysis	394	Social influence positively affected behavioural intention to employ mobile commerce.
Facilitating Conditions (FC)								
Zhou	2008	Many problems are influencing the acceptance of mobile commerce such as high cost and complex usage	To find significant factors that influence user acceptance of mobile commerce based on UTAUT and one additional construct: contextual offering	Universities, China Mobile service halls, China Unicom service halls and China Telecom service halls	Questionnaire survey	SEM	250	Facilitating conditions significantly influence behavioural intention
Yang	2010	US consumers were not interested in using their mobile phone for service transactions	To examine significant determinants of US consumers' intention to use mobile shopping services	Mobile service users	Online survey	SEM	400	Facilitating conditions is positively related to behavioural intention
Thomas, Singh, & Gaffar	2013	Mobile learning has not been formally	To determine the important factors that influence the	Students of the University of Guyana	Web survey	SEM	322	Facilitating conditions significantly affect behavioural intention

		introduced into the higher education in Guyana	adoption of mobile learning in higher education based on modified versions of UTAUT model					
Chong	2013	Although the numbers of mobile subscribers are increasing, actual m-commerce activities in developing countries remain low	To examine the predictors of m-commerce adoption by extending the UTAUT model	Chinese users	Online survey	MLR	140	Facilitating conditions has a positive relationship with behavioural intention
Yeoh & Chan	2011	Internet banking adoption in Malaysia is relatively low and there was mixed result of influencing factors have found	To investigate the factors and predictors of internet banking adoption among Malaysian	Respondents aged 21 to 50 years at Kuala Lumpur	Self-administered questionnaire	MLR	200	Facilitating conditions has positive influence on behavioural intention
Hedonic Motivation (HM)								

Bere	2014	Mobile learning adoption remains low in South Africa	To investigate factors that significantly influence the adoption of mobile learning using Whatsapp application	Students in University of Technology in South Africa	Questionnaire survey	PLS	196(159)	Hedonic motivation has a positive influence on behavioural intention
Harsono & Suryana	2014	How is the use behaviour of LINE	To determine what factors affecting consumer in the use of LINE based on UTAUT2 and knowing the use behaviours of LINE as communication media	Regular college students in the city of Bandung	Questionnaire survey	Smart-PLS	419	Hedonic motivation positively influence behavioural intention
Alalwan, Dwivedi, & Williams	2014	Low adoption rate of internet banking in Jordan	To understand customers' behaviour in adopting internet banking	Jordanian banking customers	Self-administrative questionnaire	SEM	500 (397)	Hedonic motivation positively influence behavioural intention
Escobar-Rodríguez & Carvajal-	2013	There are still a minimum number of	To examine the different drivers of online airline	Spanish respondents	Questionnaire survey	SEM	1360	Hedonic motivation and behavioural intention have positive relationship

Trujillo		people purchase airline tickets via online	ticket purchasing behaviour					
Raman & Don	2013	Although Moodle has been installed in University's web server, there are only a small number of lecturers are using it	Identify the UTAUT2 variables that influence preservice teachers' acceptance of LMW integration in the learning process	Undergraduates' students in University Utara Malaysia	Online survey	PLS	320	Hedonic motivation is positively related to behavioural intention
Price Value (PV)								
Yang	2013	M-learning in higher education is still at infancy stage, especially in the developing countries	To investigate undergraduate students' adoption of m-learning by using UTAUT2	Undergraduate students in China	Web-based survey	PLS	182	Price value has positive influence on behavioural intention
Xu	2014	How to retain the existing players and to prolong their playing duration in	To identify the key determinants of social network game players' continued use intention, and to	Social network game players in China	Web-based survey	SEM	3919	Price value has positive influence on behavioural intention

		online games	explore the moderating effects of individual characters on the proposed hypothesis					
Dhulla & Mathur	2014	Little research in studying the adoption of cloud computing	To understand the theoretical UTAUT2 model pertaining to adoption of cloud computing	Tertiary level students from management course in Mumbai	Questionnaire	Pearson correlation	140	Price value has positive influence on behavioural intention
Arenas-Gaitán, Peral-Peral, & Ramón-Jerónimo	2013	There is still a small percentage of elder people using internet banking	To explain internet banking use by the elderly by using UTAUT2 approach	students over 55 years old of a university in the south of Spain	Questionnaire	WarpPLS 3.0	415	Price value has positive influence on behavioural intention
Unyolo	2012	Mobile money adoption is slower than expected in most developing market.	To discover the motivations that affect consumer behavioural intention and usage behavior to use mobile	People who use mobile money in Malawi	Telephone interview	SEM	508	Price value has positive influence on behavioural intention

			money.					
Habit (HT)								
Wong, Tan, Loke, & Ooi	2014	While mobile TV (m-TV) is beneficial and is currently an emerging area within mobile commerce, the adoption rate is at the infancy stage	The purpose of this paper is therefore to adapt the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) model to explore on the factors in predicting users' behavioral intention (BI) of m-TV	M-devices users	Survey questionnaire	PLS-SEM	250 (193)	Habit positively influence behavioural intention
Lewis, Fretwell, Ryan, & Parham	2013	Most universities continue to reward research rather than teaching effectiveness for tenure-track faculty. Many professors may	What are the factors that influence higher education professors' willingness to use classroom technologies.	U.S. instructors of face-to-face, higher-education classes.	Online survey	Smart-PLS	46	Habit positively influence behavioural intention

		focus most of their efforts on research, even with the tremendous increase in technology and digital media currently available that can actively engage learners.						
Chong & Ngai	2013	Location-based services are still considered to be relatively new, and the adoption of the services is still quite low.	The main aim of this paper is to examine the factors that influence travellers' adoption of location-based social media services for their travel planning.	Travellers	Survey questionnaire	PLS	200	Habit positively influence behavioural intention
Oechslein, Fleischmann, & Hess	2014	UTAUT2's applicability and the explanation of	This study utilizes UTAUT2 to explore the user acceptance of	Students of a German university	Online questionnaire	Structural equation model (SEM)	266	Habit positively influence behavioural intention

		performance expectancy for social recommender systems are still unclear	social recommender systems					
Liao, To, Liu, Kuo, & Chuang	2011	Many service providers fail to consider the feelings and expectations of people using the portal	This study aims to combine rational assessment factors and non-rational assessment factors to examine their impact on the intended use of portals	Individuals who have experience using web portals	Online questionnaire	Structural equation model (SEM)	227 (215)	Habit positively influence behavioural intention

Appendix D illustrated the previous studies.

Appendix E

	Variables	Measurement	Scale of Measureme
Demographic Profile	Gender	Nominal	
	Age	Ordinal	
	Ethnicity	Nominal	
	Are you currently pursuing degree	Nominal	
	Which state are you from?	Nominal	
	Do you own mobile devices?	Nominal	
	Do you have internet (3G, 4G and Wi-Fi) access on your mobile device?	Nominal	
	Do you have e-book application on your mobile device?	Nominal	
	Have you used mobile e-book before?	Nominal	
	Performance Expectancy	Interval	7-point Likert
	Effort Expectancy	Interval	7-point Likert
	Social Influence	Interval	7-point Likert
	Facilitating Conditions	Interval	7-point Likert
	Hedonic Motivation	Interval	7-point Likert
	Price value	Interval	7-point Likert
	Habit	Interval	7-point Likert
	Behavioural Intention	Interval	7-point Likert

Appendix E illustrated the measurement of demographic profile, independent and dependent variables.

Appendix F

Variable	Items	Description	Reference	Measurement
Performance Expectancy (PE)	PE1	I feel mobile e-book is useful in my daily life.	Alharbi and Drew (2014)	7 point likert scale
	PE2	Mobile e-book improves the convenience of my study.		
	PE3	Mobile e-book lets me do study related tasks more quickly.		
	PE4	Using mobile e-book helps me to learn better.	Gerhart, Peak and Prybutok (2015)	
Effort Expectancy (EE)	EE1	Learning how to use mobile e-book is easy for me.	Venkatesh et al. (2012)	7 point likert scale
	EE2	My interaction with mobile is clear and understandable.		
	EE3	I find mobile e-book is easy to use.		
	EE4	It is easy for me to become skilful at using mobile e-book.		
Social Influence (SI)	SI1	People who are important to me think that I should use mobile-ebook.	Venkatesh et al. (2012)	7 point likert scale
	SI2	People who influence my behaviour think that I should use mobile e-book.		
	SI3	People whose opinions I value prefer that I use mobile e-book.		

	SI4	I would use mobile e-book if most of my friends using mobile e-book.	Yang (2010)	
	SI5	University lecturers are supportive of the use of mobile e-book.	Thomas et al. (2013)	
Facilitating Condition (FC)	FC1	I have the resources necessary to use mobile e-book.	Venkatesh et al. (2012)	7 point likert scale
	FC2	I have the knowledge necessary to use mobile e-book.		
	FC3	Mobile e-book is compatible with other technologies I use.		
	FC4	I can get help from others when I have difficulties using mobile e-book.		
	FC5	My university campus has support for mobile-ebook.	Thomas et al. (2013)	
Hedonic Motivation (HM)	HM1	Using mobile e-book is enjoyable.	Venkatesh et al. (2012)	7 point likert scale
	HM2	Using mobile e-book is very entertaining.		
	HM2	Using mobile e-book is satisfying.	Gerhart et al. (2015)	
	HM2	Using mobile e-book makes me feel pleased.		

Price Value (PV)	PV1	Mobile e-book is reasonably priced.	Venkatesh et al. (2012)	7 point likert scale
	PV2	Mobile e-book is good value for the money.		
	PV3	At the current price, mobile e-book provides a good value.		
	PV4	Mobile e-book is affordable.	Gerhart et al. (2015)	
Habit (HT)	HT1	The use of mobile e-book has becomes a habit to me.	Venkatesh et al. (2012)	7 point likert scale
	HT2	I will get addict to use mobile e-book.		
	HT3	I must use mobile e-book.		
	HT4	Using mobile e-book has become natural for me.		
Behavioural intention (BI)	BI1	I intend to use mobile e-book in the future.	Venkatesh et al. (2012)	7 point likert scale
	BI2	I will always try to use mobile e-book in my daily life.		
	BI3	I plan to use mobile e-book frequently.		
	BI4	I intend to take full advantage of mobile e-book.	Lin, Zimmer, & Lee (2013)	

Appendix F illustrated items of the questionnaire developed by researchers.

Appendix G

Factors Influencing Behavioural Intention to Adopt Mobile e-books among Undergraduates: UTAUT2 Framework

Survey Questionnaire

The purpose of this survey is to conduct a research to investigate the factors that influence the behavioural intention to adopt mobile e-book among undergraduates. Please answer all questions correctly. All responses are completely confidential.

Thank you for your participation.

Instructions:

1) There are THREE (3) sections in this questionnaire. Please answer ALL questions in ALL sections.
2) Completion of this form will take you 5 to 10 minutes.
3) The contents of this questionnaire will be kept strictly confidential.

UNIVERSITI TUNKU ABDUL RAHMAN

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19th March 2015

To Whom It May Concern

Dear Sir/Madam

Permission to Conduct Survey

This is to confirm that the following students are currently pursuing their *Bachelor of Commerce (HONS) Accounting* program at the Faculty of Business and Finance, Universiti Tunku Abdul Rahman (UTAR) Perak Campus.

I would be most grateful if you could assist them by allowing them to conduct their research at your institution. All information collected will be kept confidential and used only for academic purposes.

The students are as follows:

Name of Student	Student ID
Sim Hau Yong	13ABB00707
Chang Pui Yee	13ABB00095
Ng Min Qi	13ABB00528
Yap Jing Wee	13ABB00137
Yin Suet Yee	13ABB00327

If you need further verification, please do not hesitate to contact me.

Thank you.

Yours sincerely

.....	.....
Puan Zam Zuriyati Binti Mohamad	Ms Lee Voon Hsien
Head of Department,	Supervisor,
Faculty of Business and Finance	Faculty of Business and Finance
Email: zuriyati@utar.edu.my	Email: leevh@utar.edu.my

Address: 9, Jalan Bersatu 13/4, 46200 Petaling Jaya, Selangor Darul Ehsan, Malaysia **Postal Address:** P O Box 11384, 50744 Kuala Lumpur, Malaysia
Tel: (603)7958 2628 **Fax:** (603) 7956 1923 **Homepage:** http://www.utar.edu.my

Section A: Demographic Profile

In this section, we would like you to fill in some of your personal details. Please tick your answer and your answers will be kept strictly confidential.

QA 1: Gender: □ Female □ Male

QA 2: Age:

□ 18 years or less

□ 19 to 22 years

□ 23 to 26 years

□ 27 years or greater

QA 3: Ethnicity:

□ Malay

□ Chinese

□ Indian

□ Others: _____

QA 4: Are you currently pursuing degree course:

□ Yes

□ No

QA 5: Which state are you from? (current hometown)

□ Northern Region (Perlis, Kedah, Penang, Perak)

□ East Coast Region (Kelantan, Terengganu, Pahang)

□ Central Region (Selangor, Kuala Lumpur, Putrajaya)

□ Southern Region (Johor, Melaka, Negeri Sembilan)

□ East Malaysia (Sabah, Sarawak, Labuan)

□ Other countries: _____

QA 6: Do you own the mobile devices (e.g. smartphone and tablet)?

□ Yes

□ No

QA 7: Do you have internet (3G, 4G and Wi-Fi) access on your mobile device?

□ Yes

□ No

QA 8: Do you have e-book application (e.g. iBooks) on your mobile device?

□ Yes

□ No

QA 9: Have you used mobile e-book (reading e-book using mobile device) before?

□ Yes

□ No

Please state reason(s) if the above answer is "No":_____

Section B: UTAUT2

This section is seeking your opinion regarding the factors that influence the behavioural intention to adopt mobile e-book. Respondents are asked to indicate the extent to which they agreed or disagreed with each statement using 5 Likert scale [(1) = strongly disagree; (2) = somewhat disagree; (3) = disagree; (4) = neutral; (5) = agree; (6) = somewhat agree and (7) = strongly agree] response framework. Please circle one number per line to indicate the extent to which you agree or disagree with the following statements.

No	Questions	Strongly Disagree	Somewhat disagree	Disagree	Neutral	Agree	Somewhat agree	Strongly Agree
B1	Performance Expectancy							
PE1	I feel mobile e-book is useful in my daily life.	1	2	3	4	5	6	7
PE2	Mobile e-book improves the convenience of my study.	1	2	3	4	5	6	7
PE3	Mobile e-book lets me do study related tasks more quickly.	1	2	3	4	5	6	7
PE4	Using mobile e-book helps me to learn better.	1	2	3	4	5	6	7
No	Questions	Strongly Disagree	Somewhat disagree	Disagree	Neutral	Agree	Somewhat agree	Strongly Agree
B2	Effort Expectancy							
EE1	Learning how to use mobile e-book is easy for me.	1	2	3	4	5	6	7

EE2	My interaction with mobile e-book is clear and understandable.	1	2	3	4	5	6	7
EE3	I find mobile e-book is easy to use.	1	2	3	4	5	6	7
EE4	It is easy for me to become skillful at using mobile e-book.	1	2	3	4	5	6	7
No	Questions	Strongly Disagree	Somewhat disagree	Disagree	Neutral	Agree	Somewhat agree	Strongly Agree
B3	Social Influence							
SI1	People who are important to me think that I should use mobile e-book.	1	2	3	4	5	6	7
SI2	People who influence my behaviour think that I should use mobile e-book.	1	2	3	4	5	6	7
SI3	People whose opinions I value prefer that I use mobile e-book.	1	2	3	4	5	6	7
SI4	I would use mobile e-book if most of my friends are using mobile e-book.	1	2	3	4	5	6	7
SI5	University lecturers are supportive of the use of mobile e-book.	1	2	3	4	5	6	7
No	Questions	Strongly Disagree	Somewhat disagree	Disagree	Neutral	Agree	Somewhat agree	Strongly Agree
B4	Facilitating Conditions							
FC1	I have the resources necessary to use mobile e-book.	1	2	3	4	5	6	7
FC2	I have the knowledge necessary to use mobile e-book.	1	2	3	4	5	6	7
FC3	Mobile e-book is compatible with other technologies I use.	1	2	3	4	5	6	7

FC4	I can get help from others when I have difficulties using mobile e-book.	1	2	3	4	5	6	7
FC5	My university campus has support for mobile e-book.	1	2	3	4	5	6	7
No	Questions	Strongly Disagree	Somewhat disagree	Disagree	Neutral	Agree	Somewhat agree	Strongly Agree
B5	Hedonic Motivation							
HM1	Using mobile e-book is enjoyable.	1	2	3	4	5	6	7
HM2	Using mobile e-book is entertaining.	1	2	3	4	5	6	7
HM3	Using mobile e-book is satisfying.	1	2	3	4	5	6	7
HM4	Using mobile e-book makes me feel pleased.	1	2	3	4	5	6	7
No	Questions	Strongly Disagree	Somewhat disagree	Disagree	Neutral	Agree	Somewhat agree	Strongly Agree
B6	Price Value							
PV1	Mobile e-book is reasonably priced.	1	2	3	4	5	6	7
PV2	Mobile e-book is good value for the money.	1	2	3	4	5	6	7
PV3	At the current price, mobile e-book provides a good value.	1	2	3	4	5	6	7
PV4	Mobile e-book is affordable.	1	2	3	4	5	6	7
No	Questions	Strongly Disagree	Somewhat disagree	Disagree	Neutral	Agree	Somewhat agree	Strongly Agree
B7	Habit							
HT1	The use of mobile e-book has	1	2	3	4	5	6	7

	become a habit for me.							
HT2	I will get addicted to using mobile e-book	1	2	3	4	5	6	7
HT3	I must use mobile e-book.	1	2	3	4	5	6	7
HT4	Using mobile e-book has become natural to me.	1	2	3	4	5	6	7

Section C: Behavioural Intention

This section is seeking your opinion regarding the behavioural intention to adopt mobile e-book. Respondents are asked to indicate the extent to which they agreed or disagreed with each statement using 7 Likert scale [(1) = strongly disagree; (2) = somewhat disagree; (3) = disagree; (4) = neutral; (5) = agree; (6) = somewhat agree and (7) = strongly agree] response framework. Please circle one number per line to indicate the extent to which you agree or disagree with the following statements.

No	Questions	Strongly Disagree	Somewhat disagree	Disagree	Neutral	Agree	Somewhat agree	Strongly Agree
C1	Behavioural Intention							
BI1	I intend to use mobile e-book in the future.	1	2	3	4	5	6	7
BI2	I will always try to use mobile e-book in my daily life.	1	2	3	4	5	6	7
BI3	I plan to use mobile e-book frequently.	1	2	3	4	5	6	7
BI4	I intend to take full advantage of mobile e-book.	1	2	3	4	5	6	7

~ Thank you for your participation ~

Appendix G illustrated the questionnaire of this study.