CURBS ON MODERN TECHNOLOGY: BARRIERS OF RESISTANCE TOWARDS E-WALLET 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 14,652.

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DEDICATION

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LIST OF ABBREVIATIONS

DV	Dependent Variable
EMV	Europay, MasterCard, and Visa
IB	Image Barrier
IRT	Innovation Resistance Theory
IT	Information Technology
IVs	Independent Variables
MCMC	Malaysian Communication and Multimedia Commission
MLR	Multiple Linear Regression
NFC	Near-Field Communications
PEOU	Perceived Ease of Use
PN	Perceived Novelty
POS	Point of Sale
PU	Perceived Usefulness
R	Resistance towards E-wallet
RB	Risk Barrier
TAC	Transaction Authorisation Code
TAM	Technology Acceptance Model
TB	Tradition Barrier
UB	Usage Barrier
VB	Value Barrier
VIF	Variation Inflation Factors

PREFACE

In light of the goal of Bank Negara Malaysia to turn Malaysia into a cashless society, there are increasing number of companies which have begun to launch their e-wallet services in Malaysia. For instance, Grab, a ride-hailing giant which has recently launched GrabPay in Malaysia. In addition, Berjaya Corporation Berhad also has partnered with Razer Incorporated to launch Razer Pay in Malaysia. Nevertheless, the adoption of e-wallet by Malaysian is still very low and remains unfavorable. This can be proved by the fact that 80 percent of Malaysian are still conducting their transactions by cash whereas the remaining 20 percent are by credit cards and online banking. Furthermore, some of the Malaysian have shown rejection towards using this innovation. Thus, the barriers of resistance towards e-wallet in Malaysia would be an interesting and useful topic for us to make an in-depth investigation.

ABSTRACT

E-wallet, or also known as digital wallet, is a structure that saves users' passwords and payment information securely as a means of transaction. Contemporarily, Bank Negara Malaysia has supplied more than 30 e-wallet licenses in Malaysia. This indicates that the trend of e-wallet as a payment tool has a huge potential to transform Malaysia into a cashless society even earlier than the projected 2050 cut-off point. Despite of the emergence for Malaysia to be a demonetising economy, the adoption of e-wallet still remains unfavorable where only little response had been received from consumers. Thus, this study adopted Innovation Resistance Theory which consists of usage, value, risk, tradition and image barrier to explore the barriers of resistance towards e-wallet in Malaysia. Since e-wallet is also a novel innovation as it only made up a small presence in Malaysia, an additional independent variable namely perceived novelty is embedded into the theory. The results of this study is obtained from data collected from 500 general consumers in Malaysia who have experienced e-commerce transactions which is by means by purposive sampling technique through distribution of survey questionnaire to these target respondents. The outcome of this research shows that all five barriers except for image barrier, significantly and positively affect the resistance towards e-wallet in Malaysia. In contrast, perceived novelty significantly and negatively influences the resistance towards e-wallet in Malaysia. The results findings are expected to provide various parties such as e-wallet service provider, business practitioners, government and Bank Negara Malaysia a better understanding on the factors that obstruct consumers from using e-wallet and subsequently aid them in eliminating the resistance factors of its adoption in order to escalate the adoption of e-wallet to a more desirable level.

CHAPTER 1: INTRODUCTION

1.1 Background of Study

The convergence of multifunctional mobile gadgets, payment system and wireless telecommunication development has changed the means of transaction in the real world besides cards and cash (Seetharaman, Kumar, Palaniappan & Weber, 2017). In the vision statement of Google Wallet, Google (2011) captured this essence: "In the past few thousand years, the way people pay has changed just thrice—from coins, to paper money, to plastic cards". Nevertheless, e-wallet has now become the next big shift of payment technique.

E-wallet is known as digital wallet (Investopedia, 2018a). It is a structure that saves users' passwords and payment information securely for various websites and also as a payment mechanism (Investopedia, 2018a). As all data on e-wallet are being encrypted, security is eventually enhanced (Rathore, 2016). Thus, recovering from data loss is easier with back up options (Rathore, 2016). E-wallet can also be adopted jointly with mobile payment systems where consumers can pay for their purchases by using smartphones (Investopedia, 2018a). Next, purchases can be instantly and easily completed with near-field communications (NFC) technology embedded in it (Investopedia, 2018a).

All Point of Sale (POS) terminals are mandated by Visa and MasterCard to accept contactless payments by January 2020 (Peterson & Wezel, 2016). Mobile proximity payments are adopting the same standards as contactless cards which are Europay, MasterCard, and Visa (EMV) standards and NFC (Peterson & Wezel, 2016). By 2018, two in three phones will be NFC-enabled (Peterson & Wezel, 2016). Therefore, it is foresighted that acceptance for mobile proximity payments will become ubiquitous in the near future (Peterson & Wezel, 2016).

Furthermore, Bank Negara Malaysia has supplied more than 30 e-wallet licenses in Malaysia which indicates that e-wallet has a huge potential to transform Malaysia into a cashless society even earlier than the projected 2050 cut-off point (Yunus, 2018). However, 20% of the transactions in the country are being conducted via credit cards and online banking whereas 80% of them are currently still by cash (Yunus, 2018). Hence, the usage of e-wallet among Malaysian is proven to be very low.

Giant e-wallet issuers such as Paytm in India as well as Wechatpay and Alipay in China own a large user base as billions of dollars being transacted via those systems (Jayaseelan, 2017). However, e-wallet is not going to take off like wildfire in markets such as Malaysia since majority of Malaysians possess at least one debit card and the market has been well served by banks (Jayaseelan, 2017). Cash is being widely accepted and available in the market while debit card has been the main competition to e-wallet (Jayaseelan, 2017). Thus, the root of the problems should be identified and solved to boost the usage of e-wallet in our country.

1.2 Problem Statement

E-wallet contributes to the further growth of e-commerce as it is a new payment method which replaces the role of a traditional wallet ("E-wallet boost," 2017; Shin, 2009). Yet, the usage of e-wallet is still currently blossoming in Malaysia, where only little response had been received from consumers (Lim, 2018). This eventually created a technological gap between e-wallet and its consumers. As claimed by Mobile Attitudes Study conducted by YouGov, 83% of 750 respondents stated that they were aware of contactless payments but only 34% had used them (Noordin, 2017). In fact, e-wallet yields convenience for consumers to shop globally (Trivedi, 2016). Increasing the adoption of e-wallet is certainly significant to diminish circulation of physical currency (Kanimozhi & Kamatchi, 2017). Despite of the emergence for Malaysia to be a demonetising economy, the adoption of e-wallet still remains unfavorable (Yapp, 2018).

There are several previous researches which have attempted to resolve the issue mentioned earlier. Trivedi (2016) stated that only two Technology Acceptance Model (TAM) elements which are perceived usefulness (PU) and perceived ease of use (PEOU) significantly influence the acceptance of e-wallet in India. Lai (2012) also specified that PU and PEOU positively affect the behavioral intention to use e-wallet for clinic fees payment. On the other hand, Bhuvaneswari and Sivakavitha (2017) discovered that credibility, ease of usage, benefit terms and prospect value affect customer preference towards e-wallet among the urban population of Chennai city. Also, secured privacy and secured transaction are two significant elements which affect the acceptance of e-wallet (Varsha & Thulasiram, 2016). Sahut (2008) ascertained that other than PU in TAM, perceived cost also influences the adoption of Moneo, a French e-wallet.

Nevertheless, little empirical research regarding e-wallet had been conducted as more recent past studies had been carried out in the context of mobile wallet. Mobile wallet is a subset of e-wallet where the former is accessible through only mobile devices and the latter is approachable through other gadgets such as computer and tablets besides mobile devices (Investopedia, 2018b; Ziff Davis, 2018). Matemba and Li (2017) discovered that besides PU and PEOU, trust, security and privacy are also the paramount causes which affect Wechat wallet adoption. Moreover, Seetharaman et al. (2017) extended TAM and identified that PU, transaction security, innovativeness, critical mass, availability of alternatives and flexibility greatly affect the behavioral intention to use mobile wallet. Shaw (2014) found out that PU from TAM and informal learning which is mediated by trust strongly influences the adoption of mobile wallet. Past researches had been conducted to investigate factors of mobile wallet usage in foreign countries such as South Africa (Matemba & Li, 2017), Singapore (Seetharaman et al., 2017), India (Trivedi, 2016), Canada (Shaw, 2014), Japan (Amoroso & Watanabe, 2012), United States (Shin, 2009) but seldom in Malaysia.

Notwithstanding, Matemba and Li (2017) had probed into consumers' willingness to adopt Wechat wallet whereas Sahut (2008) had looked into adoption of Moneo which only focused on one type of technology. Trivedi (2016) had only included gen-Y as the target respondent of the study which leads to lack of generalization among the population in India. Besides, there are certain limitations inherited in TAM where it explains a dynamic phenomenon statistically and also unable to provide an extensive understanding on the relationship between variables and behavior (Sahut, 2008). Also, Bhuvaneswari and Sivakavitha (2017) had not thoroughly investigated the barriers of converting paper based payment system to e-payment system. Additionally, past studies are more focused on factors which prone to the usage of e-wallet rather than the barriers that affect the adoption of e-wallet. Therefore, negative attitudes towards technology are needed to be further explored (Swilley, 2010).

1.3 Research Objectives and Research Questions

1.3.1 General Research Objective and Research Question

Table 1.1: General Research Objective and Question

General Research Objective	General Research Question
To examine the barriers of resistance towards e-wallet in Malaysia.	What are the barriers of resistance towards e-wallet in Malaysia?

Source: Developed for the research

1.3.2 Specific Research Objectives and Research Questions

Table 1.2: Specific Research Objectives and Questions

Specific Research Objectives	Specific Research Questions
● To investigate the relationship between usage barrier (UB) and resistance towards e-wallet in Malaysia.	● What is the relationship between usage barrier (UB) and resistance towards e-wallet in Malaysia?
● To determine the relationship between value barrier (VB) and resistance towards e-wallet in Malaysia.	● What is the relationship between value barrier (VB) and resistance towards e-wallet in Malaysia?
● To analyze the relationship between risk barrier (RB) and resistance towards e-wallet in Malaysia.	● What is the relationship between risk barrier (RB) and resistance towards e-wallet in Malaysia?
● To investigate the relationship between tradition barrier (TB) and resistance towards e-wallet in Malaysia.	● What is the relationship between tradition barrier (TB) and resistance towards e-wallet in Malaysia?
● To examine the relationship between image barrier (IB) and resistance towards e-wallet in Malaysia.	● What is the relationship between image barrier (IB) and resistance towards e-wallet in Malaysia?
● To explore the relationship between perceived novelty (PN) and resistance towards e-wallet in Malaysia.	● What is the relationship between perceive novelty (PN) and resistance towards e-wallet in Malaysia?

Source: Developed for the research

1.4 Significance of Study

1.4.1 Theoretical Significance

This study is extremely valuable for future researchers and academicians who are interested to further scrutinize the resistance factors of e-wallet. A number of past studies had been conducted in various countries to investigate the determinants of e-wallet adoption but rarely had been carried out to examine why consumers resist to use e-wallet (Bhuvaneswari & Sivakavitha, 2017; Varsha & Thulasiram, 2016; Trivedi, 2016). This stimulates the need to explore the barriers of resistance towards e-wallet. Furthermore, the nucleus of this study is to integrate PN, an additional construct into innovation resistance theory (IRT) to study why consumers are reluctant to adopt e-wallet. IRT had been frequently used to examine mobile commerce adoption but not resistance towards e-wallet adoption (Gupta & Arora, 2017; Moorthy et al., 2016; Lian & Yen, 2013; Lian, Liu & Liu, 2012). Moreover, PN has also been scarcely analyzed in e-wallet context. E-wallet is also a novel innovation since it only made up a small presence in Malaysia (Jayaseelan, 2017). Consecutively, a new relationship between PN and resistance towards e-wallet is to be developed and empirically validated. Hence, this study is equally useful for future researchers and academicians who are intended to examine the elements of IRT and PN in affecting the resistance towards a new innovation.

1.4.2 Practical Significance

The goal of this research is to proffer useful insights for e-wallet service providers to develop better e-wallet features which provide distinct advantages that other payment alternatives cannot offer. The findings of this study will provide them a better understanding on the factors that obstruct consumers from using e-wallet and subsequently aid them in eliminating the resistance factors of

its adoption that had been discovered in this study. With that, this enables consumers who are the e-wallet users to acknowledge and appreciate the practicality of e-wallet as they feel more comfortable in adopting a more user friendly payment method. Subsequently, e-wallet adoption will escalate desirably and this uplifts the living standard of consumers in Malaysia. Thus, government is awarded the green light to practice demonetization and move towards a digital and cashless society. Furthermore, Bank Negara Malaysia can achieve its blueprint's goal which is to build a financial sector in 2020 that supports a high-value added and high-income economy. Besides, merchants such as e-advertisers, e-marketers, e-travel service providers and e-hoteliers are able to boost their revenue by providing a quicker and simplified online checkout process without having to manually insert the payment information and hence, lower tendency for cart abandonment in online purchases. Eventually, e-wallet is able to foster brand proposition of these merchants by providing customers an enhanced payment experience.

1.5 Outline of Study

Chapter 1 presents a brief introduction regarding e-wallet which includes background of study, problem statement, research objectives and research questions and significance of study. Subsequently, the following chapter discusses theoretical foundation, review of past empirical studies, proposed conceptual framework and hypotheses development for barriers of resistance towards e-wallet in Malaysia. Next, chapter 3 illustrates the research methodology of this research.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

Chapter 2 aims to outline theoretical foundation applied in the research and review past empirical studies. Besides, conceptual framework and hypotheses are formed to depict the relationships between independent variables (IVs) and dependent variable (DV).

2.1 Theoretical Foundation

IRT which was developed by Ram and Sheth in 1989 has been applied in this research. Innovation resistance is the consumers' reaction towards an innovation due to possible distinction from their status quo or on the ground that it clashes with their belief structure (Ram & Sheth, 1989). Ram and Sheth (1989) divided these conflicts into two categories which are psychological barriers and functional barriers. Psychological barriers include TB and IB whereas functional barriers include UB, VB and RB (Ram & Sheth, 1989). Psychological barriers are due to dispute with consumers' past beliefs (Ram & Sheth, 1989). Functional barriers exist when consumers perceive considerable changes from using a new technology (Ram & Sheth, 1989).

IRT had been prevalently investigated by previous researchers in various areas of studies such as online shopping (Lian & Yen, 2014), mobile commerce (Heinze, Thomann & Fischer, 2017; Chan, Chong, Kwa, Lee & Yeong, 2015), mobile payment (Dotzauer & Haiss, 2017; Low, 2016), political email (Hong & Chang, 2013), mobile social commerce (ms-commerce) (Hew, Leong, Tan, Ooi & Lee, 2017) and mobile banking (Yu & Chantatub, 2016).

IRT is adapted in our research to understand the barriers of resistance towards e-wallet in Malaysia because it has been employed in the electronic commerce (EC) environment context (Lian & Yen, 2014; Lian et al., 2012). Smart products are technological innovations which consumers may tend to resist its adoption as both new products and new services (Mani & Chouk, 2016). Also, innovation resistance needs to be studied as most of the businesses encounter high percentage of new product failure (Moorthy et al., 2017).

Past researchers had explored perceived novelty (PN) in the adoption of information technology (IT) innovation (Wells, Campbell, Valacich & Featherman, 2010), consumer resistance towards smart products (Mani & Chouk, 2016) and attitude towards innovation (Truong, 2013). PN is also scarcely analyzed in e-wallet context. Moreover, e-wallet is a novel innovation since it only made up a small presence in Malaysia (Jayaseelan, 2017). Thus, all five concepts in IRT together with an additional IV, PN are used to investigate their respective relationship with resistance towards e-wallet in Malaysia.

Table 2.1: Definition of Five Barriers in IRT and PN

Independent Variables	**Definition**
UB	Arises when a new technology is incompatible with the existing workflows where changes are required to accept the innovation.
VB	Emerges when an innovation fails to provide a rigid performance-to-price value as compared with current alternatives
RB	Occurs when there are uncertainties and potential side effects embedded in an innovation within foreseen circumstances.
TB	Arises when an innovation requires customers to adapt with cultural deviation.

IB	Occurs when users have unfavorable impression towards an innovation's identity, product class or industry.
PN	An idea, practice or object which is perceived as new and exciting alternative innovation by an individual or other unit of adoption.

Sources: Ram and Sheth (1989); Rogers (1995).

On the other hand, resistance towards e-wallet has been adopted as the DV of this study. Innovation resistance is defined as the resistance developed by users towards an innovation because of the potential change in users' daily routine or dispute with their prior belief structure (Ram & Sheth, 1989).

2.2 Review of Prior Empirical Studies

2.2.1 Resistance towards E-wallet

Resistance refers to users' opposing reaction towards changes in innovation (Khan & Kim, 2009). In our research, resistance towards e-wallet is the opposing act towards e-wallet adoption.

Mani and Chouk (2016) shows that perceived uselessness, perceived price, intrusiveness, self-efficacy and PN affect consumer resistance towards smart product. All barriers in IRT except for TB, substantially affect consumer resistance towards mobile banking in Thailand and Taiwan (Yu & Chantatub, 2016). In addition, Chan et al. (2015) concluded that all barriers in IRT except for perceived cost barrier, negatively affect mobile commerce adoption.

2.2.2 Usage Barrier

According to Laukkanen, Sinkkonen, Kivijarvi and Laukkanen (2007), UB is defined as an innovation usability of a service and changes required from the users. In our study, UB is the innovation usability of e-wallet and changes needed from the users to adopt it.

UB is a prominent component that negatively affects the adoption of m-commerce among gen-X in Malaysia (Moorthy et al., 2017; Chan et al., 2015). Therefore, if m-commerce is perceived to be not useful, individuals are reluctant to adopt it.

Besides, UB is a dominant variable which is negatively correlated to adoption of PayPal mobile payment among gen-X consumers in Malaysia (Low, 2016). Oppositely, UB is prone to resistance to adopt PayPal mobile payment among gen-X consumers in Malaysia.

Moreover, UB significantly and adversely affects the attitude in using e-wallet (Trivedi, 2016). In contrast, UB is significantly and positively correlated to resistance in using e-wallet.

UB is among the most salient factor that positively influences consumers' resistance towards mobile banking (Yu & Chantatub, 2016). User-friendly mobile banking websites which are easy to use must be provided in order to overcome UB confronted by consumers (Yu & Chantatub, 2016). This shows that consumers' resistance towards mobile banking can be banished by eliminating the UB to adopt it (Yu & Chantatub, 2016). Thus, a positive relationship between UB and consumers' resistance towards mobile banking is implied.

In short, it is concluded that if e-commerce users find e-wallet difficult to use, they are more likely to resist its adoption. Thus, the following hypothesis is formed:

H1: There is a positive relationship between UB and resistance towards e-wallet.

2.2.3 Value Barrier

VB is the performance-to-price value of an innovation as opposed to its substitutes (Laukkanen et al., 2007). In the current context of e-wallet, VB can be interpreted as users' unwillingness to adopt e-wallet unless cash imparts higher value than e-wallet does.

Laukkanen (2016) proved that VB is the main hindrance towards adoption of internet and mobile banking services in Finland. In contrast, this signifies a positive relationship between VB and consumer resistance towards internet and mobile banking services.

Yu and Chantatub (2016) also discovered that VB positively affects consumers' resistance to use mobile banking in Thailand and Taiwan. Findings revealed that banks need to develop strategies that possess higher value to consumers in using mobile banking as compared to other banking substitutes to relieve the resistance (Yu & Chantatub, 2016). Thus, VB is positively affecting consumers' resistance to use mobile banking.

Furthermore, Lian and Yen (2014) concluded that VB significantly and negatively influences older adults' intention to shop online in Taiwan. Oppositely, VB positively influences consumers' resistance to shop online.

Swilley (2010) also proved that consumers are more preferable to reject wallet phone technology (new innovation) by holding cell phones (existing substitute)

if they do not discover the value of wallet phone in USA. Therefore, VB positively influences consumers' resistance to innovation.

To sum up, when e-commerce users find e-wallet has smaller value than other substitutes, they are more likely to resist its adoption. Hence, second hypothesis is formulated:

H2: There is a positive relationship between VB and resistance towards e-wallet.

2.2.4 Risk Barrier

RB exists when users confront or perceive risk in an innovation (Laukkanen et al., 2007). In the current context of e-wallet, it is explained as users' perceived risk and uncertainty which probably arise from the use of e-wallet.

Moreover, Dotzauer and Haiss (2017) revealed that RB negatively affects German consumers' adoption intention towards mobile payment services. They identified that security issues will hinder them from adopting m-payment (Dotzauer & Haiss, 2017). Hence, if consumers perceive m-payment to be more risky, they are more likely to refuse its adoption.

Moorthy et al. (2017) and Chan et al. (2015) proved that RB negatively influences adoption of mobile commerce among gen-X in Malaysia. Contrarily, RB is positively correlated to resistance of mobile commerce among gen-X in Malaysia.

Lian and Yen (2014) concluded that RB negatively affects older adults' intention towards online shopping in Taiwan. It shows that RB is positively corresponded to resistance towards online shopping.

Peng, Xu and Liu (2011) found that perceived risk is a key barrier in consumer adoption of mobile payment in China. Therefore, this indicates that RB positively affects consumers' resistance towards mobile payment.

To conclude, if e-commerce users find e-wallet highly risked, they are more likely to resist its adoption. So, third hypothesis is proposed:

H3: There is a positive relationship between RB and resistance towards e-wallet.

2.2.5 Tradition Barrier

TB arises when an innovation causes a change in user's existing routines (Mahatanankoon & Ruiz, 2007). In our study, TB refers to the barrier where customers are needed to alter their existing routines to adopt e-wallet.

TB is the most paramount element that negatively influences intention to adopt mobile payment services by German consumers (Dotzauer & Haiss, 2017). Hence, the German consumers are more prone to resist new payment techniques if they are required to alter their.

According to Low (2016), TB is negatively correlated to PayPal mobile payment adoption since majority of gen-X in Malaysia prefer to use physical payment methods. In other words, TB is positively affecting resistance to adopt PayPal mobile payment.

Tradition is the most significant barrier that negatively influences the intention to adopt mobile financial services (Chemingui & Lallouna, 2013). Thus, this shows that TB is the primary factor why customers refuse to adopt mobile financial services.

Furthermore, TB is the major barrier that discourages consumers to adopt mobile banking in Egypt (Badrawy, Aziz & Fady, 2012). This implies that TB is positively correlated to resistance towards mobile banking.

In conclusion, if adoption of e-wallet requires a change in existing culture or daily routines, consumers are more inclined to develop resistance towards e-wallet. Thus, fourth hypothesis is formulated:

H4: There is a positive relationship between TB and resistance towards e-wallet.

2.2.6 Image Barrier

IB exists when users have negative impression on the identity of innovation like brand, country of origin and its adverse effects (Laukkanen et al., 2007). In our research, IB occurs when users develop negative image on the identity of e-wallet like brand, country of origin and its side effects.

IB strongly and negatively affects the adoption of mobile commerce among gen-X in Malaysia (Moorthy et al., 2017). Thus, if gen-X in Malaysia posits negative image towards mobile commerce, they are more likely to reject its adoption.

Moreover, IB has an adverse relationship with the adoption of PayPal mobile payment in Malaysia (Low, 2016). Thus, this indicates that IB is positively correlated to resistance towards PayPal mobile payment adoption.

Yu and Chantatub (2016) proved that IB positively affects the consumers' resistance to adopt mobile banking. Experiential marketing has to be executed to change the negative thoughts of consumers (Yu & Chantatub, 2016). This shows that consumers' resistance to use mobile banking can be avoided by

eliminating IB (Yu & Chantatub, 2016). Therefore, this implies that IB is positively correlated to resistance towards mobile banking.

In addition, Lian et al. (2012) discovered that IB negatively influences users' intention to use an online service. Contrarily, IB posits a positive relationship with resistance to adopt an online service.

In short, if consumers perceive negatively towards e-wallet, they are more likely to reject its adoption. Therefore, fifth hypothesis is proposed:

H5: There is a positive relationship between IB and resistance towards e-wallet.

2.2.7 Perceived Novelty

According to Wells et al. (2010), PN is the extent to which perceived newness of an innovation by an individual determines his or her reaction towards it. In e-wallet context, PN refers to the extent to which perceived newness of e-wallet by users determines their reaction towards it.

PN positively influences users' satisfaction towards personalized recommender system (PRS) (Choi, Lee & Kim, 2017). Therefore, when PRS users perceive such innovation provides novel recommendations, they are less inclined to refuse its adoption.

In addition, PN is a dominant factor that positively affects continuance intention of social network services, location-based services and mobile technologies which are known as SoLoMo services (Yang & Lin, 2017). In other words, when one's novelty needs are fulfilled, one will less resist SoLoMo services.

PN is a paramount variable which is negatively correlated with consumer resistance towards smart products (Mani & Chouk, 2016). Hence, when smart

products are being considered as distinctive and unique, consumers are less reluctant to adopt these innovations.

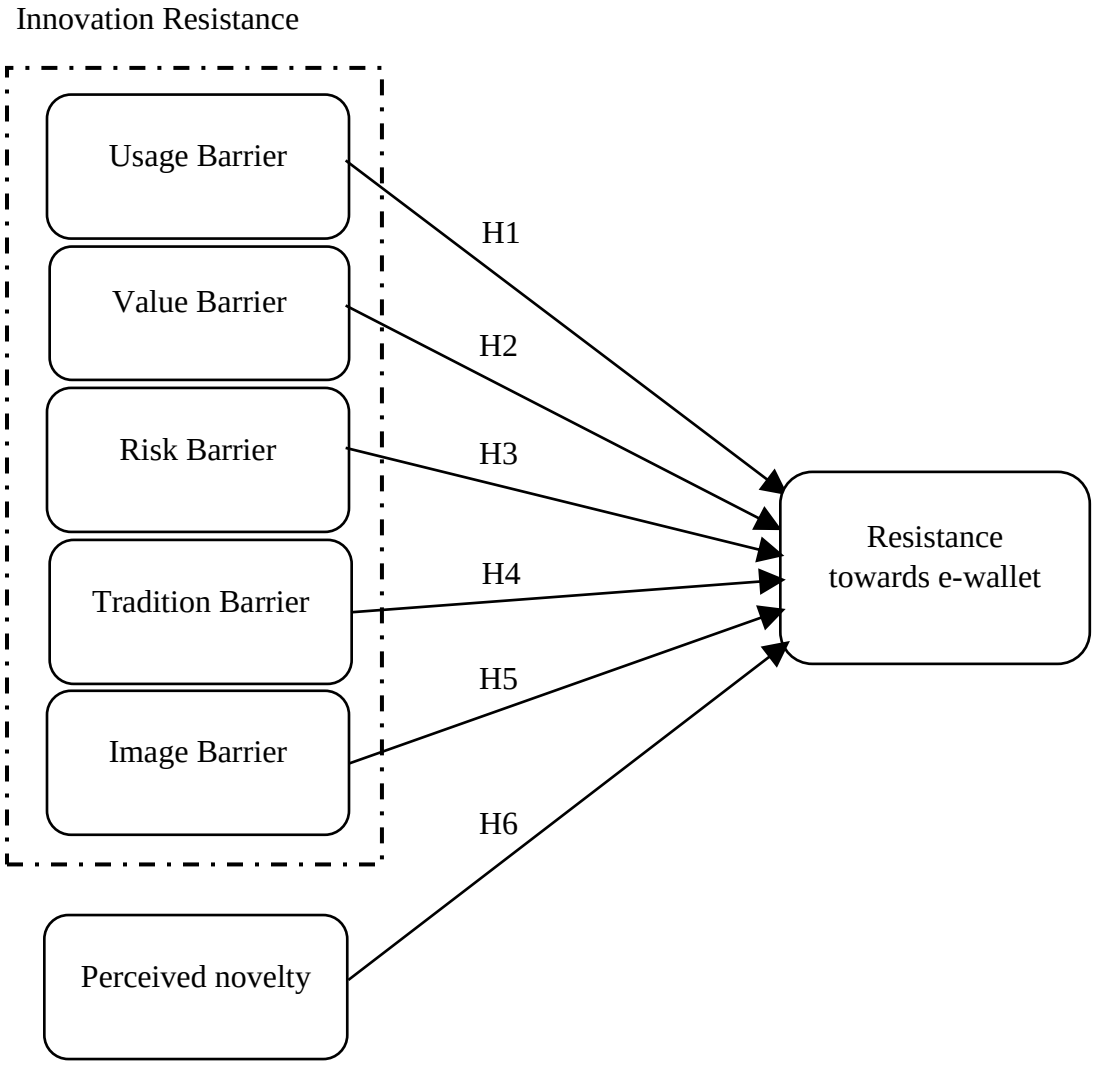
Wells et al. (2010) discovered that PN is a prominent factor that is positively correlated to attitude towards using an IT innovation. This implies PN posits a negative relationship with resistance to adopt an IT innovation.

To conclude, when e-commerce users perceived e-wallet as a novel innovation, they are less likely to resist its adoption. Hence, sixth hypothesis is formulated:

H6: There is a negative relationship between PN and resistance towards e-wallet.

2.3 Proposed Conceptual Framework

Figure 2.1: Proposed Conceptual Framework for barriers of resistance towards e-wallet



Adapted from: Ram and Sheth (1989).

Figure 2.1 shows the conceptual model for this study. UB, VB, RB, TB, IB and PN are the IVs whereas resistance towards e-wallet is the DV of the study.

2.4 Hypotheses Development

Based on the literature review, hypotheses have been developed for this research as follows:

Table 2.2: Proposed Hypotheses of the Study

H1	There is a positive relationship between usage barrier and resistance towards e-wallet.
H2	There is a positive relationship between value barrier and resistance towards e-wallet.
H3	There is a positive relationship between risk barrier and resistance towards e-wallet.
H4	There is a positive relationship between tradition barrier and resistance towards e-wallet.
H5	There is a positive relationship between image barrier and resistance towards e-wallet.
H6	There is a negative relationship between perceived novelty and resistance towards e-wallet.

Source: Developed for the research

2.5 Conclusion

This chapter discussed review on the theoretical model employed and related past studies that had been applied to develop the conceptual framework as well as hypotheses for this study. The following chapter will further elaborate research methodology of this study.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction

Chapter 3 elaborates the research methodology which consists of research design, target population, sample and sampling procedures, data collection method, variables and measurements and data analysis techniques.

3.1 Research Design

This research examines the barriers of resistance towards e-wallet in Malaysia. The information gathered is divided into primary data and secondary data. Various techniques such as interviews, direct observations and survey can be used to collect primary data (Saunders, Lewis & Thornhill, 2009). Secondary data refers to data obtained from other sources which are journals or articles (Saunders et al., 2009). The primary data in this research is collected by using self-administered survey method. Survey enables data collection from a huge group of people efficiently (Saunders et al., 2009). Besides, target respondents can answer the survey questionnaires calmly (Niki, 2018). Survey also provides convenience because interview appointment is excluded (Niki, 2018). The collection of results from target respondents will be more instant by using survey too (Debois, 2016). Survey is scalable as it can be distributed to anyone and anywhere (Debois, 2016). This study is cross-sectional. It concentrates on the barriers of resistance towards e-wallet in Malaysia at a single point of time (Low, 2016). According to Mann (2003), it is quick, cheap and easy to conduct a cross-sectional study. Fewer resources are consumed because the follow up period for a cross-sectional study is shorter (Mann, 2003). The unit of analysis of this research is e-commerce users in Malaysia.

3.2 Population, Sample and Sampling Procedures

In this research, the target population refers to e-commerce users. There are 15.3 millions of online shoppers, which constitute 50% of Malaysia's population (Export, 2017). Malaysia has high e-commerce usage rates due to mobile and internet connectivity where the internet user penetration rate by both males and females were 68.9% and 68.1% respectively in 2016 (Malaysia Communications and Multimedia Commission [MCMC], 2017). A report published in Digital Integration and Business Transformation Asia Conference stated that from the total population of 31,545,990, 21,056,126 of them were internet users and 44,509,884 of mobile subscriptions had been made (Kaur, Salome & Muthiah, 2016). The mobile penetration was 144.8% (Kaur et al., 2016). Moreover, growing smartphone usage, rising income and internet penetration will elevate the Malaysia's online market in terms of its total retail spending from 0.5% in 2014 to 5% in 2020 (Export, 2017).

Sample is a subset of target population (Sekaran & Bougie, 2010). Sampling is a process, technique or act of choosing a population's representative part or a suitable sample to ascertain the characteristics or parameters of the entire population (Mugo, 2002). Sampling is needed because it is unfeasible and costly to study the entire population since sample consumes less resources than a census (Mugo, 2002). 5 point response requires a sample size of at least 500 respondents (Thorpe & Favia, 2012). Since this research is using 5 point Likert scale, 500 survey questionnaires are distributed. A past research which used IRT to study resistance to mobile banking adoption in Egypt had also distributed 500 survey questionnaires (Elbadrawy & Aziz, 2011).

The techniques for sampling are divided into non-probability and probability sampling (Showkat & Parveen, 2017). This research does not contain any sampling frame as the list of e-commerce users in Malaysia is unavailable. Hence, a non-probability sampling technique specifically, purposive sampling is adopted. Purposive sampling enables researchers to make decisions depending on their experience and

knowledge (Etikan, Musa & Alkassim, 2016). Purposive sampling is adopted in qualitative research. This sampling method helps to discover and pick the cases of information-rich to ensure that the existing resources are used effectively (Etikan et al., 2016). Besides, researchers' judgment can identify the appropriate respondents and provide information about the interests' characteristic (Hair, Bush & Ortinau, 2003). In this study, each target respondent has been selected based on their experience in e-commerce.

Past researchers had used purposive sampling to investigate resistance behaviors of mobile social media users towards ms-commerce services (Hew et al., 2017). The researchers had distributed questionnaires in large well-known shopping malls (Hew et al., 2017). The researchers asked the target respondents whether they have experienced ms-commerce services (Hew et al., 2017). If the answer is negative, they were invited to take part in answering the survey questionnaire (Hew et al., 2017). The research looks into the mobile social media users who do not have ms-commerce experience to comprehend their resistance towards ms-commerce (Hew et al., 2017). In addition, purposive sampling technique was used to study on active determinants for adoption of mobile wallet (Yadav, 2017).

In this research, purposive sampling is used to select 500 targeted e-commerce users in four states of Peninsular Malaysia which have the highest internet users' percentage. These are Selangor (23.8%), Johor (11.3%), Kuala Lumpur (9.2%) and Perak (6.8%) (MCMC, 2017). The total percentage in these four states constitute 51.1% which exceeds half of the internet users' percentage in Malaysia (MCMC, 2017). Moreover, internet user is the basis of sampling location because e-commerce transactions require internet connectivity. Internet users who shopped online has risen from 35.3% in 2016 to 48.8% in 2017 (MCMC, 2017). Three-fifth of internet users live in cities (67.2%), while 32.8% of them are in rural area (MCMC, 2017). Besides, women (50.7%) and men (49.3%) had equal share of distribution when it comes to online purchasing (MCMC, 2017). East Malaysia is excluded although the internet users' percentage in Sabah (9.7%) and Sarawak (8.1%) are high because Malaysia's

internet penetration is still an urban experience and relatively low in these less populated states: Sabah (43%) and Sarawak (41%) (MCMC, 2017; Wok & Mohamed, 2017).

3.3 Data Collection Method

This study uses self-administered questionnaire. Before being qualified to answer the questionnaire, target respondents are asked whether they have any experience in e-commerce. Five researchers will distribute the questionnaire to the respondents and no interviewer is needed. The respondents will answer the same questions and may enquire the researchers if they have any doubts (Alasuutari, Bickman & Brannen, 2008). The survey can be distributed in large numbers and hence, reduces time taken to collect and distribute the questionnaire (Bryman & Bell, 2015). In the meanwhile, there will be no interviewer bias in the self-administered questionnaire since there is no interviewer being involved.

3.3.1 Pre-test

The questionnaires had been pre-distributed to three experts (Jansen & Hak, 2005) in e-commerce industry to evaluate the content validity (Leong, Jaafar & Ainin, 2018). Experts who are well versed in e-wallet area were selected to conduct this test. By referring to their comment, respondents' immediate thoughts and reactions to questionnaire problems could be detected and elicited (Babonea & Voicu, 2011).

3.3.2 Pilot Test

Pilot-test can validate the reliability and validity of the instrument items (Leong, Hew, Tan, & Ooi, 2013). A sample size of 30 is reasonable for pilot testing

(Johanson & Brooks, 2010). Thus, a sample size of 30 had been used to conduct pilot test for this research.

3.3.3 Sampling Location

Data collections were conducted from 11th to 18th May 2018. Sampling location of this study where data will be collected refers to shopping malls because shopping is Malaysians' favourite leisure activity during weekends (UK Essays, 2017). Most shoppers are aged between 18 and 50 (Hami, Fazle & Emami, 2016). Those who aged between 18 and 60 possess strong purchasing power although their consumption behaviours are different (Khan & Chawla, 2015). Hence, they are more likely to experience e-commerce. A survey should be conducted in an economical manner (Hair, Celsi, Money, Samouel & Page, 2015). Due to time and budget constraint, East Malaysia is eliminated (Moorthy et al., 2014).

Table 3.1: Internet user rate and data collection location in respective states

States	**Internet User Rate**	**Location (Shopping Mall)**
Selangor	23.8%	Sunway Pyramid
Johor	11.3%	Johor Bahru City Square
Kuala Lumpur	9.2%	Pavilion KL
Perak	6.8%	Ipoh Parade
Total	**51.1%**	

Sources: MCMC (2017); Trip Advisor (2018).

This study has adopted mall intercept method in data collection (Leong et al., 2018). In retail ecosystem, shopping malls play a leading role in coordinating retailers and shoppers in business transactions (Frishammar, Cenamor, Bjorkman, Hernell & Carlsson, 2018). Respondents with diversified background can be approached. It ensures fair characteristic presentation of

gender and age of Malaysia's population. Shopping malls were selected by their top rank in the particular states (Trip Advisor, 2018). 500 questionnaires are distributed to four shopping malls based on the allocation of internet users' percentage as depicted in the table below.

Table 3.2: Number of questionnaires distributed to each shopping mall

Shopping Mall	**Internet User Rate**	**Number of Questionnaires**
Sunway Pyramid	(23.8% /51.1%) x 500	233
Johor Bahru City Square	(11.3% / 51.1%) x 500	111
Pavilion KL	(9.2% / 51.1%) x 500	90
Ipoh Parade	(6.8% / 51.1%) x 500	66
Total	**51.1%**	**500**

Source: Developed for the research

3.4 Variables and Measurement

The table below shows definitions and items' sources for IVs and DV. There are 24 items for six IVs and 4 items for DV to construct the relationship between IVs and DV. The items were adapted from previous studies and amended in this research to suit IRT in e-wallet context. 5 point Likert scale has higher reliability (Jenkins & Taber, 1997; Lissitz & Green, 1975; Remmers & Ewart, 1974). It decreases respondents' frustration level and increases response rate and quality (Sachdev & Verma, 2004). Besides, 7 point Likert scale is lengthier and leads to confusion for respondents (Dawes, 2008). Concurrently, Lissitz and Green (1975) found that reliability increment is only up to 5 point scales and then decreased for 7, 9 and 14 point scales. Thus, 5 point Likert scale will be adopted to measure the constructed variables (where 5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree).

Table 3.3: Measurement of variables

Construct	**Definition**	**No. of item(s)**	**Sources**	**Measurement**
Usage Barrier	Usage barrier defines as an innovation usability of a services and changes required from the users (Laukkanen et al., 2007).	4	Adapted and modified from Laukkanen et al. (2007).	Interval
Value Barrier	Value barrier refers to performance-to-price value of an innovation opposed to its substitutes (Laukkanen et al., 2007).	5	Adapted and modified from Laukkanen et al. (2007); Elbadrawy & Aziz (2011).	Interval
Risk Barrier	Risk barrier exists when users confront or perceive risk in an innovation (Laukkanen et al., 2007).	5	Adapted and modified from Laukkanen et al. (2007); Peng, Xu & Liu (2011).	Interval
Tradition Barrier	Tradition barrier arises when an innovation causes a change in user's existing routines (Mahatanankoon & Ruiz, 2007).	4	Adapted and modified from Mahatanankoon & Ruiz (2007).	Interval

Image Barrier	Image barrier exists when users have negative impression on the identity of innovation such as brand, country of origin and adverse effects of the innovations (Laukkanen et al., 2007).	3	Adapted and modified from Laukkanen et al. (2007).	Interval
Perceived novelty	Perceived novelty refers to the degree to which perceived newness of an innovation by an individual determines his or her reaction towards it (Wells et al., 2010).	3	Adapted and modified from Wells et al. (2010).	Interval
Resistance to innovation (DV)	Resistance refers to users opposing reaction towards changes in an innovation (Khan & Kim, 2009).	4	Adapted and modified from Khan & Kim (2009).	Interval

Source: Developed for the research

3.5 Data Analysis Technique

3.5.1 Descriptive Analysis

Descriptive analysis converts raw data into simple and comprehensible form which describes a study's basic characteristics such as central tendency and dispersion measures (Zikmund, Babin, Carr & Griffin, 2010). Mean (the average value) and standard deviation (the average amount of variation from mean) analyze the IVs and DV (Bryman & Bell, 2015). Frequency and percentage illustrate the respondents' demographic elements (Saunders et al., 2009).

3.5.2 Inferential Analysis

Reliability test

Reliability reflects the consistency of results generated by each variable (Weir, 2005). Cronbach's alpha (α) is the coefficient which ensures the measurement is fair to achieve reliability (Sekaran, 2003). It ranges from 0 to 1. Data is reliable when α exceeds 0.70 (Reynaldo & Santos, 1999).

Normality test

This test ascertains the data are normally distributed by means of skewness and kurtosis value for each item (Cohran, Steed & Ong, 2010). It is essential as non-normality influences the precision of statistical tests (Weston & Gore, 2006). A variable is normally distributed when the skewness and kurtosis value are between ±2 and ±7 respetively (Byrne, 2010).

Pearson Correlation Analysis

The analysis of Pearson Correlation studies the association between IVs and DV (Wei, Marthandan, Chong, Ooi & Arumugam, 2009). It is represented by r and ranges between ±1 (Low, 2016). When r is positive, the variables are positively correlated and vice versa (Saunders, Lewis & Thornhill, 2016).

Multiple Linear Regression

Multiple Linear Regression examines the correlation between more than one IV and DV (Hair, Black, Babin & Anderson, 2010). It tests the proposed hypotheses. Four conditions that comprise this model are normality, linearity, homescedacity and multicollinearity (Hair et al., 2010). Multicollinearity has to be avoided and can be identified by correlation matrix, Variation Inflation Factors (VIF) and tolerance (Hair et al., 2010). The table below shows this research's multiple linear equation:

Table 3.4: 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 = Resistance towards e-wallet X_1 = Usage Barrier X_2 = Value Barrier X_3 = Risk Barrier X_4 = Tradition Barrier X_5 = Image Barrier X_6 = Perceived Novelty β = Intercept of the regression line $\beta_1 \ldots \beta_6$ = Regression coefficient for X_i

Source: Developed for the research

3.6 Conclusion

This chapter discusses the research methodology. Then, the next chapter will analyze the findings obtained from data collected by using SAS Enterprise Guide 5.1.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

Chapter 4 illustrates the outcome of various analyses where the findings are obtained from the data collected and demographic profile of the respondents.

4.1 Pilot Test Analysis

Reliability test is conducted after collecting the sample data. According to Johanson and Brooks (2010), a number of 30 participants is the desired sample size for pilot test. Hence, 30 sets of survey questionnaires were allocated and collected from e-commerce users. The sample data collection is held at Ipoh Parade which is located in Perak since it is one of the sampling locations of this research. All 30 sets of survey questionnaires are usable for this test.

4.1.1 Reliability Test

Table 4.1: Reliability Statistics of Pilot Test

Construct	Cronbach's Alpha	Number of Items
Resistance towards e-wallet	0.7318	4
Usage Barrier	0.7053	4
Value Barrier	0.7124	5
Risk Barrier	0.7476	5
Tradition Barrier	0.6987	4

Image Barrier	0.7961	3
Perceived Novelty	0.8531	3

Source: Developed for the research

The table above presents the outcome of reliability test. According to Reynaldo and Santos (1999), data is reliable when Cronbach's alpha (α) is greater than 0.70. All variables' α values are at least 0.70 except for TB where its α falls below 0.70 which is only 0.6987. However, TB's α value will be increased to 0.8521 which is more than 0.70 if the item of TB4 is removed. According to Ercan, Yazici, Sigirli, Ediz and Kan (2007), the greater the number of items, the higher the reliability level. In addition, a sample size of 500 creates a more accurate value of α (Yurdugul, 2008). Therefore, all items of TB are retained in the actual data collection. In general, the results of reliability test are fulfilled. All variables are perceived to be reliable excluding TB. Precisely, PN has the maximum α value whereas TB has the minimum α value.

4.2 Descriptive Analysis

4.2.1 Demographic Profile

Demographic profile of the respondents includes the category of users or non-users of e-commerce, gender, age, educational level, income level, experience, yearly spending, frequency, purpose and type of e-wallet used. Among 500 sets of survey questionnaires, only 478 of them are fit for use in the research. The remaining 22 respondents were not usable due to errors such as incomplete data entry in their survey questionnaire.

Table 4.2.: E-commerce Users

E-commerce	Frequency	Percentage (%)
User	478	100.00
Total	**478**	**100.00**

Source: Developed for the research

Table 4.2 shows the frequency and percentage of e-commerce users in this research. There are a number of 478 (100%) respondents who are e-commerce users.

Table 4.3: Gender

Gender	Frequency	Percentage (%)
Male	278	58.16
Female	200	41.84
Total	**478**	**100.00**

Source: Developed for the research

Table 4.3 depicts the frequency and percentage of respondents' gender. Out of 478 respondents, 278 (58.16%) respondents are male and the remaining 200 (41.84%) respondents are female.

Table 4.4: Age (years)

Age (years)	Frequency	Percentage (%)
Below 20	76	15.90
21 to 30	194	40.59
31 to 40	104	21.76
41 to 50	64	13.39
51 and above	40	8.37
Total	**478**	**100.00**

Source: Developed for the research

Table 4.4 represents the frequency and percentage of respondents' age. 76 (15.90%) respondents aged 20 and below; 194 (40.59%) respondents aged between 21 and 30; 104 (21.76%) respondents aged between 31 and 40; 64 (13.39%) respondents aged between 41 and 50 and lastly, 40 (8.37%) respondents aged 51 and above.

Table 4.5: Highest education completed

Highest education completed	Frequency	Percentage (%)
Secondary	82	17.15
Pre-U/ Foundation	56	11.72
Diploma	87	18.20
Degree	187	39.12
Master	40	8.37
PhD	14	2.93
Others	12	2.51
Total	**478**	**100.00**

Source: Developed for the research

Table 4.5 highlights the frequency and percentage of highest education completed by the respondents. 82 (17.15%) respondents have completed secondary studies and 56 (11.72%) respondents have completed Pre-U or Foundation. Then, 87 (18.20%) respondents have pursued at least a Diploma and 187 (39.12%) respondents have pursued at least a Degree. Respondents that have completed Master courses were 40 (8.37%) respondents while PhD courses were 14 (2.93%) respondents. Subsequently, respondents that have completed other highest educations such as ACCA and CPA were 12 (2.51%) respondents.

Table 4.6: Income level (per month)

Income level (per month)	Frequency	Percentage (%)
Below RM1,000	81	16.95
RM1,001 to RM2,000	45	9.41
RM2,001 to RM3,000	115	24.06
RM3,001 to RM4,000	144	30.13
RM4,001 to RM5,000	53	11.09
RM5,001 and above	40	8.37
Total	**478**	**100.00**

Source: Developed for the research

Table 4.6 interprets the frequency and percentage of respondents' monthly income level. 81 (16.95%) respondents earned RM1,000 and below every month. Respondents who earned between RM1,001 and RM2,000 monthly were 45 (9.41%) respondents while between RM2,001 and RM3,000 monthly were 115 (24.06%) respondents. There are 144 (30.13%) respondents who have monthly income of between RM3,001 and RM4,000. Then, 53 (11.09%) respondents have monthly income of between RM4,001 and RM5,000. Ultimately, 40 (8.37%) respondents earned RM5,001 and above monthly.

Table 4.7: E-wallet experience

E-wallet experience	Frequency	Percentage (%)
Inexperienced	237	49.58
Below 1 year	128	26.78
More than 1 year but less than 2 years	68	14.23
More than 2 years but less than 3 years	29	6.07
3 years and above	16	3.34
Total	**478**	**100.00**

Source: Developed for the research

Table 4.7 illustrates the frequency and percentage of respondents' e-wallet experience. A total of 237 (49.58%) respondents are inexperienced while 128 (26.78%) respondents have e-wallet experience for below 1 year. Followed by 68 (14.23%) respondents who possess e-wallet experience for more than 1 year but less than 2 years; 29 (6.07%) of them with e-wallet experience for more than 2 years but less than 3 years and lastly, 16 (3.34%) respondents have e-wallet experience for 3 years and above.

Table 4.8: Yearly spending in e-wallet

Yearly spending	**Frequency**	**Percentage (%)**
Below RM1000	106	43.99
RM1001 to RM2000	74	30.71
RM2001 to RM3000	57	23.65
RM3001 to RM4000	2	0.83
RM4001 to RM5000	1	0.41
RM5001 to RM6000	1	0.41
RM6001 and above	0	0
Total	**241**	**100.00**

Source: Developed for the research

Table 4.8 indicates the frequency and percentage of respondents' yearly spending in e-wallet. It shows that 106 (43.99%) respondents have yearly spending of below RM1000 in e-wallet; 74 (30.71%) respondents have yearly spending of RM1001 to RM2000 in e-wallet; 57 (23.65%) of respondents have yearly spending of RM2001 to RM3000 in e-wallet and 2 (0.83%) respondents have yearly spending of RM3001 to RM4000 in e-wallet. There is only 1 (0.41%) respondent has yearly spending of RM4001 to RM5000 and RM5001 to RM6000 in e-wallet respectively. None of the respondents has yearly spending of RM6001 and above in e-wallet.

Table 4.9: Frequency in using e-wallet (per month)

Frequency in use	Frequency	Percentage (%)
0 – 2 times	104	43.16
3 – 4 times	75	31.12
5 – 6 times	44	18.26
7 – 8 times	10	4.15
9 – 10 times	3	1.24
More than 10 times	5	2.07
Total	**241**	**100.00**

Source: Developed for the research

Table 4.9 shows the frequency and percentage of respondents in using e-wallet per month. Majority of the respondents use e-wallet 0 to 2 times per month which constitutes 104 (43.16%) respondents followed by 3 to 4 times per month with 75 (31.12%) respondents. 44 (18.26%) of them use e-wallet 5 to 6 times per month; 7 to 8 times per month with 10 (4.15%) respondents; 3 (1.24%) respondents use e-wallet 9 to 10 times and lastly, 5 (2.07%) of the respondents use e-wallet more than 10 times per month.

Table 4.10: Purpose of using e-wallet

Purpose of using e-wallet	Frequency	Percentage (%)
To buy products/services	226	42.80
To pay for bills	117	22.16
To transfer fund	130	24.62
To pay installment	55	10.42
Others	0	0
Total	**528**	**100.00**

Source: Developed for the research

Table 4.10 demonstrates the frequency and percentage of respondents' purpose in using e-wallet. It displays that majority of the respondents use e-wallet to buy products or services which comprises of 226 (42.80%) respondents. Followed by 130 (24.62%) of the respondents use e-wallet to transfer fund; 117 (22.16%) of them use e-wallet to pay for bills and lastly, 55 (10.42%) of the respondents use e-wallet to pay for their installment.

Table 4.11: Type of e-wallet used

Type of e-wallet used	Frequency	Percentage (%)
Alipay	11	1.54
CIMB Pay	138	19.35
Mastercard MPay	92	12.90
Paypal or MasterPass	124	17.39
Samsung Pay	24	3.37
Visa Checkout	114	15.99
Vcash	37	5.19
Wechat pay	157	22.02
Others	16	2.25
Total	**713**	**100.00**

Source: Developed for the research

Table 4.11 manifests the frequency and percentage of the type of e-wallet used. Wechat pay has the highest usage by 157 (22.02%) respondents. Followed by CIMB pay with 138 (19.35%) respondents; Paypal or MasterPass with 124 (17.39%) respondents. 114 (15.99%) of the respondents use Visa Checkout and 92 (12.90%) of respondents use Mastercard Mpay. Vcash, Samsung pay and Alipay have little usage which are only by 37 (5.19%), 24 (3.37%) and 11 (1.54%) respondents respectively. Besides, there are 16 (2.25%) respondents use other e-wallets such as Grabpay, Zalora credit wallet and Lazada e-wallet.

4.2.2 Central Tendencies Measurement of Constructs

The central tendency measurement describes the data distribution using its most typical or central data value. Besides mode and median, mean is frequently adopted to specify the average value of data (Deshpande, Gogtay & Thatte, 2016). On the other hand, standard deviation measures the extent of variation between individual measurements and means (Wachs, 2009). A high standard deviation represents wide dispersion between data values and mean and vice versa (Watt & van den Berg, 2002). The values of mean which is the average value as well as the standard deviation which is the average amount of variation from mean for each questionnaire item are illustrated in Table 4.12 as follows.

Table 4.12 Central Tendencies Measurement of Construct

Variables	**Items**	**Means**	**Standard Deviation**
Usage Barrier (UB)	UB 1	3.88	1.09
	UB 2	3.72	1.19
	UB 3	4.03	1.05
	UB 4	3.92	1.16
Value Barrier (VB)	VB 1	3.69	1.10
	VB 2	3.64	0.89
	VB 3	3.57	0.86
	VB 4	3.67	0.92
	VB 5	3.30	1.14
Risk Barrier (RB)	RB 1	3.63	0.94
	RB 2	3.55	1.03
	RB 3	3.56	1.00
	RB 4	3.76	1.13
	RB 5	3.75	1.07
Tradition Barrier (TB)	TB 1	3.67	1.06
	TB 2	3.54	1.03

	TB 3	3.50	0.94
	TB 4	3.69	0.87
Image Barrier (IB)	IB 1	3.73	0.99
	IB 2	3.59	0.97
	IB 3	3.48	0.99
Perceived Novelty (PN)	PN 1	2.15	1.03
	PN 2	2.14	0.93
	PN 3	1.99	1.00
Resistance towards e-wallet	R1	3.85	1.15
	R2	3.79	1.03
	R3	3.88	1.12
	R4	3.68	1.18

Source: Developed for the Research

In view of UB, UB2 reflects the lowest mean of 3.72 whereas UB3 displays the highest mean of 4.03. This implies that all items have a mean which ranged from 3 to 4. Hence, the e-commerce users are either neutral to agree with the items. Besides, UB3 shows the minimum standard deviation of 1.05 and UB2 illustrates the maximum standard deviation of 1.19. Thus, all the 4 items' standard deviation ranged from 1.00 to 1.20.

For VB, VB5 reflects the lowest mean of 3.30 whereas VB1 displays the highest mean of 3.69. This suggests that all items have a mean which ranged from 3 to 4. Hence, it signifies that VB resists users from using e-wallet. Furthermore, VB3 shows the lowest standard deviation of 0.86 and VB5 illustrates the highest standard deviation of 1.14. High standard deviation reflects that most of the answers have a wide dispersion with the mean of the data and each respondent has different opinion towards VB.

In terms of RB, RB2 shows the lowest mean of 3.55 whereas RB4 reflects the highest mean of 3.76. So, all items have a mean which ranged from 3 to 4. This

indicates that all e-commerce users are either neutral or agree with the items. Moreover, RB4 shows the minimum standard deviation of 0.94 and RB1 illustrates the maximum standard deviation of 1.13. Thus, all the 5 items' standard deviation ranged from 0.90 to 1.20.

For TB, TB3 displays the lowest mean of 3.50 whereas TB4 shows the highest mean of 3.69. This proposes that all respondents have consistent answers which fall between neutral and agree with the items since the items have a mean ranged from 3 to 4. Moreover, TB4 reflects the minimum standard deviation of 0.87 and TB1 illustrates the maximum standard deviation of 1.06. This means that data collected in TB4 is closer to mean as compared with TB1 which has a higher standard deviation.

In terms of IB, IB3 demonstrates the lowest mean of 3.48 whereas IB1 illustrates the highest mean of 3.73. According to the mean, it is concluded that the respondents are either neutral or agree that IB resists adoption of e-wallet. Besides, IB2 reflects the lowest standard deviation of 0.97 while both IB1 and IB3 displays the highest standard deviation of 0.99. These results present the regularity of data collected due to the consistency of standard deviation which ranged between a small gap from 0.97 to 0.99 for all IB items.

For PN, PN3 reflects the lowest mean of 1.99 whereas PN1 displays the highest mean of 2.15. This suggests that the respondents are either strongly disagree, or neutral with the items. Furthermore, PN2 shows the minimum standard deviation of 0.93 and PN1 illustrates the maximum standard deviation of 1.03. Low standard deviation indicates that PN2 has the highest consistency in the answers among the all PN items.

Lastly, in terms of resistance towards e-wallet, R4 reflects the lowest mean of 3.68 whereas R3 displays the highest mean of 3.88. This implies that all items have a mean which ranged from 3 to 4. Besides, R2 shows the minimum

standard deviation of 1.03 and R4 illustrates the maximum standard deviation of 1.18. Thus, all the 4 items' standard deviation ranged from 1.00 to 1.20. In short, majority of the respondents are in between in perspective of agree and neutral that they will not use e-wallet in a current situation due to the factors discussed.

4.3 Scale Measurement

4.3.1 Reliability Analysis

Table 4.13: Summary of Reliability Analysis

Construct	Cronbach's Alpha	Number of item
Resistance towards e-wallet	0.9282	4
Usage Barrier	0.9425	4
Value Barrier	0.8826	5
Risk Barrier	0.9348	5
Tradition Barrier	0.8645	4
Image Barrier	0.7824	3
Perceived Novelty	0.8277	3

Source: Developed for the research

Data is reliable when α value exceeds 0.70 (Reynaldo & Santos, 1999). From Table 4.3, UB has the highest α of 0.9425 and IB has the lowest α of 0.7824. In a nutshell, all items in the questionnaire had satisfied the reliability test where they surpassed the threshold of 0.7. Hence, this implies that the scale is reliable and valid.

4.3.2 Normality Analysis

Table 4.14: Normality Analysis

Variable	Items	Skewness	Kurtosis
Resistance towards e-wallet	R1	-1.1960	0.6799
	R2	-1.0696	0.7422
	R3	-1.0313	0.3511
	R4	-0.8080	-0.1668
Usage Barrier	UB1	-1.1953	0.7054
	UB2	-1.0844	0.3257
	UB3	-1.1034	0.4955
	UB4	-1.3586	1.1195
Value Barrier	VB1	-0.9352	0.3426
	VB2	-0.0580	-0.1335
	VB3	0.1344	-0.1304
	VB4	-1.8200	2.3936
	VB5	-0.1965	-0.1599
Risk Barrier	RB1	-1.8427	2.2444
	RB2	-1.0655	0.6338
	RB3	-0.4422	-0.0713
	RB4	-0.9705	0.2397
	RB5	-0.9955	0.5067
Tradition Barrier	TB1	-0.8125	0.2166
	TB2	-0.3263	-0.2387
	TB3	-0.1208	-0.2453
	TB4	-1.8996	3.0598
Image Barrier	IB1	-0.8173	0.5028
	IB2	-0.2465	-0.1633
	IB3	-0.3358	0.1461
Perceived novelty	PN1	0.5636	-0.1284

	PN2	1.0066	1.1670
	PN3	1.0696	0.9178

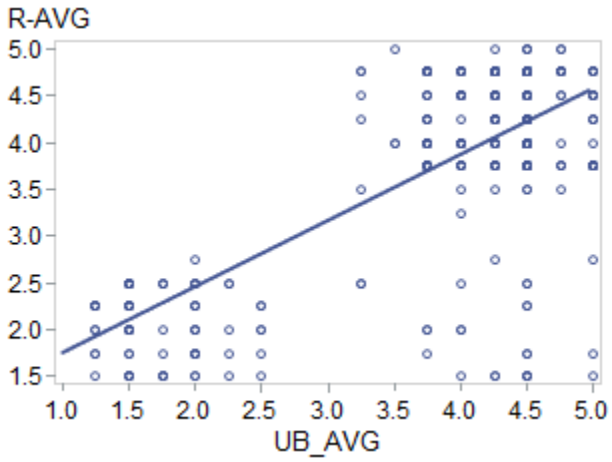
Source: Developed for the research

According to Byrne (2010), a variable is normally distributed when the skewness and kurtosis value are between ±2 and ±7 respectively. Referring to Table 4.14, skewness value ranges between -1.8996 and 1.0696 while kurtosis value ranges between -0.2453 and 3.0598. Since the value of skewness falls within ±2 and ±7 respectively, all items are normally distributed.

4.4 Inferential Analysis

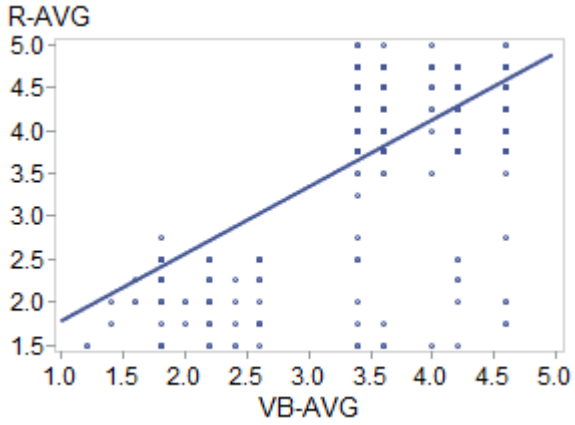
4.4.1 Linearity

Figure 4.1.1: Scatter Plot for UB and R



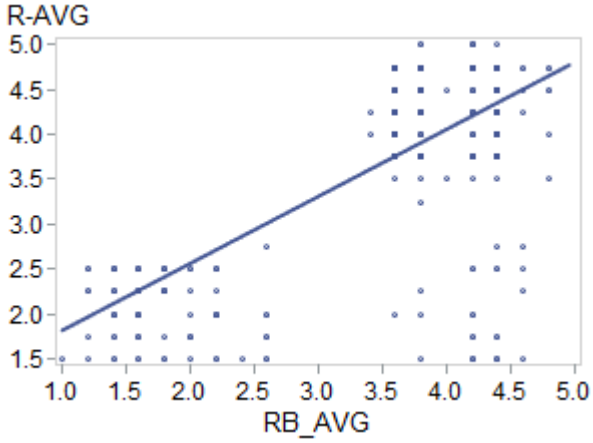
Source: Developed for the research

Figure 4.1.2: Scatter Plot for VB and R



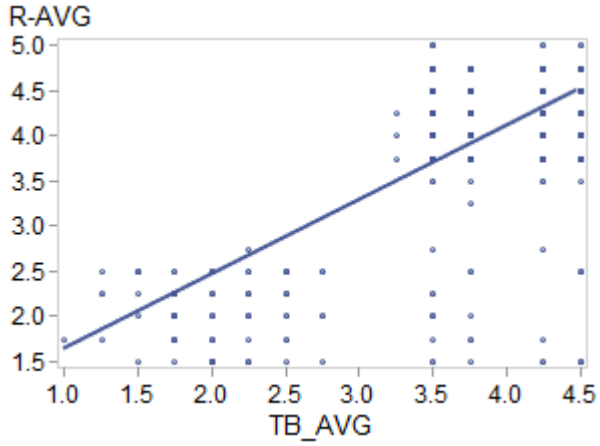
Source: Developed for the research

Figure 4.1.3: Scatter Plot for RB and R



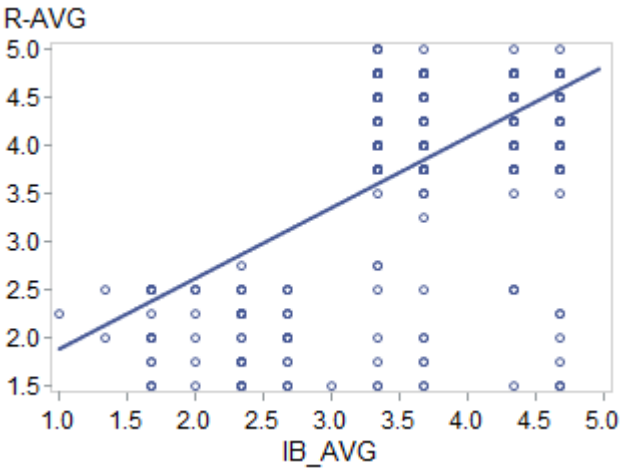
Source: Developed for the research

Figure 4.1.4: Scatter Plot for TB and R



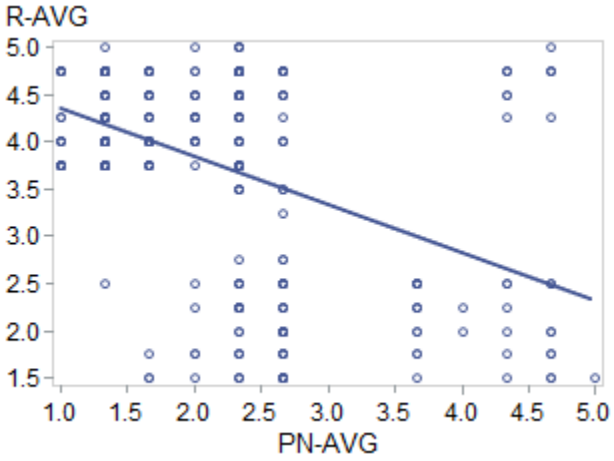
Source: Developed for the research

Figure 4.1.5: Scatter Plot for IB and R



Source: Developed for the research

Figure 4.1.6: Scatter Plot for PN and R

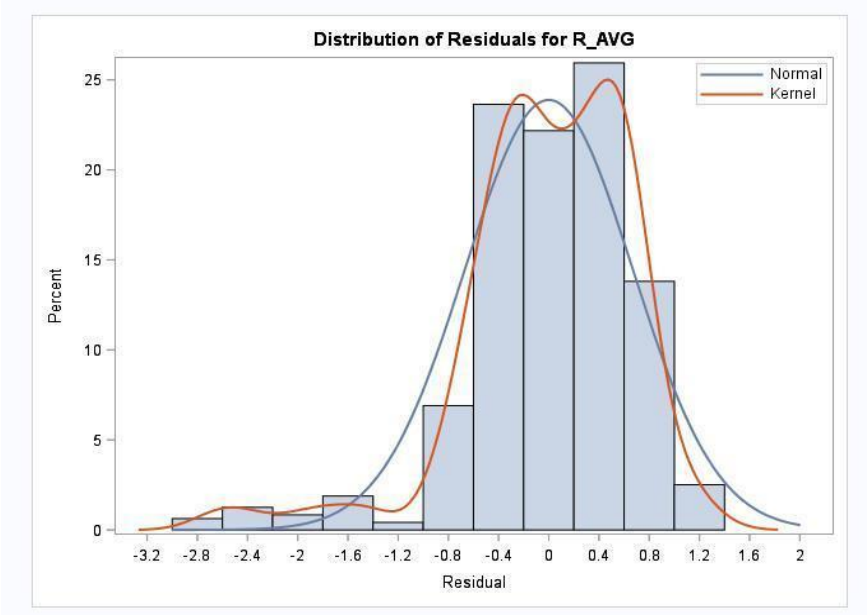


Source: Developed for the research

Based on Figure 4.1.1 to Figure 4.1.6, those scatter plots demonstrate that UB, VB, RB, TB, IB are positively correlated to R whereas PN is negatively correlated with R and the all of the outcomes fall along a straight line. In conclusion, UB, VB, RB, TB and IB have significant positive linear relationships with R whereas PN has a significant negative linear relationship with R. Therefore, the linearity assumption for MLR analysis is achieved.

4.4.2 Normality

Figure 4.2: Distribution of Residual

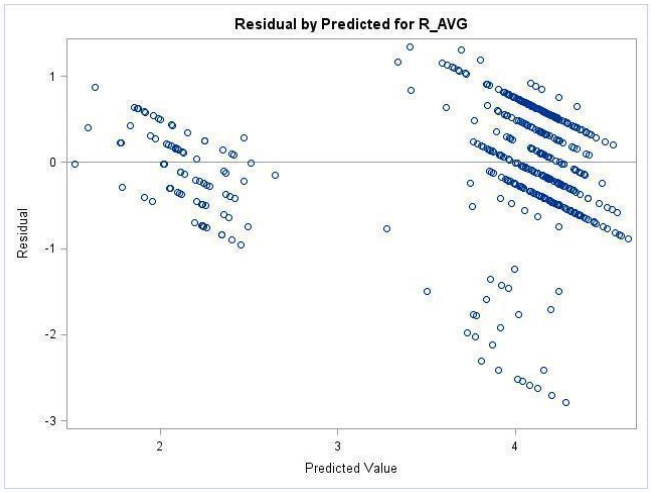


Source: Developed for the research

Figure 4.2 shows the distribution of residuals to investigate whether the residuals are normally distributed. The values of x (IVs) and y (DV) are normally distributed and so, the normality assumption for MLR analysis is fulfilled.

4.4.3 Homoscedasticity

Figure 4.3: Residual by Predicted for R



Source: Developed for the research

Figure 4.3 shows the residual plots versus predicted value to discover whether the homoscedasticity assumption can be achieved. The variables shown are randomly scattered with constant variance along the diagonal lines (Mall-Amiri & Ahmadi, 2014). Thus, the homoscedasticity assumption for MLR analysis is attained.

4.4.4 Pearson Correlation Coefficient Analysis

Table 4.15: Pearson Correlation Coefficient Analysis

Pearson Correlation Coefficients, N=478							
Prob > |r| under H0: Rho=0							
Variables	**UB**	**VB**	**RB**	**TB**	**IB**	**PN**	**R**
UB	1.0000						
VB	0.7711	1.0000					
	<0.0001						
RB	0.8618	0.7438	1.0000				
	<0.0001	<0.0001					
TB	0.8137	0.6639	0.7787	1.0000			
	<0.0001	<0.0001	<0.0001				
IB	0.7321	0.6568	0.7086	0.6803	1.0000		
	<0.0001	<0.0001	<0.0001	<0.0001			
PN	-0.3973	-0.3632	-0.3244	-0.3694	-0.3318	1.0000	
	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		
R	0.7195	0.6249	0.6761	0.6663	0.5918	-0.4256	1.0000
	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	

Source: Developed for the research

According to Table 4.15, all IVs excluding PN are positively correlated as the correlation values range from 0.6568 to 0.8618 whereas PN is negatively correlated with other IVs as the correlation values range from -0.3973 to -0.3244. Besides, there is a positive correlation between all barriers and R as the correlation values range from 0.5918 to 0.7195. However, there is a negative correlation between PN and R as the correlation value equals to -0.4256. In addition, all correlation values are less than 0.90 which indicates that there is no

multicollinearity problem. Specifically, there are significant relationships between all variables since their p-values are below 0.05.

4.4.5 Multiple Linear Regression

Table 4.16: MLR Model Summary

Root MSE	0.6723	**R-Square**	0.5699
Dependent Mean	3.7950	**Adjusted R-Square**	0.5644
Coefficient Variance	17.7151		

Source: Developed for the research

Referring to Table 4.16, R-square equals to 0.5699 which means that all IVs can explain 56.99% of the variation in DV whereas the remaining 43.01% of the variation in DV is explained by other factors that are not tested in our research.

Table 4.17: ANOVA table

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F value**	**Pr > F**
Model	6	282.0312	47.0052	104.00	<0.0001
Error	471	212.8768	0.4520		
Corrected Total	477	494.9080			

Source: Developed for the research

From Table 4.17, F value equals to 104.00 and it is significantly huge whereas p-value of <0.0001 is smaller than 0.05. This stipulates that at least one of the IVs can be applied to model the DV. Therefore, it is shown that model fit of the research is achieved.

Table 4.18: MLR analysis

Parameter Estimates						
IVs	**Parameter Estimate**	**t Value**	**P-value**	**Standardized Estimate**	**Tolerance**	**VIF**
Intercept	1.0886	4.99	<0.0001	0	-	0
UB	0.2908	4.08	<0.0001	0.2959	0.1738	5.7529
VB	0.1235	1.98	0.0484	0.0988	0.3667	2.7268
RB	0.1457	2.05	0.0410	0.1318	0.2207	4.5318
TB	0.2029	2.99	0.0029	0.1640	0.3037	3.2931
IB	0.0689	1.18	0.2370	0.0554	0.4165	2.4012
PN	-0.1798	-4.51	<0.0001	-0.1505	0.8213	1.2176

Source: Developed for the research

Table 4.18 depicts the regression analysis on the correlation among IVs and DV. According to the table above, the multiple regression equation is formulated as:

R = 1.0886 + 0.2908UB + 0.1235VB + 0.1457RB + 0.2029TB + 0.0689IB - 0.1798PN

UB has the most significant impact on resistance towards e-wallet as a unit increase in the former causes the latter to increase by 0.2908 unit. Followed by TB, RB, VB, and IB, a unit increase in each of the variable causes resistance towards e-wallet to increase by 0.2029, 0.1457, 0.1235 and 0.0689 unit respectively. Conversely, PN has the least significant effect on resistance towards e-wallet as a unit decrease in the former induces the latter to increase by 0.1798 unit.

Furthermore, hypothesis testing proposes that H0 will be rejected if p-value is smaller than 0.05. The outcome for each hypothesis is as shown below:

Hypothesis 1: Accepted

P-value for the relationship between UB and resistance towards e-wallet equals to <0.0001 which is less than 0.05. Thus, H0 (There is no positive relationship between UB and resistance towards e-wallet) is rejected and H1 is accepted. In short, there is a significant positive relationship between UB and resistance towards e-wallet.

Hypothesis 2: Accepted

P-value for the relationship between VB and resistance towards e-wallet equals to 0.0484 which is less than 0.05. Thus, H0 (There is no positive relationship between VB and resistance towards e-wallet) is rejected and H1 is accepted. Hence, there is a significant positive relationship between VB and resistance towards e-wallet.

Hypothesis 3: Accepted

P-value for the relationship between RB and resistance towards e-wallet equals to 0.0410 which is less than 0.05. Thus, H0 (There is no positive relationship between RB and resistance towards e-wallet) is rejected and H1 is accepted. Hence, there is a significant positive relationship between RB and resistance towards e-wallet.

Hypothesis 4: Accepted

P-value for the relationship between TB and resistance towards e-wallet equals to 0.0029 which is less than 0.05. Thus, H0 (There is no positive relationship between TB and resistance towards e-wallet) is rejected and H1 is accepted. Hence, there is a significant positive relationship between TB and resistance towards e-wallet.

Hypothesis 5: Rejected

P-value for the relationship between IB and resistance towards e-wallet equals to 0.2370 which is more than 0.05. Thus, H0 (There is no positive relationship

between IB and resistance towards e-wallet) is accepted and H1 is rejected. Hence, there is no significant positive relationship between IB and resistance towards e-wallet.

Hypothesis 6: Accepted

P-value for the relationship between PN and resistance towards e-wallet equals to <0.0001 which is less than 0.05. Thus, H0 (There is no negative relationship between PN and resistance towards e-wallet) is rejected and H1 is accepted. Hence, there is a significant negative relationship between PN and resistance towards e-wallet.

4.5 Conclusion

Chapter 4 elaborates the pilot test analysis, scale measurement, descriptive and inferential analysis of this research. The next chapter presents the major findings, implications, limitations of this research and recommendation for future studies.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

Chapter 5 describes e-commerce users' demographic profile and outcome of its data analysis. Moreover, we discussed the major outcome, implications, limitations and recommendations of this study.

5.1 Summary of Statistical Analysis

5.1.1 Descriptive Analysis

Out of the 500 survey questionnaires distributed, 478 of them are usable. Hence, the response rate equals to 95.60%. All of the 478 (100%) respondents are e-commerce users. Besides, majority of the respondents are male as it occupies 278 (58.16%) out of the 478 respondents while 200 (41.84%) of them are female. Furthermore, the respondents who aged between 21 and 30 covered the largest proportion which contains 194 (40.59%) respondents. This was followed by those who aged between 31 and 40, below 20 and subsequently, between 41 and 50 where it consists of 104 (21.76%), 76 (15.90%) and 64 (13.39%) respondents respectively. The lowest proportion was those who aged 51 and above which includes only 40 (8.37%) of them.

It is shown that 187 (39.12%) respondents have pursued at least a degree in their highest education level. Next, it was followed by the respondents who completed Diploma, Secondary, Pre-U or foundation, Master and PhD where

each level of education consists of 87 (18.20%), 82 (17.15%), 56 (11.72%), 40 (8.37%) and 14 (2.93%) respondents respectively. In the meanwhile, the lowest proportion comprises of respondents who completed other highest educations such as ACCA and CPA was merely 12 (2.51%) respondents.

As for the monthly income level, 144 (30.13%) respondents earn between RM3,001 and RM4,000 monthly.. Consecutively, 115 (24.06%), 81 (16.95%), 53 (11.09%) and 45 (9.41%) respondents own a monthly income of between RM2,001 and RM3,000, RM1,000 and below, RM4,001 and RM5,000 and lastly, RM1,001 and RM2,000 respectively. There is a least number of respondents which amounts to 40 (8.37%) of them who earn RM5,001 and above per month.

Regarding e-wallet experience, nearly half of the respondents are inexperienced which are 237 (49.58%) of them. Next, there are 128 (26.78%), 68 (14.23%), 29 (6.07%) respondents who have used e-wallet for less than 1 year, between 1 year and 2 years, exceeds 2 years but below 3 years respectively. Ultimately, only 16 (3.34%) respondents have used e-wallet for more than 3 years.

Furthermore, the yearly spending in e-wallet shows that there is a huge proportion of respondents which involves 106 (43.99%) of them who spend below RM 1000 yearly in e-wallet. Subsequently, 74 (30.71%), 57 (23.65%) and 2 (0.83%) respondents have yearly spending of between RM1001 and RM2000, RM2001 and RM3000, RM3001 and RM4000 in e-wallet respectively. Only 1 (0.41%) respondent spend from RM4001 to RM5000 as well as RM5001 to RM6000 yearly in e-wallet. Lastly, none of the respondents spend more than RM6001 yearly in e-wallet.

In terms of the frequency in using e-wallet per month, most of the respondents use e-wallet 0 to 2 times per month which constitutes 104 (43.16%) of them, followed by 75 (31.12%), 44 (18.26%), 10 (4.15%) and 5 (2.07%) respondents

who use e-wallet 3 to 4 times, 5 to 6 times, 7 to 8 times and more than 10 times per monthly. However, only 3 (1.24%) of them use e-wallet 9 to 10 times monthly in e-wallet.

For the purpose of using e-wallet, most of the respondents which amounts to 226 (42.80%) of them use e-wallet to buy product or services. Consecutively, 130 (24.62%) respondents use e-wallet to transfer fund; 117 (22.16%) of them use e-wallet to pay for bills and lastly, 55 (10.42%) of them use e-wallet to pay for instalments.

Besides, majority of the respondents use Wechat pay which is 157 (22.02%) and followed by CIMB pay with 138 (19.35%) respondents; Paypal or MasterPass with 124 (17.39%) respondents; Visa Checkout with 114 (15.99%) respondents; Mastercard Mpay with 92 (12.90%) respondents; Vcash with 37 (5.19%) respondents, Samsung pay with 24 (3.37%) respondents and Alipay with 11 (1.54%) respondents. Also, there are 16 (2.25%) respondents who use other e-wallets such as Grabpay, Zalora credit wallet and Lazada e-wallet.

On the other hand, all the five barriers have a mean ranged between the least of 3.30 and the greatest of 4.03 which indicates that many respondents are neutral or agree with the items. For PN, a stable range of mean between 1.99 and 2.15 depicts that the respondents are strongly disagree, disagree or neutral with the items. Whereas for DV, it has the minimum mean of 3.68 and maximum mean of 3.88 which means that the respondents are neutral or agree with the items. In addition, the standard deviation has the least value of 0.86 and greatest value of 1.19 which proves that the data spreads evenly around the central tendencies.

5.1.2 Scale Measurement

In this research, all variables are reliable as they surpassed the threshold of 0.70 in reliability test. The α values are the highest at 0.7824 and the lowest at 0.9425. In addition, the skewness and kurtosis show a result of between ±2 and ±7 for all items in each variable respectively which depicts that the variables are normally distributed. The skewness value ranges between -1.8996 and 1.0696 while kurtosis value ranges between -0.2453 and 3.0598.

5.1.3 Inferential Analysis

5.1.3.1 Pearson Correlation Coefficient Analysis

All barriers are positively correlated as the correlation values range from 0.6568 to 0.8618 while PN is negatively correlated with the barriers as the correlation values range from -0.3973 to -0.3244. Moreover, all barriers are positively correlated with resistance towards e-wallet with the correlation values of between 0.5918 and 0.7195 whereas PN is negatively correlated with resistance towards e-wallet with the correlation value of -0.4256. Besides, there is no multicollinearity problem because all of the IVs have correlation values of less than 0.90.

5.1.3.2 Multiple Linear Regression Analysis

In MLR analysis, the R-square value is 0.5699. This indicates that all IVs can explain 56.99% of the variation in DV. There are five IVs which are UB, VB, RB, TB and PN which have significant relationships with DV since their p-values are less than 0.05 except for IB. Nevertheless, IB has no significant relationship with DV because its p-value of 0.2370 exceeds 0.05.

5.2 Discussion of Major Findings

In short, UB, VB, RB, TB have significant and positive relationships with resistance towards e-wallet. Nonetheless, PN is significantly and negatively correlated with resistance towards e-wallet. However, IB does not have any significant relationship with resistance towards e-wallet.

5.2.1 Usage Barrier and Resistance towards E-wallet

The research findings demonstrate that UB is significantly and positively correlated with resistance towards e-wallet. This implies that when e-commerce users find e-wallet difficult to use and changes are required from them to use e-wallet, they are more likely to resist its adoption. The outcome is aligned with the prior studies of Moorthy et al. (2017) and Chan et al. (2015) in m-commerce; Low (2016) in PayPal mobile payment; Yu and Chantatub (2016) in mobile banking as well as Trivedi (2016) in e-wallet context as all of their outcomes show that UB significantly and positively affects users' resistance towards an innovation.

E-commerce users perceive the usage of e-wallet as a barrier which restricts their adoption due to deficiency of knowledge and also complexity in its adoption. Hence, it causes confusion among e-commerce users towards the entire payment process using e-wallet. Being a new payment technique, e-commerce users require certain period of time to learn to adopt e-wallet. In other words, ease-of-use concerns are needed to be taken in consideration and step-by-step instructions should be provided to overcome this barrier.

5.2.2 Value Barrier and Resistance towards E-wallet

The research outcome illustrates that VB is significantly and positively correlated with resistance towards e-wallet. This indicates that users highly resist to adopt e-wallet as they think it does not impart higher value unlike other substitutes. The results are corresponding to the studies of Laukkanen (2016) in internet and mobile banking services; Yu and Chantatub (2016) in mobile banking; Lian and Yen (2014) in online shopping; and Swilley (2010) in wallet phone technology as all of them show that VB significantly and positively affects users' resistance to adopt new innovation.

Malaysians think that the use of e-wallet does not provide greater performance-to-price value against cash payments. It is probable that users have not discovered the value of e-wallet or marketers have failed to indicate those values to the users. Thus, VB exists when users deemed that e-wallet does not deliver enhanced services and influential value such as convenience for them to switch from using physical cash to electronic payments.

5.2.3 Risk Barrier and Resistance towards E-wallet

The hypothesis for RB is significantly and positively correlated with resistance towards e-wallet. This states that the greater the users' perceived risk and uncertainty which probably arise from the use of e-wallet, the more likely users will resist to adopt e-wallet. The results are concurrent with the previous empirical research done by Dotzauer and Haiss (2017) in mobile payment; Moorthy et al. (2017) and Chan et al. (2015) in mobile commerce; Lian and Yen (2014) in online shopping; and Peng et al. (2011) in mobile payment where all of their results supported that RB positively affects resistance towards new innovation.

Exposure of private and confidential information is the main reason for Malaysians to resist adopting e-wallet (Varsha & Thulasiram, 2016; Ram & Sheth, 1989). There is also a lack of educational platform to raise the risk protection's awareness for e-commerce users when using electronic devices. Therefore, privacy and security are the dominant issues that elevate users' resistance towards e-wallet in Malaysia.

5.2.4 Tradition Barrier and Resistance towards E-wallet

TB is proved to be significantly and positively influencing users' resistance towards e-wallet. This reveals that users inclined to develop resistance towards e-wallet when the adoption of e-wallet requires a change in their existing cultures. Our results are corresponded to the previous research of Dotzauer and Haiss (2017) and Low (2016) in mobile payment; Chemingui and Lallouna (2013) in mobile financial services; and Badrawy et al. (2012) in mobile banking in which all the past studies recognised that TB positively influences users' resistance towards new innovation.

Most of the target respondents would rather adopt traditional cash payment instead of changing their habits to use electronic payments. It is also possible that consumers feel socially unacceptable to adopt e-wallet. They prefer to engage in face-to-face conversation when making payment for the goods and services and with the assistance provided by staff rather than shopping online. Thus, resistance towards e-wallet occurs due to required changes in culture.

5.2.5 Image Barrier and Resistance towards E-wallet

The research findings illustrate that IB does not have significant and positive relationship with resistance towards e-wallet. This depicts that resistance towards e-wallet is not significantly influenced by e-commerce users' negative image towards e-wallet. The results shown are contradicting with the past studies of Moorthy et al. (2017) in mobile commerce; Low (2016) in PayPal mobile payment; Yu and Chantatub (2016) in mobile banking as well as Lian et al. (2012) in online service context.

Nevertheless, the results are coherent with other prior researches of Dotzauer and Haiss (2017) in mobile payment services; Chemingui and Iallouna (2013) in mobile financial services as well as Lian and Yen (2013) in online shopping as the findings from these three studies indicate that IB does not significantly affect resistance towards e-wallet. Besides, there is possibility that the practical usability of e-wallet precedes e-commerce users' past negative impressions towards it since e-wallet speeds up purchases process as compared to other traditional alternatives. Opportunities to adopt e-wallet have also been enlarged as a huge variety of e-wallet licenses has been issued by Bank Negara Malaysia in order to turn the nation into a cashless society (Yunus, 2018). Hence, there is a low tendency for e-commerce users to resist using e-wallet regardless of their negative impressions on it.

5.2.6 Perceived Novelty and Resistance towards E-wallet

According to the research outcome, a significant and negative relationship between PN and resistance towards e-wallet is proven. This indicates that when e-commerce users perceive e-wallet as a novel innovation, they are less likely to resist its adoption. The findings are aligned with the previous research of Choi et al. (2017) in PRS; Yang and Lin (2017) in SoLoMo services; Mani and

Chouk (2016) in smart products as well as Wells et al. (2010) in IT innovation context as all of their outcomes show that PN significantly and negatively affects users' resistance towards an innovation.

According to Jeong, Kim, Park and Choi (2017), a novel innovation will be favorably welcomed and instantly diffused among its users. Besides, the more novel an innovation is, the greater its potential value to the users (Lepak, Smith & Taylor, 2007). In this research, when e-commerce users perceive e-wallet to be unique and different, they are less likely to resist its adoption as it inspired their interest in this new payment method. By gaining novel experiences in adopting e-wallet, e-commerce users' novelty seeking needs are satisfied which leads to lower resistance.

5.3 Implications of the Study

5.3.1 Managerial Implications

This study delivers a sharp vision on barriers that intercept consumers' willingness to use or continue using e-wallet for online payment transactions. Our results show that four out of six IVs (UB, VB, RB and TB) are significantly and positively correlated to resistance towards e-wallet. In contrary, PN has a significant and negative impact on resistance towards e-wallet. Hence, business practitioners should consider the significant effect of these IVs which would be beneficial in assisting them to overcome the barriers repelling consumers from e-wallet adoption.

Besides, e-wallet service providers are also able to foresee the factors that users concern most from this research and subsequently, make improvement based on the facts and achieve competitive advantages in the market. They can use the

data from this research such as type of e-wallet used by customers to increase the options of e-wallet for their customers. They may also increase the type of currency which can be accepted through this platform as most of the e-wallets in Malaysia are provided by foreign companies such as Wechat Pay and Alipay. This eventually increases customer satisfaction and helps to ensure customer loyalty towards e-wallet.

Furthermore, this research also provides values to the consumers and merchants since e-wallet service providers, business practitioners and the government is cooperating to improve the deficiencies of e-wallet and aimed to provide a more convenient, quicker and mobile payment platform for the society. With that, consumers are able to have more payment options, rather than only by using cash. At the same time, as the users of e-wallet increase, the platform can be more effectively utilized by merchants such as e-advertisers, e-marketers, e-travel service providers and e-hoteliers which eventually help to boost their revenue.

In addition, this research eventually assists Bank Negara Malaysia in achieving its blueprint's goal in 2020 which is to practice demonetisation since majority of the transactions in Malaysia are still completed in cash (Shah, 2018). The factors that Malaysia users concern most had been discussed in this study and will enhance the knowledge of Bank Negara Malaysia to implement better financial strategies to create a digital and cashless society.

Other than Bank Negara Malaysia, this research also contributes to Malaysia government. In common, it is difficult to trace back and there is no detailed record for transactions completed in cash. However, since this research is able to increase the adoption of e-wallet, the related transactions will be recorded digitally and thus, it can be used by the government to enhance its accounting, auditing, tax investigation and even criminal activities such as fraud through the involvement of e-wallet in digital world.

Majority of the respondents claimed that UB enormously resist them from adopting e-wallet. Conflict in using the innovation and steps to complete payment transactions are the main concern in this barrier. According to this research, business practitioners can improve their service by simplifying the steps to complete the payment transactions such as owning an application instead of creating a webpage and also providing a variety of language options. In addition, coverage of internet bandwidth and data roaming are also the usage barrier that limits the e-wallet adoption in Malaysia. Thus, Malaysian Communication and Multimedia Commission (MCMC) may exert collaborative efforts with other related parties such as Telekom Malaysia to improve and strengthen the coverage of internet bandwidth and data roaming. This is to safeguard internet stability when consumers make payment using e-wallet.

Besides, VB also significantly restricts consumers from using e-wallet. This may be due to failure of e-wallet to provide a rigid performance-to-price value against other substitutable devices like credit card or cash. E-wallet users have not discovered the value of e-wallet as they are less conscious of the knowledge and benefits to use e-wallet. Thus, service providers should improve the performance of e-wallet by enhancing its functions and specifications such as convenience, mobility and reliability. Also, they have to deliver the detailed information of the e-wallet to its users in order to boost users' confidence in adopting e-wallet.

On top of that, RB exists when consumers adopt e-wallet for payment of transactions. They are worried of the exposure and illegitimate use of their personal information, amount of savings in account and transaction history by unknown third parties. Thus, service providers have to take this issue into consideration when modifying the functions and specifications of e-wallet. For instance, improve security features which are highly unique such as fingerprint, face recognition and Transaction Authorisation Code (TAC) number. Service providers also should instill function that provides users' confirmation, which

ensures one e-wallet only can be performed one device at a time. In addition, government also can enforce the law which strictly protects the assets of e-wallet users.

Furthermore, TB also significantly leads to resistance towards e-wallet. TB is subjective to every e-wallet user since it is affected by cultural deviation which varies among users. Cultural deviation may arise from different races, religion or even parental guidance in each family. Therefore, service providers have to target their users appropriately whether they are willing to try new features or take risks on security of new technologies. Service provider may also collect feedback from the users which are from different countries or religions so that the functions and specifications of e-wallet are able to be altered to the extent which fulfills users' expectations and increase their satisfaction in using e-wallet. For example, provide various language options in e-wallet.

IB is a barrier which derives from the e-wallet service providers themselves such as reputation, goodwill and history of the organization. In our research, we found that IB does not significantly affect resistance towards e-wallet. Thus, service providers should move the focus of improvements to other significant barriers as mentioned earlier to reduce the barriers in using e-wallet effectively. Yet, service providers may also exert minimal efforts to announce e-wallet new features or improvements made in public. This is to preserve their corporate image and ensure continuous sustainability in the industry. For instance, users are informed that the amount charged in Wechat Pay can be paid in the currency of Ringgit Malaysia.

In consideration that Malaysia had recently implemented Pay-Wave payment system, e-wallet is perceived to be an extremely new and interesting payment services for Malaysia consumers. Consumers perceive e-wallet to be novel and favorably welcomed its adoption instead of rejecting using it. Therefore, business practitioners should appreciate this opportunity and heavily promote

the adoption of e-wallet to create awareness about the existence of this new payment method and increase the knowledge of consumers regarding the practicality and benefits of using e-wallet.

5.3.2 Theoretical Implications

This research contributes to all academicians (researchers, students & lecturers) and industry researchers (company research) who are interested in e-wallet technology. Based on other previous studies, the researchers focused more on mobile technologies. However, our research concentrates on e-wallet which includes all e-commerce platforms such as desktop and mobile cashless payment.

The primary concentration of this study is discovering the relationship between IRT which includes five independent variables (UB, VB, RB, TB, IB) and another additional variable which is PN with resistance towards e-wallet. As a result, there are new relationships developed in e-wallet context. In our research, UB, VB, RB and TB are the four barriers in IRT which have significant positive relationships with resistance towards e-wallet.

In addition, PN is an interesting integration with IRT to study resistance towards e-wallet as e-wallet is a new payment method in Malaysia. PN is significantly and negatively correlated with resistance towards e-wallet. For previous research conducted in relation to PN, they are investigated from the perspective of adoption or intention to consume, adopt and purchase while this research is carried out in the opposite direction which is from the resistance perspective.

Nevertheless, the results indicate that IB does not have significant relationship with resistance towards e-wallet. Thus, a deeper understanding of these IVs will contribute useful insights for choosing effective strategies to overcome

resistance towards e-wallet. Other than that, academicians and industry researchers are able to adopt these IVs to examine other DV in e-wallet context or other technologies.

5.4 Limitations of the Study

There are certain limitations in the research. Firstly, this research employed cross-sectional approach where it focuses on the barriers of resistance towards e-wallet in Malaysia at a particular point of time (Low, 2016). This is because of time constraint that only allows the research to be conducted within a short time period. The data collected will be less helpful for future usage since it only reflects the current phenomena in Malaysia. As time goes by, the discoveries obtained in this research would be obsolete in future.

Moreover, this study has been conducted towards the target respondents from Perak, Selangor, Kuala Lumpur and Johor. These four states in Peninsular Malaysia were chosen based on the highest percentages of internet users in Malaysia. At the same time, Sabah and Sarawak were excluded due to low internet penetration as well as time and budget constraints (Wok & Mohamed, 2017; Moorthy et al., 2014). Therefore, the results obtained from this research may not be accurate and do not truly represent the perception of Malaysia's population on the barriers of resistance towards e-wallet in Malaysia because the data are not collected in every state in Malaysia.

Besides, the next limitation of this research is the value of r-square (R^2). R^2 explains how strong an IV is in affecting the DV. A weak R^2 value is between 0.04 and 0.24 while a moderate R^2 value is between 0.25 and 0.64 (Mezick, 2007). The R^2 value of this research equals to 0.5699 which is only at the moderate level. This indicates that there is a huge percentage of approximately 50% that resistance towards e-wallet is

explained by other IVs which are not discussed in this study and needed to be further explored by future researchers in resistance towards e-wallet.

Lastly, the number of baby boomers that participate in this research was only 40 people or 8.37% from the overall 478 target respondents. Baby boomers are those who are born between year 1943 and year 1960 (Paul, 2017). This means that they are now aged between 58 and 75 years old. The main reason of low participation rate by baby boomers is that most of them are not e-commerce users. Besides, a research depicted that seniors present a pessimistic attitude towards an innovation on the ground that they perceive the factor of risk while purchasing new technological products (Badowskaa, Zamojskab & Rogala, 2015). So, low participation of baby boomer may affect the researchers in analyzing the perception of baby boomers in determining the barriers of resistance towards e-wallet in Malaysia.

5.5 Recommendations for Future Study

Firstly, researchers are suggested to use longitudinal approach that involves data collection for more than just a single point of time to conduct their studies due to consistency (Sekaran & Bougie, 2010). Longitudinal research can enhance the causal inference when outcome and indicator are weakly correlated and ensure the stability of the relationships (Rindfleisch, Malter, Ganesan & Moorman, 2008). At the meantime, the changes of the subject matter can be identified because longitudinal study will look into the difference between pre-and post-exposure interval.

To safeguard reliability of the research and the results truly represent the perception of entire Malaysia on the barriers of resistance towards e-wallet in Malaysia, future researchers are suggested to conduct their research in every state in Malaysia. With that, different results will be generated by different respondents from various states.

Additional constructs will increase the R^2 value (Weil, Frank, Hughes & Wagner, 2007). Thus, the researchers are suggested to include other possible and relevant variables to their conceptual framework in investigating resistance towards e-wallet. For instance, perceived cost barrier, which is the additional expenses that are incurred in shifting current payment method to e-wallet (Lu, Yang, Chau & Cao, 2011). With that, the research is able to provide more beneficial insights in barriers of resistance towards e-wallet in Malaysia.

Baby boomers in our nation are also known as "Merdeka babies". They have witnessed the country pre-independence, undergone independence and been through the commencing development of Malaysia (Paul, 2017). In future, the researchers are encouraged to conduct their studies for any issues related to e-wallet specifically on baby boomers. They may investigate the idea of baby boomers towards an innovation as well as scrutinize the character and relationship between baby boomers' perceived risk and their attitude towards an innovation (Badowskaa et al., 2015). With that, researchers can analyze and understand the perception of baby boomers in determining the barriers of resistance towards e-wallet in Malaysia in a more effective manner. On top of that, baby boomers own the most firm and promising household budget to spend and today, they are the richest elderly consumers' category in human history (Office of National Statistic, 2012; Euromonitor, 2006). This shows that they highly probable to significantly affect the economic development of a country. Thus, if baby boomers adopt e-wallet, they can contribute to the growth of e-wallet.

5.6 Conclusion

In the nutshell, IRT has been applied in this study to examine the barriers of resistance towards e-wallet in Malaysia. The results show that UB, VB, RB and TB significantly and positively affect DV which is resistance towards e-wallet. On the other hand, an additional independent variable added in our study, PN shows a negative relationship with DV. According to the research results, IB is not significantly and positively affecting the DV to the extent that it does not influence users' resistance towards e-wallet in Malaysia.

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Appendix A: Summary of past empirical studies

Study	Country	Data	Major Findings
Ram & Sheth, 1989	USA	-	All IRT barriers positively affect the consumer resistance to innovation.
Lian & Yen, 2014	Taiwan	Questionnaire survey of 574 older adults and 246 university students.	Value, risk and tradition are the major barriers for older adults to shop online and only VB significantly induces younger adults to shop online.
Heinze, Thomann & Fischer, 2017	Germany	Semi-structured interviews of 23 policy holders who had not adopted m-commerce.	Insufficiency of the service and system components is the key barrier to adopt m-commerce.
Chan, Chong, Kwa, Lee & Yeong, 2015	Malaysia	Questionnaire survey of 227 gen-X consumers in Selangor (KL) and Negeri Sembilan.	All IRT barriers especially tradition barrier greatly and negatively affect m-commerce adoption.
Dotzauer & Haiss, 2017	Germany	Online survey of 152 German consumers.	VB, RB and TB are the most paramount factors that adversely affect intention to adopt m-payment services by German consumers.
Hong & Chang, 2013	Taiwan	Online survey of 1,012 voters in the 2009 local election in Taiwan.	Negative impression and perceived interruption are the factors behind people's resistance to political emails.

Hew, Leong, Tan, Ooi & Lee, 2017	Malaysia	Self-administered questionnaire of 209 MSM users in Selangor.	All resistances under IRT and privacy concern are positively correlated with ms-commerce usage intention, except for IB which appeared to have negative relationship with usage intention.
Shafinah, Sahari, Sulaiman, Yusoff & Ikram, 2013	Malaysia	-	Determinants of perceived cost, perceived risk/security and trust were the major concerns for m-commerce or in areas where users are required to provide confidential and personal information.
Lian, Liu & Liu, 2012	Taiwan	Questionnaire survey of 178 college students who majored in IS related departments.	VB and IB are two critical factors why users refused to shop online.
Wells, Campbell, Valacich & Featherman, 2010	USA	Two questionnaire survey studies. Survey 1: 423 participants were recruited from an introductory management IS course and received course credit (less than 1% of their final grade). Survey 2: 138 patrons	PN is a prominent factor that is positively correlated to individual's attitude towards an IT innovation.

		from actual users of biometric technology.	
Mani & Chouk, 2016	France	Questionnaire survey of 402 (218 offline & 184 online) first and second-year undergraduate students from two French universities.	PN is a paramount variable which has a negative relationship with consumer resistance to smart products.
Truong, 2013	UK, France, and Germany	Online survey method and quota sampling were used, 456 consumers drawn randomly from a panel of 200,000 consumers by an online panel company in three countries.	PN is a salient determinant of attitude in all three countries but specifically it is more important in UK.
Siegel, 2008	USA	Email and postal questionnaire of 59 faculty members (25 users of LiveText and 34 non-users of LiveText).	There is an inverse relationship between the end user's perceived usefulness and the actual use of LiveText. Attitude is a strong predictor for the use of LiveText.
Khan & Kim, 2009	Sweden	Online survey and self-administered of 330 potential young buyers of smartphones.	Motivation, complexity, relative advantage, and perceived risk are important factors (as per their order) that affect consumers' resistance to

			smartphones.
Mansor, Mat, Abu & Johari, 2013	Malaysia	Questionnaire survey to 80 employees in service organization.	Attitude has a positive relationship with resistance to change in organization.
Low, 2016	Malaysia	Questionnaire survey of 200 gen-X consumers who stay in Kedah and Penang.	All IRT barriers and perceived cost barrier have significant negative relationship with PayPal mobile payment adoption among middle aged consumers.
Yu & Chantatub, 2016	Taiwan and Thailand	Online survey of 1,203 and 658 samples from Thailand and Taiwan respectively.	All IRT barriers except for TB considerably influence consumer resistance to use mobile banking.
Kuisma, Laukkanen & Hiltunen, 2007	Finland	An interview with 30 Finnish bank customers.	All IRT barriers have positive relationships with consumer resistance to Internet banking.
Laukkanen, Sinkkonen, Kivijarvi & Laukkanen, 2007	Finland	Online survey of 1,525 Scandinavian bank's online service users.	VB is the most significant barrier to mobile banking adoption among both mature and younger consumers.
Lian & Yen, 2013	Taiwan	Questionnaire survey of 172 cosmetic consumers.	Value and tradition are the major barriers of consumer's intention towards buying experience goods online.
Laukkanen,	Finland	Two nationwide	VB and IB hinder the

2016		surveys of 1,736 bank's customers in Finland who were either users or non-users of mobile banking.	adoption of mobile banking while TB leads to rejection of Internet banking.
Swilley, 2010	USA	Two survey studies. Questionnaire survey 1: 226 college students. Online survey 2: 480 cell phone users.	Perceived risk, security and privacy have a negative effect on attitudes toward wallet phones.
Peng, Xu & Liu, 2011	China	Self-administered questionnaire and email questionnaire of 186 junior and senior students in a provincial university.	Consumer acceptance of mobile payment is driven by performance expectancy and social influence which are obstructed by perceived risk and cost simultaneously.
Yiu, Grant & Edgar, 2007	Hong Kong	Structured telephone questionnaire of 150 respondents who aged 18 or above, maintain a bank account for personal use and with personal computer at home or at office.	PU, PEOU, perceived risk on internet banking and personal innovativeness on IT have a direct relationship with the adoption of internet banking.
Mahatanankoon& Ruiz, 2007	USA	Web-based survey of 215 students at large state university in Midwest.	Device inefficiency is the most important factor that has effect on m-commerce adoption.
Chemingui &	North	Questionnaire survey of	Tradition is the most

Lallouna, 2013	Africa	300 Tunisians non-users of mobile financial services.	significant barrier that negatively influences the intention to use mobile financial services.
Badrawy, Aziz & Fady, 2012	Egypt	Self-administered and web-based questionnaire of 229 respondents from Alexandria and Cairo.	Usage, risk and tradition barrier are the major barriers that discourage consumers to adopt mobile banking.
Moorthy, Ching, Yeong, Chan, Chong, Kwa & Lee, 2017	Malaysia	Self-administered gen-X consumers.	All IRT barriers strongly and negatively affect the adoption of mobile commerce among gen-X consumers.
Venkatraman & Price, 1990	UK	Mail questionnaire of 432 households from a national household list compiled by Dunhill International.	Both cognitive and sensory innovators prefer to buy products they perceive as new in the purchase context.
Choi, Lee & Kim, 2017	Korea	Web-based survey of 156 smartphone users in Korea who had used more than one application from application stores.	PN positively influences users' satisfaction towards personalized recommender system (PRS) and purchase intention.
Yang & Lin, 2017	Taiwan	Internet survey of 451 SoLoMo service users.	PN is a dominant factor that positively affects continuance intention of SoLoMo services.
Wang & Wu,	Taiwan	Internet survey of 332	PN has the greatest impact

2014		respondents who had at least one time of experience in using iPad.	on perceived value in regards to MenuPad.

Appendix B: Items and sources of the questionnaire

Construct	**Items**	**Items' description**	**Sources**
Usage Barrier	UB1	E-wallet services are difficult to use.	Adapted and modified from Laukkanen et al. (2007).
	UB2	The use of e-wallet services is inconvenient.	
	UB3	E-wallet services are slow to use.	
	UB4	The process in e-wallet services is unclear.	
Value Barrier	VB1	The use of e-wallet services is uneconomical.	Adapted and modified from Laukkanen et al. (2007)
	VB2	E-wallet services do not offer any advantages compared to cash payment.	
	VB3	The use of e-wallet services does not increase my ability to control my financial matters.	
	VB4	E-wallet services are not a good substitute for traditional cash payment.	Elbadrawy & Aziz (2011).
	VB5	E-wallet services do not save time when conducting the transactions.	
Risk Barrier	RB1	I fear of making any mistakes in the process of using e-wallet services.	Adapted and modified from Laukkanen et al. (2007).
	RB2	I fear of entering wrong information when using e-wallet services to make payment.	
	RB3	I fear that battery of the electronic devices will run out or the connection will otherwise be lost when using e-wallet services.	Peng, Xu, & Liu (2011).
	RB4	I fear of exposure of privacy to third	

		party when using e-wallet services.	
	RB5	I fear of any unreasonable or fraudulent charges if using e-wallet services.	
Tradition Barrier	TB1	I feel impatient with e-wallet services.	Adapted and modified from Mahatanankoon & Ruiz (2007).
	TB2	I prefer to engage in face-to-face communication when making payment for goods and services that I want.	
	TB3	I prefer traditional forms of payment.	
	TB4	I prefer making purchases through online.	
Image Barrier	IB1	I have a very negative image towards e-wallet services.	Adapted and modified from Laukkanen et al. (2007).
	IB2	E-wallet services are often too complicated to be useful.	
	IB3	I have such an image that e-wallet services are difficult to use.	
Perceived novelty	PN1	I find using e-wallet services to be a novel/new experience.	Adapted and modified from Wells et al. (2010).
	PN2	Using e-wallet services is new and refreshing.	
	PN3	E-wallet services represent a neat and novel/new way of making payment.	
Resistance towards e-wallet (DV)	R1	I fear of wasting my time using e-wallet services.	Adapted and modified from Khan & Kim (2009).
	R2	It is unlikely that I will use e-wallet services in the near future.	
	R3	E-wallet services are not for me.	
	R4	I do not need e-wallet services.	

Source: Developed for the research

Appendix C: Survey questionnaires

Universiti Tunku Abdul Rahman

Curbs on Modern Technology: Barriers of resistance towards e-wallet

Definition of e-wallet: E-wallet is also known as digital wallet. It is an electronic device that stores users' payment information to allow an individual to make electronic transactions online through a computer or a smartphone.

Survey Questionnaire

Dear Respondent,

Warmest greeting from Universiti Tunku Abdul Rahman (UTAR)

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 barriers that lead to resistance towards e-wallet 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 (A, B and C) in this questionnaire. Please answer ALL questions in ALL sections.
2) Completion of this form will take you approximately 5 to 10 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.*

Section A: Demographic Profile

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

QA 1: E-commerce:

☐ User

☐ Non-user (Thank you for your participation. The questionnaire ends here)

QA 2: Gender: ☐ Female ☐ Male

QA 3: Age (years):

☐ Below 20

☐ 21 to 30

☐ 31 to 40

☐ 41 to 50

☐ 51 and above

QA 4: Highest education completed:

☐ Secondary

☐ Pre-U/Foundation

☐ Diploma

☐ Degree

☐ Master

☐ PhD

☐ Others (Please specify: _____)

QA 5: Income level (per month):

☐ Below RM1000

☐ RM1001 to RM2000

☐ RM2001 to RM3000

☐ RM3001 to RM4000

☐ RM4001 to RM5000

☐ RM5001 and above

QA 6: E-wallet experience:

☐ Inexperienced (Please proceed to Section B)

☐ Below 1 year

☐ More than 1 year but less than 2 years

☐ More than 2 years but less than 3 years

☐ 3 years and above

QA 7: Yearly spending in e-wallet:

☐ Below RM1000

☐ RM1001 to RM2000

☐ RM2001 to RM3000

☐ RM3001 to RM4000

☐ RM4001 to RM5000

☐ RM5001 to RM6000

☐ RM6001 and above

QA 8: Frequency in using e-wallet (per month):

☐ 0 – 2 times

☐ 3 – 4 times

☐ 5 – 6 times

☐ 7 – 8 times

☐ 9 – 10 times

☐ More than 10 times

QA 9: Purpose of using e-wallet (You can choose more than one):

☐ To buy products/services

☐ To pay for bills

☐ To transfer fund

☐ To pay installment

☐ Others (Please specify: _____)

QA 10: Type of e-wallet used (You can choose more than one):

- ☐ Alipay
- ☐ CIMB Pay
- ☐ Mastercard MPay
- ☐ PayPal or MasterPass
- ☐ Samsung Pay
- ☐ Visa Checkout
- ☐ Vcash
- ☐ Wechat pay
- ☐ Others (Please specify: _____)

Section B: Barriers of resistance towards e-wallet

This section is seeking your opinion regarding the barriers that affect resistance towards e-wallet among Malaysian users. Respondents are asked to indicate the extent to which they agreed or disagreed with each statement using 5 point Likert scale [(1) = strongly disagree; (2) = disagree; (3) = neutral; (4) = agree and (5) = 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	Disagree	Neutral	Agree	Strongly Agree
UB	Usage Barrier					
UB1	E-wallet services are difficult to use.	1	2	3	4	5
UB2	The use of e-wallet services is inconvenient.	1	2	3	4	5
UB3	E-wallet services are slow to use.	1	2	3	4	5
UB4	The process in e-wallet services is unclear.	1	2	3	4	5
VB	Value Barrier					
VB1	The use of e-wallet services is uneconomical.	1	2	3	4	5
VB2	E-wallet services do not offer any advantages compared to cash payment.	1	2	3	4	5
VB3	The use of e-wallet services does not increase my ability to control my financial matters.	1	2	3	4	5
VB4	E-wallet services are not a good substitute for traditional cash payment.	1	2	3	4	5
VB5	E-wallet services do not save time when conducting the transactions.	1	2	3	4	5

RB	Risk Barrier					
RB1	I fear of making any mistakes in the process of using e-wallet services.	1	2	3	4	5
RB2	I fear of entering wrong information when using e-wallet services to make payment.	1	2	3	4	5
RB3	I fear that battery of the electronic devices will run out or the connection will otherwise be lost when using e-wallet services.	1	2	3	4	5
RB4	I fear of exposure of privacy to third party when using e-wallet services.	1	2	3	4	5
RB5	I fear of any unreasonable or fraudulent charges if using e-wallet services.	1	2	3	4	5
TB	Tradition Barrier					
TB1	I feel impatient with e-wallet services.	1	2	3	4	5
TB2	I prefer to engage in face-to-face communication when making payment for goods and services that I want.	1	2	3	4	5
TB3	I prefer traditional forms of payment.	1	2	3	4	5
TB4	I prefer making purchases through online.	1	2	3	4	5
IB	Image Barrier					
IB1	I have a very negative image towards e-wallet services.	1	2	3	4	5
IB2	E-wallet services are often too complicated to be useful.	1	2	3	4	5
IB3	I have such an image that e-wallet services are difficult to use.	1	2	3	4	5
PN	Perceived novelty					
PN1	I find using e-wallet services to be a novel/new experience.	1	2	3	4	5
PN2	Using e-wallet services is new and refreshing.	1	2	3	4	5
PN3	E-wallet services represent a neat and novel/new way of making payment.	1	2	3	4	5

Section C: Resistance towards e-wallet

This section is seeking your opinion regarding the impacts of resistance towards e-wallet with the types of barriers given. Respondents are asked to indicate the extent to which they agreed or disagreed with each statement using 5 point Likert scale [(1) = strongly disagree; (2) = disagree; (3) = neutral; (4) = agree and (5) = 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	Disagree	Neutral	Agree	Strongly Agree
R	Resistance towards e-wallet					
R1	I fear of wasting my time using e-wallet services.	1	2	3	4	5
R2	It is unlikely that I will use e-wallet services in the near future.	1	2	3	4	5
R3	E-wallet services are not for me.	1	2	3	4	5
R4	I do not need e-wallet services.	1	2	3	4	5

Thank you for your participation

Appendix D: Permission letter to conduct survey

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

16th April 2018

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
Lee Jye Lyn	15ABB07136
Cheng Shu Wen	15ABB08097
Cheong Meica	14ABB05671
Lim Jia Ta	15ABB07327
Mok Wuai Kei	15ABB07252

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

Thank you.

Yours sincerely,

.....
Dr Zam Zuriyati Binti Mohamad
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Faculty of Business and Finance
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.....
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