THE AWAKENING FRONTIER: BARRIERS REPELLING BABY BOOMERS FROM ADOPTING MOBILE PAYMENT IN MALAYSIA

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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 9188.

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LIST OF ABBREVIATIONS

BB	Baby Boomers
BI	Behavioural Intention
CCV	Card Code Verification
DV	Dependent Variable
IB	Image Barrier
InB	Information Barrier
IRT	Innovation Resistance Theory
IV	Independent Variable
MB	Mobile Banking
MP	Mobile Payment
NFC	Near Field Communication
POS	Point of Sales
RB	Risk Barrier
TAC	Transaction Authorization Code
TAM	Technological Acceptance Model
TB	Tradition Barrier
TPB	Theory of Planned Behaviour
UB	Usage Barrier
VB	Value Barrier

PREFACE

This final year research project is conducted to fulfil the requirement to complete Bachelor of Commerce (Hons) Accounting. This project is completed and furnished by the authors based on other conducted researches which were quoted as references.

The tittle of this research project is "The Awakening Frontier: Barriers Repelling Baby Boomers from Adopting Mobile Payment in Malaysia." There are a number of similar past studies conducted in Malaysia. However, they only carried out in one particular state and thus the result is not representative of all Malaysians. Thus, we were driven to carry out this research.

This study will give a better insight to students in understanding the factors that refrain baby boomers from adopting mobile payment in Malaysia.

ABSTRACT

Mobile payment is defined as utilizing wireless and other communication technologies to make payments for goods, services and bills with mobile device. While mobile payment is popular in Malaysia, the adoption rate of baby boomers in Malaysia has not been encouraging although they possess high level of spending. Interestingly, existing research work on mobile technologies have so far focused primarily on the adoption theory. Furthermore, past antecedents were mainly conducted in foreign countries which less applicable in Malaysia context. This study addresses these limitations by using innovation resistance theory which consists of usage, value, risk, tradition and image barriers to determine baby boomers' behavioural intention to adopt mobile payment. Additional constructs, namely information barrier was incorporated into the Innovation Resistance theory in considering on the consequences of limited information on adoption. Due to absence of dependent variable in the theory, behavioural intention is adopted. The integrated model was applied to 310 baby boomers in Malaysia who had no experience or had used one or twice in mobile payment through a seven-point Likert scale questionnaire approach and was tested using multiple linear regression. This research findings display that all barriers adopted have significant relationship to baby boomers' behavioural intention in adopting mobile payment in Malaysia. This research contributes to mobile payment service providers in improving mobile payment service platform with the aim to increase mobile payment service adoption among Malaysia's baby boomers.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

Chapter one show a brief explanation of keywords and problem statement used in this study. Further, general and specific research questions and objectives is presented with the support of the theoretical and managerial significance contributed from this research.

1.1 Background of the Study

Technological advancement had revolutionized the way customers make payment from traditional credit card to mobile devices (De Kerviler, Demoulin, & Zidda, 2016). Exhilaratingly, mobile payment service (MPS) is introduced to enhance convenience and usefulness of the payment method (Ting, Yacob, Liew, & Lau, 2016).

MPS is defined as utilising wireless and other communication technologies to make payments for goods, services, and bills with mobile device such as mobile phone, smart-phone, or personal digital assistant (Leong, Hew, Tan, & Ooi, 2013). Generally, MPS can be used in physical transactions, as well as services access such as car-parking fees or transport charges (Dahlberg, 2015).MPS gives a greater cost efficiency compared to paper-based payment system which could further enhanced nation's overall futuristic monetary services level (Phonthanukitithaworn, Sellitto, & Fong, 2016).

MPS can be classified into remote and proximity depending on the distance of the user's smartphone to the merchant's Point of Sales (POS) **(**Raina, 2014). Remote MP system refer to non-directly interact payment with merchant's physical POS system through a variety of online mobile data channel (Oliveira, Thomas, Baptista, & Campos, 2016) such as Paypal, Maybank2u, and PB Engage. Proximity payment

is a payment interact with physical POS device in close with near field communication (NFC) enabled devices to initiate a transaction (Slade, Williams, Dwivedi, & Piercy, 2014) such as CIMBPay, MaybankPay, AliPay.

According to Department of Statistic Malaysia (2016), the penetration rate of mobile devices had reached the peak of 97.5% in 2015. Meanwhile, total transaction of mobile commerce in Malaysia has grown by 148.9% from 2015 to 2016 (iPay88, 2017). Both trends indicate a positive development in MPS. By the end of 2021, MPS in Malaysia is expected to hit a total amount of US$927 million ("Number of," 2017). Maybank Pay, the first mobile wallet was launched in 2016 followed by CIMB Pay and Alipay had entered into the Malaysia's MP market ("Maybank Introduces," 2016; "CIMB launches," 2016; "Maybank and CIMB," 2017).

Despite of the rapid development in innovation, older adults often feel a digital gap in their ability to use and follow the trend of new technology (Nilsson & Townsend, 2010). Most of them were frustrated with touch-screen devices and felt innovation of technology was too fast paced (Larsson, Larsson-Lund, & Nilsson, 2013). Nevertheless, they are still opened to learn new technology (Van Volkom, Stapley, & Amaturo, 2014). According to Lau (2014), baby boomers (BB) in Malaysia are born between 1946 and 1960, current ages vary between 57 to 71 years old in year 2017. In Malaysia, age structure for 55 and above consist of 13.92% from the whole population ("The World Factbook - Central Intelligence Agency," 2017).

1.2. Problem Statement

Worldwide MPS volume is expected to increase from US$163.1 billion in 2012 to US$721.4 billion in 2017 ("Global Mobile," 2015). Despite of its popularity, some researchers proposed that older customers constituted a smaller share in using MPS than younger mobile network subscribers ("When It Comes," 2015; Ceipidor, Medaglia, Volpi, Moroni, & Sposato, 2012; Ferreira et al., 2014; Oh, Park, & Lee, 2014). Besides, attitudes towards new technologies tend to become negative when

ages increase and eventually lead to unfavourable belief towards innovation (Law & Ng, 2016).

BB are perceived as conservative to adopt newly unknown technologically advanced products (Badowska, Zamojska, & Rogala, 2015)**.** In Malaysia, BB are the lucrative market segment in relation to their high level of income, economic security and career success (Gindi, Abdullah, Ismail, & Nawi, 2016). However, only 16% of BB had made a MPS compared to Gen X (40%) and Gen Y (49%) ("Decoding the Malaysian,"2016). Therefore, it is imperative to identify resistance factor that affects BB from adopting MPS in order to provide a more comprehensive understanding for practitioners in designing a user-friendly platform for BB in Malaysia.

There are some past studies addressed this research problem by looking into the users from different age groups, which include BB' perception and acceptance towards mobile banking (MB) by adopting Technological Acceptance Model (TAM), Theory of Planned Behaviour (TPB), and Mobile-TAM (Berraies, Ben Yahia, & Hannachi, 2017; Ward, Raue, Lee, Ambrosio, & Coughlin, 2017; Ooi & Tan, 2016). Besides, Tan and Lau (2016) have adopted Unified Theory of Acceptance and Use of Technology to examine users' behavioural intention (BI) to adopt MP. Study of Ramos-de-Luna, Montoro-Ríos, and Liébana-Cabanillas (2015) also adopted TAM, but they were studying users' intention to use NFC technologies. On the flip side, Laukkanen (2016) has adopted Innovation Resistance Theory (IRT) to investigate users' resistance towards mobile and internet banking. However, less studies had probe into innovation resistance which deals with factors inhibiting BB from adopting technological innovation. As most people perceive innovation as a good thing that will improve current situation, they tend to neglect the resistance towards innovation (Joachim, Spieth, & Heidenreich, 2017).

Undeniably, existence of mobile technology brings convenience and benefits to consumers, yet the adoption rate in Malaysia still remained low and very little study has been conducted in relation to the MPS solution (Moorthy et al., 2017). Although there is research studying the BB' resistance to mobile technology and seemingly similar service innovation, it was focused outside Malaysia (Laukkanen, 2016;

Laukkanen et al., 2007). Therefore it raised a need to understand the resistance amongst BB towards MPS in Malaysia.

1.3 Research Questions and Objectives

Table 1.1: General Research Question and Objective

General Research Objective	General Research Question
To investigate the barriers that influence BI of BB to adopt MP in Malaysia.	What barriers are influential in BI of BB to adopt MP in Malaysia?

Source: Developed for the research

Table 1.2: Specific Research Question and Objective

No.	Specific Research Objective	No.	Specific Research Question
1.	To analyse the relationship between usage barrier (UB) and BI of BB to adopt MP in Malaysia.	**1.**	What is the relationship between UB and BI of BB to adopt MP in Malaysia?
2.	To analyse the relationship between value barrier (VB) and BI of BB to adopt MP in Malaysia.	**2.**	What is the relationship between VB and BI of BB to adopt MP in Malaysia?
3.	To analyse the relationship between risk barrier (RB) and BI of BB to adopt MP in Malaysia.	**3.**	What is the relationship between RB and BI of BB to adopt MP in Malaysia?
4.	To analyse the relationship between tradition barrier (TB) and BI of BB to adopt MP in Malaysia.	**4.**	What is the relationship between TB and BI of BB to adopt MP in Malaysia?
5.	To analyse the relationship between image barrier (IB) and BI of BB to adopt MP in Malaysia.	**5.**	What is the relationship between IB and BI of BB to adopt MP in Malaysia?
6.	To analyse the relationship between information barrier (InB) and BI of BB to adopt MP in Malaysia.	**6.**	What is the relationship between InB and InB of BB to adopt MP in Malaysia?

Source: Developed for the research

Note: UB= Usage Barrier, VB= Value Barrier, RB= Risk Barrier, TB= Tradition Barrier, IB= Image Barrier, InB= Information Barrier.

1.4 Significance of the Study

1.4.1 Theoretical Significance

This research contributes to future researchers and academicians who are interested in the context of MP. The significance of this study is integrating InB as an additional independent variable (IV) into IRT. This is due to the consequences of limited information on the adoption of MP were rarely investigated in past studies. Lack of information causes users resistance towards innovation because they feel uncertainties when using the service. By integrating IRT with InB, this study will contribute a relatively comprehensive understanding on barriers that affect BB to adopt MP.

1.4.2 Managerial Significance

Other than academic line, this study also contributes to the MPS provider in Malaysia. This study will bestow a better understanding to service providers regarding the factors that refrain BB from using their services and the consumers' perception towards their services. This study enables MPS providers to target BB' customers effectively and develop services that are more suitable to BB' preferences. As a result, the penetration and adoption rate of BB in MPS will be improved. Increment in the MP usage will eventually exhilarate the living standards in Malaysia and enable Malaysians to function the payment methods in a more efficient manner. Furthermore, it is aligned with Malaysia's vision which is moving towards to cashless society by 2020 ("Moving Towards," 2016).

1.5 Outline of the Study

This chapter discuss a research overview which consist of background, purpose and significance of the study in establishing an appropriate foundation for this research. Chapter two focus on developing conceptual framework and hypotheses on the past studies related to resistance factors. For Chapter three, a brief discussion of data collection methodology are presented which inclusive of research proposal, aimed target population, sampling procedure, data collection method, constructs and measurement. Chapter four will explain the outcome of pilot and final test generated from actual data with the support of several data analysis. Further, Chapter five will pointed out the major findings managerial and theoretical implications based on the data analysed.

1.6 Conclusion

This chapter showed classification of MPS and discussion on BB. From the problems statement, research objective and question, this research aims to determine the barriers leading to the resistance to MPS among the BB in Malaysia. Chapter two would provide the relevant literature review**.**

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

Chapter two detailed the concept of IRT and the reason to support additional variable. Further, prior empirical studies was reviewed depending on the selected variables. Therefore, the theoretical framework and hypothesis has been proposed.

2.1 Theoretical Framework

2.1.1 Innovation Resistance Theory (IRT)

Innovation is defined as "idea, practice or object that is perceived as new by an individual or other unit of adoption" (Zaltman & Wallendorf, 1983). Innovation resistance refers to consumers' reaction towards an innovation, either because it creates potential changes from a satisfactory status quo that lead to functional barrier or clashes with their belief structure that resulted in psychological barrier (Ram & Sheth, 1989). It is classified as active resistance due to attitudinal outcome formed after an unfavourable product evaluation (Ram & Sheth, 1989). Functional barriers consist of UB, VB, and RB, whilst, psychological barriers consisting of TB and IB. IRT has been applied in many research topic for example mobile commerce (Heinze, Thomann, & Fischer, 2017; Laukkanen, 2015; Gupta & Arora, 2017; Chemingui & Ben Lallouna, 2013), electronic commerce and online shopping (Kwon & Noh, 2010; Laukkanen, Sinkkonen, & Laukkanen, 2008).

There are researchers criticised that other than barriers in IRT, unavailability of important information will discourage innovation adoption due to

intensive innovation require substantial of learning effort (Laukkanen, Sinkkonen, & Laukkanen, 2007). Hence, InB is integrated with IRT elements in this study. This integration is supported by past studies which discovered that InB has negatively affect the intention to adopt mobile financial services on top of IRT elements (Kuisma, Laukkanen, & Hiltunen, 2007). According to Kuerbis, Mulliken, Muench, Moore, and Gardner (2017), older adults become disoriented and lack of knowledge when the service providers failed to deliver sufficient guidance. Thus, it is unlikely for them to adopt such technologies. Hence, this study would examine how the importance of InB in affecting BI for BB to adopt MP by integrate this with the original elements of IRT.

Table 2.1: Definition of Five Barriers in IRT and Information Barrier

IRT and InB	**Definition**
UB	The UB arise due to incompatibilities with existing habits and the need to learn new skills.
VB	Exists when innovation is unable to provide a strong performance to price value.
RB	Degree of uncertainty and potential side effects that cannot be expected, including physical, economic, functional, and social risks.
TB	Arise when incompatible with individuals' existing values and past experience.
IB	A perceptual problem that arise out of stereotyped thinking and makes life difficult for the innovation.
InB	This barrier is caused due to lack of information concerning an innovation.

Source: Ram & Sheth (1989); Laukkanen & Kiviniemi (2010)

2.1.2 Behavioural Intention

BI describes the ability of a person's intention towards the behaviour (Fishbein & Ajzen, 1977). It is the most influential predictor of behaviour (Thakur & Srivastava, 2014) and correlates with actual behaviour of consumers (Al-Maghrabi & Dennis, 2011; Venkatesh, Thong, & Xu, 2012; Yiu, Grant, & Edgar, 2007). Due to the absence of dependent variable (DV) in IRT model, this study adopts BI as the DV. Some past studies have proposed that users' BI is significant in determining their actual adopting behaviour towards MP (Liébana-Cabanillas, Sánchez-Fernández, & Muñoz-Leiva, 2014; Thakur & Srivastava, 2014; Thakur, 2013). It has also been used as a DV to test the relationship with the five barriers in IRT (Laukkanen, 2016; Kuerbis et al., 2017).

2.2 Review of Prior Empirical Studies and Hypotheses Development

2.2.1 The relationship between usage barrier and behavioural intention to adopt mobile payment

Ram and Sheth (1989) proposed that UB arises when innovation is not compatible with consumer's existing workflow, practices, or habits. Some past studies have supported that UB is negatively influence adoption in mobile service. According to Sun, Sun, Liu, and Gui (2017), mobile users faced difficulties in the process of adopting mobile financial services because of troublesome input in a small screen and multi-screen inconvenient operation. According to Rahman (2013), one of the major barriers to m-commerce adoption among users in Bangladesh is lack of literacy in English. This is due to reasonable level of literacy is required to use the keypad or screen for various m-commerce service. Additionally,

most of the respondents feel inconvenient and slow to unlock their phone and start payment application in the process of mobile tap-pay services (Huh et al., 2017; Sivathanu, 2018; Zhou, 2014). When BB perceived difficult to use due to visual impairment and lack of literacy in keying sensitive information and unlock their phone (Kuerbis et al., 2017), they are less likely to adopt this new innovation. Thus, the follow hypothesis has been formulated:

H1: There is a significant negative relationship between UB and BI to adopt MP among BB in Malaysia.

2.2.2 The relationship between value barrier and behavioural intention to adopt mobile payment

Rammile and Nel (2012) defined VB as resistance towards usage of product or services when consumer believe that cost of learning exceeds their perception of performance-to-price value. There are some past studies proved that VB is significantly affecting adoption in mobile technologies. Agwu (2013) proved that older adults would not adopt MB services if innovation failed to deliver better appearances, size, shapes, weight and other features.

Besides, Awasthi and Sangle (2013) also proved that VB is affecting user's BI to adopt mobile technology significantly. The targeted respondents, which includes BB, tend to refuse to adopt mobile technology when the development of electronic banking services failed to provide added value for them. The study of Joachim et al. (2017) reveals that negative relationship existed between VB and innovation adoption. From the study, it reveal that users will refuse to use innovative products when VB arises as they think the upfront cost to adopt technology is too high.

Laukkanen (2016) has revealed that non-users are yet to identify the advantages of these services innovation or bank has failed to demonstrate its benefit to users. Lian and Yen (2014) proved that when online shopping does not provide higher value for older adults than traditional ways of shopping, such as convenience, consumers will tend to avoid using online shopping. Similarly, BB may be less motivated to adopt the services if MPS does not provide performance-to-price compared to conventional payment method such as cash and credit card (Cruz, Barretto Filgueiras Neto, Muñoz-Gallego, & Laukkanen, 2010). Given the results referred from the past studies, the second hypothesis is proposed:

H2: There is a significant negative relationship between VB and BI to adopt MP among BB in Malaysia.

2.2.3 The relationship between risk barrier and behavioural intention to adopt mobile payment

RB is defined as the degree of uncertainty and potential side effects that cannot be expected, including physical, economic, functional and social risks as these are the type of risks that inherent in an innovation (Ram & Sheth, 1989). Firstly, physical risk is the risk that harms a person or an asset by innovation such as privacy, confidentiality and personal information (Chemingui & Lallouna, 2013). Yu and Chantatub (2016) found that respondents in Taiwan tend to resist to adopt MP when not protected by governmental law and regulations. Without proper protections, BB may worry their sensitive information is unsecured while making payment through mobile devices.

Secondly, economic risk refers to the increment of price paid for the product or service (Ram & Sheth 1989). Akturan and Tezcan (2012) have emphasized the significance of perceived cost amongst consumers that

adoption towards MB is negatively impacted by the additional charge of monetary such as service charge or non-monetary cost like time and effort.

Thirdly, functional risk is associated with functionality of innovation such as worry for it cannot be functioned properly. For example, MPS consumers are concerned with the internet connection and power of their smartphone (Hayashi, 2012). El.Aziz, El Badrawy, and Hussien (2014) has proven the significance of functional risk to users in adopting mobile technologies due to the inconvenience in making payment resulted from a weak internet connection. Makanyeza (2017) also proved that RB has negative influence on BI to adopt MB technology. Respondents from various age group including BB are reluctant to adopt the mobile technology when they think there is uncertainties and undesirable outcome associated with the adoption of it.

Lastly, social risk exists when one is judged by others due to the adoption of new product or service (Ram & Sheth, 1989; Kleijnen, Lee, & Wetzels, 2009). According to Yang, Lu, Gupta, Cao, and Zhang (2012), social risk is proved significant in affecting users' BI to use MP as fresh MPS users will incline to rely on others opinion in making their own decision. When BB are perceived to behave in ways against social norms, they will refuse to use MPS due to social influence. Therefore, the third hypothesis is proposed:

H3: There is a significant negative relationship between RB and BI to adopt MP among BB in Malaysia.

2.2.4 The relationship between tradition barrier and behavioural intention to adopt mobile payment

TB arises when an innovation is incompatible with a user's current values, norms and past experience (Ram & Sheth, 1989) which block the adoption of the innovation eventually (Rogers, 2003). TB is a significant factor in

influencing adoption of mobile services. Wijayaratne (2015) has found that Sri Lankan customers prefer traditional banking methods as they used to experience human interaction when performing financial transactions. TB as also one of the main barrier to the intention to use mobile financial services among Tunisian consumers (Chemingui & Lallouna, 2013; Gupta & Arora, 2017). This can be explained by a form of inertia, resisting any habit changes by a social dimension and the need for human interaction with staff member that is lack in mobile financial services. El Badrawy, El Aziz, and Fady (2012) proved that, although there is additional charge at the branches' counter compared to MB with zero charges, customers still prefer to communicate with bank staff and seek for customer service advices as they are less affected by technology advancement. When BB believe they are incapable to learn new technology (Kuerbis et al., 2017), they will likely resist from adoption MP. Therefore, forth hypothesis is formed:

H4: There is a significant negative relationship between TB and BI to adopt MP among BB in Malaysia.

2.2.5 The relationship between image barrier and behavioural intention to adopt mobile payment

IB refers to negative perception of consumers towards a product or service, the product or service image, company reputation, as well as the origin country (Cruz et al., 2010). There are few past studies shown IB has a significant negative relationship with BI of consumers in adopting mobile technologies. From Nguyen, Cao, Dang, and Nguyen (2016), BI of consumers is highly depended on services providers' trustworthiness and the service's reliability. Consumers will tend to resist in adopting MPS when they uphold a negative perception and low trust towards service providers. Yu (2013) indicates that negative opinions from peers and public are distracting people's willingness to adopt MB. Laukkanen (2016) found that older people is less likely to adopt MB compared to younger people. This is

due to most customers in Finland felt that the application provided are non-user friendly. BB are categorized as conservative consumers as they are sensitive to the negative comment on the services and thus they are likely to resist MPS (Badowska et al., 2015).

From the study of Thakur and Srivastava (2014), negative perception was proved significant in affecting customers' intention to adopt MB. They worry that the banks may share their personal profiles with other companies in the banking group and use the information to try and sell additional products.

Further, Priya, Gandhi, and Shaikh (2018) proved that the IB can negatively affect BI to adopt mobile technology. The targeted respondents in their study tend to perceive the financial fraud will happen frequently due to tampering of users' private data. Therefore, the fifth hypothesis is developed:

H5: There is a significant negative relationship between IB and BI to adopt MP among BB in Malaysia.

2.2.6 The relationship between information barrier and behavioural intention to adopt mobile payment

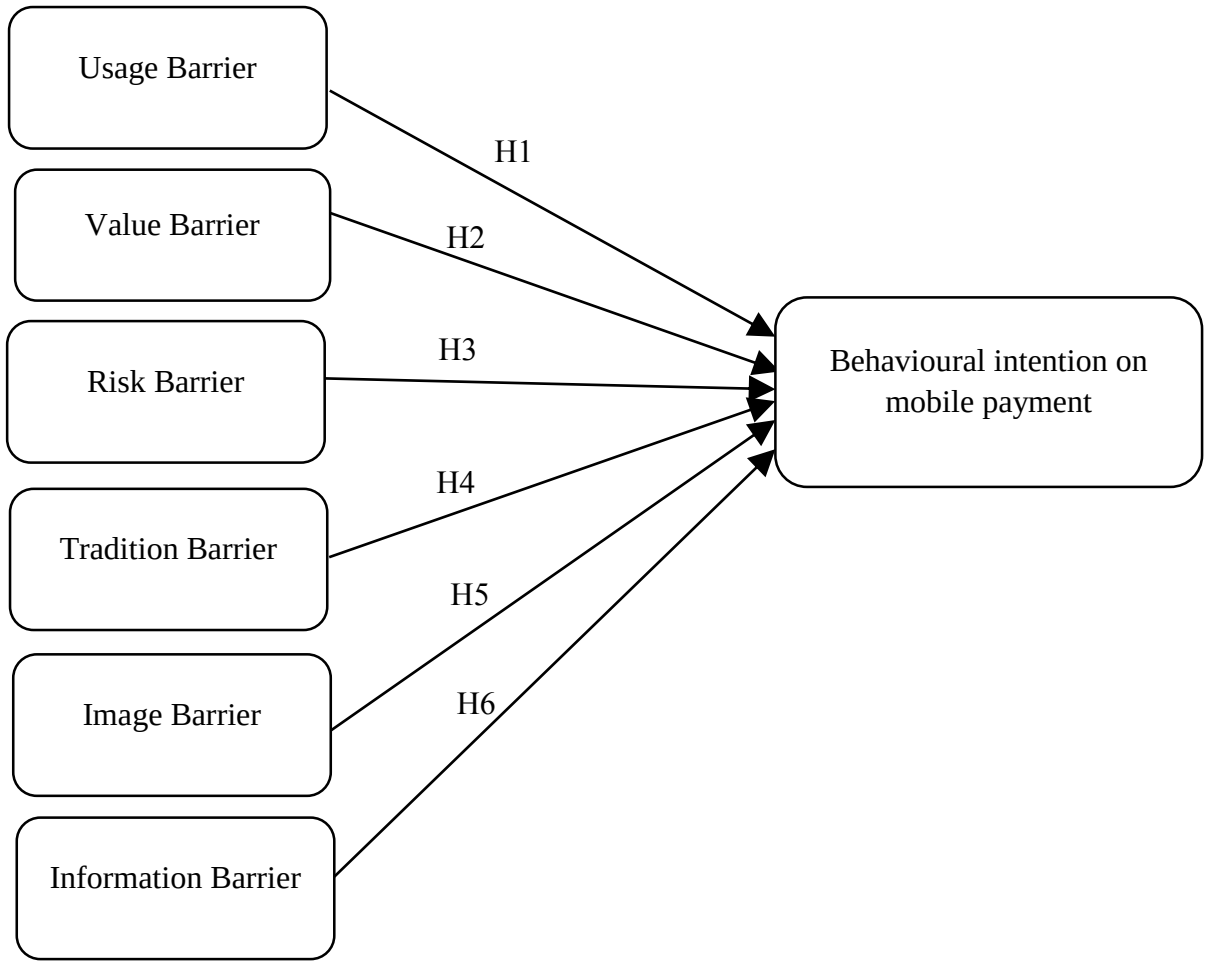
InB was found to be occurred from lack of information in relation to a new product or service (Laukkanen & Kiviniemi, 2010). Some prior studies results support InB is negatively influencing mobile technologies' adoption. Consumers feel that lack of information about MB had discouraged them from adopting the service which they are not familiar with (Ewe & Yap, 2012; Yang, Liu, Li, & Yu, 2017). According to Lian, Liu, and Liu (2012), Taiwanese do not believe the service providers will give them favourably personalized information compared to auto-generated information via MB application. Based on Pinchot, Mishra, Paullet, and Kohun (2016) research on MPS, students in mid-Atlantic are aware of the existence of MPS,

however they have less knowledge of the services available for their own smartphone and ways of using the features. According to Kuerbis et al. (2017), when service providers failed to deliver sufficient guidance, older adults will become disoriented and lack of knowledge towards technologies. Therefore, BB will avoid using MPS when they are unable to acquire relevant information. Hence, the sixth hypothesis is proposed:

H6: There is a significant negative relationship between InB and BI to adopt MP among BB in Malaysia.

2.3 Proposed Conceptual Framework

Figure 2.1: Proposed Conceptual Framework of Barriers Repelling BB from Adopting MP in Malaysia.



Source: Ram & Sheth (1989); Laukkanen & Kiviniemi (2010)

Conceptual model of this research is shown in Figures 2.3. VB, UB, RB, TB, IB and additional of InB are the IV for this study. While BI to adopt MP remains as the DV to be tested for this particular study.

2.4 Conclusion

In conclusion, integrated IRT is used in this study and six hypotheses regarding the relationship between six barriers and DV have been proposed with the support of prior studies.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction

This preceding topic review the relevant literature of past studies. Chapter three will provide an overview about the data collection method used, targeted respondents, variables and measurement and data analysis technique used in this study.

3.1 Research Design

This study aims to investigate the barriers that influence BI of BB to adopt MP in Malaysia. Self-administered questionnaire is the survey method used in this study to gather primary data as it produces data that happened in reality (Kelley, Clark, Brown, & Sitzia, 2003). According to Blackstone (2012), survey is able to gather huge information in an efficient manner. Besides, most of the past researchers have successfully gathered their data with self-administered questionnaire to BB in their research (Badowska et al., 2015; Kim, Fidgeon, & Kim, 2014; Koo & Lee, 2013). Cross-sectional research is applied as the data is collected only once. Therefore, there is no follow up needed, lower cost and shorter time is required (Mann, 2003). BB who born in between 1946 and 1960, also the user who had no experience or had used once or twice in MPS in Malaysia are selected as unit of analysis in this study (Laukkanen, 2016).

3.2 Population, Sample and Sampling Procedures

3.2.1 Target Population

Previous IRT studies have used those respondents with no experience (Laukkanen et al., 2007) and had used once or twice (Laukkanen, 2016) in mobile technology due to similarity in attitudes between these two groups. This is in compliance with active innovation resistance, attitudinal outcome in resistance of technology formed after an unfavourable new product evaluation (Ram & Sheth, 1989). According to Laukkanen (2016), there is no difference between those with no experience and tried once or twice. Hence, population in this research consists of BB who had no experienced, and tried once or twice in MPS in Malaysia. BB are targeted as they are having stable income, precipitate their high spending phase of life, however their adoption rate of MPS is remaining low compared to Gen X and Gen Y ("Decoding the Malaysian," 2016).

3.2.2 Sampling Location

Sampling location refers to the place or area that was chosen in a research to gather the intended information from the target respondents. According to Hair (2016), a research should be conducted in an efficient, suitable and economical manner, therefore East Malaysia was excluded due to time and budget limitation (Moorthy et al., 2014).

Table 3.1: Mobile Penetration Rate and the Exact Survey Location in respective areas

Areas	Mobile User Rate	Survey Location (Shopping malls)
Selangor	20.9%	Sunway Pyramid
Johor	12.7%	City Square
Kuala Lumpur	8.9%	Pavillion
Perak	8.5%	Aeon Klebang
Aggregate	51%	-

Source: Malaysian Communications and Multimedia Commission (2015); "The Top 10 Malaysia Shopping Malls – TripAdvisor," (2017).

Shopping malls were chosen as sampling location since most of older customers prefer visiting shopping malls than online shopping as they reluctant to accept new e-shopping approach (Law & Ng, 2016). The listed shopping malls were selected as the exact sampling location due to their superlative malls recognition in their respective states ("The Top 10 Malaysia Shopping Malls - TripAdvisor," 2017). According to Ooi and Tan

(2016), shopping malls are the place with high number of potential mobile users available which will precipitate the data collection process. In addition, as shopping malls are populous, consumers from various background can be identified over there, it is more effective and accessible for data collection (Sarich & Sittiporn, 2017). The data collection was conducted from 5th September 2017 to 19th January 2018.

3.2.3 Sample Technique

Sampling techniques can be divided into probability sampling and non-probability sampling (Saunders et al., 2009, p.213). Non-probability sampling is selected as sampling frame of BB who are inexperienced and used once or twice in MPS in Malaysia is unknown. Hence, quota sampling and purposive sampling were applied in this research. Hair, Bush, and Ortinau (2003, p.351) states that quota sampling is the selection of prospective participant using two-stage purposive process.

Stage one involves using quota sampling technique. Four states were selected based on the highest mobile users' penetration rate in Malaysia. Quota sampling technique was used to proportionate target respondents based on mobile user percentage in selected states.

In second stage, purposive sampling is then used for the selection of the sample elements. Purposive sampling is chosen as the appropriate respondents can be identified based on researcher's judgement (Hair et al., 2003, p.351). Each target respondent was selected based on their age and experience level in MPS.

3.2.4 Sample Size

Sample is a subset that represents targeted population in a research (Sekaran & Bougie, 2010). Sampling is crucial as survey entire population is unrealistic due to it involved huge monetary resources and time consuming (Saunders, Lewis, & Thornhill, 2009). According to Zikmund, Babin, Carr, and Griffin (2010), sample size is depending on the researcher's consideration. Hinkin (1998) recommended that item-to-response ratios range from 1:4 to at least 1:10 for each set of scales to be analysed. There were in total of 31 questions constructs in each set of the questionnaire. Therefore, 310 survey questionnaires were distributed as the optimal sample size for this study range within 124 and 310.

3.3 Data Collection Method

Self-administered questionnaire used in collection of data. By doing so every respondent will be answering the same questions (Bryman & Bell, 2015). Additionally, respondents can clarify any unclear information from researchers. Hence, comparability of answers can be further enhanced (Hair, 2016). Moreover, the completion of the survey is time saving as it enables researchers to gather large amount of data within a shorter time frame (Bryman & Bell, 2015).

3.3.1 Pre-test

The questionnaires were pre-distributed to 5 researchers who expertise in mobile technology. By referring to their advices, misunderstandings participants may encounter with instrument items can be detected (Perneger, Courvoisier, Hudelson, & Gayet-Ageron, 2014).

3.3.2 Pilot Test

Upon the pre-test of the questionnaires, the pre-final version of the revised questionnaire has been pilot tested on a small sample size of 30 BB from Aeon Klebang, Perak.

3.4 Variables and Measurement

Givon and Shapira (1984) found pronounced improvements in item reliability when moving from 2-point scales toward 7-point scales. Reliability continued to increase up to lengths of 11 points, but the increases beyond 7 points were quite minimal for single items Therefore, this research were anchored on a 7-point Likert-scale ranging from "1" (strongly disagree) to "7" (strongly agree).

Table 3.2 explains the definitions for each variable and the sources of each variable. There are 26 items for six IV and five items for DV being examined. The items which were adapted from previous studies was modified for this study to fit the context of MPS.

Table 3.2: Definitions, number of items and sources of each variables

Construct (Independent variable)	**Definition**	**Number of item(s)**	**Sources**
Usage Barrier	UB is concerned with the usability of innovation resulted when the innovation is not same with current plan and practice (Laukkanen et al., 2007).	4	Laukkanen, Sinkkonen, Kivijarvi, and Laukkanen (2007)

Value Barrier	VB refers to performance –to-price value perceived by the innovation against other alternative solutions (Laukkanen et al., 2007).	4	Laukkanen et al. (2007) El Badrawy and Aziz (2011)
Risk Barrier	RB refers to the insecurity that users experience or perceive in innovations. The more risky the innovation, the lower its acceptance (Laukkanen et al., 2007).	5	Laukkanen et al. (2007) Peng, Xu, and Liu (2011)
Tradition Barrier	TB exists when users prefer to have direct interaction with the respective person instead of using the arm-length technologies (Laukkanen et al., 2007).	5	Mahatanankoon and Ruiz (2007)
Image Barrier	IB comes into place when one's has negative perception on the technology or the bad image on respective company who introduce the technology (Laukkanen et al., 2007).	4	Laukkanen et al. (2007).
Information Barrier	Emerging from a lack of information in relation to innovation (Laukkanen & Kiviniemi, 2010).	4	Laukkanen and Kiviniemi (2010) Laukkanen et al. (2007) Oreg (2016) Kleijnen et al. (2009) Herbig and Kramer (1994)

Construct (Dependent variable)	**Definition**	**Number of item**	**Number of items: Sources**
Behavioural intention	Consequences of the sum of the variables that culminate into acceptance of the consumers to perform certain actions or behaviour (Schierz et al. 2010).	5	Schierz et al. (2010) Dastan and Gurler (2016) Lian and Yen (2013)

Source: Developed for the research

3.5 Data Analysis Techniques

3.5.1 Descriptive Analysis

According to Zikmund et al. (2010), descriptive analysis refers to analysis technique that transforms collected raw data into more understandable form. Frequency and percentage were classified and presented in table form to understand the characteristics of target respondents (Saunders et al., 2009). Mean and standard deviation are calculated for every response of all variables to obtain the average value and the variation from mean (Greener, 2008).

3.5.2 Scale Measurement

3.5.2.1 Normality Test

Normality test assist in examining whether data collected is normally distributed. It is important as non-normality will affect the accuracy of statistical tests (Weston & Gore, 2006). Normality test is conducted on every questionnaire item in each of the variables. Normality of the data can be found out through skewness and kurtosis value for each of the items. Hair, Black, Babin, and Anderson (2010) even Kline (2005) suggested that when the skewness value of the variable is less than ±3 and kurtosis value is less than ±10, the variable is considered as normally distributed as well.

3.5.2.2 Reliability Test

Based on Zikmund (2003), reliability test is an important tool in ensuring result generated is trustable and free from unfairness. Generally, it is

conducted on one variable at a time and measured by Cronbach's coefficient alpha (α) that normally between 0 and 1. From Nunnally and Bernstein (1994), data is considered reliable when it obtains alpha value more than 0.70.

3.5.3 Inferential Analysis

3.5.3.1 Pearson Correlation Coefficient Analysis

Correlation within two variables was measured by Pearson Correlation Coefficient Analysis in this study (Saunders et al., 2012). It is generally represented by r and ranges between -1 and +1 (Hair, Money, Samouel, & Page, 2007). When the r showing '+' symbol, the variables are said to be positive relationship while the r showing '-' symbol, the variables are said to be negative relationship. This study required to fulfil both normality and linearity assumption to use the analysis (Uyanik & Guler, 2013).

3.5.3.2 Multiple Linear Regressions

This study will use multiple linear regressions as an inferential analysis technique to examine the relationship between multiple IV and a DV (Hair, Bush, & Ortinau, 2006). The assumptions of this analysis are normality, linearity and multicollinearity. There is multicollinearity when variance inflation factor value is greater than 10 (Akinwande, Dikko, & Samson, 2015). Multiple linear regressions is used as there are multiple IV with a DV in this study (Gogtay, Deshpande, & Thatte, 2017). Table 3.3 below shows the multiple linear equations of this study.

Table 3.3: Multiple Linear Regression Equation

Multiple Linear Equation $Y = \beta + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6$
Where: Y = Dependent Variable = Behavioural Intention to Adopt Mobile Payment X_1 = 1st Independent Variable = Usage Barrier X_2 = 2nd Independent Variable = Value Barrier X_3 = 3rd Independent Variable = Risk Barrier X_4= 4th Independent Variable = Tradition Barrier X_5 = 5th Independent Variable = Image Barrier X_6 = 6th Independent Variable = Information Barrier β = the intercept of the regression line. $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ & β_6 = regression coefficient for X_1, X_2, X_3, X_4, X_5 & X_6

Source: Developed for the research

3.6 Conclusion

In overall, chapter three had discussed into the data collection method used, targeted respondents, variables and measurement and data analysis technique of this study.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

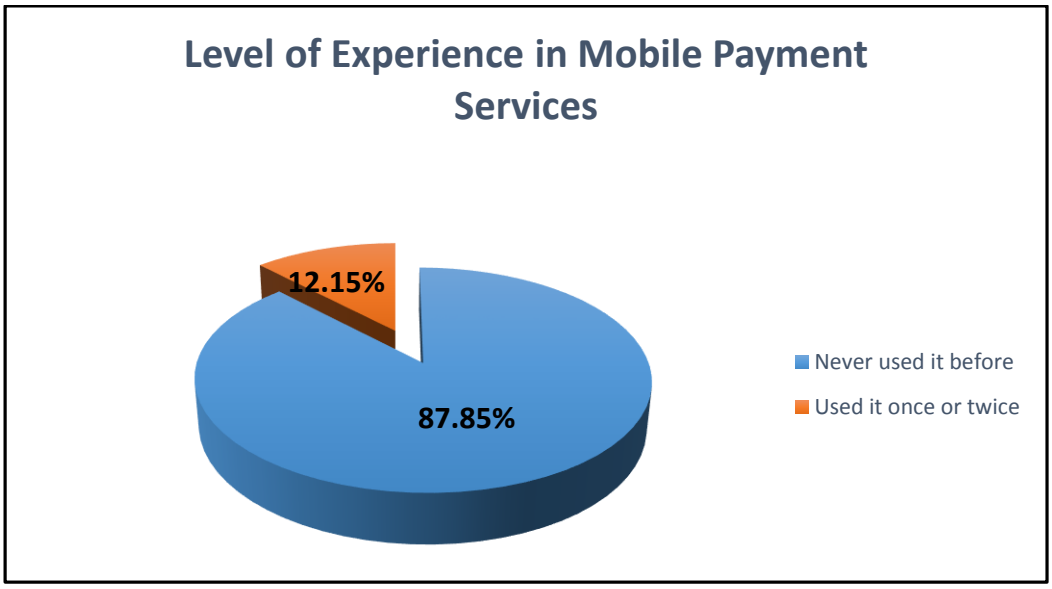
Chapter four will present the discussion of descriptive analysis on survey respondents, result from reliability and normality test to ensure data collected is reliable, and inferential analysis in testing co-relationship among the variables.

4.1 Descriptive Analysis

4.1.1 Demographic Profile of Respondents

Targeted BB's gender, year of birth, races, highest education completed and level of experience in MPS are shown as below. The usable survey questionnaire are 288 sets out of 310 sets.

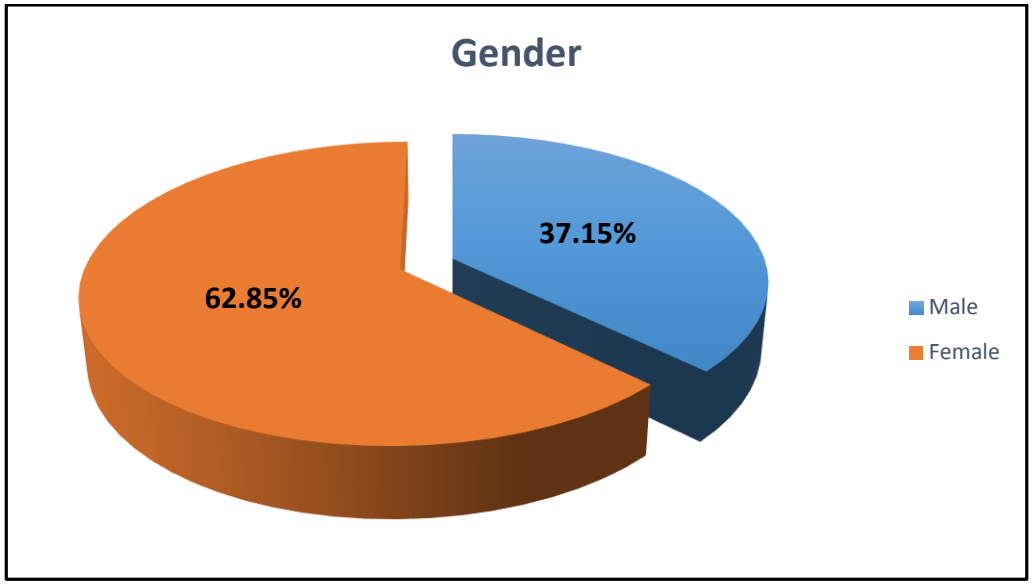
Figure 4.1: Percentages of Respondents based on Level of Experience in Mobile Payment Services



Source: Developed for the research

Figure 4.1 shows 87.85% of respondents had never used the MPS while only 12.15% of the respondents had used the services (Laukkanen, 2016).

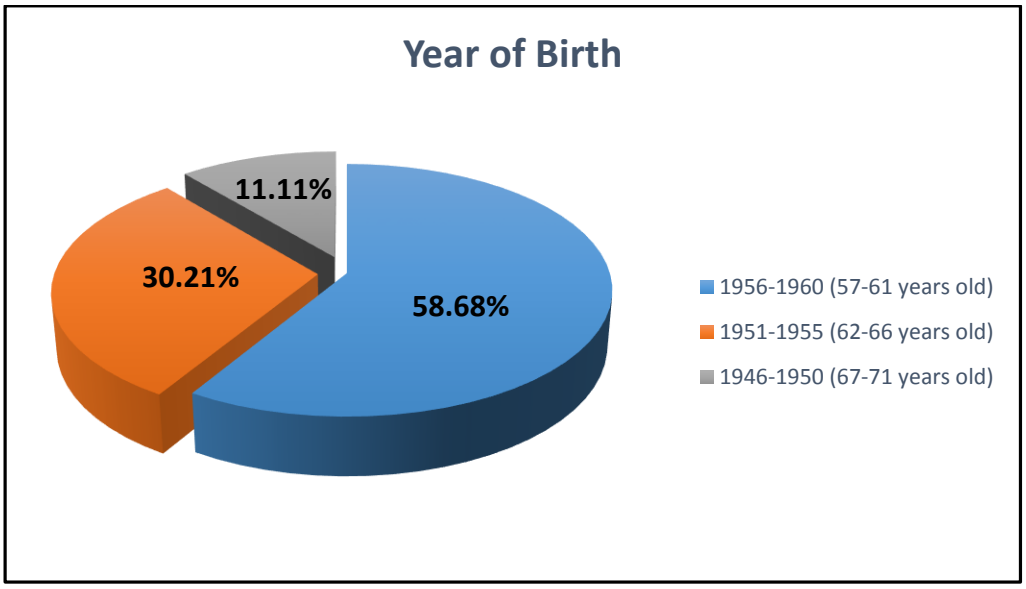
Figure 4.2: Percentages of Respondents based on Gender



Source: Developed for the research

According to Figure 4.2, there are 62.85% of female respondents and 37.15% of male respondents from the surveys collected.

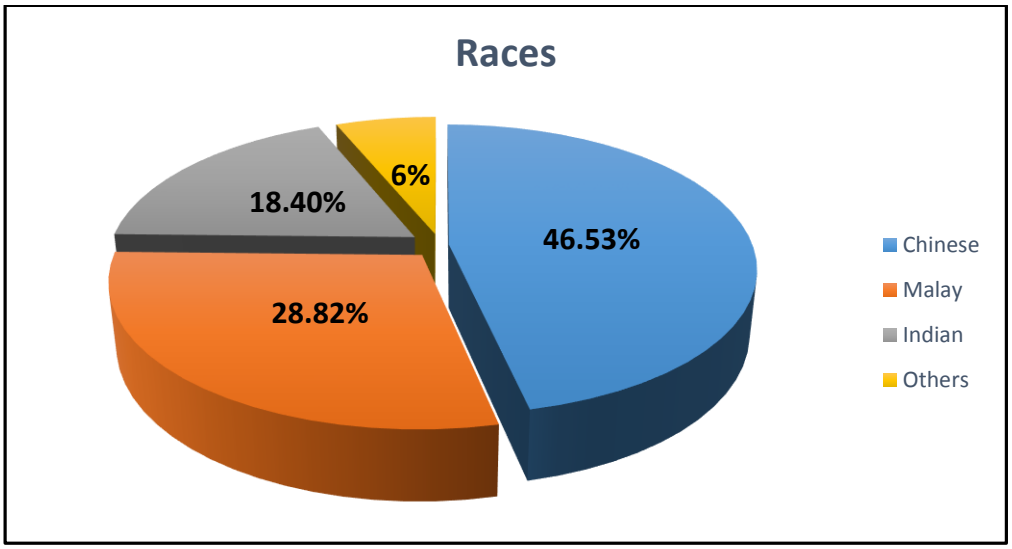
Figure 4.3: Percentages of Respondents based on Year of Birth



Source: Developed for the research

From Figure 4.3, it shows that most of the target respondent's age are between 57 to 61 years old which comprises 58.68% out of the total. This is followed by those who aged in between 62 to 66 years old which stands at 30.21% and 67 to 71 years old which contributes 11.11%.

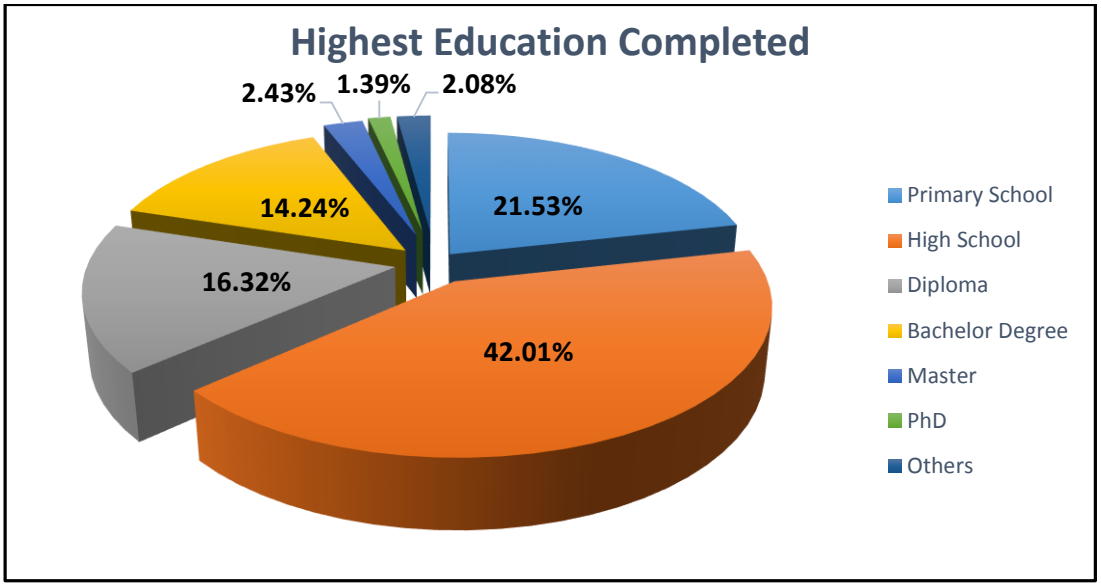
Figure 4.4: Percentages of Respondents based on Races



Source: Developed for the research

Most of the target respondents are Chinese which consists of 46.53%. It is followed by Malay and Indian which comprise 28.82% and 18.40% respectively. The others races are only occupied 6% of the total.

Figure 4.5: Percentages of Respondents based on the Highest Education Completed



Source: Developed for the research

According to Figure 4.5, 42.01% of total respondents had completed up to high school level. Meanwhile, 21.53% of respondents had completed up to primary school studies. It is followed by 16.32% and 14.24% who are diploma and bachelor degree holders respectively. Furthermore, 2.43% and 1.39% of respondents owned the master and PhD level. The remaining of 2.08% of respondents are classified as others.

4.1.2 Central Tendencies Measurement of Constructs

Table 4.1: Central Tendencies Measurements of Constructs

IV	Mean	Standard Deviation
	Usage Barrier	
UB 1	4.1285	1.4606
UB 2	4.0521	1.5731
UB 3	4.2912	1.2790
UB 4	4.3472	1.2787
	Value Barrier	
VB 1	3.8056	1.1793
VB 2	4.1840	1.2399
VB 3	3.9653	1.0814
VB 4	3.7708	1.0770
VB 5	3.9826	1.4349
	Risk Barrier	
RB 1	4.3368	1.4890
RB 2	4.5139	1.3511
RB 3	4.3472	1.3834
RB 4	4.4931	1.4338
RB 5	4.6042	1.2052
	Tradition Barrier	
TB 1	4.3819	0.9481
TB 2	4.8438	1.2687
TB 3	4.4375	1.0994
TB 4	4.2222	1.1227
	Image Barrier	
IB 1	3.6354	0.9196
IB 2	4.1771	1.2125
IB 3	4.4097	1.4455
IB 4	3.9514	1.0744

	Information Barrier	
InB 1	4.2813	1.2071
InB 2	4.1181	1.0224
InB 3	4.4097	1.1069
InB 4	4.4861	1.1596
	Behavioural Intention	
BI 1	3.8125	1.2009
BI 2	4.0729	1.2147
BI 3	3.8264	1.1855
BI 4	3.8021	1.1381
BI 5	4.2431	1.1491

Source: Developed for the research

Table 4.1 shows the mean and standard deviation of each of the construct. The mean of UB range between 4.0521 to 4.3472, VB range between 3.7708 to 4.1840, RB range between 4.3368 to 4.6042, TB range between 4.2222 to 4.8438, IB range between 3.6354 to 4.4097, InB range between 4.1181 to 4.4861 and BI range between 3.8021 to 4.2431. As most of the mean are above 4, it indicates that the target respondents are generally agree to the barriers stated in the questionnaire. However, for the VB, IB and BI, respondents show different view which resulted the mean to be varied between above and below 4.

Standard deviation ranged from 0.9196 to 1.4890. All of the variables are close to 1 except for two statements from IB1 and TB1. Standard deviation ranges from 0 to 1 is considered to be consistent.

4.2 Scale Measurement

4.2.1 Reliability Test

Table 4.2: Summary of Reliability Test (Pilot Test)

Independent Variables	Cronbach's Alpha	Dependent Variable	Cronbach's Alpha
Usage Barrier	0.8603	Behavioural Intention	0.9169
Value Barrier	0.8319		
Risk Barrier	0.8922		
Tradition Barrier	0.7776		
Image Barrier	0.7116		
Information Barrier	0.8630		

Source: Developed for the research

A pilot test was conducted among 30 BB in Aeon Klebang, Ipoh to assess the validity and reliability of questionnaire. The result of Cronbach's alpha for every variable is shown in Table 4.2. The Cronbach's alpha are ranging from 0.7116 to 0.9169 indicated that all result are reliable as the result are exceed 0.7 (Nunnally & Bernstein, 1994).

Table 4.3: Summary of Reliability Test (Final Test)

Independent Variables	Cronbach's Alpha	Dependent Variable	Cronbach's Alpha
Usage Barrier	0.8164	Behavioural Intention	0.8902
Value Barrier	0.7906		
Risk Barrier	0.8643		
Tradition Barrier	0.7127		
Image Barrier	0.7662		
Information Barrier	0.8182		

Source: Developed for the research

Table 4.3 illustrate the outcome for each variable's reliability test. A variable is viewed as reliable if Cronbach's alpha have at least a minimum value of 0.7 (Nunnally & Bernstein, 1994). Thus, all items adapted in questionnaire for this study is reliable.

4.2.2 Normality Test

Skewness is the degree of asymmetry in a frequency distribution (Kaloyanov, 2011). If the skewness value is positive, it would assumed to be positive skewed and show a longer tail to the left. Whilst, a negative value skewness indicates a negative skewness and result in a longer tail to the right (Saunders et al., 2009).

According to Saunders et al. (2009), kurtosis is the indicator of edge or latitude of distribution as compared to a normal distribution. A positive value of kurtosis showed a higher latitude distribution and vice versa. Hair et al. (2010) proposed that endogenous variable is satisfactory if the skewness value fall within the range of -3 to +3. Whilst, kurtosis is acceptable within the range of -10 to +10 (Hair et al., 2010). Hence, data shown in this study are normally distributed as all the criterion were met.

Table 4.4: Summary of Normality Test for Independent Variables (Pilot Test)

Independent Variables	Skewness	Kurtosis	Independent Variables	Skewness	Kurtosis
UB 1	-0.0836	-0.0804	RB 5	-0.0230	-0.3299
UB 2	0.0862	-0.5187	TB 1	0.9074	1.1164
UB 3	-0.1075	-1.5737	TB 2	-0.1857	-0.6769
UB 4	0.1323	-1.4878	TB 3	0.5896	-0.3309
VB 1	0.5171	-0.6041	TB 4	-0.0068	-0.9732
VB 2	0.6062	-0.2069	IB 1	0.9674	0.3108
VB 3	0.4429	-0.8351	IB 2	0.5244	-0.1827
VB 4	1.0202	0.7046	IB 3	0.2482	-1.2496
VB 5	0.1540	-0.6123	IB 4	0.7702	1.0120
RB 1	-0.4856	0.6235	InB 1	0.7577	-0.1425
RB 2	-0.5194	-0.3177	InB 2	0.3254	1.3163
RB 3	-0.7415	2.8575	InB 3	0.3504	0.4745
RB 4	-0.9483	2.3502	InB 4	-0.2500	0.5230

Source: Developed for the research

Note: UB=Usage Barrier; VB= Value Barrier; RB=Risk Barrier; TB= Tradition Barrier; IB= Image Barrier; InB= Information Barrier

Table 4.5: Summary of Normality Test for Dependent Variable (Pilot Test)

Dependent Variable	Skewness	Kurtosis
BI 1	-0.5651	-1.0461
BI 2	-0.2829	-1.0470
BI 3	-0.6905	-0.5177
BI 4	-0.4805	-0.9584
BI 5	-0.4011	-1.2674

Source: Developed for the research

Note: BI= Behavioural Intention

Table 4.4 and 4.5 presented the outcome of normality test which was collected in the pilot test. The value of skewness for all variables are ranging

from -0.9483 to 1.0202, whereas the result of kurtosis test ranges between -1.5737 to 2.8575. Hence, the data considered normally distributed as the test for normality is met as skewness is within ±3 and kurtosis is within ±10 (Hair et al., 2010).

Table 4.6: Summary of Normality Test for Independent Variables (Final Test)

Independent Variables	Skewness	Kurtosis	Independent Variables	Skewness	Kurtosis
UB 1	-0.0020	-0.7666	RB 5	-0.4391	0.7190
UB 2	0.0973	-0.6722	TB 1	0.5037	1.2000
UB 3	0.0235	-0.8673	TB 2	0.0800	-0.3479
UB 4	-0.2196	-0.1649	TB 3	0.3660	0.0434
VB 1	0.2031	-0.2776	TB 4	0.1033	-0.3378
VB 2	0.2753	0.3986	IB 1	0.4892	1.5672
VB 3	0.3689	-0.3054	IB 2	0.2583	-0.1770
VB 4	0.8043	1.6680	IB 3	0.0176	-0.6460
VB 5	0.0235	-0.3297	IB 4	0.3178	0.9440
RB 1	-0.6939	-0.0208	InB 1	0.2348	0.6885
RB 2	-0.3027	-0.2056	InB 2	-0.2979	1.3377
RB 3	-0.2600	0.2778	InB 3	-0.0709	1.2504
RB 4	-0.7609	0.6249	InB 4	-0.4858	1.0264

Source: Developed for the research

Table 4.7: Summary of Normality Test for Dependent Variable (Final Test)

Dependent Variable	Skewness	Kurtosis
BI 1	-0.3146	-0.5613
BI 2	-0.1874	-0.6662
BI 3	-0.1273	-0.4429
BI 4	-0.1763	-0.4428
BI 5	-0.1260	-0.2860

Source: Developed for the research

Table 4.6 and 4.7 revealed the outcome of final normality test. The skewness of all items in the survey questionnaires are ranging from -0.7609 to 0.8043, while kurtosis ranges within -0.8673 to 1.6680. Therefore all data is normally distributed as the test of normality is met (Hair et al., 2010).

4.3 Inferential Analysis

4.3.1 Pearson Correlation Analysis

Table 4.8: Pearson Correlation Coefficients

Variables	UB	VB	RB	TB	IB	InB	BI
UB	1.0000						
	<.0001						
VB	0.3554	1.0000					
	<.0001	<.0001					
RB	0.3399	0.3113	1.0000				
	<.0001	<.0001	<.0001				
TB	0.3749	0.3043	0.2814	1.0000			
	<.0001	<.0001	<.0001	<.0001			
IB	0.3193	0.2549	0.1740	0.2168	1.0000		
	<.0001	<.0001	<.0001	<.0001	<.0001		
InB	0.2770	0.2841	0.2580	0.2595	0.3908	1.0000	
	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	
BI	-0.6442	-0.4928	-0.4060	-0.4479	-0.3917	-0.4343	1.0000
	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

Source: Developed for the research

Note: UB= Usage Barrier, VB= Value Barrier, RB= Risk Barrier, TB= Tradition Barrier, IB= Image Barrier, InB= Information Barrier, BI= Behavioural Intention

Based on Pearson Correlation Coefficients shown in Table 4.8, all the hypotheses for this study are significant as the p-value between each IV and DV are less than 0.05.. Result shows that there are a significant and negative relationship between each UB (r=-0.6442), VB (r=-0.4928), RB (r=-0.4060), TB (r=-0.4479), IB (r=-0.3917), InB (r=-0.4343) with BI. Among all the correlation between barriers and BI, UB has the strongest relationship with BI while IB has the weakest relationship with BI. Furthermore, the correlation between IB and InB is the highest among all the IVs which is 0.3908. As the correlations amongst variables are less than 0.90, this implies there is no multicollinearity issue. (Hair et al., 2010).

4.3.2 Multiple Linear Regression

Table 4.9: Model Summary

Root MSE	0.6457	R-Square	0.5766
Dependent Mean	3.9514	Adj R-Sq	0.5676
Coeff Var	16.3420		

Source: Developed for the research

Table 4.9 implies that R-Square for the six IVs is 0.5766. This indicates that 57.66% of the variation in BI can be explained by the six barriers which are UB, VB, RB, TB, IB and InB.

Table 4.10: Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F value	p value
Model	6	159.5890	26.5982	63.79	<.0001
Error	281	117.1705	0.4170		
Corrected Total	287	276.7594			

Source: Developed for the research

From the Table 4.10, F-value (63.79) is large whereby p-value is small (<.0001) which is less than 0.05. This shows that at least one of the six IVs can be used to model BI. Since it is proved that there is a significant relationship between all IVs and BI, model fit is achieved.

Table 4.11: Parameter Estimates

Variable	Parameter Estimate	Standardized Estimate	T value	p value	Tolerance	Variance Inflation
Intercept	8.6631	0	31.12	<.0001	-	0
UB	-0.3553	-0.4078	-8.94	<.0001	0.7241	1.3810
VB	-0.2211	-0.2009	-4.58	<.0001	0.7841	1.2753
RB	-0.0943	-0.1064	-2.47	0.0140	0.8133	1.2295
TB	-0.1690	-0.1407	3.23	0.0014	0.7964	1.2557
IB	-0.1063	-0.0979	-2.24	0.0258	0.7899	1.2661
InB	-0.1711	-0.1620	-3.68	0.0003	0.7756	1.2894

Source: Developed for the research

Note: UB= Usage Barrier, VB= Value Barrier, RB= Risk Barrier, TB= Tradition Barrier, IB= Image Barrier, InB= Information Barrier

According to Table 4.11, UB (p=<.0001), VB (p=<.0001), RB (p=0.0140), TB (p=0.0014), IB (p=0.0258) and InB (p=0.0003) have significant relationship with BI since their p-value are less than 0.05. UB has the greatest effect on BI of MP followed by VB, InB, TB and RB while IB has the weakest relationship with BI. Besides, all the IVs in the study also have a negative relationship with BI. Therefore, all of the six hypotheses are supported. On the other hand, the result implies multicollinearity problem amongst IVs do not exist. This is due to tolerance value of all IVs are more than 0.1 and variance inflation value are less than 10 (Akinwande et al., 2015).

Below shown is the Multiple Linear Regression equation:

BI = 8.6631 – 0.3553(UB) – 0.2211(VB) – 0.0943(RB) – 0.1690(TB) – 0.1063(IB) – 0.1711(InB)

4.4 Conclusion

Chapter four conclude the findings the result generated from the data collected through different analysis. Based on the result, major findings, implication, limitation and recommendation will be discussed in chapter five.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

This chapter summarise the characteristics of survey respondents and the outcomes of survey collected. Further, it also pointed out the major findings, managerial and theoretical implications based on the data analysed. Further, limitations as well as recommendations is provide for the reference of future researchers.

5.1 Summary of Statistical Analysis

Total of 310 sets of self-administered questionnaire disseminated to the survey respondents but only 288 sets can be used due to the incompatible characteristics which set in this study. Based on the survey analysed, most of the respondents are those who had never used it before. The female respondents has occupied the higher percentage compared to the male. Besides, majority of respondents are those born in between 1956-1960 and had completed their studies up to the high school level. Moreover, Chinese respondents has the higher amount compared with the others.

According to the SAS results, the lowest means in the questionnaire is 3.6354 while highest means is 4.8438. The smallest and largest of the standard deviation are 0.9196 and 1.4890. This shows that the data values are slightly distribute around the central tendency.

According to SAS analysis conducted, the normality and reliability of data was generated and proven. For the normality test, all data is assumed to be normally distributed which is proven that skewness and kurtosis test is satisfactory as the skewness of all variable range within ±3 and kurtosis range within ±10. Meanwhile, the result of reliability test signifies that all the constructs are usable as the

Cronbach's alpha figure are larger than 0.7. To conclude, most of the variables in this study are reliable.

According to Pearson Correlation Analysis, each of the barriers has a significant and negative relationship to BI as the p-value are below 0.05 and r-value is in negative form. UB has highest relationship with BI while IB has lowest relationship. Multicollinearity problem does not exist as the correlation between all IVs are less than 0.9.

From the Multiple Linear Regression, 57.66% of the variation in BI can be explained by the six barriers in this study. The model is adaptable as the F-value is large enough which mean that at least one of the barriers can use to model BI. The p-value calculated indicates that all the IVs have significant impact to BI. From the result, all of the hypotheses are supported. Besides, UB has greatest effect on BI while IB has lowest effect.

5.2 Discussion of Major Findings

5.2.1 Usage Barrier

UB has been proven to have the strongest negative relationship towards BI in adopting MP among BB in this study. From the analysis in Chapter 4, the p-value of UB is <.0001 which is lower than 0.05, indicates that the hypothesis 1 is supported. The beta of UB, -0.3553 shows strong negative relationship existed between UB and BI.

This findings is correspondence with the previous literature from Huh et al. (2017), Sun et al. (2017), Rahman (2013), and Kuerbis et al. (2017) which had showed UB has a significant negative relationship towards the adoption of innovation. Surprisingly, the reason that most of the BB resist MPS is when they found that instruction provided on the MP platform is unclear.

This might due to the instruction provided in MPS consist of technological jargon such as transaction authorization code (TAC) and card code verification (CCV) that is unfamiliar by BB in Malaysia. In addition, natural age-related farsightedness has further decrease the clarity and understandability of the instruction provided especially when the MPS instruction is presented in small size of mobile screen, and unsuitable font type and size used.

As BB are perceived as conservative to adopt newly unknown technologically advanced products (Badowska et al., 2015), they would not adopt MP unless they able to understand the operating method in detailed.

5.2.2 Value Barrier

VB yielded a significant value of 0.001, which implied that hypothesis 2 is validated as its p-value is less than 0.05. Hence, it is statically proven that VB as one of the factor of rejection MPS adoption. Besides, the relationship direction is moderately negative as the beta-value of VB is -0.2211.

This findings in this study are coherent with previous empirical past studies which produce the similar outcome that VB has a negative and significant relationship. (Agwu, 2013; Laukkanen, 2016; Lian & Yen, 2014). The result in this study shows that majority of BB believe that MPS does not increase the ability to control own financial matters. This might due to BB worry of over-spending as they only able to trace back the amount spent when monthly bank statement is received compared to checking cash balance in wallet directly.

When BB believe the MPS doesn’t improve the quality of life, they tend to remain the current payment behaviour and less likely to adopt MP.

5.2.3 Risk Barrier

From the analysis in Table 4.13, hypothesis 3 in this study is supported as RB had achieved a p-value of 0.0140, which is below the 0.05. Besides, the beta of -0.0943 implies that significant negative relationship existed between RB and BI to adopt MP amongst the BB in Malaysia.

This result is found to be consistent with the past researches (Yu & Chantatub, 2016; El.Aziz et al., 2014; Akturan & Tezcan, 2012; Yang et al., 2012). The result shows that most of the BB in Malaysia resist to adopt MP when they worry there is faultiness in the function of MP. Faultiness of MPS platform arise when the platform turn unresponsive at the interfaces while the payment has been doubled or delayed. Besides, BB in Malaysia worry their personal sensitive information being exposed to the unknown parties if they adopt MP. This result is coherent with the current news regarding largest personal data breach which caused personal data of 46.2 million mobile phone subscribers in Malaysia been stolen (Rodzi, 2017).

In short, the more the RB perceived, the less the BB' BI to adopt MP in Malaysia.

5.2.4 Tradition Barrier

According to the analysis from Table 4.13, the p-value of TB was 0.0014, which is lower than 0.05, indicates that hypothesis 4 in this study was supported. On other hand, the beta of -0.1690 indicates a significant negative relationship between TB and BI to adopt MP amongst the BB in Malaysia.

This result is consistent with the past researches (Wijayaratne, 2015; Chemingui & Lallouna, 2013; Badrawy et al., 2012). The result from this study shows that most of the BB in Malaysia still prefer the physical face-

to-face communication with the seller to make the purchase of goods or services as compare to MPS. This might due to they have been accustomed to the traditional physical way of making payment for more than half of their lifetime, they don't think there is a necessary for them to change.

As they are the group of generation which less impacted by the technological advancement, they might feel more comfortable through the interaction and eye contact with sellers, or even expression of gesture by the sellers before they make the payment.

5.2.5 Image Barrier

According to Table 4.13,, p-value of IB is less than 0.05 which shows 0.0258. It implies that the hypothesis 5 is supported. Further, IB shows the beta-value which is -0.1063, means that IB also has a negative impact to BI to adopt MP among BB in Malaysia. BB tend to refuse in adopting MP when they hold a negative perceptions toward MPS.

The outcome is aligned with the major findings of past studies from Nguyen et al. (2016), Yu (2013) and Laukkanen (2016). From the result, most of the BB in Malaysia perceived that new technologies are too complicated to use. This might due to BB always think that they are too old for using new technology. Besides, they also tend to see themselves as slow learning group whereby learning a new technology is a daunting task for them (Magsamen-Conrad, Upadhyaya, Joa, & Dowd, 2015). As a consequence, there is less chance for them to learn more about MPS and further caused them to perceive it as a difficult thing to use.

In short, negative perception will also lead to Malaysia BB' resistance towards MPS.

5.2.6 Information Barrier

According to analysis in Chapter 4, InB has 0.0003 of p-value which is lower than 0.05 indicates that the hypothesis 6 is supported. Meanwhile, the beta of InB, -0.1711 shows that it has a moderate negative relationship between InB to BI in adopting MPS among BB. When there is insufficient of information regarding MPS, BB tends to resist on using it.

The past studies from Yeong and Fen (2012), Lian et al. (2012), Pinchot et al. (2016) and Kuerbis et al. (2017) have supported to research result. Interestingly, BB tend to resist toward MPS because of the information available concerning MPS is not overwhelming. This might due to the media channel used by MPS providers fail to deliver sufficient information regarding MPS to the BB effectively.

When BB feel that the information provided is not sufficient, they would not choose to adopt it unless they obtained enough of information from the service provider.

5.3 Implications of Study

5.3.1 Managerial implication

According to the above analysis, there are several implications that MPS providers could be considered to encourage more BB to adopt MPS in Malaysia context.

The result revealed that UB formed the greatest resistance towards the BI of BB to adopt MPS. Most of the respondents felt MPS is too difficult and complex to use especially when instruction provided in MPS platform is unclear. Limitations of mobile devices screen size, poor interfaces design

and age-related farsightedness might be the reasons that cause most of the BB felt uncomfortable and confused in reading instruction provided and following operating procedures required. Hereafter, MPS providers are strongly encouraged to accommodate the needs of BB by improving interface design such as simplify words used in operating process and increase font size to reduce the resistance amongst them.

Besides, VB is also one of the critical resistance indicators that affect the BI of BB in adopting MPS. BB are perceived as conservative group to adopt newly unknown technologically advanced products (Badowska et al., 2015), and will only adopt it when the products and services meet an actual demand (Laukkanen et al., 2007b). From the result, most of the BB worry in overspending as difficulty arise in checking cash balance done by MPS. Hence, MPS providers should consider to provide an option for BB to receive real-time balance statement such as email to convince BB that MPS able to increase their ability in controlling financial matters.

Besides, RB is one of the important inhibitor that impede the adoption of MP among BB. Based on the findings of this study, faultiness of function is one of the reason that resist BB from adopting MP. By referring the result from this study, MPS providers should provide a reliable customer support service to ensure mis-charges due to faultiness of function can be recovered in a fast and easy manner. Furthermore, development team should continually improve MPS platform to reduce risk of personal information being exposed illegally and the frequency of faultiness faced by BB in Malaysia.

Additionally, the finding revealed that TB has a negative significant relationship toward the BB's BI to adopt MPS. This study reveals that majority of the respondents still prefer face-to-face communication and to have a physical contact with seller. BB are struggling to change their habits, behaviour and interact with service providers as "brand new" payment services will attribute to unfamiliarity of consumers (Chemingui & Lallouna, 2013). MPS providers could consider to open a customer service counters

that is easy to access by BB to introduce the MPS where BB are given a chance to try out the MPS and the staff should be readily available for support.

Besides, the result showed that IB also has a significant and negative relationship with BI of BB to use MPS. The target respondents think that new technology such as MPS is complicated and difficult to use and hence a negative perception is formed. Based on the result, MPS providers should emphasize MPS platform is easy to use by providing proper communication to BB such as marketing campaign and advertisement with the aim to improve the perception of BB toward MPS.

Majority of respondents agreed that InB significantly influences their BI to adopt MPS. According to their responses, respondents felt information regarding MPS is not overwhelming. Thus, it discouraged them from trying the services as they are not familiar towards the MPS offered. Therefore, service providers are advised to focus on identifying and choosing the right media channel in order to deliver relevant MPS information to BB adequately.

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5.3.2 Theoretical Implication

This deductive research contributed to future researchers who intended to test IRT in MP area as it has successfully verified the applicability of IRT in MP context. This is due to result from this study supported IRT as an effective theory to explain resistance factors faced by BB in affecting their BI to adopt MP in Malaysia as all IVs have significant negative relationship with BI.

Moreover, this study provide a more comprehensive conceptual framework for future researchers as it integrated an additional IV, namely InB together with five barriers of IRT which are UB, VB, RB, TB and IB to examine the

BI of BB in Malaysia to adopt MP which rarely done by other researchers before. This study successfully found BB tend to resist in adopting MP when information provided is limited. Furthermore, the effect of integration of InB in MP has created awareness for future researchers to integrate InB into their study in relation to mobile technology.

In short, proposed model from this study provides a more comprehensive understanding in predicting intention of Malaysian BB in adopting MP and it is referable by future researchers to conduct study in relevant context.

5.4 Limitations and Recommendations

There are few drawback encountered in this research. Firstly, the data collected in this research was merely through survey questionnaire. This may potentially lead to the collection of biased and inappropriate responses. This is due to some respondents may find annoying or being forced to fill up the questionnaire (Akbayrak, 2000).

Besides, questionnaire is ineffective when there is none of the alternatives fits the respondents' thought and belief. Other data accumulating technique such as interview could be considered by future researchers to adopt which enables respondents to provide feedback in a more open manner rather than limited by the alternatives provided in the questionnaire.

Besides, the responses from different generations such as generation X and Y were neglected in this study. As different generations would have different exposure to the technologies, their responds and BI towards the technologies might be different as well. It would be beneficial for future studies if other age range is included as it can provide more detailed understanding by comparing different responses.

Moreover, the result of current study was based on cross-sectional data, and therefore raising the question about the applicability of these results in the long term.

This consideration should be taken into account as users' predisposition, belief and awareness towards technologies are more likely to change over time (Alalwan, Dwivedi, & Rana, 2017). A longitudinal study could provide more comprehensive understanding by evidencing the extent of how much the effect of proposed factors could be stabilised over passage of time.

5.5 Conclusion

Throughout the study, all the IVs including the addition of InB are found to have a negative relationship towards the BI of BB in Malaysia to adopt MP. This study also concludes that UB has the greatest effect followed by VB, InB, TB, RB and IB. In a nutshell, the research objective of this study which is to investigate the barriers that influence BI of BB to adopt MPS in Malaysia has been achieved.

REFERENCES

Agwu, E. (2013). From reluctance to resistance: Study of internet banking services adoption in the United Kingdom. *Journal of Internet Banking and Commerce, 18*(3), 1-18.

Akbayrak, B. (2000). A comparison of two data collecting methods: Interviews and Questionnaires. Hacettepe University.

Akinwande, M. O., Dikko, H. G., & Samson, A. (2015). Variance inflation factor: As a condition for the inclusion of suppressor variable (s) in regression analysis. *Open Journal of Statistics*, *5*(07), 754.

Akturan, U., & Tezcan, N. (2012). Mobile banking adoption of the youth market: Perceptions and intentions. *Marketing Intelligence & Planning*, *30*(4), 444-459.

Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management, 37*(3), 99-110.

Al-Maghrabi, T., & Dennis, C. (2011). What drives consumers' continuance intention to e-shopping?: Conceptual framework and managerial implications in the case of Saudi Arabia. *International Journal of Retail Distribution Management, 39*(12), 899-926.

Awasthi, P., & S. Sangle, P. (2013). The importance of value and context for mobile CRM services in banking. *Business Process Management Journal, 19*(6), 864-891.

Badowska, S., Zamojska, A., & Rogala, A. (2015). Baby boomers' attitudes toward innovations: Empirical research in Poland. *Procedia-Social and Behavioral Sciences, 213,* 1050-1056.

Berraies, S., Ben Yahia, K., & Hannachi, M. (2017). Identifying the effects of perceived values of mobile banking applications on customers: Comparative study between baby boomers, generation X and generation Y. *International Journal of Bank Marketing*.

Blackstone, A. (2012). *Principles of sociological inquiry: Qualitative and quantitative methods* (1st ed.). Saylor Foundation.

Bryman, A., & Bell, E. (2015). *Business research methods* (4th ed.). Oxford: Oxford University Press.

Ceipidor, U. B., Medaglia, C. M., Volpi, A. O., Moroni, A., & Sposato, S. (2012). A survey about user experience improvement in mobile proximity payment. *Proceedings of the 4th International Workshop on Near Field Communication*, 51-56.

Chemingui, H., & Ben Lallouna, H. (2013). Resistance, motivations, trust and intention to use mobile financial services. *International Journal of Bank Marketing*, *31*(7), 574-592.

CIMB launches mobile wallet app for cashless payments. (2016). *The Star Online*. Retrieved August 16, 2017, from http://www.thestar.com.my/business/business-news/2016/12/14/cimb-launches-mobile-wallet-app-for-cashless-payments/

Cruz, P., Barretto Filgueiras Neto, L., Muñoz- Gallego, P., & Laukkanen, T. (2010). Mobile banking rollout in emerging markets: Evidence from Brazil. *International Journal of Bank Marketing*, *28*(5), 342-371.

Dahlberg, T. (2015). Mobile payments in the light of money theories: Means to accelerate mobile payment service acceptance?. *Proceedings of the 17th International Conference on Electronic Commerce 2015*.

Daştan, İ., & Gürler, C. (2016). Factors affecting the adoption of mobile payment systems: An empirical analysis. *EMAJ: Emerging Markets Journal*, *6*(1), 17-24.

De Kerviler, G., Demoulin, N. T., & Zidda, P. (2016). Adoption of in-store mobile payment: Are perceived risk and convenience the only drivers?. *Journal of Retailing and Consumer Services*, *31*, 334-344.

Decoding the Malaysian digital DNA from smart to savvy. (2016). Retrieved July 2, 2017 from http://www.ey.com/Publication/vwLUAssets/ey-decoding-the-malaysian-digital-dna/$FILE/ey-decoding-the-malaysian-digital-dna.pdf

Department of Statistics Malaysia. (2016). *ICT services and equipment use by individuals, Malaysia*. Malaysia: Department of Statistics Malaysia.

Dotzauer, K., & Haiss, F. (2017). *Barriers towards the adoption of mobile payment services*. Unpublished master's thesis, Karlstad University, Karlstad, Sweden.

El Aziz, R. A., El Badrawy, R., & Hussien, M. I. (2014). ATM, Internet banking and mobile banking services in a digital environment: The Egyptian banking industry. *International Journal of Computer Applications*, *90*(8), 45-52.

El Badrawy, R., & Aziz, R. A. (2011). Resistance to mobile banking adoption in Egypt: A cultural perspective. *International Journal of Managing Information Technology, 3*(4), 9-21.

El Badrawy, R., El Aziz, R., & Fady, R. (2012). The state of mobile banking in the Egyptian industry'. *Proceedings of the European, Mediterranean & Middle Eastern Conference on Information Systems*, 598-605.

Ewe, S., & Yap, S. (2012). Exploring motivations and barriers for mobile banking adoption: A qualitative approach. *World Journal of Social Sciences*, *2*(4), 184-194.

Ferreira, M. C., e Cunha, J. F., José, R., Rodrigues, H., Monteiro, M. P., & Ribeiro, C. (2014). Evaluation of an integrated mobile payment, ticketing and couponing solution based on NFC. *Proceedings of the 2nd World Conference on Information Systems and Technologies, 2*, 165-174.

Fishbein, M., & Ajzen, I. (1977). Attitude-Behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin, 84*(5), 888-918.

Gindi, A., Abdullah, A., Ismail, M., & Nawi, N. (2016). Shopping drivers of generational cohorts: A comparison between night market and wet market formats for fresh fruit and vegetable purchase in Malaysia. *Australasian Marketing Journal, 24*(2), 165-170.

Givon, M. M., & Shapira, Z. (1984). Response to rating scales: A theoretical model and its application to the number of categories problem. *Journal of Marketing Research, 21*, 410-419.

Global mobile payment transaction volume from 2010 to 2017 (in billion US dollars). (2015). Retrieved July 12, 2017, from www.statista.com/statistics/226530/mobile-paymenttransaction-volume-forecast/

Gogtay, N. J., Deshpande, S. P., & Thatte, U. M. (2017). Principles of regression analysis. *Journal of the Association of Physicians of India*, *65*, 48-52.

Greener, S. (2008). *Business research methods*. Ventus Publishing ApS.

Gupta, A., & Arora, N. (2017). Understanding determinants and barriers of mobile shopping adoption using behavioral reasoning theory. *Journal of Retailing and Consumer Services*, *36*, 1-7.

Gupta, A., & Arora, N. (2017). Understanding determinants and barriers of mobile shopping adoption using behavioral reasoning theory. *Journal of Retailing and Consumer Services*, *36*, 1-7.

Hair, J. (2016). *Essentials of business research methods*. New York: Routledge.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Pearson.

Hair, J. F., Bush, R. P., & Ortinau, D. J. (2006). *Marketing research: Within a changing information environment* (3rd ed.). McGraw-Hill Education.

Hair, J. F., Money, A. H., Samouel, P., & Page, M. (2007). *Research methods for business*. Chichester: John Willey & Sons Ltd.

Hair, J., Bush, R., & Ortinau, D. (2003). *Marketing research within a changing information environment (2nd* ed.*).* McGraw-Hill Companies, Inc.

Hayashi, F. (2012). *Mobile payments: What's in it for consumers?*. Retrieved August 10, 2017, from http://businessinnovation.berkeley.edu/Mobile_Money/documents/empirical-studies/Hayashi%20on%20consumer%20benefits%20of%20mobile%20payments.pdf

Heinze, J., Thomann, M., & Fischer, P. (2017). Ladders to m-commerce resistance: A qualitative means-end approach. *Computers in Human Behavior, 73,* 362-374.

Herbig, P., & Kramer, H. (1994). The effect of information overload on the innovation choice process. *Journal of Consumer Marketing*, *11*(2), 45-54.

Hinkin, T. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, *1*(1), 104-121.

Huh, J. H., Verma, S., Rayala, S. S. S. V., Bobba, R. B., Beznosov, K., & Kim, H. (2017). I don't use Apple Pay because it's less secure...: Perception of security and usability in mobile tap-and-pay. *Proceedings of the Workshop on Usable Security (USEC)*, *12*.

Joachim, V., Spieth, P., & Heidenreich, S. (2017). Active innovation resistance: An empirical study on functional and psychological barriers to innovation adoption in different contexts. *Industrial Marketing Management*.

Kaloyanov, T. (2011). About the Measures of Skewness and Kurtosis. *Economic Alternaltives,1*, 22-32.

Kelley, K., Clark, B., Brown, V., & Sitzia, J. (2003). Good practice in the conduct and reporting of survey research. *International Journal for Quality in Health Care*, *15*(3), 261-266.

Kim, Y., Fidgeon, P., & Kim, J. (2014). Analyzing the leisure activities of the baby boomers and the generation of liberation: Evidence from South Korea. *Journal of Tourism and Cultural Change*, *13*(2), 132-148.

Kleijnen, M., Lee, N., & Wetzels, M. (2009). An exploration of consumer resistance to innovation and its antecedents. *Journal of Economic Psychology*, *30*(3), 344-357.

Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York: Guilford.

Koo, J., & Lee, G. (2013). The relationship of baby boomers' participation motivation in leisure sports with recovery resilience and life satisfaction. *Journal of Exercise Rehabilitation*, *9*(2), 263.

Kuerbis, A., Mulliken, A., Muench, F., Moore, A. A., & Gardner, D. (2017). Older adults and mobile technology: Factors that enhance and inhibit utilization in the context of behavioral health. *Mental Health and Addiction Research*, *2*(2), 1-11.

Kuisma, T., Laukkanen, T., & Hiltunen, M. (2007). Mapping the reasons for resistance to Internet banking: A means-end approach. *International Journal of Information Management*, *27*(2), 75-85.

Kwon, W., & Noh, M. (2010). The influence of prior experience and age on mature consumers' perceptions and intentions of internet apparel shopping. *Journal of Fashion Marketing and Management: An International Journal*, *14*(3), 335-349.

Larsson, E., Larsson-Lund, M., & Nilsson, I. (2013). Internet based activities (IBAs): Seniors' experiences of the conditions required for the performance of and the influence of these conditions on their own participation in society. *Education Gerontology*, *39*(3), 155-167.

Lau, L. (2014). *Managing baby boomers, Gen-X and Gen-Y at work*. Retrieved July 2, 2017, from http://mystarjob.com/articles/story.aspx?file=/2014/2/8/mystarjob_careerguide/14365187&sec=mystarjob_careerguide

Laukkanen, P., Sinkkonen, S., & Laukkanen, T. (2008). Consumer resistance to internet banking: Postponers, opponents and rejectors. *International Journal of Bank Marketing*, *26*(6), 440-455.

Laukkanen, T. (2015). How uncertainty avoidance affects innovation resistance in mobile banking: The moderating role of age and gender, *48th Hawaii International Conference on System Sciences*, *IEEE Computer Society Washington,* 3601-3610.

Laukkanen, T. (2016). Consumer adoption versus rejection decisions in seemingly similar service innovations: The case of the Internet and mobile banking. *Journal of Business Research*, *69*(7), 2432-2439.

Laukkanen, T., & Kiviniemi, V. (2010). The role of information in mobile banking resistance. *International Journal of Bank Marketing*, *28*(5), 372-388.

Laukkanen, T., Sinkkonen, S., & Laukkanen, P. (2007). Information as a barrier to innovation adoption. *Proceedings of ANZMAC*, 3-5.

Laukkanen, T., Sinkkonen, S., Kivijarvi, M., & Laukkanen, P. (2008). Segmenting bank customers by resistance to mobile banking. *International Conference on the Management of Mobile Business*, *6*(3), 309-320.

Laukkanen, T., Sinkkonen, S., Kivijärvi, M., & Laukkanen, P. (2007). Innovation resistance among mature consumers. *Journal of Consumer Marketing*, *24*(7), 419-427.

Law, M., & Ng, M. (2016). Age and gender differences: Understanding mature online users with the online purchase intention model. *Journal of Global Scholars of Marketing Science*, *26*(3), 248-269.

Leong, L. Y., Hew, T. S., Tan, G. W. H., & Ooi, K. B. (2013). Predicting the determinants of the NFC-enabled mobile credit card acceptance: A neural networks approach. *Expert Systems with Applications*, *40*(14), 5604-5620.

Lian, J. W., & Yen, D. C. (2013). To buy or not to buy experience goods online: Perspective of innovation adoption barriers. *Computers in Human Behavior*, *29*(3), 665-672.

Lian, J., & Yen, D. (2014). Online shopping drivers and barriers for older adults: Age and gender differences. *Computers in Human Behavior, 37*, 133-143.

Lian, J., Liu, H., & Liu, I. (2012). Applying innovation resistance theory to understand user acceptance of online shopping: The moderating effect of different product types. *Computer Technology and Application, 3*(2), 188-193.

Liébana-Cabanillas, F., Sánchez-Fernández, J., & Muñoz-Leiva, F. (2014). Antecedents of the adoption of the new mobile payment systems: The moderating effect of age. *Computers in Human Behavior, 35*, 464-478.

Magsamen-Conrad, K., Upadhyaya, S., Joa, C. Y., & Dowd, J. (2015). Bridging the divide: Using UTAUT to predict multigenerational tablet adoption practices. *Computers in human behavior*, *50*, 186-196.

Mahatanankoon, P., & Vila-Ruiz, J. (2007). Why won't consumers adopt m-commerce? An exploratory study. *Journal of Internet Commerce*, *6*(4), 113-128.

Makanyeza, C. (2017). Determinants of consumers' intention to adopt mobile banking services in Zimbabwe. *International Journal of Bank Marketing, 35*(6), 997-1017

Malaysian Communications and Multimedia Commission. (2015). *Hand phone users survey 2014.* Retrieved July 31, 2017, from http://www.skmm.gov.my/skmmgovmy/media/General/pdf/SKMM-HANDPHONE-SURVEY-2014.pdf

Malhotra, N. K., & Peterson, M. (2006). *Basic research marketing: A decision-making approach* (2nd ed.). New Jersey: Pearson Education, Inc.

Mann, C. J. (2003). Observational research methods. Research design II: Cohort, cross sectional, and case-control studies. *Emergency Medicine Journal, 20*(1), 54-60.

Maybank and CIMB to enable Alipay mobile wallet in Malaysia. (2017). *The Star Online*. Retrieved August 16, 2017, from http://www.thestar.com.my/business/business-news/2017/03/22/cimb-to-enable-alipay-mobile-wallet-in-malaysia/

Maybank introduces first mobile wallet for smartphone users. (2016). *The Star Online*. Retrieved August 16, 2017, from http://www.thestar.com.my/news/nation/2016/07/22/a-smarter-way-to-pay-maybank-introduces-first-mobile-wallet-for-smartphone-users/

Moorthy, K., Chan, W. S., Chan, Y. L., Tee, P.Y., Wan, K. Y., & Yip, Y. E. (2014). Adoption of mobile commerce in Malaysia: A generation Y perception. *International Journal of Research, 1*(8), 2348-6848.

Moorthy, K., Ching, S. L., Yeong, W. F., Chan, M. Y., Chong, E. K. Y., Kwa, S. Y., & Lee, K. W. (2017). Barriers of mobile commerce adoption intention: Perceptions of generation X in Malaysia. *Journal of Theoretical and Applied Electronic Commerce Research*, *12*(2), 37-53.

Moving towards a cashless society. (2016, December 26). *Daily Express*. Retrieved August 16, 2017, from http://www.dailyexpress.com.my/read.cfm?NewsID=2358

Nguyen, T. N., Cao, T. K., Dang, P. L., & Nguyen, H. A. (2016). Predicting consumer intention to use mobile payment services: empirical evidence from Vietnam. *International Journal of Marketing Studies*, *8*(1), 117-124.

Nilsson, I., & Townsend, E. (2010). Occupational justice—Bridging theory and practice. *Scandinavian journal of occupational therapy*, *17*(1), 57-63.

Number of smartphone users in Malaysia from 2015 to 2022 (in millions). (2017). Retrieved 2 July 2017, from https://www.statista.com/statistics/494587/smartphone-users-in-malaysia/

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.

Oh, J. S., Park, C. U., & Lee, S. B. (2014). NFC-based mobile payment service adoption and diffusion. *Journal of Convergence*, *5*(2), 8-14.

Oliveira, T., Thomas, M., Baptista, G., & Campos, F. (2016). Mobile payment: Understanding the determinants of customer adoption and intention to recommend the technology. *Computers in Human Behavior*, *61*, 404-414.

Ooi, K., & Tan, G. (2016). Mobile technology acceptance model: An investigation using mobile users to explore smartphone credit card. *Expert Systems with Applications*, *59*, 33-46.

Oreg, S. (2006). Personality, context, and resistance to organizational change. *European Journal of Work & Organizational Psychology*, *15*(1), 73-101.

Peng, H., Xu, X., & Liu, W. (2011). Drivers and barriers in the acceptance of mobile payment in China. *Communication in Information Science and Management Engineering*, *1*(5), 73-78.

Perneger, T., Courvoisier, D., Hudelson, P., & Gayet-Ageron, A. (2014). Sample size for pre-tests of questionnaires. *Quality of Life Research*, *24*(1), 147-151.

Phonthanukitithaworn, C., Sellitto, C., & Fong, M. W. (2016). A comparative study of current and potential users of mobile payment services. *SAGE Open*, *6*(4), 1-14.

Pinchot, J., Mishra, S., Paullet, K., & Kohun, F. (2016). Exploring barriers to adoption of mobile payments for university students: Lack of awareness, lack of avaibility, and perceived security risks. *Issues in Information Systems*, *17*(3), 20-30.

Priya, R., Gandhi, A. and Shaikh, A. (2018). Mobile banking adoption in an emerging economy. *Benchmarking: An International Journal*, *25*(2), pp.743-762.

Rahman, M. M. (2013). Barriers to M-commerce adoption in developing countries–a qualitative study among the stakeholders of Bangladesh. *The International Technology Management Review*, *3*(2), 80-91.

Raina, V. K. (2014) *Overview of mobile payment: Technologies and security*. IGI Global.

Ram, S., & Sheth, J. N. (1989). Consumer resistance to innovations: The marketing problem and its solutions. *The Journal of Consumer Marketing*, *6*(2), 5-14.

Rammile, N., & Nel, J. (2012). Understanding resistance to cell phone banking adoption through the application of the technology acceptance model (TAM). *Journal of Business Management*, *6*(1), 86-97.

Ramos-de-Luna, I., Montoro-Ríos, F., & Liébana-Cabanillas, F. (2015). Determinants of the intention to use NFC technology as a payment system: An acceptance model approach. *Information Systems and e-Business Management*, *14*(2), 293-314.

Rodzi, N. H. (2017, November 1). Millions of Malaysian phone users' data stolen: report. *The Straits Times.* Retrieved February 9, 2018, from http://www.straitstimes.com/asia/se-asia/millions-of-malaysian-phone-users-data-stolen-report

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.

Sarich, C., & Sittiporn I. (2017). A study of facility management operation strategy in shopping malls: Insights from 4 top-class shopping malls in Bangkok. *Property Management, 35*(3), 236-253.

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students* (5th ed.). Harlow: Pearson Education Limited.

Schierz, P. G., Schilke, O., & Wirtz, B. W. (2010). Understanding consumer acceptance of mobile payment services: An empirical analysis. *Electronic commerce research and applications*, *9*(3), 209-216.

Schonhardt, C., & Magsamen-Conrad, K. (2015). *Older adults and technology: Adoption and acceptance comes from relationships and encouragement from younger generations*. Unpublished, Bowling Green State University.

Sekaran, U., & Bougie, R. (2010). *Research methods for business: A skill building approach* (5th ed,). New York: John Wiley & Sons Ltd.

Sivathanu, B. (2018). Adoption of digital payment systems in the era of demonetization in India: An empirical study. *Journal of Science and Technology Policy Management*.

Slade, E., Williams, M., Dwivedi, Y., & Piercy, N. (2014). Exploring consumer adoption of proximity mobile payments. *Journal of Strategic Marketing, 23*(3), 209-223.

Sun, B., Sun, C., Liu, C., & Gui, C. (2017). Research on initial trust model of mobile banking users. *Journal of Risk Analysis and Crisis Response, 7*(1), 13-20.

Tan, E., & Lau, L. J. (2016). Behavioural intention to adopt mobile banking among the millennial generation. *Young Consumers*, *17*(1), 18-31.

Thakur, R. (2013). Customer adoption of mobile payment services by professionals across two cities in India: An empirical study using modified technology acceptance model. *Business Perspectives and Research*, *1*(2), 17-29.

Thakur, R., & Srivastava, M. (2014). Adoption readiness, personal innovativeness, perceived risk and usage intention across customer group for mobile payment service in India. *Internet Research, 24*(3), 369-392.

The Top 10 Malaysia Shopping Malls - TripAdvisor. (2017). Retrieved 24 August 2017, from https://www.tripadvisor.com.my/Attractions-g293951-Activities-c26-t143-Malaysia.html

The World Factbook - Central Intelligence Agency. (2017). Retrieved July 20, 2017, from https://www.cia.gov/library/publications/the-world-factbook/geos/my.html

Ting, H., Yacob, Y., Liew, L., & Lau, W. M. (2016). Intention to use mobile payment system: A case of developing market by ethnicity. *Procedia-Social and Behavioral Sciences*, *224*, 368-375.

Uyanik, G. K., & Guler, N. (2013). A study on multiple linear regression analysis. *Procedia - Social and Behavioral Sciences*, *106*, 234-240.

Van Volkom, M., Stapley, J., & Amaturo, V. (2014). Revisiting the digital divide: Generational differences in technology use in everyday life. *North American Journal of Psychology, 16*(3), 557-574.

Venkatesh, V., Thong, J., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly, 36*(1), 157-178.

Ward, C., Raue, M., Lee, C., Ambrosio, L. D., & Coughlin, J. F. (2017). Acceptance of automated driving across generations: The role of risk and benefit perception, knowledge, and trust. *Massachusetts Institute of Technology AgeLab*, 254-266.

Weston, R., & Gore, P. A. (2006). A brief guide to structural equation modeling. *The counseling psychologist, 34*(5), 719-751.

When it comes to payments today, the customer rules. (2015). Retrieved July 25, 2017, from https://www.accenture.com/t20151021T165757w/usen/_acnmedia/Accenture/ next-gen/na-payment-survey/pdfs/Accenture-Digital-Payments-Survey-North-America-Ac centure-Executive-Summary.pdf

Wijayaratne, K. (2015). *Expansion of Internet banking overcoming the barriers*. Paper presented at the 27th Anniversary Convention 2015.

Yang, S. Q., Lu, Y. B., Gupta, S., Cao, Y. Z., & Zhang, R. (2012). Mobile payment services adoption across time: An empirical study of the effects of behavioral beliefs, social influences, and personal traits. *Computers in Human Behavior, 28*(1), 129-142.

Yang, Y., Liu, Y., Li, H., & Yu, B. (2015). Understanding perceived risks in mobile payment acceptance. *Industrial Management & Data Systems, 115*(2), 253-269.

Year of the Rooster 2017: Expect an Even Better Year for Malaysia's Digital Economy. (2017). *Ipay88.com*. Retrieved 24 August 2017, from https://www.ipay88.com/press/single/Year_of_the_Rooster_2017_Expect_An_Even_Better_Year_for_Malaysia%

Yiu, C. S., Grant, K., & Edgar, D. (2007). Factors affecting the adoption of internet banking in Hong Kong – implications for the banking sector. *International Journal of Information Management, 27*(5), 336-351.

Yu, C. S. (2013). What influencing consumers to resist using mobile banking. *Proceedings of the Thirteen International Conference on Electronic Business*, 34-31.

Yu, C. S., & Chantatub, W. (2016). Consumer' resistance to using mobile banking: Evidence from Thailand and Taiwan. *International Journal of Electronic Commerce Studies, 7*(1), 21-38.

Zaltman, G., & Wallendorf, M. (1983). *Consumer behavior: Basic findings and management implications* (2nd ed.). New York: John Wiley & Sons.

Zhou, T. (2014). Understanding the determinants of mobile payment continuance usage. *Industrial Management & Data Systems, 114*(6), 936-948.

Zikmund, W. G. (2003). *Business research methods* (7th ed.). South-Western Publishing.

Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2010). *Business research methods* (9th ed.). Mason: South-Western Publishing.

Appendix A: Summary of Past Empirical Studies on Barriers in IRT and Behavioural Intention to Adopt Mobile Payment

Study	*Country*	*Data*	*Major Findings*
Nguyen, Cao, Dang, & Nguyen, 2016	Vietnam	Structured interview of 489 Vietnamese citizens who were interested in mobile payment services	Personal beliefs, resources and social influences are significant predictors of intention to use mobile payment services.
Yu, 2013	Taiwan	Online survey of 238 Taiwanese citizens	Risk barriers, traditional barriers, and image barriers are salient factors impacting people resistance to use mobile banking.
Laukkanen, 2016	Finland	Survey of 1736 consumers in Finland	Value barrier is the strongest inhibitor of Internet and mobile banking adoption, image barrier slows mobile banking adoption.
Yu and Chantatub, 2016	Taiwan, Thailand	Online survey of 1203 Thai respondents and 658 Taiwanese respondents	Governmental protection and regulations are significant in affecting respondents' resistance towards mobile payment services.
Akturan and Tezcan, 2012	Turkey	Face to face interviews with 435 university students	Perceived cost has a negative impact on consumer adoption towards mobile banking.
El.Aziz, El Badrawy, and Hussien, 2014	Egypt	1500 questionnaires were distributed over respondents from ATM, Internet banking and m-banking usage.	Inconvenience due to weak internet connection while making payment transactions has a negative impact on users intention to adopt mobile technologies.
Yang, Lu, Gupta, Cao,	China	Online survey of 639 respondents in China	Social influence is proved significant is affecting users behavioural intention to use mobile payment.

and Zhang (2012)			
Agwu, 2013	UK	Questionnaire survey of 900 in three big cities in the United Kingdom: London, Birmingham, and Manchester.	Functional barrier (Usage, Value and Risk barrier) is more significant to influence internet banking adoption compare to psychological barrier (Traditional and Image barrier).
Lian &Yen, 2014	Taiwan	1,437 questionnaires survey were distributed to the older adult subjects and 308 questionnaires to university students.	Value barrier, Risk barrier and Tradition barrier have significant influence for older people to shop online. . However, only value barrier is significant on online shopping among young people.
Lian, Liu, & Liu, 2012	Taiwan	178 questionnaire from college students who majored in IS related departments in Taiwan	The users of financial services may believe that traditional service staff will provide more personalized information which is suitable to them. Online banking cannot have the ability to provide such information, so the user resists changing their financial habits.
Ewe & Yap, 2012	Malaysia	20 respondents which owned a mobile phone and maintain at least a regular bank account were interviewed	Lack of knowledge about mobile technology and/or mobile banking especially information related to the applications discourage them from trying the service.
Kuerbis, Mulliken, Muench, Moore, and Gardner, 2017	USA	Data was contributed by synthesized results from contemporary literatures	A lack of knowledge about: technology jargon, why automatic software updates occur, and skills to solve problems as they occur (ranging from “blue screen” to viruses) contribute to older adults feeling frustrated and out of control

Wijayaratne, 2015	Sri Lanka	393 of survey followed by few interviews with corporate management personnel of several banks	Non-adopters do not find self-service alternatives more pleasant than personal customer service. This is because Sri Lankan customers are used to traditional banking methods.
Chemingui and Lallouna, 2013	Tunisia	Data collected through direct and online questionnaire who are more than 18 years old and never used MobiFlouss which is accompanied by an information booklet about MobiFlouss.	The results of our survey showed that the main factor of resistance to the adoption of mobile financial services is tradition barrier.
Badrawy, Aziz, and Fady, 2012	Egypt, UK	229 questionnaire collected from Alexandria and Cairo, 2 interview made to 2 out of the three main public banks	The tradition barrier is regarded as one of the major barriers, where consumers in Egypt seem less affected by technology advancement, and that old beliefs of cash-carry banking might have been considered as main causes.
Sun, Sun, Liu, & Gui, 2017	China	A total of 500 questionnaires were distributed to 5 bank and 3 telecom operator in Wuhan Optics Valley.	Difficulty in using mobile banking is arise from respondent perceived ease of use such as small mobile phone screen.
Rahman, 2013	Australia	27 face to face in-depth interviews were conducted among the participants who were classified as bankers, solution providers, telcos, retailers and government official.	Reasonable level to use the keypad or screen for various m-commerce service significantly affect barriers to adopt m-commerce.

Huh, Verma, Rayala, Bobba, Beznosov, & Kim, 2017	USA	Online survey to 349 Apple Pay and 511 Android Pay participants	Low speed of unlocking mobile phone to process payment application would cause inconvenience to the users, which eventually lead to users' reluctance to adopt mobile payment application.
Awasthi & Sangle, 2013	India	657 hardcopy surveys were distributed in person while another 143 softcopy survey sent via email.	Perceived value is significantly affecting the behavioural intention to use mobile services.
Joachim, V., Spieth, P., & Heidenreich, S., 2017	Saarland	Quantitative large scale-study to access the relative importance of each single product-specific adoption barrier within new product evaluation.	Value barrier is negatively significant in affecting the adoption behaviour of consumers.
Thakur, R., & Srivastava, M.,2014	India	1500 structured paper questionnaires were distributed to the respondents who are current banking and mobile phone customers.	Majority respondents are refused to adopt new technological innovation because they were accustomed to the traditional way of using such innovation.
Priya, R., Gandhi, A. V., & Shaikh, A., 2018	India	268 questionnaires were distributed to alumina working with various organizations in India.	Negative perception towards the innovation is negative significantly affecting users to use the mobile technology.

Sivathanu, 2018	India	766 questionnaires have been distributed to respondents who consume any forms of digital payments.	Difficulty in executing the payment through mobile platform has a negative and significant relationship with the users' behavioural intention to adopt mobile payment.
Zhou, 2014	China	226 surveys were distributed in 2 largest service outlets in China.	Continuance usage plays a significant role in affecting users' adoption behaviours towards digital payment.
Gupta, A., & Arora, N., 2017	India	Online survey was sent to over 975 customers through email and social networking websites.	Consumers are generally refuse to change from current behaviour and adapt to new and unfamiliar technologies.
Yang, Y., Liu, Y., Li, H., & Yu, B., 2015	China	Online survey were posted at professional questionnaire survey website and 310 responds had been received.	Consumers refused to adopt the mobile technologies when they did not receive enough information from the service providers.

Source: Developed for the research

Appendix B: Variables & Measurement

Constructs	Number of item(s)	Description of items	Measurement	Sources
Usage Barrier	4	I find that mobile payment are difficult to use.	Seven-point Likert scale	Laukkanen, Sinkkonen, Kivijarvi, and Laukkanen (2007)
		I find that mobile payment are inconvenient to use.		
		I find that mobile payment are inefficient compare to paying in cash.		
		I find that instruction provided on the mobile payment platform is unclear.		
Value Barrier	5	For me, using mobile payment is uneconomical.	Seven-point Likert scale	Laukkanen et al. (2007) El Badrawy and Aziz (2011)
		For me, using mobile payment does not increase the ability to control my own financial matters.		
		For me, using mobile payment services does not offer any extra benefits when compared to cash payment.		
		For me, using mobile payment does not eliminate the constraint of time when conducting the transactions.		
		For me, mobile payment is not a good substitutes for traditional cash payment.		

Risk Barrier	5	I am afraid for making any mistakes in the process of using mobile payment.	Seven-point Likert scale	Laukkanen et al. (2007) Peng, Xu, and Liu (2011)
		I am afraid of entering wrong information during the payment process.		
		I am afraid for expose of privacy if using the mobile payment platform.		
		I am afraid for any unreasonable or fraudulent charges if using the mobile payment services.		
		I am afraid for faultiness in the function of mobile payment.		
Tradition Barrier	4	I feel impatient with the mobile payment applications.	Seven-point Likert scale	Mahatanankoon and Ruiz (2007)
		I prefer to face-to-face communicate with the seller to purchase goods and services that I want.		
		I prefer to use physical forms of payment for my transactions.		
		I prefer to made payment through computer rather than using mobile phones or tablets		

Image Barrier	4	Mobile payment projected a very negative image.	Seven-point Likert scale	Laukkanen et al. (2007)
		Mobile payments are perceived to be difficult to use.		
		New technologies are always too complicated to use.		
		The reputation of the mobile payment service providers are not so good.		
Information Barrier	4	I think, it is difficult to get enough information about mobile payment services.	Seven-point Likert scale	Laukkanen and Kiviniemi (2010) Laukkanen et al. (2007) Oreg (2006) Kleijnen et al. (2009) Herbig and Kramer (1994)
		I think, the information available about mobile payment services is unclear and unhelpful.		
		I think, there is not enough of guidance from service providers in relation to mobile payment service.		
		The information available concerning mobile payment services is not overwhelming.		
Behavioural intention	5	I will use mobile payment services in the near future.	Seven-point Likert scale	Schierz et al. (2010) Dastan and Gurler (2016) Lian & Yen (2013)
		I will use mobile payment services if the opportunity arises.		
		It is likely that I will use/continue using mobile payment services in the future.		
		I am planning to use mobile payment services.		
		I intend to learn how to use mobile payment services to perform my transaction.		

Source: Developed for the research

Appendix B: Permission Letter to Conduct Survey

UNIVERSITI TUNKU ABDUL RAHMAN
Wholly Owned by UTAR Education Foundation (Company No. 578227-M)

24th August 2017

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
Lau U Hao	14ABB01647
Lee Lai Ee	14ABB02869
Lew Di Kang	15ABB02570
Loo Lian Sien	14ABB03161
Ooi Sze Xiong	14ABB04768

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

Thank you.

Yours sincerely,

.....

Ms Theresa Wong Lai Har
Head of Department,
Faculty of Business and Finance
Email: wonglh@utar.edu.my

.....

Dr Lee Voon Hsien
Supervisor,
Faculty of Business and Finance
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Address: Jalan Sg. Long, Bandar Sg. Long, Cheras, 43000 Kajang, Selangor D.E. **Postal Address:** P O Box 11384, 50744 Kuala Lumpur, Malaysia
Tel: (603) 9086 0288 **Fax:** (603) 9019 8868 **Homepage:** http://www.utar.edu.my

Universiti Tunku Abdul Rahman

The Awakening Frontier: Barriers Repelling Baby Boomers from Adopting Mobile Payment in Malaysia.

Survey Questionnaire

Dear Respondent,

We are final year undergraduate students of Bachelor of Commerce (Hons) Accounting, Universiti Tunku Abdul Rahman (UTAR). The purpose of this survey is to conduct a research to investigate the resistance factors in order to understand the low adoption rate of Mobile Payment among baby boomers in Malaysia. Please answer all questions to the best of your knowledge. There are no wrong responses to any of these statements. All responses are collected for academic research purpose and will be kept strictly 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 less than 5 minutes.
3) The contents of this questionnaire will be kept strictly confidential.

Voluntary Nature of the Study

Participation in this research is entirely voluntary. Even if you decide to participate now, you may change your mind and stop at any time. There is no foreseeable risk of harm or discomfort in answering this questionnaire. This is an anonymous questionnaire; as such, it is not able to trace response back to any individual participant. All information collected is treated as strictly confidential and will be used for the purpose of this study only.

I have been informed about the purpose of the study and I give my consent to participate in this survey.
YES ( ) NO ( )

Note: *If yes, you may proceed to next page or if no, you may return the questionnaire to researchers and thanks for your time and cooperation.*

Introduction about survey topic: Mobile Payment

Utilizing wireless and other communication technologies to make payments for goods, services, and bills with mobile device such as mobile phone, smart-phone, or personal digital assistant.

Classification of Mobile Payment	Definition	Example
Remote	**Non-directly** interact payment with merchant's physical POS system through variety online mobile data channel	**PayPal** **Maybank2u (M2U)** **Public Bank Engage (PBe)**
Proximity	**Directly** interact payment with physical POS device in close with near field communication (NFC) enabled devices to initiate a transaction	**CIMBPay** **MaybankPay** **Alipay**

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: Level of Experience in Mobile Payment Service:

- □ Never used it before
- □ Used it once or twice
- □ Used it three times and above

QA 2: Gender: □ Female □ Male

QA 3: Year of Birth:

- □ 1946-1950 (67 - 71 years old)
- □ 1951-1955 (62 - 66 years old)
- □ 1956-1960 (57 - 61 years old)

QA 4: Race:

- □ Malay
- □ Chinese
- □ Indian
- □ Others: _____

QA 5: Highest education completed:

- □ Primary School
- □ High School
- □ Diploma
- □ Bachelor Degree
- □ Master
- □ PhD
- □ Others: _____

Section B: Barriers

This section is seeking your opinion regarding the importance of different types of barriers. 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; (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	Usage Barrier							
UB1	I find that mobile payment are difficult to use.	1	2	3	4	5	6	7
UB2	I find that mobile payment are inconvenient to use.	1	2	3	4	5	6	7
UB3	I find that mobile payment are inefficient compare to paying in cash.	1	2	3	4	5	6	7
UB4	I find that instruction provided on the mobile payment platform is unclear.	1	2	3	4	5	6	7
No	**Questions**	**Strongly Disagree**	**Somewhat Disagree**	**Disagree**	**Neutral**	**Agree**	**Somewhat agree**	**Strongly agree**
B2	Value Barrier							
VB1	For me, using mobile payment is uneconomical.	1	2	3	4	5	6	7
VB2	For me, using mobile payment does not increase the ability to control my own financial matters.	1	2	3	4	5	6	7
VB3	For me, using mobile payment services does not offer any extra benefits when compared to cash payment.	1	2	3	4	5	6	7

VB4	For me, using mobile payment does not eliminate the constraint of time when conducting the transactions.	1	2	3	4	5	6	7
VB5	For me, mobile payment is not a good substitutes for traditional cash payment.	1	2	3	4	5	6	7
No	**Questions**	**Strongly Disagree**	**Somewhat Disagree**	**Disagree**	**Neutral**	**Agree**	**Somewhat agree**	**Strongly agree**
B3	Risk Barrier							
RB1	I am afraid of making any mistakes in the process of using mobile payment.	1	2	3	4	5	6	7
RB2	I am afraid of entering wrong information during the payment process.	1	2	3	4	5	6	7
RB3	I am afraid of privacy exposure if using the mobile payment platform.	1	2	3	4	5	6	7
RB4	I am afraid of any unreasonable or fraudulent charges if using the mobile payment services.	1	2	3	4	5	6	7
RB5	I am afraid of faultiness in the function of mobile payment.	1	2	3	4	5	6	7
No	**Questions**	**Strongly Disagree**	**Somewhat Disagree**	**Disagree**	**Neutral**	**Agree**	**Somewhat agree**	**Strongly agree**
B4	Tradition Barrier							
TB1	I feel impatient with the mobile payment applications.	1	2	3	4	5	6	7
TB2	I prefer to face-to-face communicate with the seller to purchase goods and services that I want.	1	2	3	4	5	6	7
TB3	I prefer to use physical forms of payment for my transactions.	1	2	3	4	5	6	7

TB4	I prefer to make payment through computer rather than using mobile phones or tablets.	1	2	3	4	5	6	7
No	**Questions**	**Strongly Disagree**	**Somewhat Disagree**	**Disagree**	**Neutral**	**Agree**	**Somewhat agree**	**Strongly agree**
B5	Image Barrier							
IB1	Mobile payment projected a very negative image.	1	2	3	4	5	6	7
IB2	Mobile payment are perceived to be difficult to use.	1	2	3	4	5	6	7
IB3	New technologies are always too complicated to use.	1	2	3	4	5	6	7
IB4	The reputation of the mobile payment service providers are not so good.	1	2	3	4	5	6	7
No	**Questions**	**Strongly Disagree**	**Somewhat Disagree**	**Disagree**	**Neutral**	**Agree**	**Somewhat agree**	**Strongly agree**
B6	Information Barrier							
InfB1	I think, it is difficult to get enough information about mobile payment services.	1	2	3	4	5	6	7
InfB2	I think, the information available about mobile payment services is unclear and unhelpful.	1	2	3	4	5	6	7
InfB3	I think, there is not enough of guidance from service providers in relation to mobile payment service.	1	2	3	4	5	6	7
InfB4	The information available concerning mobile payment services is not overwhelming.	1	2	3	4	5	6	7

Section C: Behavioral Intention

This section is seeking your opinion regarding the impacts of adoption intention with the types of barriers given. 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; (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	Behavioral intention							
BI1	I will use mobile payment services in the near future.	1	2	3	4	5	6	7
BI2	I will use mobile payment services if the opportunity arises.	1	2	3	4	5	6	7
BI3	It is likely that I will use/continue using mobile payment services in the future	1	2	3	4	5	6	7
BI4	I am planning to use mobile payment services.	1	2	3	4	5	6	7
BI5	I intend to learn how to use mobile payment services to perform my transaction.	1	2	3	4	5	6	7

- Thank you for your time and participation -