

MOVING INTO CASHLESS SOCIETY: FACTORS
AFFECTING ADOPTION OF E-WALLET

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- (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.
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LIST OF ABBREVIATIONS

AD	Adoption of E-wallet
ANOVA	Analysis of Variance
ATM	Automated Teller Machine
AVE	Average Variance Extracted
CNBC	Consumer News and Business Channel
C-TAM-TPB	Combined TAM and TPB
CUAT	Customer Attitude
CV	Convenience
EE	Effort Expectation
E-payment	Electronic Payment
EPS	Electronic Payment System
FBF	Faculty of Business and Finance
HTMT	Heterotrait-Monotrait Ratio
IDT	Innovation Diffusion Theory
MGA	Multigroup Analysis
MM	Motivational Model
MPCU	Model of PC Utilization
NON-FBF	Non Faculty of Business and Finance
PC	Perceived Credibility
PEOU	Perceived Ease of Use
PR	Perceived Risk
PU	Perceived Usefulness
QR Code	Quick Response Code
SCT	Social Cognitive Theory
SE	Security
SEM	Structural Equation Modeling
SI	Social Influence
SMARTPLS	Smart Partial Least Square
SP	Speed
TAM	Technology Acceptance Model
TPM	Theory of Planned Behaviour
UTAR	Universiti Tunku Abdul Rahman
UTAUT	Unified Theory of Acceptance and Use of Technology
VIF	Variance Inflation Factors

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PREFACE

Over the last 15 years, the trend of mobile payment in China have grown gradually as paying by phone had become very popular and common in daily transactions. Mobile payments have become so common in China nowadays to the extent that paying with cash is practically unheard-of. Paying by phone become so popular in China because the infrastructure for mobile payment was already in place and even credit cards never gained such popularity elsewhere in the world.

Furthermore, with the implementation of WeChat Pay facilities in Malaysia by June 2018, this motivates us to carry out a research to study the factors affecting the adoption of E-wallet in Malaysian context. Besides that, this study also examines how the independent variables (Convenience, Speed, Security and Social Influence) will the dependent variable (E-wallet adoption). The research project will evaluate the E-wallet adoption among undergraduates in UTAR Kampar campus.

Lastly, it is hoped that this research project may provide the readers with a better insight and knowledge of the E-wallet adoption among Malaysian citizens.

ABSTRACT

The research is aimed to examine the factors that affect the adoption of E-wallet among undergraduates' students in UTAR Kampar, which represent the 90s generation. It also includes variables such as gender to determine the effect of different genders towards the independent variables. The study examines the adoption of E-wallet by including independent variables of convenience, security, social influence and speed with the aid of UTAUT theory. Target respondents that included in the research are students from Faculty of Business and Finance (FBF) and students from Non FBF in UTAR Kampar equally by collecting data with a total of 376 sets of survey questionnaires. SmartPLS 3 is used to assist in our data analysis along the research. Reliability test, discriminant validity, significance of variables, multiple linear regressions are applied in the data analysis. The results concluded that the independent variables of convenience, social influence and speed have significance relationship towards adoption of E-wallet among undergraduates' students. Conversely, security has no significant effect on the acceptance of E-wallet and there is no significant difference impact towards independent variables between male and female undergraduates' students. Some limitations and suggestions are included in the study to provide a better idea for future researchers and E-wallet service providers to enhance the adoption of E-wallet in Malaysia.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

In today's world, it is undeniable that owning a cell phone or more specifically known as smartphone has become more important in daily life. With the growing numbers of affordable smartphone, the number of smartphone users had increased significantly. According to a research by network experts Erricson, it is estimated that almost three quarter of global population will own a smartphone which equally to 6.1 billion smartphones by 2020 (Boxall, 2015).

Since the earlier of human civilization, the bartering system was used instead of physical money to exchange of goods by using various item of things included plant crops or animals like sheep, chicken (Burn-Callander, 2014). The evolution of money that everyone using now took a long process from the metal coins until the physical paper money and it goes through from commodity money, metal, ancient coins, gold and paper money (Banco Central Do Brasil, 2018). Through all the stage of changing, paper money had being known as a very important stage of the evolution of money.

However, the evolution did not stop at the paper money and then had been transforming into new payment system of using the plastic money by arguing the safeness of physical money. The modernization of era had introduced the plastic money or it can be well known as the credit card and debit card and it can replaced the physical money to run the same transaction of daily life such as bill payment online, transfer of funds and even though mobile banking by just doing simple calling (Shethna, 2015). It can be witnessed through an article of CNBC that pointed

out plastic moneys – cards had hold a huge market share in the year of 2017 and it increased as compared to the year of 2014 and the online payment through internets also raise as well in Germany (Consumer News and Business Channel, 2018).

To be more specific on E-wallet, it sometimes is being mentioned as digital or mobile wallet. E-wallet is a type of electronic card that able to run transaction through smartphone by storing the consumers' credit cards, debit cards or the bank account numbers for payment, utility is same as credit or debit card (Ray, 2017). E-wallets might claimed to be a trigger to the conventional banking as it allows the consumers to do transfer of money or doing payments with lower cost, more convenient and faster (Blockchains, 2018). However, as stated by Jayaseelan (2017), the application of this E-wallet in daily life is a big step that helps Malaysia to move towards the cashless society. Once funded, shoppers can use E-wallets online to make transactions.

In this study, it purposed to determine the factors affecting adoption of E-wallet among UTAR Kampar undergraduates. This survey was carried out to investigate convenience, security, social influence, speed and adoption of E-wallet among UTAR Kampar students.

1.1 Research Background

Advancement of payment system did not just stop at plastic money but further improved according to the evolution and improvement of technology. The significant growth of usage of internet and smartphone had promoted the development into E-money or can be mentioned as the E-payment system. Besides, the penetration of online shopping and banking also led to a drastic increase of E

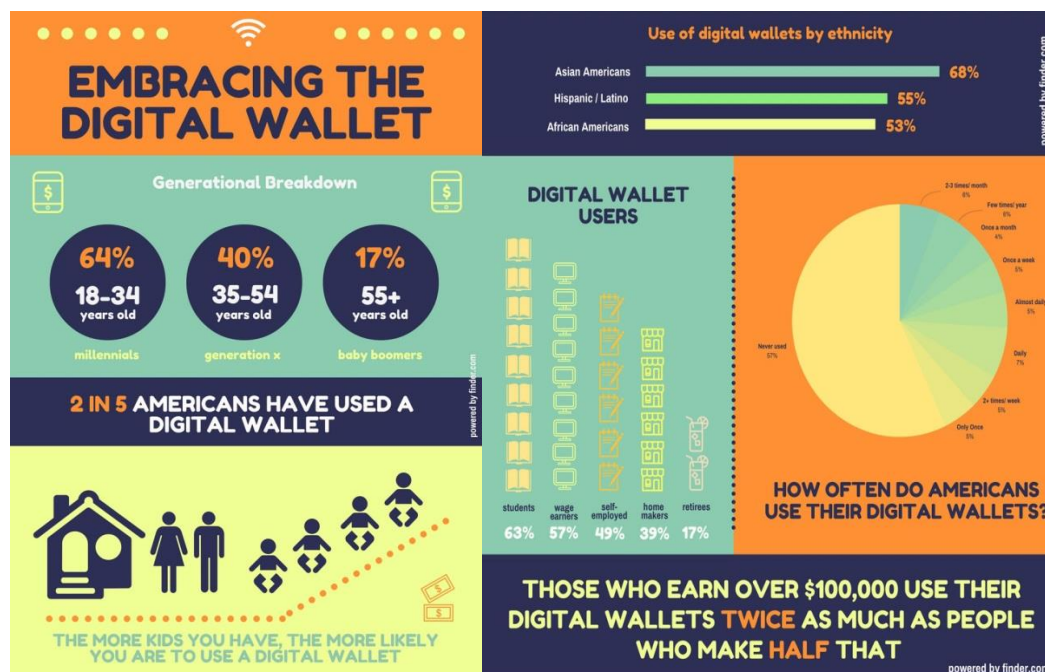
payment usage (Wróbel-Konior, 2016). With the new mode of payment for consumers, it is more convenient instead of the traditional paper money and coins and this E-payment had played an important role in the business industry. There are different categories of e payment mechanisms used nowadays such as debit card, credit cards, charge cards, net banking, E-wallet and different type of E-money.

Based on The Center for Generational Kinetics (2018), the primary generations in the society are the Silent Generation that born before year 1945, baby boomers that born between year 1946 to 1964, the generation X that born between the years of 1965 to 1976. It followed by the generation Y that born between year 1977 to year 1995 and lastly the generation Z that born after 1996 onwards. Different generations are normally being classified based on their acceptance level towards different things, attitude behavior when they met different changing trends, reaction towards a new innovation or technology, attitude towards aspiration and so on (Taylor, 2017). For technology, different generations have various perception and adaption level as well. Refer to appendix 1.1 that describing an overview of the working generations, Sachs (2015) mentioned that the generation Y experienced the most technological change, and the globalization and this had given them the different perceptions and behaviors as compared to the earlier generations. Hence, the attitude towards technology will be different among generations. Besides, the generation Z that grew up with many media and technology environment will be more internets savvy and more skillful than the earlier generation (Wjschroer, 2004). There is research that concludes that generation Y users tend to have greater adoption towards mobile Internet services and the new cyber environment as compared to the generations before them (Gafni & Geri, 2013).

According to recent research, more than 60% of young people aged 18 to 25 are now using E-wallet in UK, they think that cash is an outdated concept, especially when they know there are something to replace cash (Finance Monthly, 2017). Additionally, based on a survey that conducted by an independent comparison platform – “Finder” in America, it claimed to be 2 out of 5 Americans is using the

mobile payment services. Besides, the survey also concluded that the biggest users for digital wallets are those millennials especially the groups of students that get used to the technology (Finder, 2018).

Figure 1.1: Embracing the Digital Wallet



Source: Finder. (2018). *The rise of digital wallets.*

According to the statistical data from a study of Forex Bonuses, the most cashless countries includes Canada, Sweden, United Kingdom, France, America, China, Australia, Germany, Japan and Russia (Nag, 2018). However, when comes to the usage level of E-wallet, the highest percentage on this among countries goes to China which is the fast-developing country which is 76% of China’s consumers that using mobile phone as compared to 36% of the US population (Groenfeldt, 2017). In addition, another country that has high level of adoption of E-wallet in the market is India. With the help of government’s policies that improve the promotion of E-payment, smartphone penetration and the development of facilities of telecommunication and payment, the transaction of mobile wallet had grew

tremendously in five years which is increasing from Indonesian Rupiah 24 billion to Indonesian Rupiah 955 billion from the year 2013 to year 2017 and expected to exceed Indonesian Rupiah 1 trillion in the year of 2018 (GlobalData Financial Services, 2018).

Jayaseelan (2017) stated that E-wallet services are well established and widely used in India and China but the presence of it in Malaysia is still very rare. Although cash payments in Malaysia is still the major medium of exchange, the changing of trend might be seen after the increase of introduction of cashless payments (Lim & Appaduray, 2017). According to Bernama (2017), Governor Tan Sri Muhammad Ibrahim mentioned that E-payment method is a critical element that would improve the productivity and cost-efficiency is needed for the digital economy that is growing drastically at the Payment System Forum and Exhibition. Tan Sri Muhammad also stated that the advance technology, low operation cost by using the QR Code, and also the overwhelming number of Malaysian that holding debit cards and mobile phones should be treated as an advantage to optimize this E-payment technology (Bernama, 2017).

A pilot test on the digital wallet service will be carried out namely Take Action Pay (TaPay) in Cyberjaya and it is the first cashless city in Malaysia, mentioned by Treasury Secretary General in the end of year 2017 (Shah, 2018). There are some top E-wallets in Malaysia that included Alipay that operated by Ant Financial, BigPay that launched by AirAsia Bhd, GrabPay by the ride service provider Grab that estimated to be launched in the first half of year 2018, MPay by ManagePay Systems Bhd (Shah, 2018).

Moreover, due to 20 million users of WeChat that run by Tencent Holdings in Malaysia, Tencent Holdings had applied a license in Malaysia for the WeChat Pay and this launch will be come after the Alipay in June of year 2018 by collaborating of Genting and CIMB Bank (Tan, 2017). The announcement is being followed up

with the news reported by Kwong Wah Yit Poh that since 5th of June 2018, WeChat users can notice that there is a wallet feature in the apps and it is believed that the users can utilize the WeChat Pay very soon (Yong & Aravinthan, 2018).

1.2 Problem Statement

As a consequence of the rapid growth in term of smartphone users and mobile data network, as well as the exponential growth of mobile internet applications, mobile payment (m-payment) is attracting more and more attention throughout the world. More and more human all around the world has try to adopt m-wallet as one of the type of electronic payment or known as e-payment method for day-to-day transaction. An e-payment system is a way of making transaction or paying for goods and services through an electronic medium, without the use of checks or cash. E-payment system is increasingly becoming a daring means of payments in today's business world. "China is recognised as the most advanced market for mobile payments in the world, thanks to WeChat and Alipay," said Paul Haswell, a senior partner at international law firm Pinsent Masons (Rolfe, 2018).

With the growth of popular mobile payment services, consumers and businesses in hundreds of thousands of villages across China are embracing a new era of convenient, cashless transactions. More and more economies turning into a cashless economy due to there are some problems using cash to carry out transactions as potential inconvenience of going or getting to an Automated Teller Machine (ATM) or potential of losing wallet or having it stolen. Cash is almost impossible to track, so money that lose or that is stolen is probably gone for good (de Almeida, Fazendeiro, & Inácio, 2018). When carry cash, it also limits the spending to the limited amount of cash carried. Moreover, it can get relatively bulky and heavy, especially when get change in coins. The above problem or inconvenience faced by

humans in the past using cash leads to the invention of cashless payment system through E-wallet nowadays.

The development of the Internet and the arrival of e-commerce fostered digitalization in the payment processes by providing a variety of e-payment options including payment cards such as credit and debit cards, electronic and digital or mobile wallets, electronic cash and contactless payment method. Driven by the rapid development of communication technology, the popularity rate of smartphones and internet among Chinese people has reached a fairly high level (Shihua, 2018). China has the world's largest mobile subscriber base: the number of mobile subscribers in China reached 1.32 billion as of May 2018 according to the latest data released by China's ministry of industry and information technology, MIIT.

Besides that, according to Alice (2017), China's cities are categorized as 'closest to cashless consumer economies' as mobile payment transactions in China had marked a record of 81 trillion yuan (US\$ 12.8 trillion) from January to October in 2017, driven by the vast number of consumers across the country who have looked beyond credit cards to more convenient way in transacting, cashless system. The 10-month total surpassed 58.8 trillion yuan in mobile payment transactions on the mainland during the whole of 2016, according to the latest official figures from the Ministry of Industry and Information Technology reported earlier by Xinhua News agency. Mobile payments are used for a wide range of transactions, from paying for smartphone game upgrades and ordering takeaway food online to purchasing movie tickets and sending electronic 'hongbao' know as red packets with cash as gifts.

Popular mobile payment apps, such as WeChat Pay and Alipay, have enabled consumers, including those in rural areas, to go straight from cash to smartphone, leapfrogging the use of credit cards and checks WeChat Pay, which is operated by Tencent Holdings, and Alipay, the online payments platform of Alibaba Group

Holding Affiliate Ant Financial Services, accounted for 93 percent of China's mobile payments market, according to data from research firm Analysys International. Both WeChat Pay and Alipay have helped popularize paying for purchases made at the point of sale (POS) by tapping, swiping or checking in with a smartphone, using the near-field communications feature built in the handset or the machine-readable optical label known as QR code.

The rapid growth of social networks and e-commerce platforms had transformed the way how people communicate and conduct transactions around the world. Integrating digital payments into these growing networks and platforms had presented vast opportunities to drive economic opportunity, financial inclusion, transparency, security and growth (Better Than Cash, 2017). These and other experiences in China show there are vast opportunities that other countries can harness by using existing e-commerce platforms and social networks as a foundation for expanding the digital payments ecosystem. A 2016 report from the McKinsey Global Institute estimated that digital finance could add US\$3.7 trillion to GDP across all emerging economies in aggregate by 2025, and a 6% boost above the projected baseline, and create 95 million new jobs. For China, it could mean an additional US\$1.05 trillion (RMB 7.25 trillion), a 4.2% GDP boost above the projected baseline GDP for 2025 (Kapron & Meertens, 2017).

Furthermore, Wechat Pay is now launched and available in Malaysia by June 2018, and the launch is consider happening just in time as Prime Minister Tun Mahathir has expressed interest in turning the country cashless (Thecoverage, 2018). Moreover, Malaysia market are the one of the first markets outside of China with the wallet localized to Malaysia Ringgit currency. The change comes after Tencent was granted a license by Malaysia and comes at an important time as Tencent aims to grow WeChat internationally. Already, there are 20 million active WeChat users from Malaysia out of a total 980 million Wechat monthly active users (Hollander, 2017). There is also an exsiting partnership with Hong Leong Bank to enable Wechat Pay merchants. As early as November 2017, Hong Leong Bank has already

enabled merchants to accept payments for Wechat Pay, in anticipation for the wallet's launch in Malaysia (Pikri, 2018). Wechat Pay in Malaysia would definitely further boost the development of tourism industry especially attracting more Chinese travelers to Malaysia. As Chinese travelers would never need to engage in currency exchange anymore. This convenience could spark further sales and serve as an economic boon to Malaysia.

1.3 Research Objectives

1.3.1 General Objectives

The main research objective of the study is to analyze the adoption of E-wallet among the UTAR undergraduates of UTAR Kampar Campus.

1.3.2 Specific Objectives

- i. To investigate the relationship between convenience and adoption of E-wallet among undergraduates students in UTAR Kampar.
- ii. To investigate the relationship between security and adoption of E-wallet among undergraduates students in UTAR Kampar.
- iii. To investigate the relationship between social influence and adoption of E-wallet among undergraduates students in UTAR Kampar.

- iv. To investigate the relationship between speed and adoption of E-wallet among undergraduates students in UTAR Kampar.
- v. To investigate the difference on genders between convenience, security, social influence, speed and adoption of E-wallet among undergraduates students in UTAR Kampar.

1.4 Research Questions

- i. Is there any significant relationship between convenience and adoption of E-wallet among undergraduates students in UTAR Kampar?
- ii. Is there any significant relationship between security and adoption of E-wallet among undergraduates students in UTAR Kampar?
- iii. Is there any significant relationship between social influence and adoption of E-wallet among undergraduates students in UTAR Kampar?
- iv. Is there any significant relationship between speed and adoption of E-wallet among undergraduates students in UTAR Kampar?
- v. Is there any significant difference on gender between convenience, security, social influence, speed and adoption of E-wallet among undergraduates students in UTAR Kampar?

1.5 Hypotheses of Study

In this part of study, four hypotheses of study had been raised to study the association between the dependent variable, adoption of E-wallet and the other four independent variables which are convenience, security, social influence and speed. The difference on genders towards variables had also being investigated in this research.

1.5.1 Convenience

H₀: There is no significant relationship between convenience and adoption of E-wallet.

H₁: There is a significant relationship between convenience and adoption of E-wallet.

1.5.2 Security

H₀: There is no significant relationship between security and adoption of E-wallet.

H₁: There is a significant relationship between security and adoption of E-wallet.

1.5.3 Social Influence

H₀: There is no significant relationship between social influence and adoption of E-wallet.

H₁: There is a significant relationship between social influence and adoption of E-wallet.

1.5.4 Speed

H₀: There is no significant relationship between speed and adoption of E-wallet.

H₁: There is a significant relationship between speed and adoption of E-wallet.

1.5.5 Gender

H₀: There is no significant difference on gender between convenience, security, social influence, speed and adoption of E-wallet.

H₁: There is a significant difference on gender between convenience, security, social influence, speed and adoption of E-wallet.

1.6 Significance of Study

E-wallet is a growing trend but it is not widespread in Malaysia yet. Therefore, this study is important for entrepreneurs who interested to develop E-wallet service in Malaysia. This study provides them the detail information about E-wallet and it can help them to determine the market acceptance and market prospect in Malaysia. Entrepreneurs can use this study as a reference when deciding whether their companies should operate and offer E-wallet service. The findings of this study can also assist entrepreneurs who are preparing to offer E-wallet services to understand the important factors that affect E-wallet adoption, including speed, convenience, security, and social influence. Hence entrepreneurs can base on these factors to make improvement on E-wallet in order to increase their customers' acceptance for using E-wallet to make payment.

Furthermore, this study also assists the financial institutions and software development companies by help them to find out what issues the consumers concerned may have when using E-wallet. Based on this study's results, the financial institutions and software development companies able to know and understand the area they want to improve at in order to successfully introduce E-wallet in Malaysia.

Moreover, this study also beneficiary to students and future researchers who would like to investigate further about E-wallet. It provides more knowledge to them about E-wallet in Malaysia. Through this study, students can learn what the E-wallet is and what are the factors affect its adoption in Malaysia. Therefore, they will have a better understanding of E-wallet's market in Malaysia. Since E-wallet has attracted more and more attention by the public, this will attract many future researchers interested and conduct a research on this topic. This study is useful for them by providing them E-wallet's baseline information and factors affecting the E-wallet

adoption of. Thus, future researchers can use these factors as a reference for future studies.

1.7 Chapter Layout

Research objective and questions, problem statement and significance of the study are illustrated in chapter one. Literature review by summarizing and describing what the past studies had done by other researchers, theoretical models, conceptual framework and hypotheses development will be carried out in chapter two. Besides, chapter three will describe research methodology. In this chapter will discuss further in several part which include data collection, sampling design, construct measurement, analysis of data and research instrument. In addition, chapter four interprets the results from SmartPLS 3.0 for structural equation modeling. Chapter five will include summary for the entire study, suggestion of policy implication, limitation and recommendation for the study.

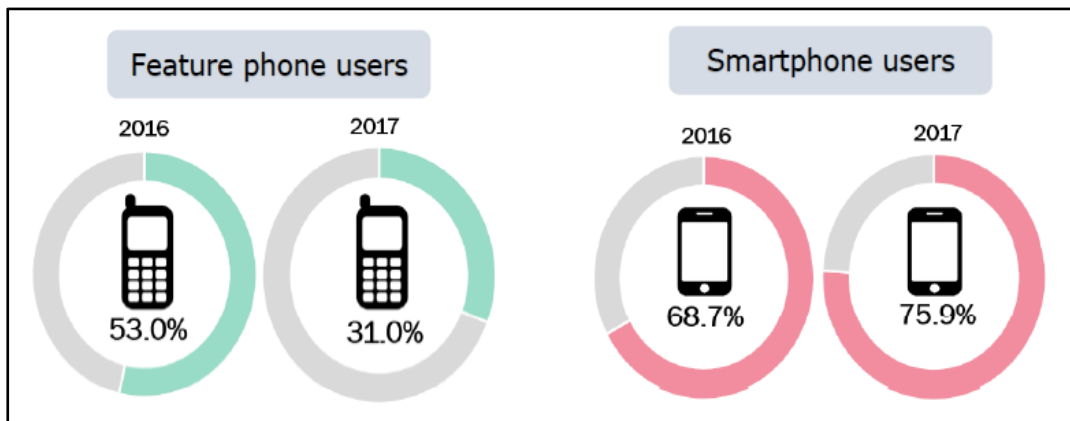
1.8 Conclusion

This study has discussed background, problem statement, research objectives and questions and significance of the study. An overview was provided in the research through description of first chapter. Further information of dependent and independent variable was discussed in following chapter.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

Figure 2.1: Percentage distribution of smartphone versus feature phone share, 2016 and 2017

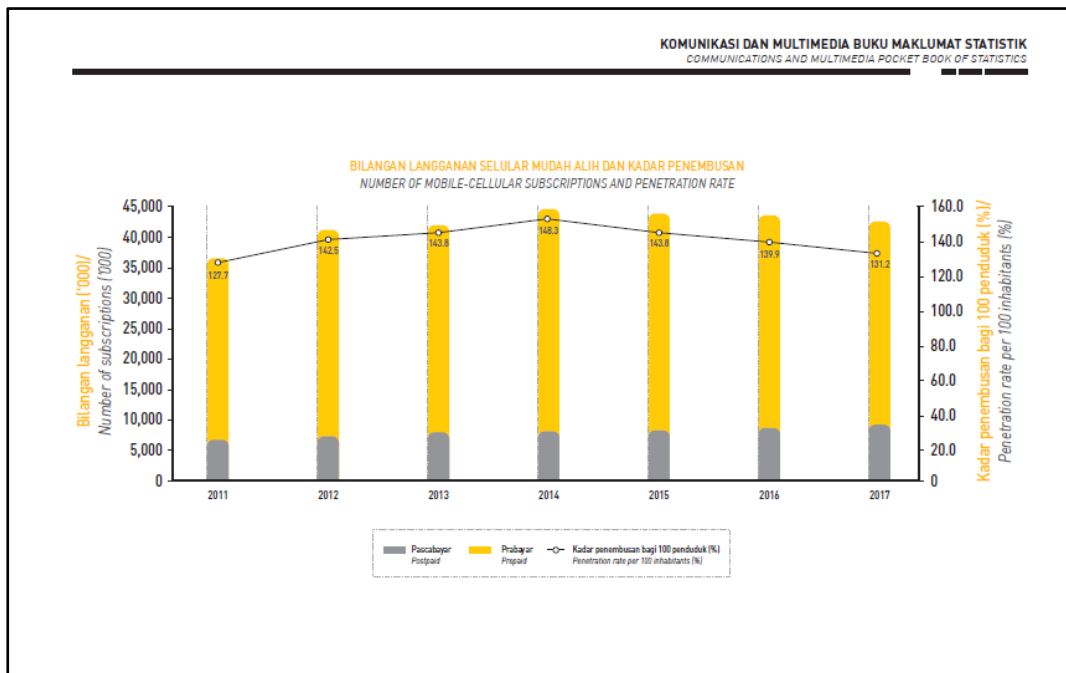


Source: Malaysian Communications and Multimedia Commission. (2018a). *Hand Phone Users Survey 2017*.

According to the annual survey named as Hand Phone Users Survey 2017 (HPUS 2017) conducted by the Malaysian Communications and Multimedia Commission (MCMC) (2018a), it presented the data analysis to estimate the changes in terms of trends and behavior among Malaysian toward hand phone usage. The main finding of HPUS 2017 indicates that the users of smartphone in Malaysia context had rose to 75.9% in 2017 as compared to 68.7% in 2016. There is a rapid growth in term percentage of smartphone users while the driving factors include aggressive campaigns and attractive promotions by service provider, increase use of and reliance on smartphone based applications and reasonable price in voice-data packages which is more affordable now as compared to years before. The survey

also showed that percentage of feature phone users had reduced by 22% to 31% in 2017 from 53% in 2016.

Figure 2.2: Number of mobile-cellular subscriptions and penetration rate



Source: Malaysian Communications and Multimedia Commission. (2018b). *Pocket Book of Statistic 2017*.

On the other hand, by referring to the Pocket Book of Statistic 2017 published by the Malaysian Communications and Multimedia Commission (2018b). The number of mobile-cellular data subscription in Malaysia had stated 43.5 million active users in fourth quarter in 2016. However, there is a slightly drop in number of the mobile-cellular data users subscription for the same period in 2017 as there is only 42.3 million active users with 1.2 million lesser of the number of users. However, it showed some improvement in the early of year 2018. According to the latest data updated according to Malaysian Communications and Multimedia Commission (2018c) for the first quarter of year 2018, the penetration rate had slightly increased to 43.5 million mobile-cellular data subscription users as refer to appendix 2.1.

The graph showed a slowdown of mobile data subscriber from year 2016 to year 2017. This scenario might due to the affordability of residents towards the services. When the affordability of Malaysians towards internet, they will miss out some advantages of using digital technologies as compared to other Malaysians that used internet more often (Thambirajah, 2018). In order to reduce this problem, the Communications and Multimedia Minister, Singh (2018) mentioned and announced that they expect to reduce the fee for internet subscribe fee by twenty five percent by the end of year 2018 so that more people can experience the benefits and enhance their daily activities.

In this chapter, a review of the journals and articles from the past empirical studies will be used as guidance to this research topic. Furthermore, the relevant theoretical framework will be further discussed to outline a new conceptual framework and hypothesis development to evaluate the relationship between the relevant determinants will be conduct in the following part.

2.1 Review of Literature

2.1.1 Convenience

Convenience can be considered as the ease and the comfort to use something. As well as the attainment of definite advantage through the use driven from portability and immediate accessibility (Sharman & Gutierrez, 2010). According to Junadi and Sfenrianto (2015) study, it examined consumer's intention to adopt electronic payment. The presented research model was developed by expanding the Unified Theory of Acceptance Use of Technology (UTAUT) along with extra two additional factors known as

perceived security and culture to find out the most significant factors that will affect the acceptance of electronic payment technology. The model uses to the construct perceived ease of use (PEOU) to predict behavioural intention attitude, and users of information technology. Unified Theory of Acceptance Use of Technology (UTAUT) has four constructs which knows as performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions that will influence the intention and usage of technology.

Research paper by Bezhovski (2016) studied the factors affecting adoption of electronic payments method by customers presented that adoption on electronic payment method is dependent upon various factors that will influence the consumers' preference and willingness to adopt the latest technology to carry out transactions. Convenience is one of the key factors in the suggested model as the research had identified and suggested several factors that will affect the dependent variable either positively or negatively. Convenience or compatibility is explained as the consistency between advancement and experiences, values, and need of consumers. The flexibility of the system is a crucial aspect of compatibility for consumers as that consumer can be easily adapt to the usage of the payment system and integrate into consumers' daily lives.

Anyanwu, Ezugwu and Abdullahi (2012) paper discussed the issues on the factors necessary to facilitate the development of Electronic Payment System (EPS) in Nigeria and suggested solutions to empower its adoption by users. One of the factors that will influence the development of E-payment in Nigeria can categorized as degree of acceptability as the EPS should be simple or easy to use and user-friendly. The degree of user friendliness is a dominant reason to be considered when users decide which system to adopt, especially for micro payments.

In view of E-payment, a study aims to analyze and determine the most influencing factors that contribute to its adoption had carried out by Kabir, Saidin and Ahmi (2017). To achieve the stated objective, an extensive literature searches and reviews on E-payment adoption was carried out in the study. In this study, it was found that ease of use is one of the top dominant independent variable in determining the Electronic Payment System (EPS) adoption. Moreover, it was found that the most frequently used models in determining EPS adoption in prior studies are Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT).

Roy and Sinha (2014) research on acceptance of electronic payment system (EPS) had the purpose to determine the factors influencing consumer's adoption on the light of Technology Acceptance Model (TAM). This paper showed an empirical review of E-payment acceptance in Kolkata. The model formulated evaluated Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Perceived Credibility (PC), Perceived Risk (PR) and Customer Attitude (CUAT) to continue using E-payment. Among the factors, Perceived Ease of Use (PEOU) is found as the most significant predictor. PEOU is further explained with additional extend which consumers believes that adopting the specific system will be effortless.

India has been experiencing gradually growth in the era of digital payment. With ever-increasing internet and mobile penetration, the country is all set to witness a massive surge in the adoption of digital payments in the coming year (Batra & Kalra, 2016). The research aimed to investigate the adoption patterns of digital wallets by the respondents. An exploration of customer perception, usage pattern preferences and satisfaction level regarding digital wallets is made. The research observed that respondents prefer using wallets because it was time saving, have the ease to use and easily accessible.

Moreover, de Sena Abrahão, Moriguchi and Andrade (2016) studies examined the intention of adopting a future mobile payment service. Effort expectancy (EE) showed its positive relationship with the behavioral intention in the study based on the Unified Theory of Acceptance and Use of Technology (UTAUT). Effort expectation explains the degree of ease associated with the use of the system. This result serves as a guide to participants in the payments market to develop a service for mobile payments of good performance, easy to use, secure and promotes the action of the social circle of the individual at a fair price, in other words, that meets needs and expectations of today's mobile phone users.

2.1.2 Security

According to the Junadi and Sfenrianto (2015), security refers as a set of programs and procedures to verify information's sources and make sure the privacy and integrity to avoid network and data problems. It about how E-payment systems can protect consumers in their transaction.

Most of the previous researches stated that security is a positive significant component to influence the adoption of E-wallet (Junadi & Sfenrianto, 2015; Kabir et al., 2017; Batra & Kalra, 2016; Sardar, 2016; Taheam, Sharma, & Goswami, 2016). Junadi and Sfenrianto (2015) aimed to study the factors that affecting the adoption of EPS in Indonesia by using extended Unified Theory of Acceptance and Use of Technology (UTAUT). The factors included in this study were security, social influence, culture, effort expectancy and performance expectancy. This study resulted security was a positive significant factor to influence intention to adopt EPS which mean

that when more strengthen in E-wallet's security, the intention to use EPS will increase.

Besides that, Kabir et al. (2017) investigated the factors that affecting the adoption of E-payment. This study extended the literature review on previous researches with related to adoption of E-payment. They were analyzed 223 papers but only had 77 are empirical papers. This study found various factors that frequently used by previous researches were ease to use, cost, convenience, trust, usefulness, benefit, security, attitude and awareness.

Furthermore, in Batra and Kalra (2016) study, they aimed to investigate the respondents' usage patterns of E-wallet. In this study, the main factors to motivate respondents to adopt E-wallet were safe and secure, time saving, easy to use, discount available, track of expenditure and ease of access. They found out that the major concern of the respondents was the safety of money transaction. In other words, when E-wallet system is more safe and secure, it will motivate more consumers to adopt E-wallet.

In additional, Sardar (2016) studied the preference towards the adoption of E-wallet in Jalgaon and effect of demographic variables toward adoption of E-wallet. This study also investigated the factors that affect the E-wallet adoption and the security was one of the factors. Its finding shown that most of the respondents believe the security is a very important factor when buy something online. It is also suggested that security of E-wallet is concerned by respondents, the security systems need to be strengthened so consumers can rest assured use.

Moreover, Taheam et al. (2016) investigated the factors affecting the adoption of E-wallet among youth in Punjab. In this study, they highlighted

some factors that can motivate people to use E-wallet which were usefulness and societal influence, controllability and security, and need for performance enhancement. Controllability and security were one of the highlighted factors because it can improve the individual performance of consumers.

On the other hand, Rathore (2016) investigated the factors affect the consumers' adoption toward E-wallet. Security is also one of the factors in this study. The research indicated that security is not a major factor to influence consumer using E-wallet but it is most challenging factor for the users. If security issues have been resolved efficiently, the risk will decrease and then the adoption of E-wallet will increase. The same results have been obtained in Manikandan and Jayakodi (2017). The objectives in their study were to investigate the perception of consumers on E-wallet, factors that affecting consumers using E-wallet, and challenges of consumers when using E-wallet. In study of Manikandan and Jayakodi (2017), the independent variables included security, convenience, privacy, price, usefulness, ease to use, brand loyalty and utility of innovation. The difference between these two studies was Rathore (2016) collected primary data from smart phone users who adopt E-wallet for online payment but Manikandan and Jayakodi (2017) only collected the data from respondents in Chennai city.

However, Qatawneh, Aldhmour and Alfugara (2015) found different result with them. In the study, they focused the factors influencing the adoption of Electronic Payment System (EPS) at Orange Company in Jordan. The reason for this study was one of the major barriers to successful the E-commerce which is the lack of Jordan's electronic payment gateway (Al-Qirim, 2007). They found that there was a negative relationship between adoption of EPS and security and privacy. In other words, when less in security and privacy of E-wallet, the adoption of EPS will increase. This is

because the target respondents who are surly interest in EPS not really care about security and privacy. Instead, they felt that more security and privacy on EPS will make the system more complex to them.

Similarly, the significant positive result did not agreed by Teoh, Chong, Lin and Chua (2013). The research aimed to determine the factors that affecting perception toward E-payment in Malaysia. The independent variables in this study included security, trust, ease to use, benefits and self-efficacy. In their finding, ease to use, benefits and self-efficacy were positive relationship with the perception of consumers on E-payment. However, security was an insignificant associated with perception of consumers toward E-payment. Similar with the security, trust also was an insignificant associated with the perception of consumers.

2.1.3 Social Influence

Some of the past study stated social influence has positive influence toward intention using mobile payment, but some of the researches explained that there is no direct influence. According to Yang, Lu, Gupta, Cao and Zhang (2012), they indicated social influence has a strong indirect influence during beginning adoption. The aim of this study is to investigate determinants which is behavioral conviction, social influences, individual characteristic and intention adopt toward mobile payment service in China at stage before and after adoption. Researcher stated social influence has emphatically indirect effect during beginning adoption by means of positively influence to interrelated advantage and negatively influencing perceived risk. Therefore, it indicated that social influence has significant for potential and current user in direct effect.

Besides, Aydin and Burnaz (2016) showed that social influence is no significant to adoption of mobile payment in their research. The research aimed to determine the factors that affect attitude and intention among users and non-users to adopt mobile payment systems. The study stated that social influence show there is no significant differences between group due to lower penetration and awareness of mobile payment system among people. Finding stated that the reason of lack impact in social influence on use intention due to the responds from little number of users of mobile payment system in initial of life cycle.

On the other hand, there are few previous studies explained that social influence has positive influence toward adoption of mobile wallet. Shin (2009) used Unified Theory of Acceptance and Use of Technology (UTAUT) to examine the factors affecting acceptance of consumer in mobile wallet. The factors include social influence, security, trust and self-efficacy. Even though social influence had less impact to develop a positive attitude between perceived security and attitude, but it brought an impact regarding intention through influencing perceived security. This played an important step toward model for acceptance of mobile payment.

Furthermore, the objective of another study is to examine the determinants of mobile payment adoption as well as intention. The determinants consist of compatibility, perceived security toward technology, performance desires, innovative, and social influence in European country. The study resulted all the factor examine have significant direct and indirect effects toward adoption as well as intention in mobile payment service. (Oliveira, Thomas, Baptista & Campos, 2016).

In addition, Slade, Williams, Dwivedi and Piercy (2015) stated that social influence give a significant impact toward adoption of E-payment. The

study aimed to investigate connection between adoption of mobile payment for non-users in UK and trust and risk constructs using Unified Theory of Acceptance and Use of Technology 2 (UTAUT2). In the study, perceived risk and trust, anticipation performance, custom, and social influence was resulted significant influence to adoption of in Near Field Communication (NFC) technology.

Moreover, the aim of the study of Cao, Dang and Cao (2016) is to investigate the factors that affecting of consumer intention in using mobile wallet. The factors used in this study are perceived trust, ease of use, enjoyment, usefulness, behavioral control and social influence. Bivariate correlations and multiple regressions were used to determine the impact toward those factors. This study resulted that there are significant association between personal beliefs, resources and social influences to intention use mobile payment.

Nevertheless, this study resulted positive effects on the consumer behavioral intention for using mobile payment. Researcher aimed to determine user-centric, security, feature of system and the moderating effects of gender that give an impact toward behavioral intended in using E-wallet. TAM was applied to estimate consumer's intentions using mobile payment services. The result show significant positive relationship toward intentions of using E-wallet among determinants. This study indicated compatibility, social influence and information of mobile wallet evaluated perceived usefulness while predicted ease of use in E-payment services (Lwoga & Lwoga, 2017).

In the study of Junadi and Sfenrianto (2015), researcher aimed to determine the intention of consumer using mobile payment in Indonesia. Researchers used Unified Theory of Acceptance and Use of Technology (UTAUT) to determine the accurate result regard to factors affecting the acceptance of

mobile payment service. The factors included culture, security, performance and effort expectancy and social influence. Social influence shows a positive influence toward intention of consumer in using E-payment service.

Nonetheless, past study examined the intention of adopting mobile payment among mobile phone users in Brazil. Researcher determined performance and effort expectation, social influence, perceived cost and risk will influence the adoption of mobile payment by using Unified Theory of Acceptance and Use of Technology (UTAUT). The result proved that social influence has positive relationship in forecasting action of intention (de Sena Abrahão et al., 2016).

2.1.4 Speed

Speed had been used as one of the factors that may influence the decision of consumer to adopt the E-wallet. According to Davis, Balaji, and Gurusamy (2017), this study was aimed to explore the usage perception of E-wallet in the aftermath of demonetization. The seven variables which are privacy, security, convenience, speed, accessibility, content and design had been developed into independent factors. Those factor is deliberation factor and design factor. The result of the studied showed that the demonetization have significant difference in the perception of the E-wallet users especially is the variables of convenience and privacy which showed the significant differences with the respect to before and after demonetization. While, others variables which including the speed do not have significant differences with respect to before and after demonetization.

In the studies of Chen and Nath (2008) which aimed to examine the factor that influence the adoption of mobile payment from the US consumers' perspective, it had proposed multi-stage approach to do for the analysis on the variables that affect the intention of consumer to adopt mobile payment. Demographic traits and technology or lifestyle traits also had been considered into the research to find out the users adoption behaviors. It also included the factors of transaction convenience, transaction speed, compatibility, privacy concerns and security concerns. Additionally, compatibility had the highest correlation towards the mobile payment adoption. However, the finding showed that the transaction speed and transaction convenience also had correlated significantly with the intention to adopt the mobile payment.

From the study of Tella and Olasina (2014) which aimed to found out user's continuance intention to use the E-payment system by acquiring Technology Acceptance Theory (TAM), it used the survey approach by applying the pure quantitative method to conduct the questionnaire with various scale. To answer the objective of this study, the researchers used length of time for salary to be credited into employees' account and how quick the customers will be informed upon the completion of payment process as tools of measurements. The finding showed that there is correlation among the variables of perceived usefulness and attitude to use; perceived enjoyment and continuance intention to use; perceived ease of use with the perceived usefulness and attitude, speed and actual use.

Based on Pagani (2004), the aim of the research is to have a better understanding on the mobile multimedia services adoption by taking the introduction of 3rd generation mobile application services into account. This study conducted exploratory qualitative and quantitative stage to do for the analysis. The variables used in this research were ease of use, usefulness, price and speed of use which derived from TAM. From the result of the

studies, the most important factor is perceived usefulness. Ease of use is less important as compared to usefulness. While, price and speed are least important for young people. However, analysis result from determinant differ by the age group showed that people who aged between 18 -24 years old is more concerned on the speed of use.

While, Vinitha and Vasantha (2017) had do their research on the E-payment system which aimed to investigate the influences on usage of E-payment system based on the demographic variables and significance of demographic variable on factors variables. The results was analyze through the Multivariate Analysis of Variance (MANOVA) to test on the causes of frequent usage of E-payment. The finding of this studies showed that the demographic variables occupation have significant impact and linear combination age and occupation with perceived speed, perceived benefits and facilitating conditions. However, the MANOVA results showed that no significant impact between the age group and the variables.

The aim of the study of Dewan and Chen (2005) was to understand the intention to adopt mobile payment either used the models of cellular or contactless among American consumers. Acceptance for new technology had showed perceived usefulness and ease of use are the most important variables that stated in TAM. Speed of transaction and convenience had been tested for the useful of mobile payment under the perceived usefulness issue. Another two variables which had been tested for this research were security and privacy concerns. The finding which interprets through the percentages and frequency count showed that consumer is largely positive towards the mobile payment's ease of use, usefulness, convenience and speed of transaction. Moreover, most of the respondents think using mobile payment able to improve the transactions speed.

Based on the Roozbahani, Hojjati and Azad (2015), their studies aimed to evaluate the relationship between customer satisfaction and E-payment tools and E-banking. The independent variables that had been applied in this study were speed and efficiency, security and trust and accountability in order to evaluate whether which variable more influenced towards the customer satisfaction through the E-payment tools. Based on the results, it showed that speed and efficiency has significant relationship towards the E-payment tools and customer satisfaction. Besides that, others variables used in this study are found to be positive relationship with the customer satisfaction towards the E-payment tools.

2.1.5 Gender

Gender difference should be taken into account and it acts as an important moderating variable that will bring impacts and effects towards the research results (Shin, 2009; Sun & Zhang, 2006; Ha, Yoon, & Choi, 2007). According to extended model applied in Shin (2009) study, besides than attitude, and behavioral intention that will affect the adoption of E-wallet, demographic data such as gender also show significant relationship on it. Besides, Ha et al. (2007) also mentioned that demographic data such as gender, age, income of an individual able to strengthen the relationship tested in various models. Moreover, Chen and Nath (2008) also found that gender which is one of the demographic variables shows an important effect on the adoption on mobile payment.

According to Lwoga and Lwoga (2017) studies, a survey was conducted in Tanzania and data were collected from mobile payment users. This study also indicated that the gender difference is significance when it was testing

the mobile payment behavioral intention. When taking gender difference into account for testing on behavioral intention with the variables of compatibility, individual innovativeness, influence from the society, ease of use, men show a more significant effect than women in overall. To be more specific on social influence and norms, women tend to be more affected by surroundings norms than men. This result is consistent with other scholars' research (Venkatesh, Morris, Davis, & Davis, 2003; Hamza & Shah, 2014). However, there is a research that rejects the statement that gender might show difference level of significance towards the awareness and it will have difference impact towards acceptance of mobile wallet services (Manikandan & Chandramohan, 2016).

2.1.6 Adoption of E-wallet

According to Straub (2009), adoption theory aims to study how individual make a choice and react when they meet a new innovation and decide whether to accept or reject it. Besides, as cited in Sahin (2006) review of Rogers' theory, adoption is the results of making choice to use a new invention as the best method available. In contrast, he mentioned that rejection is the opposite of adoption which is not adopting an innovation.

By combining the extended Technology Acceptance Model (TAM) and social theory, Wang and Gu (2017) examined and studied on how the people accept one of the mobile wallet which is WeChat Pay and how the social theory affect the acceptance by collecting data from users of WeChat. Moreover, with the collection of responds from respondents using questionnaires, Davis et al. (2017) studied the variables that affect the usage

of E-wallet in Chennai City. They also studied the users of E-wallet and explore their perception.

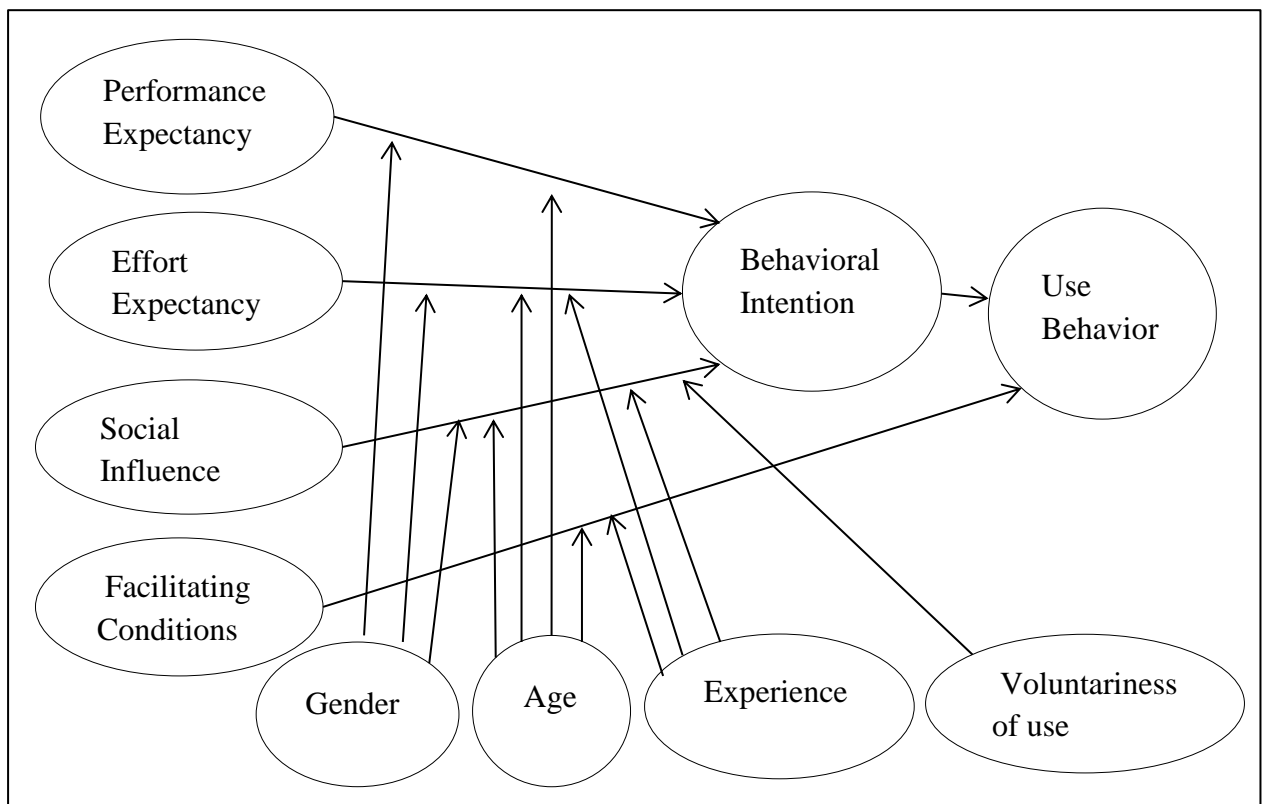
Moreover, there is another study of the adoption of consumers towards mobile wallet also being made in Chennai City. Besides of describing the usage of mobile wallet of various companies, Manikandan and Jayakodi (2017) also did the investigation on the element that bring impacts to the adoption of E-wallet using primary data method.

In Malaysia, Amin (2009) had done a research on the mobile wallet acceptance in Sabah. Survey questionnaire had been used to obtain data from the main respondents are bank's customers in Sabah. Similarly, the study aim to study the factors that affect the adoption of bank customers towards E-wallet with the extension of applying TAM theory in the study and make a better reflection of adoption of mobile wallet in Malaysia.

2.2 Review of Relevant Theoretical Models

2.2.1 Unified Theory of Acceptance Use of Technology (UTAUT)

Figure 2.3: UTAUT Model



Source: Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478.

TAM is a significant model for understanding technology acceptance. There is a lot of previous studies used this model to generate the reliable results. The aim of the TAM is provides a diagram for the influence of external

factors on internal beliefs, attitudes, and intentions. It provided a reasonable description the intention of using technology (Hu, Chau, Sheng, & Tam, 1999). In the past studies, researcher recommended that additional variables in TAM are important to provide a stronger model. By combining Innovation Diffusion Theory (IDF), risk and cost as the extension for TAM theory, it aimed to determine and understand the mobile commerce adoption (Wu & Wang, 2005). Besides, TAM was improved to TAM2 by integrated social influence processes and cognitive instrumental processes (Venkatesh & Davis, 2000)

According to Sullivan (2016), TAM and TAM2 are created to help companies understand how employees or customers respond and reaction towards new technology. However, TAM and TAM2 are unable to help companies to fully list the reasons why employees or customers did not accept the new technology. Moreover, Shin (2009) stated that TAM ignores the impact of social context on the new technologies adoption. TAM also tends to assume that users have only one technology to use and no other choice but in fact it is not. For instance, the mobile applications may be severely affected by other elements like social influences, and the adoption of mobile services might involve complex factors like costs. Besides that, consumers are not only a single technology available to use, they have a lot of options. That is the reason of the application UTAUT in this study.

UTAUT is part of the technology acceptance models and it was formulated by Venkatesh et al. (2003). It is used to interpret the acceptance level of the use of new technology. It evaluates whether users can accept the new technology and the ability of users to handle the new technology (AlQudah, 2014). Venkatesh et al. (2003) developed the UTAUT model based on eight famous technology acceptance models. These eight models include Innovation Diffusion Theory (IDT), Motivational Model (MM), Model of PC Utilization (MPCU), Technology Acceptance Model (TAM), Theory of

Reasoned Action (TRA), Theory of Planned Behaviour (TPM), Combined TAM and TPB (C-TAM-TPB), and Social Cognitive Theory (SCT) (Dulle & Minishi-Majanja, 2011).

UTAUT has four key concepts, which are performance expectancy, effort expectancy, social influence and facilitating conditions. These concepts are the independent variables, while behavioral intention and use behavior are dependent variables. Besides that, gender, age, experience and voluntariness of use will indirectly affect the behavioral intention and use behavior through the four concepts (Venkatesh et al., 2003).

Performance expectancy means the level of an individual believes when using the new technology, it will improve his or her work performance. The relationship between performance expectancy and behavioral intention is hypothesized to moderate by age and gender (AlQudah, 2014). Moreover, effort expectancy is defined as the level of ease when using new technology (Venkatesh et al., 2003). The relationship between effort expectancy and behavioral intention is hypothesized to moderate by experience, age and gender (AlQudah, 2014).

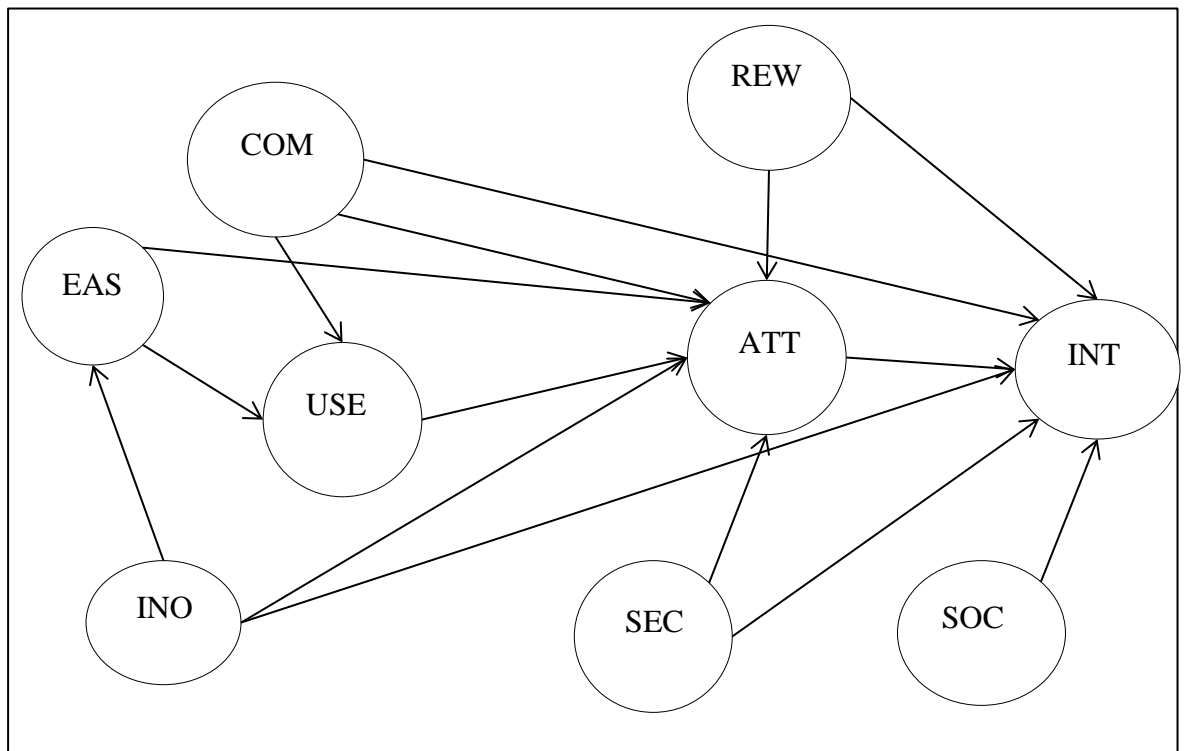
Furthermore, social influence refers as the level of a person perceives about people who are important of self-believe that he or she should adopt new technology (Venkatesh et al., 2003). The relationship between social influence and behavioral intention is hypothesized to moderate by experience, voluntariness of use and gender (AlQudah, 2014).

Besides that, facilitating conditions of the level to which a person considers that an organizational and technical infrastructure exists to effectively adopt the new technology (Venkatesh et al., 2003). The relationship between

facilitating conditions and usage behavior is hypothesized to moderate by age and experience (AlQudah, 2014).

2.2.2 Theoretical Framework

Figure 2.4: Theoretical Framework



Note: EAS is ease of use; INO is personal innovativeness; COM is compatibility; USE is perceived usefulness; REW is rewards; ATT is attitude; SEC is perceived security; SOC is social influence; INT is use intention

Source: Aydin, G., & Burnaz, S. (2016). Adoption of mobile payment systems: A study on mobile wallets. *Journal of Business, Economics and Finance*, 5(1), 73-92.

Aydin and Burnaz (2016) investigated the factors that affect attitude and intention among users and non-users adopt mobile payment systems. In this study, the researchers were determined personal innovativeness, perceived ease of use, perceived compatibility, perceived usefulness, perceived security, social influence and rewards as the factors that influenced on attitude and use intention of the E-wallet. There were different results between the two sample groups, which were E-wallet users and non-users. This proves that users and non-users have very different views on mobile payment systems.

The researchers found that the personal innovativeness was a significant factor and had an indirect effect on attitudes. Besides that, the personal innovativeness was insignificant on use intention for users and only a small impact for non-users. Instead, it had an indirect impact on attitudes and use intention through ease to use. The users who were more innovative think the E-wallet was easier to use, so they had a more positive attitude towards E-wallet and were interested in using it.

Furthermore, perceived ease to use was a positive significant factor in affecting attitudes of users. It is most important influencer in affecting attitude among users and it was also second most influencer among non-users. In other words, providing an ease to use interface will bring positive impact to the perceived usefulness and increase the possibility of adoption.

Moreover, perceived usefulness was also a significant associated with users' attitudes and use intentions. A high level of effect was detected on both sample groups. This proves that users should realize that using E-wallet can bring more benefit to them. The lack of understanding of E-wallet's usefulness is a major barrier to positive attitudes and intentions.

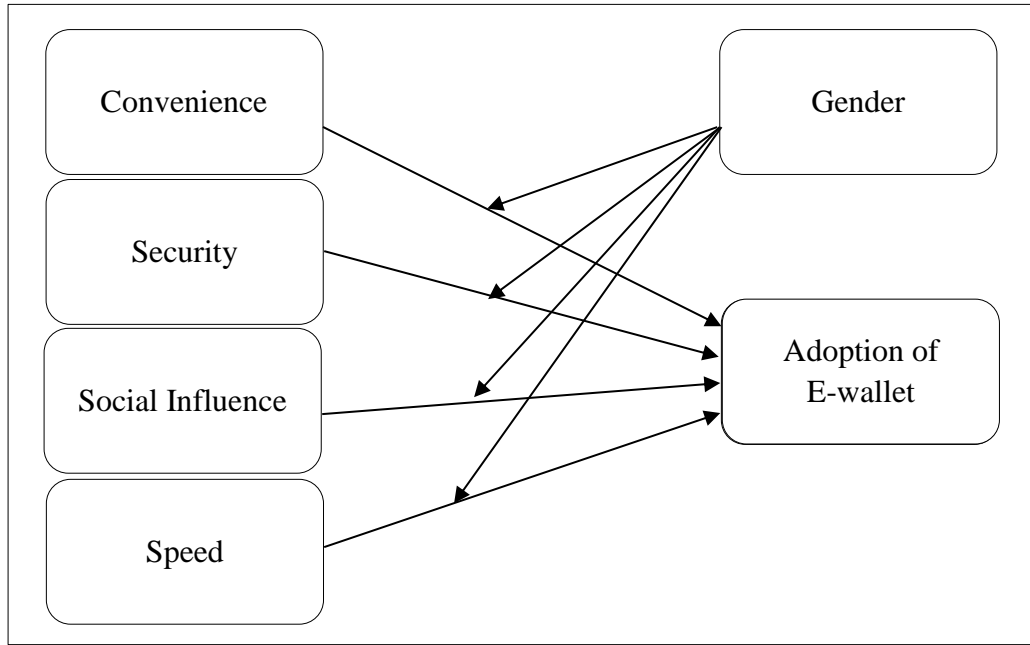
In addition, results also found that perceived security was low impact on adoption of E-wallet. This shows that consumers pay relatively low level of concern about security. Consumers are more concerned about the E-wallet's usefulness and ease to use than about security of E-wallet.

Besides that, perceived compatibility also was one of the significant factors on affecting attitudes towards E-wallet. Compared with users, perceived compatibility had a strong influence on the attitudes towards E-wallet and use intentions on non-users. When consumers find that the application is compatible with their behavior, they are more likely to accept and use it. Thus, marketing personnel can focus on the development and use of marketing communication, and emphasize the compatibility of application with use cases and advantages for different lifestyles in the target market.

For the social influence, this study stated that there is no significant differences between users and non-users group due to lower penetration and awareness of mobile payment system among people. On the other hand, this study found that social influence had low level of impact on the use intentions. This is because the mobile payment system has only a few users at the beginning of the life cycle. However, rewards influence on attitudes and use intentions was insignificant for the both sample groups.

2.3 Proposed Theoretical/Conceptual Framework

Figure 2.5 Proposed Model



Based on the UTAUT theory model and Aydin and Burnaz (2016) study, the proposed model in this research included the independent variables and moderating variables influencing the undergraduate's students' adoption of E-wallet in UTAR Kampar.

2.4 Hypotheses Development

2.4.1 Convenience

H₀: There is no significant relationship between convenience and adoption of E-wallet.

H₁: There is a significant relationship between convenience and adoption of E-wallet.

According to study from Manikandan and Jayakodi (2017), the independent variable, convenience shows an important role in the adoption of E-wallet among the respondents and it pointed out specifically that convenience in usage will help in a great improvement in the E-wallet adoption in the future. Similar to study of Singh & Rana (2017), in the pathway of adoption of digital wallet, convenience is important when related to the acceptance. It is agreed by Bezhovski (2016) research as well.

2.4.2 Security

H₀: There is no significant relationship between security and adoption of E-wallet.

H₁: There is a significant relationship between security and adoption of E-wallet.

Previous studies found that the E-wallet's security is a consideration of consumers to adopt E-wallet. Batra and Kalra (2016) stated that security was a positive significant factor toward adoption of E-wallet which means that when strengthen in security, the intention to use E-wallet also will increase. It agreed by Kabir et al. (2017), Junadi and Sfenrianto (2015), Sardar (2016) and Taheam et al. (2016). According to Batra and Kalra (2016), safety of money transaction was the major concern of the respondents. Sardar (2016) stated that most of the respondents believe that the security was a very importance factor when buy something online. This reveals that security is a significant component to influence the adoption of E-wallet.

2.4.3 Social Influence

H₀: There is no significant relationship between social influence and adoption of E-wallet.

H₁: There is a significant relationship between social influence and adoption of E-wallet.

Oliveira et al. (2016) stated that social influence will directly or indirectly effect the E-payment adoption. Besides, in the study of Yang et al. (2012) shown social influence had a strong indirect influence during beginning adoption of E-payment via positively influencing relative advantage and negatively affecting perceived risk. They found that social influence was a significant component for potential users and current users with direct effects. Social influence was an important factor of the intention and attitude to use a new technology (Taheam et al., 2016).

2.4.4 Speed

H₀: There is no significant relationship between speed and adoption of E-wallet.

H₁: There is a significant relationship between speed and adoption of E-wallet.

In Chen and Nath (2008) research, it believed that a higher speed of transaction would bring higher adoption of digital payment among the respondents. As one of the component in performance expectancy, speed act as an important role. It is being concluded that high transaction speed would give an advantage to consumers and encourage more adoption of e payment (Junadi & Sfenrianto, 2015). From Tella and Olasina (2014), it also found out that the relationship between speed and the intention of consumers to continue using the digital payment system.

2.4.5 Gender

H₀: There is no significant difference on gender between convenience, security, social influence, speed and adoption of E-wallet.

H₁: There is a significant difference on gender between convenience, security, social influence, speed and adoption of E-wallet.

In the study of Shin (2009), it found that gender is an important demographic variable to effect on the E-wallet adoption. Gender will effect towards the research results through the main variables and it is supported by Sun and Zhang (2006) and Ha et al. (2007). According to Lwoga and Lwoga (2017), they also found that a significant difference between gender when studied the E-payment behavioral intention and women show less significant effect than men.

2.5 Conclusion

Chapter 2 had discussed the past empirical studies which done by the previous researchers in term of dependent and independent variables that had been used to propose the conceptual framework and hypothesis. In chapter 3 will further discussed the research methodology for this study.

CHAPTER 3: METHODOLOGY

3.0 Introduction

In this chapter, the overview of the research methodology that will be practiced in the study is explained after reviewing the past studies and reviews from different journals regarding the topics in chapter 2. The research methodology is aimed to resolve the purpose of the study and answer the research objective that set in chapter 1. Research design will be discussed, process of forming questionnaires, method to carry out survey, obtain data, pilot test will be indicated in this chapter.

3.1 Research Design

Research design is the structure of a study and it is an instrument that builds up the research study with the mixture of all vital elements together (Akhthar, 2016). Research design includes the technique used to collect data, method to use for analysis of results, way to find out and verify the association between the exogenous and endogenous variable.

Quantitative methods are being used in this research to test theory and attempt to generalize a conclusion or findings (Wright, O'Brien, Nimmon, Law, & Mylopoulos, 2016). To study the relationship between variables, quantitative method are used on it as this method can portray the relationship in numerical and mathematically through analysis. It is commonly used as the data collected can be

easily showed by using charts, tables or graphs that can be easily understood by researcher (Center for Innovation in Research and Teaching, 2018).

There are different approaches on studies that consist of descriptive designs, experimental designs, causal designs, cohort designs, cross-sectional designs, and exploratory designs. In this research, descriptive design is applied as it can produce more productive data and information that lead to vital suggestion in reality or further research (University of Southern California Libraries, 2016).

3.2 Data Collection Methods

3.2.1 Primary Data

Primary data are new data that will be collected and used for specific research purpose. One of the techniques of collection is survey questionnaire which will interview a large target population (Bowling, 2005). A set of standardized question and answer categories will coded to all the respondents. A survey will be conducted when the researcher is interested to collect the data from targeted population on the aspect of behaviors, attitudes, feelings, observations, opinions. Researchers will able to collect information about subjective and objective of a population from social survey. However, there will have validity of responses from the respondents. The entire survey question was coded, evaluated and tested cautiously to make validity responses (Hox & Boeije, 2005).

3.3 Sampling Design

3.3.1 Target Population

Target population also called theoretical population. It is a particular group of people who targeted by researchers in generalizing the results. The target population of the research is the undergraduates' students who study in UTAR Kampar. The reason for choosing undergraduates students as respondents is they used mobile phones from an early age and they are interested in new technologies. Moreover, they are potential customers of E-wallet because they are going to graduate and will soon come out to work as well as their purchasing power will increase at that time. Thus, entrepreneurs or software development companies should know what factors will cause undergraduates student to adopt E-wallet in order to change the students' views and increase their interest in E-wallet before they graduate such as talks or exhibition.

3.3.2 Sampling Frame and Sampling Location

Sampling frame is a complete list of items that in the population (Särndal, Swensson, & Wretman, 2003). The undergraduate students are the target of this study. They are 90's generation who study in UTAR, among ages of 19 to 24 and above. Besides, UTAR Kampar was chosen as sampling location because UTAR Kampar has a large population of young people and come from different states. Therefore, this study can collect responses from youths with different states including Northern Region, East Coast Region,

Southern Region, Central Region, and East Malaysia. In order to collect responses from different faculty, the survey was conducted in various places of UTAR campus such as library, Student Pavilion I (block c) and Student Pavilion II (block k).

3.3.3 Sampling Elements

In this study, 420 questionnaires distributed to undergraduate students in UTAR Kampar. All of them are 90's generation and between ages of 19 to 24 and above. The main target respondents are individuals who are the smartphone user and those who consider using E-wallet in the future. In order to examine the factor affecting intention to adopt E-wallet in Malaysia, all questionnaires were answered by Malaysian citizens.

3.3.4 Sampling Techniques

Sampling technique falls into different categories, which are probability sampling and non-probability sampling. This study chose to use non-probability sampling. Non-probability sampling is classified into four types, including convenience sampling, quota sampling, snowball sampling and judgmental sampling (Sekaran & Bougie, 2010). The convenience sampling is the most suitable technique for this study, due to the limitation of time and budget as well as large of sample size. The convenience sampling's main purpose is to collect respondents' information that is easily accessible

to the researcher (Etikan, Musa, & Alkassim, 2016). In general, respondents were chose as they happened to be in the right place at the right time.

3.3.5 Sampling Size

Table 3.1: Krejcie and Morgan's Determining Sample Size Table

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note: N is population size; S is sample size.

Source: Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30, 607-610.

Sampling size is the total samples in a research. The sample is just a portion of the target population (Etikan et al., 2016). Krejcie and Morgan (1970) created a table for determine sampling size from given target population. The population of UTAR students currently is 13,542 (refer appendix 3.1) which are under category of 10,000 to 15,000 populations. Based on the table above, 375 questionnaires will be enough, but to avoid incomplete data or data blur, this study was distributed 420 questionnaires to the undergraduate students in UTAR Kampar. Moreover, in order to study gender effect toward adoption of E-wallet, these questionnaires were distributed to male and female with equal balance. So that, it can show the significance difference between male and female. However, before distributed questionnaires, this study has to set up the questionnaire and get a research permission letter (refer appendix 3.2) from Faculty of General Office (FGO).

3.4 Research Instrument

The key instrument that being applied in this study is a survey questionnaire that consists of questions related to the study. To be specific, self-administered questionnaire is being chosen as the research instrument. According to Lavrakas (2008), a self-administered questionnaire is a set of questions that designed to gather data from respondents and they will complete the questionnaire without the involvement of the researchers during the process of collection of data.

3.4.1 Questionnaire Design

Each set of questionnaire will consist of 25 questions in total and the survey questionnaire will be separated into two main sections. In section A, the questions are mainly related to demographic information which includes gender, age, and state of hometown of each respondent. Section B includes 25 questions, 5 questions will be tested for dependent variable which is adoption of E-wallet while the other 20 questions were relate to the other four independent variables. The four independent variables are convenience, social influence, and security and speed respectively (refer appendix 3.3).

3.4.2 Pilot Test

It is undeniable that a pilot study is ultimately vital and necessary to be run prior to the large scale collection of data in the research project (Hassan, Schattber, & Mazza, 2006). As mentioned in the social research survey of Teijlingen and Hundley (2001), a pilot study before running the collection of data can assist in determining the reliability of the research protocol, examine the possible problems that might occurred, and test whether the technique used are effective and efficient.

To further explain, pilot test will tested on subgroups within the sample that needed for the research (Center for Evaluation and Research - Tobacco Control Evaluation Center, 2011). 30 sets of questionnaire are being distributed among target respondents for the purpose of pilot test. After the collection of data, the data will be inserted into the Smart PLS software 3.0 to test the reliability. Lastly, the questionnaires will be readjusted based on

the pilot test results and being distributed for the real study if there are any problems being discovered.

3.5 Construct Measurement (Scale and Operation Definitions)

The scale of measurement is a tool that assists to differentiate how individuals react differently on the variables in the study (Sekaran, 2003). In order to examine each variables of the scale, data will be collected by the researches and analyze those data to help determine the statistical inference test. Measurement scales can be differentiated into 4 different categories which are nominal, ordinal, interval and ratio. The types of measurement scale that are applied in this survey questionnaire are nominal, ordinal and interval (Likert scale). The questionnaires had been divided into two section which is demographic profile for the target respondents in the section A and item for each variable in the section B. The items in the questionnaires for this research were adopted from the previous studies.

3.5.1 Nominal Scale

A nominal scale is the scale that most often used with the qualitative variables which the variable will be grouped into 2 categories. According to the Sekaran (2003) the variables of the nominal scale will be categorize into mutually exclusive (no overlapping) and collectively exhaustive groups to generate the results from the calculation of percentage or frequency. Example for the nominal scale is gender which categorized into male and

female. Questionnaires that designed for the question in section A are using the nominal scale to determine the demographic profile for each respondent. Based on the questionnaires, gender, age, and states all are measured in the nominal scale to analyze the target respondents.

3.5.2 Interval Scale

An interval scale is measured in the quantitative attributes. There is zero point in the scale and the differences between the numbers are meaningful. The scale measures the magnitude differences in the preferences among the respondents (Sekaran, 2003). In the interval scale, mean, median, mode and standard deviation is used to measure the central tendency. Besides, likert scale are one of the common scales that had been used in the research. The 5-point Likert scale ranges from strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5) is designed to examine how strongly the statement are agree or disagree. Hence, the Likert scale also had been applied in this questionnaire to evaluate the item in each question for the section B. Source of questions for each variable refers to appendix 3.4.

3.5.3 Ordinal Scale

Ordinal scale had been used in this research for the question 2 in the section A (demographic profile) of the questionnaires which is age to gather the respondents' information.

3.6 Data Processing

A total of 420 sets of questionnaire were distributed to respondents in UTAR Kampar campus and all the data were compiled and entered into Smart PLS 3.0 for analyzing purpose. Among the 420 respondents, the questionnaire forms were equally distributed to 210 male respondents and 210 sets of questionnaire were distributed to female respondents.

3.6.1 Questionnaire Checking

Before distributing the research's questionnaire to target respondents, researchers go through the questions in the questionnaire to ensure that there is no grammar mistake, possibility of misunderstanding or incomplete information. This is due to the questionnaire checking will significantly affect the overall research's objective. Besides that, all questions in questionnaire are abstract based on studies by past researchers. When the researcher identify problems and make amendment on the questionnaire before distributing to the respondents, the quality of research will be assured.

3.6.2 Data Checking

Data checking is conducted to go through once and check complete questions in questionnaires. Data checking can enhance the quality of the collected data as it can identify the invalid questionnaire such as incomplete

questionnaires and unqualified respondents. It is used to ensure data were entered correctly and completed by respondents. Any occurrence of error such as incomplete and misplaced from the reverted questionnaire can be deleted will be eliminated automatically.

3.6.3 Data Editing

Data editing is a process to detect and amend the errors or bias in data within a questionnaire. Before the collected primary data being used to present as useful information, all gathered data should be edited to ensure that the information provided by respondents is accurate, complete, consistent and free from bias. Data editing prevent inaccurate data sources that will lead to misleading research outcomes.

3.6.4 Data Coding

According to Malhotra (2006), data coding helps in classifying for each item in questionnaire, as the code or number being assigned represent the likely response to each question. Researcher have assigned a series number to categorize all categories in the questionnaires. For instance, gender of respondents was coded —1 and —2, representing male and female accordingly. While in section B, —1 for strongly disagree; —2 for disagree, —3 for neutral, —4 for agree, and —5 for strongly agree. This will save time and ease the process of data entry.

3.7 Data Analysis

Smart PLS is applied in the research to investigate the data collection. Descriptive analysis, Outer Loading Analysis, Cronbach's alpha, Composite Reliability, AVE, Fornell-Larcker Criterion, HTMT, bootstrapping, path coefficient and multigroup analysis were carry out to analysis the data collected. 420 questionnaires were collected from undergraduate students from UTAR Kampar.

3.7.1 Descriptive Analysis

Descriptive analysis reduces in complexity of information amounts in a sensible way. It is a way to summarize the data collected in survey and give a description of data that occurred in the sample. Descriptive analysis has the ability to identify and describe the data that including individual dynamics and interaction between people with a better picture (Wasserman & Faust, 1994). From this analysis, researchers are capable to examine feature that will affect the conclusion of research (Thompson, 2009).

In this research, data collected from questionnaire is well organized in table and graph. The basic of essentially quantitative analysis of data will be form through simple graphics analysis. The results were described clearly through the table in chapter 4.

3.7.2 Partial Least Square – Structure Equation Modelling (PLS-SEM)

PLS-SEM is used to determine the relationship between independent and dependent variable. PLS able determined change of each variable based on how these variables identify with their neighboring constructs. Besides, PLS-SEM is able to explore with new the estimation models are at the exploratory stage, determine model with small samples size and investigate large and complex model (do Valle & Assaker, 2016).

3.7.2.1 Outer Loading Analysis

In the research of Vilares, Almeida and Coelho (2009), it supported the appearance of outer loading overestimation through PLS. It is a more conservative consequence for inner path model relationships. Outer loading analysis is one of the reliability indicators. Those proportions of indicator variance are illustrated through latent variable. Researchers indicated if the value of outer loading is drop between 0.4 and 0.7, it ought to be consider for cancellation. In the event of deletion of these indicators make increase in composite reliability need to discard otherwise keep the factor. If the value of outer loading lower than 0.4, indicator will be remove. This study stated that the value of outer loading higher than 0.7 are considered high satisfactory. Similarly in the research of Henseler, Ringle and Sinkovics (2009), they assume that each of the indicator variance needs to interpret by latent variable. Researchers declare that outer loading value ought to higher that 0.7.

3.7.2.2 Reliability Test

Reliability is an important feature in evaluation of measurement tool in a research. Researchers will be able to expand the transparency and reduce opportunities involvement of bias in their research (Shekhar Singh, 2014). All the measurement in research will insure consistent and assess to an excellence of a measure. Reliability indicates that measurement device has consistent result with equal value. It is referred as a measurement of consistency, precision, repeatability, and trustworthiness in a study (Chakrabartty, 2013). Twycross and Shields (2004) stated that the results in quantitative research are considered reliable if the results have been obtained in identical situations but different circumstances.

3.7.2.2.1 Cronbach's Alpha

According to Rosaroso (2015), reliability is a crucial measurement to test standardization. Internal consistency measures are precondition to validity. Internal consistency depicts the degree to which every one of the things in a test measure a similar idea or develop and consequently it is associated with the between relatedness of the things inside the test. Cronbach's alpha provides an internal consistency measurement of a test or scale with number between 0 and 1. Besides, the value of alpha will rise when the items are correlated. Value of alpha may be influenced by lack of questions, poor related between items or heterogeneous. However, the length of the test is long or short also give impact to result of reliability regardless the test is homogenous (Tavakol & Dennick, 2011).

Table 3.2: Scale of Cronbach's Alpha

Cronbach's Alpha	Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

Source: Sharma, B. (2016). A focus on reliability in developmental research through Cronbach's Alpha among medical, dental and paramedical professionals. *Asian Pacific Journal of Health Sciences*, 3(4), 271-278.

The table above shows that scale of Cronbach's alpha by Sharma (2016). The value of alpha more than 0.9 is indicates excellent. The range between 0.8 and 0.9 is considered good and acceptable. Acceptable when the value falls between 0.7 and 0.8. The values between 0.6 and 0.7 consider questionable. Value of alpha between 0.5 and 0.6 is consider poor and unacceptable when value of alpha less than 0.5.

3.7.2.2.2 Composite Reliability (CR)

Composite Reliability is a measurement to determine the internal consistency. Reliability was pointed as an important analysis in past studies. Researchers are concerning overall sum score reliability which referred as composite reliability.

Composite Reliability can also be explained as Cronbach's Alpha even though indicators have different burdens. An internal consistency reliability value need to fulfill satisfactory standards which between the ranges of 0.7 to 0.9 regardless which particular reliability coefficient is utilized. When value of reliability is more than 0.7, it stated that the reliability between latent variables and indicators is able to be measure measured (Henseler at el., 2009). In the past study, reliability value above 0.8 or 0.9 are known as satisfactory, whereas reliability value less than 0.6 consider as lack of reliability (Nunnally & Bernstein, 1994).

3.7.2.2.3 Average Variance Extracted (AVE)

AVE was applied in order to evaluate convergent validity. Fornell and Larcker (1981) stated that AVE is more conservative than the composite reliability by calculated the reliability of the component score for the latent variable and the outcome.

AVE is an approach which suitable to use as a standard of convergent validity. When the AVE represents 0.5 or more, it can conclude that there is sufficient convergent validity. In past study, latent variable can be clarified as a greater part of the indicators variance on average when the value of AVE showing at point of 0.5 or more (Gotz, Liehr-Gobbers, & Krafft, 2010). When AVE value is more than 0.50 which represent that 50% or more of the variance from the indicators can be explained sufficient convergent validity (Chin, 2010).

3.7.2.3 Discriminant Validity

Purpose of discriminant validity is to examine relationship between latent variables. It is an important approach that must be involved in order to prevent multicollinearity issues. Discriminant validity becomes a general requirement to prove that there has strongest relationships among a reflective construct and its own indicators in PLS path model (Hair, Hult, Ringle & Sarstedt, 2017).

3.7.2.3.1 Fornell-Larcker Criterion

The results of discriminant validity assess from running the PLS and PLS_c algorithm in SmartPLS. Fornell and Larcker criterion is the most broadly utilized strategy for this reason. Ab Hamid, Sami and Sidek (2017) were using Fornell-Lacker criterion to assess discriminant validity in their research. This method is examining discriminant validity by contrast square root of the AVE with the correlation of latent constructs. One latent variable will be well explained with the variance of its own indicator instead of other latent variable. Besides, the square root of the AVE should have a greater value than the correlations with other latent variable (Hair, Hult, Ringle, & Sarstedt, 2017). If value less than other latent variable, it will be considered as insufficient discriminant validity.

3.7.2.3.2 Heterotrait-Monotrait Ratio (HTMT)

HTMT method is one of the discriminant validity. It used to determine multicollinearity problem in model. Henseler, Ringle and Sarstedt (2015) stated that previous method not strong to discover of discriminant validity. Researcher suggested another alternative based on the Multitrait-multimethod matrix aimed in determination of discriminant validity which is HTMT.

In past research found out that HTMT is more specificity and sensitivity compare with Fornell-Larcker Criterion. It can achieve specificity and affectability rates around 97% to 99% contrasted with the cross-loadings model and Fornell-Lacker (Henseler et al., 2015).

Ab Hamid et al. (2017) stated that when values of HTMT near 1, it considered as short of discriminant validity. They compare value of HTMT to a predefined threshold. It could infer insufficient in discriminant validity when value of HTMT is higher than 1. Discriminant validity will built up within two reflective constructs when HTMT value is less 0.90. However, Kline (2011) recommends that a threshold of HTMT values as 0.85 and Gold, Malhotra and Segers (2001) argued that value of HTMT as 0.90.

3.7.2.3.3 Variance Inflation Factors (VIF)

Variance Inflation Factor (VIF) one of the methods utilized to determine the level of multicollinearity between independent variables.

Table 3.3: Interpretation of VIF

Value of VIF	Interpretation
VIF=1	Not correlated
$1 < \text{VIF} \leq 5$	Moderately correlated
VIF > 5	Highly correlated

Source: Daoud, J. I. (2017). Multicollinearity and Regression Analysis. *Journal of Physics: Conference Series*.

When value of VIF equal to 1, it can conclude that there is no multicollinearity between variables. However, variables are consider moderately correlated when VIF more than 1. Besides, value of VIF between 5 and 10 demonstrates highly correlated. It indicates problematic in the model. When VIF more than 10, it can conclude that serious multicollinearity have problem. Researchers advised to take off the variable from model. If the value are below than 5 consider the model do not have the multicollinearity problem (Akinwande, Dikko & Samson, 2015).

3.7.2.4 Bootstrapping

Bootstrapping having a great power non-parametric statistical technique in analyze statistics which have unknown sampling distribution. It used to determine the significant of variable in study. Bootstrapping can evaluates volatility of statistic by estimate the volatility of sample data instead of parametric assumptions. Besides, bootstrapping is one of the methods that able to evaluate small sample size data or non-normal data. It will able to examine biases and variance and additionally give confidence intervals for complicated analytic circumstances (Streukens & Leroi-Werelds, 2016).

Furthermore, bootstrapping consist of several strong points for researchers in their study. First of all, there is only few of general knowledge in mathematics or probability theory needed in bootstrapping. Next, assumption of statistic on bootstrapping is non-restrictive. This is especially important because actual data frequently do not meet assumption such as normality. Third, bootstrapping is capable of being applied at large. This is because bootstrapping offers a solution for some circumstances where common strategies might be troublesome or difficult to discover (Wood, 2005).

3.7.2.4.1 P-value

P-value was used to determine the significance of variables. Significance level (α) is utilized to a pre-picked probability and the "P-value" is utilized to demonstrate a probability in research. The null hypothesis is normally indicate that there is no difference between variables. Null

hypothesis will be reject if p-value less than level of significance (StatsDirect, 2018).

3.7.2.4.2 Path Coefficient

Path coefficients can be utilized as a part to analyze the significance of relationship between variables in the SEM. It will able to be explained with respect to each other. Dependent variable is affect by path coefficient when it larger than other. Besides, one unit change in independent variable will give an impact to path coefficient of dependent variable holding other variables remain constant. Dependent and independent variable can indicated have causal connection when path coefficient is statistically significant.

In addition, path coefficients consist a range of standardized values which between -1 and $+1$. When value of path coefficient is around $+1$, it indicates strong positive relationship. It could consider statistically significantly. While path coefficient -1 represent there is negative relationships. When value of coefficient close to zero, it indicates that the relationship is weak between variables (Hair et al., 2017).

3.7.2.5 Multigroup Analysis

Multigroup analysis is one of moderator analysis which possibly influences all relationships in the SEM. It is a model used to determine significant

differences between samples of respondents. It able to evaluate the distinct between models assessed for various group of respondents. The aim of multigroup analysis is to investigate significance in individual group models. Research has proposed a scope of ways to deal with multigroup analysis which depend on the bootstrapping. Furthermore, multigroup analysis is used to examine differences between same models over various sample of respondent. As example, it can be uses in corporate reputation model rely upon demographic of client (Hair et al., 2017).

There are three ways to deal with multi-group analysis have been proposed inside the PLS path modeling recently by scholar whom master in their fields likely parametric (Afthanorhan, Nazim, & Ahmad, 2014). Parametric test is a technique that distinction of group-specific PLS-SEM results about that by assuming equal variances across groups. Parametric test in MGA exclusively permit to evaluate contrasts between parameters that are assessed for various subpopulations (Rodríguez-Entrena, Schuberth, & Gelhard, 2018).

3.8 Pilot Test Results

3.8.1 Outer Loading

Table 3.4: Outer Loading Result for Pilot Test

	AD	CV	SE	SI	SP
AD1	0.678				
AD2	0.832				
AD3	0.903				
AD4	0.824				
AD5	0.805				
CV1		0.767			
CV2		0.860			
CV3		0.729			
CV4		0.799			
CV5		0.662			
SE1			0.727		
SE2			0.877		
SE3			0.827		
SE4			0.742		
SE5			0.870		
SI1				0.892	
SI2				0.879	
SI3				0.709	
SI4				0.885	
SI5				0.829	
SP1					0.783
SP2					0.837
SP3					0.852
SP4					0.677
SP5					0.735

Source: Developed in Research

Outer loading had been used to evaluate the reliability of the variables. The value of the outer loading which is higher than 0.7, it can be considered that the reliability is internal consistent. However, the variables considered to be removed if value fall between 0.4 and 0.7. Based on the table as shown above, most of the variables are higher than 0.7 which met a high satisfaction of the reliability for the data set. While, the indicator AD1, CV5 and SP4 which had the value lower than 0.7 is considered to be removed from the data set, however, another research stated that the variable can be remained if the value is higher than 0.5 (Afthanorhan, 2013).

3.8.2 Cronbach's Alpha

Table 3.5: Cronbach's Alpha Result for Pilot Test

Variables	Cronbach's Alpha	No of Item
Adoption of E-wallet	0.869	5
Convenience	0.825	5
Security	0.869	5
Social Influence	0.896	5
Speed	0.836	5

Source: Developed in Research

Cronbach's alpha was used in the pilot test to evaluate the data reliability. Sharma (2016) stated that the value for Cronbach's Alpha within the ranged from 0.8 to 0.9 are consider have a good reliability and the result is acceptable. Based on the result as shown in the Table 3.5, the value for all the variables are above 0.80 which had a good internal consistency of the reliability.

3.8.3 Composite Reliability (CR)

Table 3.6: Composite Reliability for Pilot Test

Variables	Composite Reliability
Adoption of E-wallet	0.906
Convenience	0.876
Security	0.905
Social Influence	0.923
Speed	0.885

Source: Developed in Research

Composite reliability is used to indicate whether the variables are internal consistency and reliable to use in the model. The value of variables which hit above 0.7, it indicated that the reliability is being met. From the result evaluated on the table above, all the value of the variables are higher than 0.8 which above the benchmark of 0.7. This showed that the variable is highly satisfaction and the model has internal consistency.

3.8.4 Average Variances Extracted (AVE)

Table 3.7: Average Variance Extracted (AVE) for Pilot Test

Variables	AVE
Adoption of E-wallet	0.659
Convenience	0.587
Security	0.658
Social Influence	0.708
Speed	0.607

Source: Developed in Research

AVE used to explain the reliability for the data set in order to know the convergent validity for the variables. Chin (2010) stated that the indicator is sufficient convergent validity when the value of the AVE is greater than 0.50. From the result showed as above table, all the variables has achieved the value greater than 0.5. There is sufficient convergent validity for the variables and the data set is reliable.

3.9 Conclusion

In short, this chapter had clearly explained and outlined the method that will be carried out for our research. Research design, methods to collect data, target population, sampling technique, size for sampling design, way to process data and analyzing are being addressed in the topic. The results will be analyzed and discussed further in chapter 4.

CHAPTER 4: DATA ANALYSIS

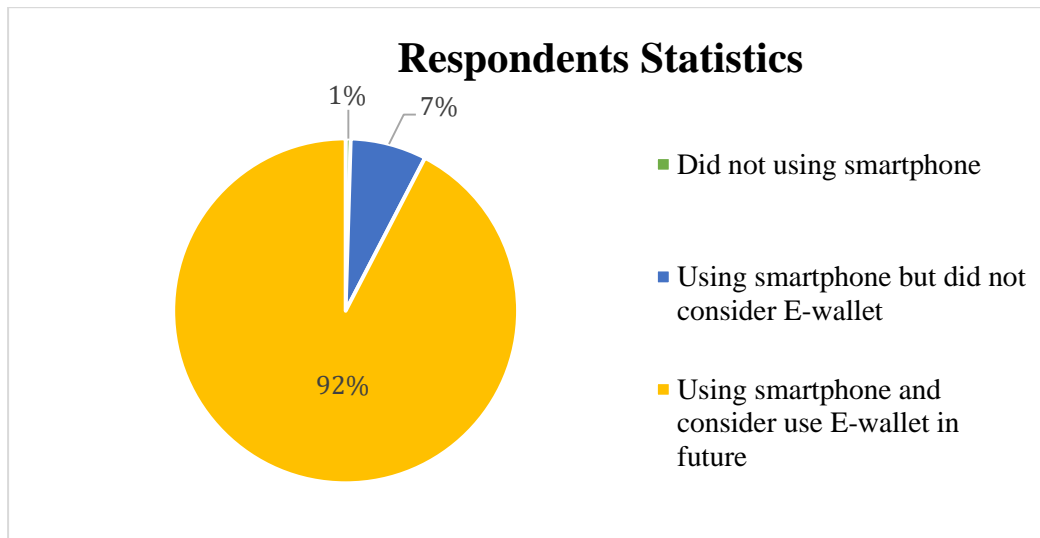
4.0 Introduction

Data analysis will be conducted based on questionnaire collected. There are 420 questionnaires were distributed among undergraduate students from UTAR Kampar. Descriptive analysis was conducted and analyzed which aim to define respondent's demographic profile. SmartPLS 3 was used in this research to determine factors affecting adoption of E-wallet of target audiences and the gender difference. Result in PLS-SEM will be clearly explained in this chapter in order to provide a better understanding.

4.1 Filtering Question

There are two questions related with the E-wallet at first part of questionnaire. All respondents are required to answer both of the questions before process to next part of questionnaires.

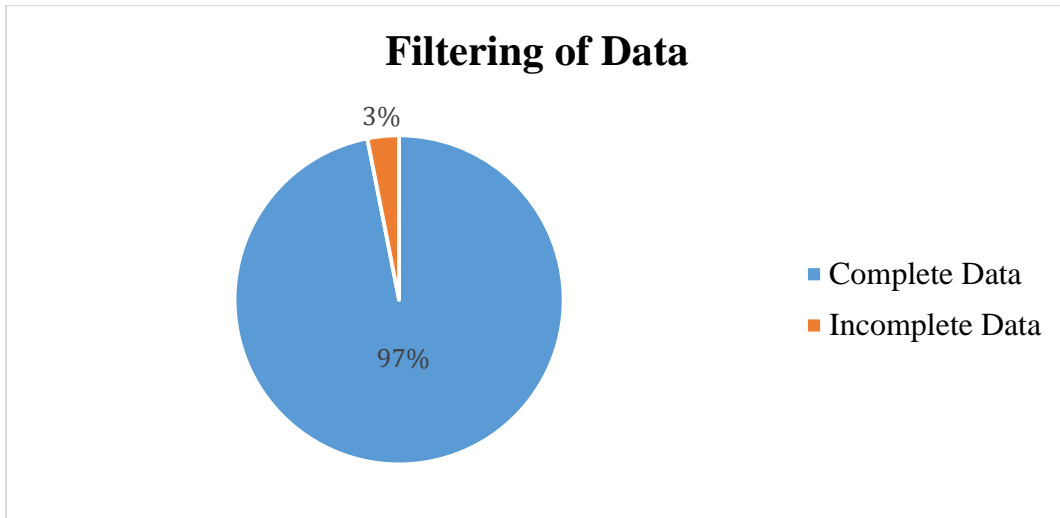
Figure 4.1: Respondents statistics



Source: Developed from research

In this research, 420 questionnaires were distributed in UTAR Kampar. The result of first question is asking about whether respondents have using smartphone or did not using smartphone. Regrettably, there are two of respondents did not using smartphone. The data has been removed from research since research objective is to investigate adoption of E-wallet. From data collected, two of respondents (1%) did not using smartphone. Besides, respondents required to make a choice whether he or she will using E-wallet in future time in the second question. 30 respondents (7%) have using smartphone but did not consider using E-wallet in future. Furthermore, 388 respondents (92%) are using smartphone and consider using E-wallet in future.

Figure 4.2: Filtering of data



Source: Developed from research

From 388 respondents that are using smartphone and consider using E-wallet in future has been filtered again. There are 12 set of questionnaire had inadequate data. Therefore, 376 set of questionnaires have been chosen and spread out equally to male and female. This is because one of the objectives of the research is to investigate gender difference toward independent variables and adoption of E-wallet.

4.2 Descriptive Analysis

Descriptive analysis depicts the characteristics of the respondents and shown the general reactions which gave by the respondents. It is a method used in order to summarize data collected from survey. There are several question structured in this survey including demographic profile of the respondents.

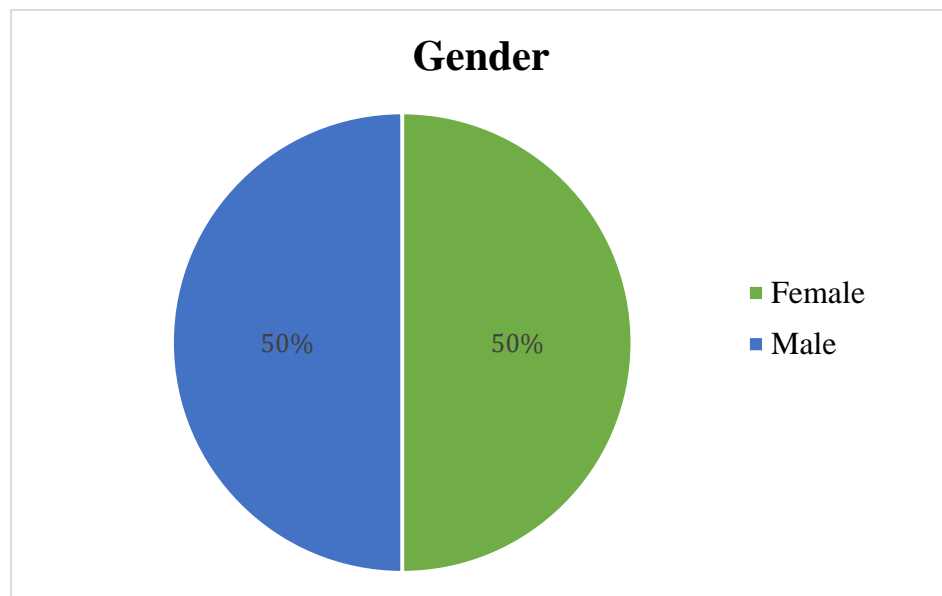
4.2.1. Gender

Table 4.1: Data of Gender

Gender	Frequency	Percentage (%)
Male	188	50%
Female	188	50%

Source: Developed in Research

Figure 4.3: Data of Gender



Source: Developed in Research

Table 4.1 and figure 4.3 represent the frequency and percentage of respondents in gender. Target audience in this research is undergraduate students from UTAR Kampar. 376 respondents have been taken as an interest in this research. As indicated by the outcome, amount of respondents for male and female are equal. There are consist 188 male respondents and 188 female respondents.

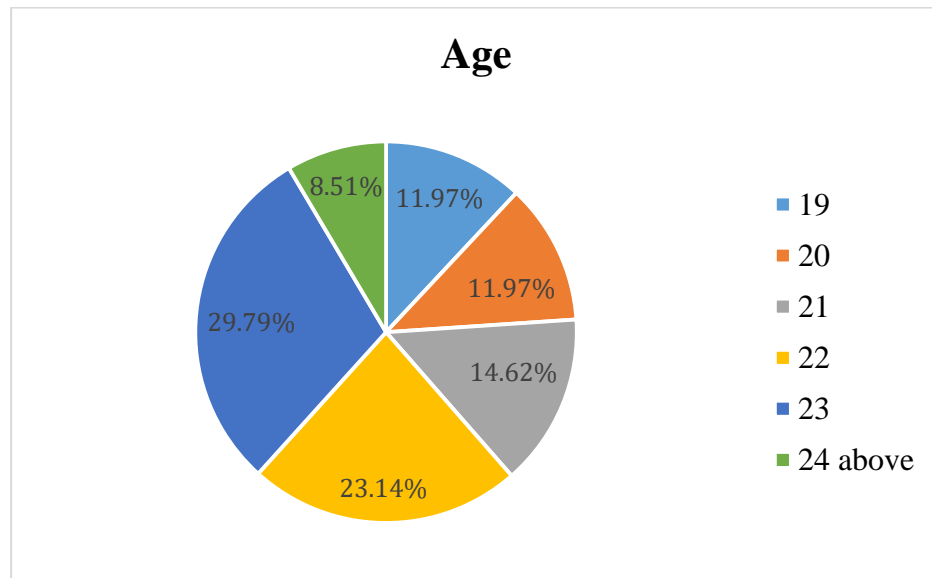
4.2.2. Age

Table 4.2: Data of Age

Age	Frequency	Percentage (%)
19	45	11.97%
20	45	11.97%
21	55	14.62%
22	87	23.14%
23	112	29.79%
24 above	32	8.51%

Source: Developed in Research

Figure 4.4: Data of Age



Source: Developed in Research

Table 4.2 and figure 4.4 reveal frequency and percentage for age of respondents. With respect to age aggregate in this research, 23 years old consist higher percentage which comprise of 327 respondents (81.75%). 22 years old which demonstrates a sum of 30 respondents (7.50%) represent second higher percentage in survey. Next, 55 of respondents (14.62%) are from 23 years old. For 19 and 20 years old comprise same amount of respondents which is 45 (11.79%). Age of respondents above 24 years old reveal the lowest percentage which only consists of 32 respondents (8.51%).

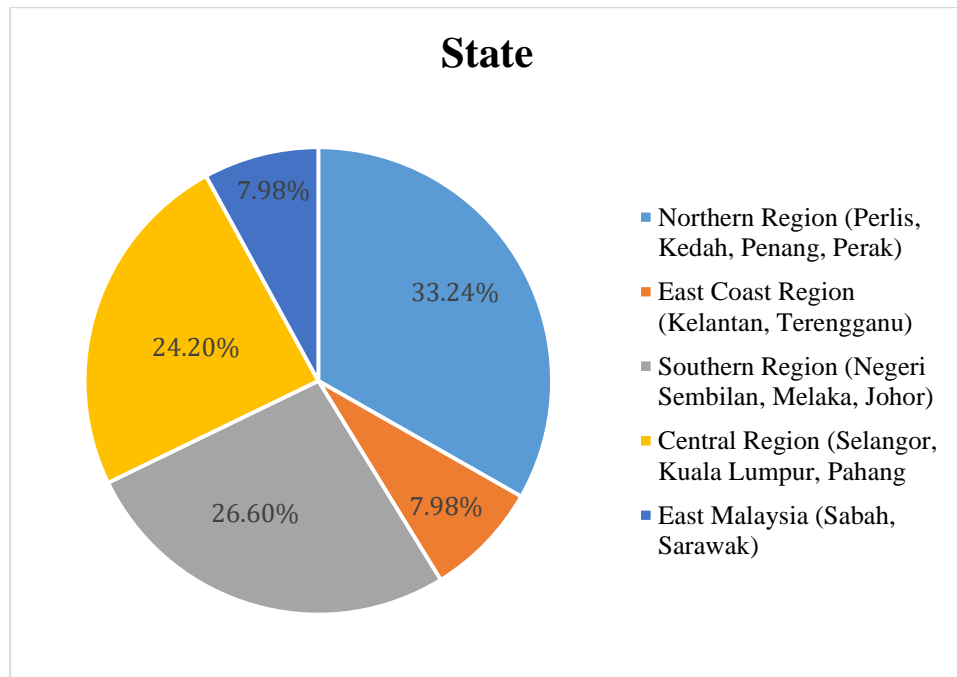
4.2.3. State

Table 4.3: Data of State

States	Frequency	Percentage (%)
Northern Region (Perlis, Kedah, Penang, Perak)	125	33.24%
East Coast Region (Kelantan, Terengganu)	30	7.98%
Southern Region (Negeri Sembilan, Melaka, Johor)	100	26.60%
Central Region (Selangor, Kuala Lumpur, Pahang)	91	24.20%
East Malaysia (Sabah, Sarawak)	30	7.98%

Source: Developed in Research

Figure 4.5: Data of States



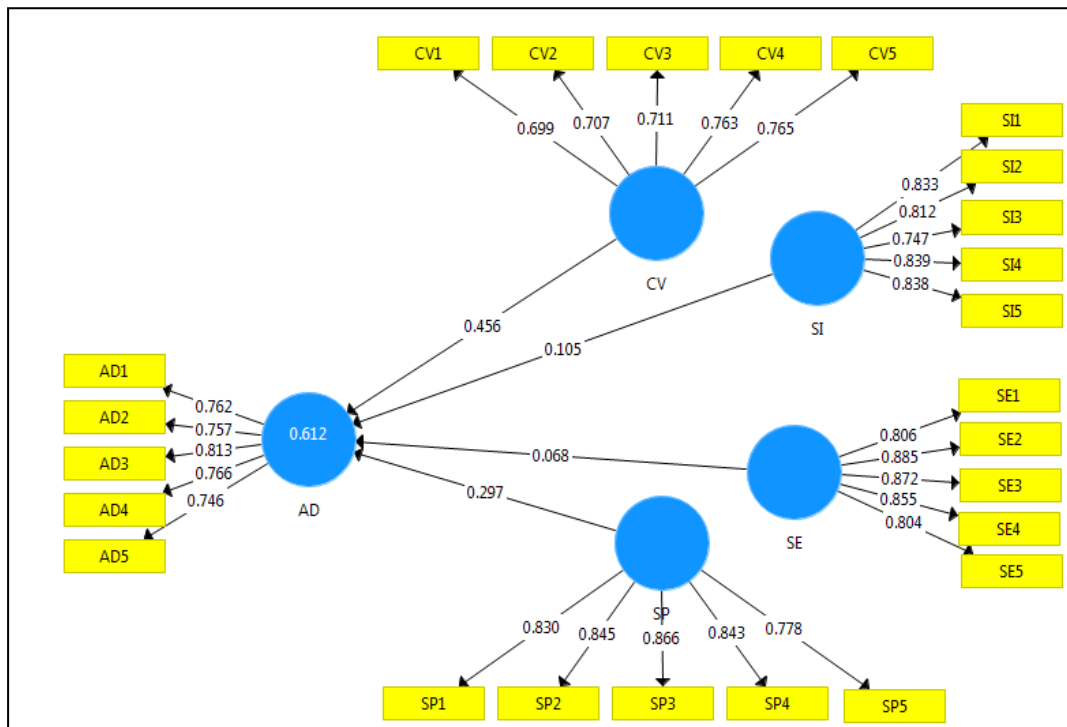
Source: Developed in Research

The result in field of study is display in table 4.3 and figure 4.5. Meanwhile, majority of respondents in research are come from Northern Region (Perlis, Kedah, Penang, Perak) which consist of 125 respondents (33.24%). The second and third highest frequency which shows a total of 100 and 91 respondents (26.60% and 24.20%) are come from Southern Region (Negeri Sembilan, Melaka, Johor) and Central Region (Selangor, Kuala Lumpur, Pahang). Next, East Coast Region (Kelantan, Terengganu) and East Malaysia (Sabah, Sarawak) consists same number of respondents which is 30 (7.89%).

4.3 PLS-SEM

4.3.1 Outer Loading Analysis

Figure 4.6: PLS Result



Note: AD is adoption of E-wallet; CV is convenience; SE is security; SI is social influence; SP is speed

Table 4.4: Factor Analysis

Variables	Items	AD	CV	SE	SI	SP
Adoption of E-wallet	AD1	0.762				
	AD2	0.757				
	AD3	0.813				
	AD4	0.766				
	AD5	0.746				
Convenience	CV1		0.699			
	CV2		0.707			
	CV3		0.711			
	CV4		0.763			
	CV5		0.765			
Security	SE1			0.806		
	SE2			0.885		
	SE3			0.872		
	SE4			0.855		
	SE5			0.804		
Social Influence	SI1				0.833	
	SI2				0.812	
	SI3				0.747	
	SI4				0.839	
	SI5				0.838	
Speed	SP1					0.830
	SP2					0.845
	SP3					0.866
	SP4					0.843
	SP5					0.778

Source: Developed in Research

Based on the result showed on the table 4.4, the value of the outer loading for the dependent variables which is adoption is considered high satisfaction as the value was ranged from 0.7 to 0.9. Besides that, the value of the loading for others variable's item like security, social influence and speed are highly contribute to the model. SE2 had indicated the highest reliability with the value of 0.885. All the items indicated the scales which are higher than the benchmark 0.7. Therefore, these variables can be considered as high satisfactory.

However, the indicators of CV1 indicated the value of 0.699 which had the lowest reliability among all indicators. CV1 should be eliminated from the models as it has less contribution to the model and the indicators values is below than 0.7. However, according to the Afthanorhan (2013), the factor loading for an item, which is greater than 0.50 can be remained in the model. Thus, 0.699 for CV1 is greater than 0.50, the item will be keep in this model as the indicator is acceptable.

4.3.2 Reliability Test

4.3.2.1 Cronbach's Alpha

Table 4.5: Cronbach's Alpha

Variables	Cronbach's Alpha	No of Item	Level of Reliability
Adoption of E-wallet	0.827	5	Good
Convenience	0.780	5	Acceptance
Security	0.900	5	Excellent
Social Influence	0.873	5	Good
Speed	0.889	5	Good

Source: Developed in Research

The Cronbach's Alpha value of security showed 0.900 which is the highest value among all the variables. This indicated that security is the most reliable variable compared to others. Besides that, the variable of speed showed that the Cronbach's Alpha value is 0.889 which fall under 0.9 to 0.8. Followed by the social influence and adoption of E-wallet which show the

Cronbach's Alpha value for each variable is 0.837 and 0.827 respectively. Thus, these three variables have the same level of reliability with the speed which is under the good reliability level. While, the value for convenience is 0.7800 which fall between the 0.8 and 0.7 is considered under the level of acceptance.

Based on the result of the Cronbach's Alpha, all the values were ranged between 0.7 and 0.9. It can be defined as these variables had a good reliability and fulfilled the requirement of the Cronbach's Alpha.

4.3.2.2 Composite Reliability (CR)

Table 4.6: Composite Reliability

Variables	Composite Reliability
Adoption of E-wallet	0.879
Convenience	0.85
Security	0.926
Social Influence	0.908
Speed	0.919

Source: Developed in Research

The value of the composite reliability for security is 0.926 which showed the highest value among all the variables. This indicated that the security is highly reliable. Followed by the construct 'Speed' that showed the value of 0.919 and also the Social Influence that has the composite reliability's value of 0.908. The values for both variables are above the reliability value of 0.9 which showed that the result is satisfactory. Furthermore, the construct

‘Adoption’ has the value of 0.879 which fall under the satisfactory standard which range between 0.7 and 0.9. Even though convenience has the lowest value among all variables which found to be 0.850, it still falls between the ranges to fulfill the satisfactory standard for the composite reliability.

Based on the result of composite reliability, all the values were above 0.8 or 0.9 which fulfill the satisfactory standards. This result indicated that these variables are adequate internal consistency and is able to measure.

4.3.2.3 Average Variance Extracted (AVE)

Table 4.7: Average Variance Extracted

Variables	AVE
Adoption of E-wallet	0.591
Convenience	0.532
Security	0.714
Social Influence	0.664
Speed	0.694

Source: Developed in Research

The AVE value for the construct ‘convenience’ showed the lowest value among all the variables which is 0.532. Whereas, ‘security’ has the highest value for the AVE which is 0.714 and it followed by the speed which showed the value of AVE with 0.694 and the value for social influence is 0.664. For the construct ‘adoption’ which found to be 0.591 is better than the construct ‘convenience’.

Based on the result from the table 4.7, all the value of the AVE are greater than the level of 0.5 which ranged from 0.532 to 0.714. These results indicated that AVE values in this study had meet with the standard of the convergent validity. Therefore, this value can be concluded as there is sufficient convergent validity.

4.3.3 Discriminant Validity

4.3.3.1 Fornell-Larcker Criterion

Table 4.8: Fornell-Larcker Criterion

Variables	AD	CV	SE	SI	SP
Adoption of E-wallet	0.769				
Convenience	0.728	0.730			
Security	0.511	0.524	0.845		
Social Influence	0.481	0.482	0.589	0.815	
Speed	0.655	0.623	0.478	0.391	0.833

Source: Developed in Research

In the Fornell-Larcker criterion, the value of square root of the AVE must higher than other latent variables to indicate that there is discriminant validity. Based on the outcome in table 4.8, the value of square root of the AVE; which is the value of the top number is higher than the value of the other latent variables. The result comes out with 0.769, 0.730, 0.845, 0.815 and 0.833 respectively. Thus, the data in this study was considered has sufficient discriminant validity.

4.3.3.2 Heterotrait-Monotrait Ratio (HTMT)

Table 4.9: Heterotrait-Monotrait Ratio (HTMT)

Variables	AD	CV	SE	SI	SP
Adoption of E-wallet					
Convenience	0.898				
Security	0.589	0.618			
Social Influence	0.558	0.572	0.667		
Speed	0.763	0.743	0.531	0.438	

Source: Developed in Research

In order to overcome the shortcoming of the Fornell-Larcker criterion, HTMT come out with more specificity and sensitivity rate compared to other approaches. It will be a problem with the discriminant validity if the value of HTMT is above 0.85 (Kline, 2011). However, according to the Gold et al. (2001), the discriminant validity can be established when the value of HTMT is below than the 0.90.

Based on the outcome from the table above, all the ratio of HTMT are below than 1.0 which means that this model is well-fitting. Furthermore, all the value that showed on the table 4.9 had surpass the threshold of the HTMT value which all below than 0.85 except for the value for convenience which found to be 0.898. However, this value was lower than 0.90 where the discriminant validity is still sufficient.

4.3.3.3 Variance Inflation Factors (VIF)

Table 4.10: Inner VIF Values

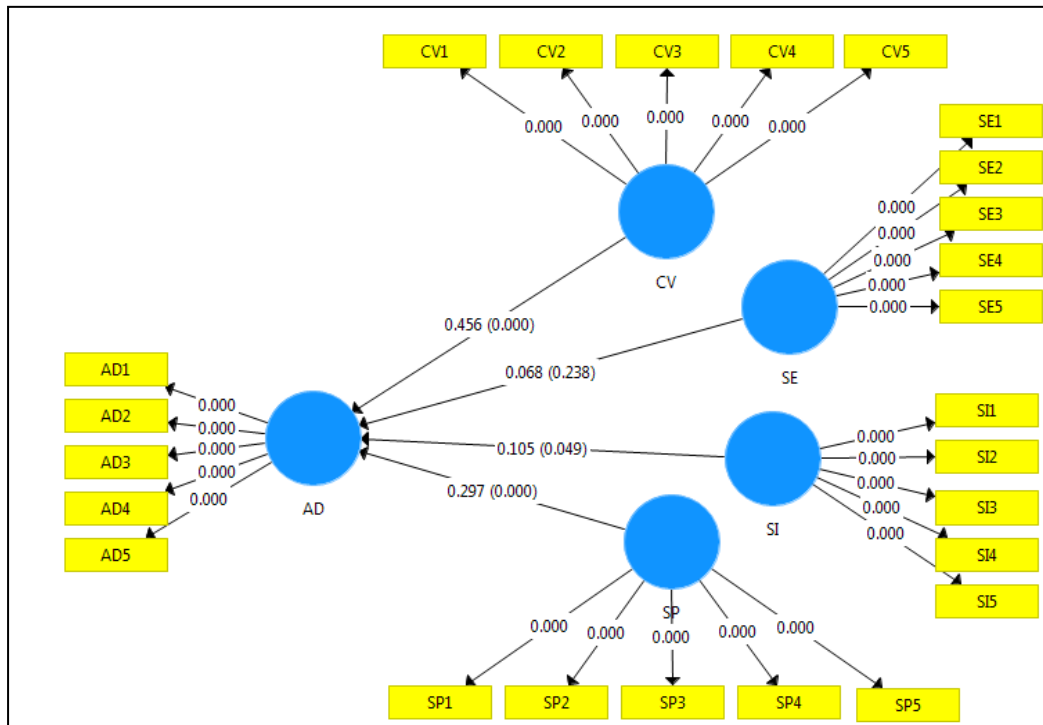
Variables	VIF
Convenience	1.912
Security	1.795
Social Influence	1.637
Speed	1.725

Source: Developed in Research

The result for VIF has been segregated into construct and indicator which showed in the table above. Based on the outcome from the table 4.10, the VIF values for all the construct are below than 5. This means that there was no multicollinearity problem occurs in this set of data.

4.3.4 Bootstrapping

Figure 4.7: Bootstrapping Result



Note: AD is adoption of E-wallet; CV is convenience; SE is security; SI is social influence; SP is speed

4.3.4.1 P-value

Table 4.11: Bootstrapping Result

Constructs	P-Values	Result
CV -> AD	0.000	Significant
SE -> AD	0.238	Not Significant
SI -> AD	0.049	Significant
SP -> AD	0.000	Significant

Source: Developed in Research

Assume p-value that the significant level is 0.05. Based on the result shows from table 4.11, the variables of CV, SI and SP come out with the result of 0.000, 0.043 and 0.000 respectively. These three variables are than the significant level of 0.05. This indicated that there are relationships between these three IVs and the DV and concluded that IVs are significantly influence the adoption of the E-wallet (AD) among UTAR Kampar student. On the other hand, p-value for the SE is higher than the significant level which is 0.229, greater than 0.05. This results show that the relationship of security toward the adoption is not significant.

4.3.4.2 Path Coefficient

Table 4.12: Path Coefficients

Constructs	Original Sample (O)
CV -> AD	0.456
SE -> AD	0.068
SI -> AD	0.105
SP-> AD	0.297

Source: Developed in Research

Table 4.12 illustrated the path coefficient for each variable. All the value was found to be positive that means increase in one unit of the independent variables will changes the unit for the dependent variables. If the value for path coefficient is larger than others variables, that means the variables having a greater effect to the dependent variables. Based on the outcome above, the CV having the greater effect towards the AD which increases in one unit of the CV will cause the AD increase 0.456 units. While, SE is having the least effect towards the AD as increase in 1 unit of SE only will affect the AD increase by 0.068 units.

4.3.5 Multigroup Analysis

Table 4.13: Multigroup Analysis among Gender

Constructs	Path	Path	p-Values (Male)	p-Values (Female)
	Coefficients Original (Male)	Coefficients Original (Female)		
CV -> AD	0.423	0.497	0.000	0.000
SE -> AD	-0.002	0.132	0.975	0.117
SI -> AD	0.093	0.112	0.166	0.165
SP-> AD	0.407	0.193	0.000	0.005

Source: Developed from research

PLS-MGA enable to test the difference between two different group to check whether there is significant different between two individual group. Based on the outcome illustrated on the table 4.13, it showed the difference between male and female towards each variable in order to check which group is more significant to the variables. Assume the significant level for p-value is 0.05.

Based on the table shown above, the effect from CV towards AD for gender group, although there are likely no difference, female group still has a stronger effect compared to male. The path coefficient for female was indicated for 0.497 and male was 0.423. For the SP towards AD, there is stronger effect for the male and low effect for female group. Besides that, the effect for SE to AD had showed the stronger effect on the female which is 0.132 and male has not much effect on this latent variables as the value for path coefficient was -0.002. Last but not least, for the SI to AD, same conditions applied to this effect as female is stronger than male although there is very likely no differences between male and female.

As shown in the table 4.13, male and female showed the gender difference as the p-value are significant for CV which is below than the significant level 0.05. Besides that, both group also shown significant to the SP as p-value for male is 0.000 and p-value for female stand for 0.005, both are lower than the significant level 0.05. Therefore, male and female are significantly affecting the adoption of E-wallet with the factor of CV and SP.

However, for the effect of SE to AD, male get more significant result because the p-value (0.975) is greater than 0.95 significant levels. While, female is not significant since the p-value (0.117) is greater than the significant level of 0.05. On the other hands, there is no significant effect on the male and female for the SI to AD since p-value for both group are not significant which is 0.166 for male and 0.165 for female. Both value are larger than 0.05.

Table 4.14: Parametric Test

Constructs	Path Coefficients-diff (Male - Female)	p-Value (Male vs Female)
CV -> AD	0.075	0.458
SE -> AD	0.135	0.237
SI -> AD	0.020	0.849
SP-> AD	0.214	0.022

Source: Developed from research

Based on the parametric test for the MGA-PLS is test for the difference between male and female in term of path coefficient. Path coefficient shown at the table above indicates the difference between male minus female. For the CV to AD, the difference for male and female was 0.075. Moreover, the difference for SE to AD was calculated as 0.135 for both groups. While, the

effect for SP towards AD showed a higher difference which is 0.214 between male and female. The difference effect of SI to AD was 0.020 which has least differences between male and female group.

There is significant difference between male and female if the p-value for each latent variable is lower than 0.05, the assumed significance level. Based on the result shown at the table above, SP has difference between male and female as the p-value is 0.022 which is lower than the significance level 0.05. Thus, there is significant difference between male and female on the effect of SP to AD. On the other hand, there is no significant difference for the CV, SE and SI as the p-value of these three variables are greater than 0.05 which is 0.458, 0.237 and 0.849 respectively.

4.4 Conclusion

In chapter 4, all tests in this study had been conducted by using the SmartPLS software to get the results of data analysis. The collected data are used to do for the descriptive analysis, reliability test, discriminant validity and multigroup analysis to test the relationship and differences for the variables and demographic profile among UTAR Kampar students. The findings of the results for the relationship of the dependent and independent variables and differences on gender will be further discussed and explained in the Chapter 5.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

This chapter will be focusing on the reporting of the result of statistical findings in detailed in order to validate the hypotheses supported by the processed data collected in previous chapter. Besides that, the statistical research results are accompanied with the analysis result limitation and recommendation for future study.

5.1 Summary of Statistical Analysis

5.1.1 Descriptive Analysis

In order to achieve an absolute balance in gender distribution of respondents in this research data collecting process to shows the different gender's perception on adoption of E-payment system, a total of 420 questionnaires form was distributed equally to 210 male respondents and 210 female respondents. Therefore, both gender carried 50% of participation in data collecting process. After filtering, data of 376 questionnaires are being obtained. Out of the 376 respondents, respondents are further classified to different age groups accordingly as there are 45 respondents each of the total respondent population are under age of 19 and 20 categories respectively

that carry the total population's percentage of 11.97%. For 21 years old category, there are 55 respondents (14.62%) and for 22 years old respondents, there are 87 respondents (23.14%). Respondents that fall under 23 years old carried the biggest portion in respondent sample population as stated a 29.79% or 112 respondents. However, respondents with age of 24 and above only consist of 32 people (8.51%).

Despite of controlling the respondent's gender distribution, the data of state distribution where respondents came from are randomly collected as determined by the hometown of respondents. Among 376 respondents, there are a huge portion of respondents mainly came from Northern Region which carried a 125 respondents of the total respondents (33.24%). The second big portions of respondents are care from Southern Region which computed as 100 respondents or 26.60% of total respondents. There are 91 respondents or 24.20% came from Central Region. For respondents who came from East Coast Region and East Malaysia, there are 30 respondents each or carried 7.98% of total respondents respectively.

5.1.2 Reliability Analysis

To examine the reliability of each variable in the research model, various types of reliability tests had been carried out such as Cronbach's Alpha, Composite Reliability and Average Variance Extracted (AVE). In all of the three reliability tests carried out, results showed that the independent variable as Security stated the highest value among the other variable with the value of 0.900, 0.926 and 0.714 in Cronbach's Alpha, Composite Reliability and Average Variance Extracted (AVE) test respectively. This indicates that security is the most reliable variable compare to others in this

research model. Followed by the variable of speed which the value only slightly lower than the value of security with 0.889 in Cronbach's Alpha, 0.919 in Composite Reliability and 0.694 in Average Variance Extracted test. On the another hand, the convenience have the lower test value in all the tests carried out with only 0.780, 0.850 and 0.532 which even lower than the adoption test result value of 0.827, 0.879 and 0.591 respectively. Based on the result of the Cronbach's Alpha, all the value were ranged between 0.7 and 0.9 which is greater than the benchmark. It can be defined as these variables had a good reliability and fulfilled the requirement of the Cronbach's Alpha. While for the composite reliability test, the result values were all above 0.8 which fulfill the satisfactory standard. For AVE aspect, all the result value of the AVE are greater than the level of 0.5 which indicates that the variables of this study had meet with the standard of the convergent validity.

5.1.3 Discriminant Validity

In order to examine whether there is multicollinearity problem in the data collected for this research, several multicollinearity tests had been carried out. In Fornell-Larcker Criterion, the result comes out with the value of 0.769, 0.730, 0.845, 0.815 and 0.833 for adoption towards each of the independent variables. For this particular test, the value of square root of the AVE must higher than the other latent variables to indicate that there is discriminant validity. The value of square root of the AVE which is the value of the top number must be higher than the value of the other latent variables. Thus, the data in this research can consider as sufficient discriminant validity.

While in Heterotrait-Monotrait Ratio test, all the ratio of HTMT are below than 1.0 from the result in previous chapter which means that this model is well-fitting as all the value had surpass the threshold of HTMT value which all are below 0.85. But there is an exception for the convenience variable test result which found to be 0.898. There is a problem with the discriminant validity if the HTMT value is above 0.85 (Kline, 2011). However, according to the Gold et al. (2001), the discriminant validity can be established when the value of HTMT is below than the 0.90.

To further ensure there is no multicollinearity problem in this study, Variance Inflation Factor (VIF) test was also carried out and the result for VIF have been segregated into construct and indicator. All the VIF value provided in the test result for each construct and indicator are below than 5. This means that there was no multicollinearity problem occurs in this set of data collected.

5.1.4 Bootstrapping

After eliminating those possible econometric problems in this set of data, data are go through bootstrapping process. In p-value approach and assuming the significant level is 0.05. Based on the result, all the independent variables in this model is have significant relationship with the dependent variable as the p-value of CV (0.000), SI (0.043) and SP (0.000) is lower that the significant value of 0.05 and will significantly influence the adoption of the E-wallet (AD) among the respondents. However, the p-value of SE (0.229) is higher than 0.05 thus this indicates that there is no significant relationship between the adoption and security factor. While in path coefficient analysis, all the independent variable's value was found to

have positive relationship with the dependent variable. That means an increase in one unit of the independent variable will change the unit for the dependent variables. For instance, the CV having the greater effect towards the AD which increases in one unit of the CV will cause the AD increase 0.456 unit based on the analysis outcome. There is smaller effect in SP (0.297), SI (0.105) and followed by SE (0.068) to affect the adoption of E-wallet.

5.1.5 Multigroup Analysis

Under PLS-MGA, it shows the difference between male and female perceptions toward each variable in order to present which gender group shows more significant relationship toward the independent variable. Assuming that the significant level for p-value at 0.05. Based on the test result, there are likely no difference in both gender group of the effect of CV towards AD. However, female respondents have a stronger effect in path coefficient compare to male respondents in MGA. The path coefficient for female have a value of 0.497 which is higher than male path coefficient value of 0.423 which means an increase of one unit in female path coefficient will increase the adoption by 0.497 units. For the SP toward AD, the effect of for SP to AD is stronger among male gender group which indicate a value of 0.407 compared to female group which only showed the value of 0.193. In the SI and SE context toward AD, there is a stronger effect of female gender group than male gender group.

According to the result in previous chapter, male and female showed the gender difference as the p-value are significant for CV which is below than the pre-determined significant level of 0.05. Both gender groups also

showed there is a significant gender difference to the SP toward AD as the p-value for male is 0.000 and female is 0.005. The factor of CV and SP will affect the adoption of E-wallet among both genders. For the effect of SE to AD, male is significant because the p-value 0.975 is greater than the 0.95 significant level while female is not significant because p-value is bigger than the significant level of 0.05. For SI to AD for both gender is not significant because the p-value of male and female, 0.166 and 0.165 is greater than 0.05 significant level but smaller than 0.95 significant level.

As referring to the MGA-PLS parametric test, it result the difference between male and female in term of path coefficient. For the effect of SP toward AD, it marked the greatest difference among all other variables as there is 0.214 differences in value between male and female gender group, followed by the SE toward AD which have the difference value of 0.135. However, the difference among male and female of the factor SI toward AD is the smallest, which only carried a value of 0.020.

Besides that, it also indicated that there is a significant difference between male and female if the p-value for each latent variable is smaller than the significant level of 0.05. There is no significant differences for the CV, SE and SI because the p-value in parametric test for the three variables are much greater than the significant level which having the p-value of 0.458, 0.237 and 0.849 respectively. However, the result showed that there is a significant difference of the SP factor in between male and female as the p-value 0.22 is smaller than the significant level of 0.05.

5.2 Discussion of Major Findings

5.2.1 Convenience

Table 5.1: Summary of Hypothesis Testing - Convenience

Independent variables	Hypothesis	Reject H ₀
Convenience	H ₀ : There is no significant relationship between convenience and adoption of E-wallet.	α : 0.05 P-value = 0.000 (<0.05) There is a significant relationship.

Table 5.2: Summary of Past Studies - Convenience

Independent variables	Results	Past studies		
		Significant		Not significant
		Positive	Negative	
Convenience	Positive significant	Junadi & Sfenrianto (2015), Bezhovski (2016), Anyanwu et al. (2012), Kabir et al. (2017), Roy & Sinha (2014), Batra & Kalra (2016), de Sena Abrahão et al. (2016)	-	-

H_0 for convenience is rejected since its P-value (0.000) is less than 0.05. The result shows that convenience has a significant and positive relationship between adoptions of E-wallet. If the E-wallet is more convenience or ease to use, the rate of adopt E-wallet will increase, and vice versa. This result is supported by previous studies (Junadi & Sfenrianto, 2015; Bezhovski, 2016; Anyanwu et al., 2012; Kabir et al., 2017; Roy & Sinha, 2014; Batra & Kalra, 2016; de Sena Abrahão et al., 2016). In study of Anyanwu et al. (2012), they found that E-payment system should be user-friendly and it is an important factor will bring impact to the development of E-payment in Nigeria. It was also being categorized as degree of acceptability. Kabir et al. (2017), Roy and Sinha (2014), Batra and Kalra (2016) and de Sena Abrahão et al. (2016) found that ease to use is a key factor in their researches. According to Bezhovski (2016), convenience is a main factor to affect consumer adoption of E-payment method. Convenience is explained as the consistency between consumers' basic need, advancement of technology and using experience. As the advanced technology of E-payment method and E-payment method become more convenience, consumers have built a trust and habit of using it.

5.2.2 Security

Table 5.3: Summary of Hypothesis Testing - Security

Independent variables	Hypothesis	Do not reject H_0
Security	H_0 : There is no significant relationship between security and adoption of E-wallet.	α : 0.05 P-value = 0.229 (>0.05) There is no significant relationship.

Table 5.4: Summary of Past Studies - Security

Independent variables	Results	Past studies		
		Significant		Not significant
		Positive	Negative	
Security	Not significant	Junadi & Sfenrianto (2015), Kabir et al. (2017), Batra & Kalra (2016), Sardar (2016), Taheam et al. (2016), Rathore (2016), Manikandan & Jayakodi (2017)	Qatawneh et al. (2015)	Teoh et al. (2013)

H_0 for security is not rejected since its P-value (0.229) is greater than 0.05. This result shows that the relationship between security and adoption of E-wallet is insignificant. In other words, the security of E-wallet will not influence the consumers' decision to use E-wallet. This result supported by Teoh et al. (2013). Similarly, they also studied the factors that affecting perception toward E-payment in Malaysia. They discovered that security and trust are insignificant elements from perception of consumers. The reason is the respondents had increasingly aware of the steps adopted by many financial institutions to solve the issues associated with security. Besides, financial institution would provide regular warning to consumers and also would inform them of any happening frauds. It has transfuses confidence of consumers to adopt the payment channel. Hence, E-payment's security is not a consideration of consumers to adopt E-payment. However, this result did not agreed by Junadi and Sfenrianto (2015), Kabir et al. (2017), Batra and Kalra (2016), Sardar (2016), Taheam et al. (2016), Rathore (2016), Manikandan and Jayakodi (2017) and Qatawneh et al.

(2015). All of the past studies found that security showed a significant relationship with intention to adopt E-wallet. But all of these studies were targeted foreign countries, so some of their findings may not apply to Malaysia. Malaysia and the foreign countries may have different opinions about E-wallet due to differences among countries such as culture, development stage, social system and way of life. Thus, some information and views from these previous researches may not applicable to Malaysia. Moreover, this study was focused in UTAR Kampar students and they think security is not a significant factor to affect them to adopt E-wallet. This may because students do not have much money, so they do not worry about the security of E-wallet.

5.2.3 Social Influence

Table 5.5: Summary of Hypothesis Testing – Social Influence

Independent variables	Hypothesis	Reject H ₀
Social influence	H ₀ : There is no significant relationship between social influence and adoption of E-wallet.	α: 0.05 P-value = 0.043 (<0.05) There is a significant relationship.

Table 5.6: Summary of Past Studies – Social Influence

Independent variables	Results	Past studies		
		Significant		Not significant
		Positive	Negative	
Social influence	Positive significant	Yang et al. (2012), Shin (2009), Slade et al. (2015), Cao et al. (2016), Junadi & Sfenrianto (2015), Lwoga & Lwoga (2017), de Sena Abrahão et al. (2016)	-	Aydin & Burnaz (2016)

For the social influence, H_0 is rejected since its P-value is less than 0.05 which is 0.043. This shows that the relationship between social influence and intention to adopt E-wallet is significant and positive. This agreed by Yang et al. (2012), Shin (2009), Slade et al. (2015), Cao et al. (2016), Lwoga & Lwoga (2017), Junadi and Sfenrianto (2015) and de Sena Abrahão et al. (2016). According to Yang et al. (2012), the social influence has a strong indirect influence during beginning adoption. While, social influence of subjective norms and image forms has a direct impact to continually adopt of E-payment. The conclusion is the influence of friends, colleagues and others was a key factor to influence adoption of E-payment (Yang et al., 2012). If consumers' family or friends think they should adopt E-wallet, the rate of adoption in E-wallet will increase (Lwoga & Lwoga (2017). Junadi and Sfenrianto (2015), de Sena Abrahão et al. (2016), and Cao et al. (2016) found that intention of consumer to use E-payment system is positively affected by social norms and influence. Since the social influence is an important factor, so marketing department can through the influential people

whose opinion is valued to promote the E-payment services. They can also promote their services through social media (Slade et al. 2015).

5.2.4 Speed

Table 5.7: Summary of Hypothesis Testing - Speed

Independent variables	Hypothesis	Reject H ₀
Speed	H ₀ : There is no significant relationship between speed and adoption of E-wallet.	α : 0.05 P-value = 0.000 (<0.05) There is a significant relationship.

Table 5.8: Summary of Past Studies - Speed

Independent variables	Results	Past studies		
		Significant		Not significant
		Positive	Negative	
Speed	Positive significant	Chen & Nath (2008), Tella & Olasina (2014), Pagani (2004), Vinitha & Vasantha (2017), Dewan & Chen (2005), Roozbahani et al. (2015)	-	Davis et al. (2017)

H_0 of speed is also rejected since its P-value (0.000) is less than 0.05. The result shows that there has positive significant between speed and adoption of E-wallet. If the speed of E-wallet improved, the rate of usage in E-wallet will increase, and vice versa. The result is supported by previous researchers, which are Chen and Nath (2008), Tella and Olasina (2014), Pagani (2004), Vinitha and Vasantha (2017), Dewan and Chen (2005), and Roozbahani et al. (2015). Because all the respondents in this current study are young people, so they think that speed is an importance factor to influence them adopt E-wallet. This view is supported by Pagani (2004) which found that young people value speed of use is more than other factors. In order to improve the adoption rate, merchants of E-wallet should prove that benefits can be observed. For instance, the speed of the E-wallet should be improved and beyond traditional payment methods because customers do not like waiting and spending their time on redundant and mundane things (Chen and Nath, 2008; Dewan and Chen, 2005). The speed means that new technologies can be quickly integrated with existing systems and methods to quickly respond to customer needs and expectations (Roozbahani et al., 2015).

5.2.5 Gender

Table 5.9: Summary of Hypothesis Testing - Gender

Independent variables	Hypothesis	Reject H ₀	Do not reject H ₀
Convenience	H ₀ : There is no significant difference on gender between convenience and adoption of E-wallet	-	α: 0.05 P-value = 0.458 (>0.05) There is no significant difference on gender.
Security	H ₀ : There is no significant difference on gender between security and adoption of E-wallet	-	α: 0.05 P-value = 0.237 (>0.05) There is no significant difference on gender.
Social influence	H ₀ : There is no significant difference on gender between social influence and adoption of E-wallet	-	α: 0.05 P-value = 0.849 (>0.05) There is no significant difference on gender.
Speed	H ₀ : There is no significant difference on gender between speed and adoption of E-wallet	α: 0.05 P-value = 0.022 (<0.05) There is a significant difference on gender.	-

Table 5.10: Summary of Past Studies - Gender

Independent Variables	Results	Past studies	
		Significant difference	No significant difference
Convenience	No significant difference	Chen & Nath (2008), Lwoga & Lwoga (2017), Hamza & Shah (2014)	Shin (2009), Ha et al. (2007)
Security	No significant difference	-	Shin (2009)
Social Influence	No significant difference	Lwoga & Lwoga (2017)	Shin (2009)
Speed	Significant difference	Chen & Nath (2008)	-

Gender is an important moderating variable in the technology context (Venkatesh et al., 2003; Lwoga & Lwoga, 2017; Shin, 2009). According to UTAUT, gender is one of the moderating variables that will indirectly affect the behavioral intention and use behavior to information technology through its key concepts (Venkatesh et al., 2003). Some previous researches released that different gender are perceive differently, so gender may influence some of the factors in E-wallet adoption (Sun & Zhang, 2006; Ha et al., 2007). Hence the gender difference in this study had been tested through MGA-PLS. Based on the result, it shown that there is no gender difference on the convenience, security and social influence toward adoption of E-wallet since their p-value for male and female are more than 0.05. It means that gender did not influence security and social influence for E-wallet adoption. This result is consistent with Shin (2009) and Ha et al. (2007). However, male and female shown a significant difference in the speed as p-value for both groups are less than 0.05. In other words, gender is significant influence speed for E-wallet adoption. Based on the path coefficients original comparison, the male is more emphasis speed than female and this result is in line with Chen and Nath (2008).

5.3 Implication of Study

The results of our study are mainly highlighting the elements that will bring effect to the adoption of E-wallet. So, it may give some assistance to facility providers, financial institution and also researcher or scholar that wish to do more future study on this topic.

5.3.1 Managerial implications

Based on the results of our study, this research may able to give some contributions to different parties in the society. The first party that would be mentioned is the facility providers that providing E-wallet services and also entrepreneurs that are interesting to develop E-wallet service in Malaysia in the future. Information that included in this study can give a guideline and reference to those entrepreneurs a better perception on issues that should be concerned when providing the service. Factors such as convenience when using an E-wallet service and the speed for transaction are important as the study shown. So, for existing businesspersons, they can give more concern on those important and major elements of adoption in the study to make improvement and advancement on the existing E-wallet services. Furthermore, future entrepreneurs can also have better estimation on consumers' needs and elements on adoption of E-wallet in Malaysia. With more study and research that can be used as guiding principle, it also can increase the level of acceptance of consumers towards the services and improve the company performance of facility providers.

Moreover, this study also can help financial institutions in the market. The collaboration of financial institution and the E-wallet service provider is important when providing this facility to the public. Financial institution like bank can adopt and improve the mode of payment for customers in the cooperation based on the needs of consumers according to the speed and convenience of transaction. With confidence that provided by financial companies, customers will increase their interest in the process of introduction of the new E-wallet service and raise the level of adoption of E-wallet among consumers. It also could help the financial institution to enhance the position among the competitive market by taking new elements that may affect the acceptance of financial technology into account in the business strategy when operating their company.

Lastly, future researchers that are interested in acceptance and different factors that will affect the E-wallet adoption can take some advantages from this study. It could take this research's variables that applied as a reference for the future study. According to the results of our study, variables such as convenience, social influence and speeds are significant. However, one of the variables - security shows insignificant results towards the adoption of E-wallet. The future researchers can either eliminate irrelevant variable or take different factors into account when running their future research for various target respondents in different time of period. As E-wallet is a very new topic among the financial technology in Malaysia, so there is only minority of scholars have undergo related study. Thus, this study can help them as benchmarks of future investigation and provide assistance in the collaboration of researchers and development team of facilities.

5.4 Limitation of Study

There are some limitations in this study. First of all, only undergraduate students who study in UTAR Kampar were chosen as the target population of this study. All of them are 90's generation and their age is around 19 to 24. The results of this study only represent 90's generation opinion but not public opinion. The target consumers of E-wallet are not only young people, but also people of different ages. Consumers of different ages have different needs and wants, therefore their opinion or acceptance of the E-wallet may be different from the sample respondents. Moreover, the acceptance of new technologies is different between generation Z, generation Y, generation X and baby boomers. For instance, generation Z and Y is more easily to accept and start using new technologies compare with generation X and baby boomers. Using new technology is simple for young people, but not for elderly, it is a challenge for them. Hence, these may affect the result's reliability and accuracy.

Furthermore, this study randomly distributed questionnaires to undergraduate students in UTAR Kampar and the respondents are come from different faculties. There are including Faculty of Arts and Social Science (FAS), Faculty of Business and Finance (FBF), Faculty of Engineering and Green Technology (FEGT), Faculty of Information and Communication Technology (FICT), Faculty of Science (FSC) and Institute of Chinese Studies (ICS). However, this study was just comparing the gender different but do not compare the results between different fields of study. The respondents from different fields have different backgrounds and exposure to different things, so they may have different views on E-wallet. Therefore, it might cause the result's reliability and accuracy.

In addition, this study was just focused on undergraduate students who are studying in UTAR Kampar and all of them are degree students. But in addition to a

bachelor's degree, potential users of E-wallet might come from different levels of education such as lower secondary, upper secondary, diploma, master, and above. People with the different levels of education are exposed to different information and knowledge, the view to a certain thing also can be different. Because of that, acceptance level and the factors affecting them to adopt E-wallet may also different. Since this study is focused only on degree students, so the results obtained from the study might not be able to represent the opinions of Malaysian consumers. Therefore, these may cause the result less accuracy.

5.5 Recommendation of Study

After this research, some limitations had being examined throughout the process. Hence, there some suggestions and recommendation can be referred by future scholars to rectify the limitations. First of all, generations and age of target respondents should be widen in future study. Future researchers are encouraged to broaden the age range of age of target respondents by including not only generation Y and generation Z but also different generation like generation X, and baby boomers. Different generations of people and consumers grew up with different exposure of technology especially financial technology which is related to E-wallet services. As mentioned by Rogers (1962) in the Diffusion of Innovations theory, there are different groups of adopters such as innovators, early adopters, early majority, late majority and laggards as well. Innovators are adopters that willing to take risk on a new developed product while laggards are the last one who have acceptance on a newly developed product. Hence, the level of adoption and factors that will affect the acceptance might have some differences in different category of people.

Secondly, for respondents that came from different majoring of studies. It is suggested to add in sample size that involving different field of studies and do comparison between them towards adoption of E-wallet. For example, science majoring, social science studies, economics studies, information technology studies, finance studies people will have different opinions towards a new invention that related to E-wallet services that also part of Financial Technology. Thus, more research and studies should be performed by different scholars to enhance the results and variables that will give impact towards the E-wallet adoption.

Thirdly, for the limitation regarding the education level of target respondents should also being overcome by adding different education level of respondents into the samples. Besides of students of undergraduate, the future future could also add in respondents of different level of study. It can be respondents from primary level, secondary level, master, Doctor of Philosophy or different professionals' papers holders such as Association of Chartered Certified Accountants (ACCA), Chartered Financial Analyst (CFA) or Asian Institute of Chartered Bankers (AICB) holders. Different education level would have different perception and opinion towards a product or services. So, it is suggested that different education level of respondents can be included for more accurate and precise future study.

5.6 Conclusion

The aim of this research is to determine adoption of E-wallet among undergraduate students in UTAR Kampar Campus. Convenience, security, social influence and speed is used as factor to examine adoption of E-wallet. Total 376 questionnaires have been collected which are randomly obtained in UTAR. All the data collected in questionnaires were analyze by using Smart PLS version 3. Descriptive analysis, Outer Loading Analysis, Cronbach's alpha, Composite Reliability, Average

Variance Extracted (AVE), Fornell-Larcker Criterion, Heterotrait-Monotrait Ratio (HTMT), bootstrapping, path coefficient, binary logistic regression and multigroup analysis have been applied to analysis the data collected.

From this research, it found out that convenience, social influence and speed has significant relationship towards adoption of E-wallet. However, security shows that there is not significant toward adoption of E-wallet. Besides, PLS-MGA was used to determine significant different of male and female in adoption of E-wallet. The result show that speed have significant difference toward adoption among male and female while convenience, social influence and security show there are no significant difference.

With the results and finding of this research, facility providers and entrepreneurs could get some guideline from the findings to provide more efficient services. Moreover, existing businesspersons can pay attention in the element that will improve E-wallet services while for future entrepreneurs can have estimation on what the consumer desire in E-wallet. Furthermore, financial institutions can improve in speed and convenience of transaction in order to increase attraction of consumer in adoption. Through this, they will able increase their ability in order to compete with others in market. From this research, future studies can use this research as a reference to carry out their future research.

However, there are some limitations in this research. In the research, target audience only focus on 90's generation rather than public. Second, this study only focused in comparing the gender different rather than field of study. Third, most of past study are focus on undergraduate students in UTAR Kampar. Some of recommendations have been discussed since there are existences of limitations. In future study, researcher are recommend to expand range of age and involve different education level of target audiences. Besides, this research proposed that field of studies should be included in future study and make comparison toward adoption of E-wallet.

Diverse education level of respondents can be incorporated in order to collect more perception and opinion in E-wallet.

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Appendices

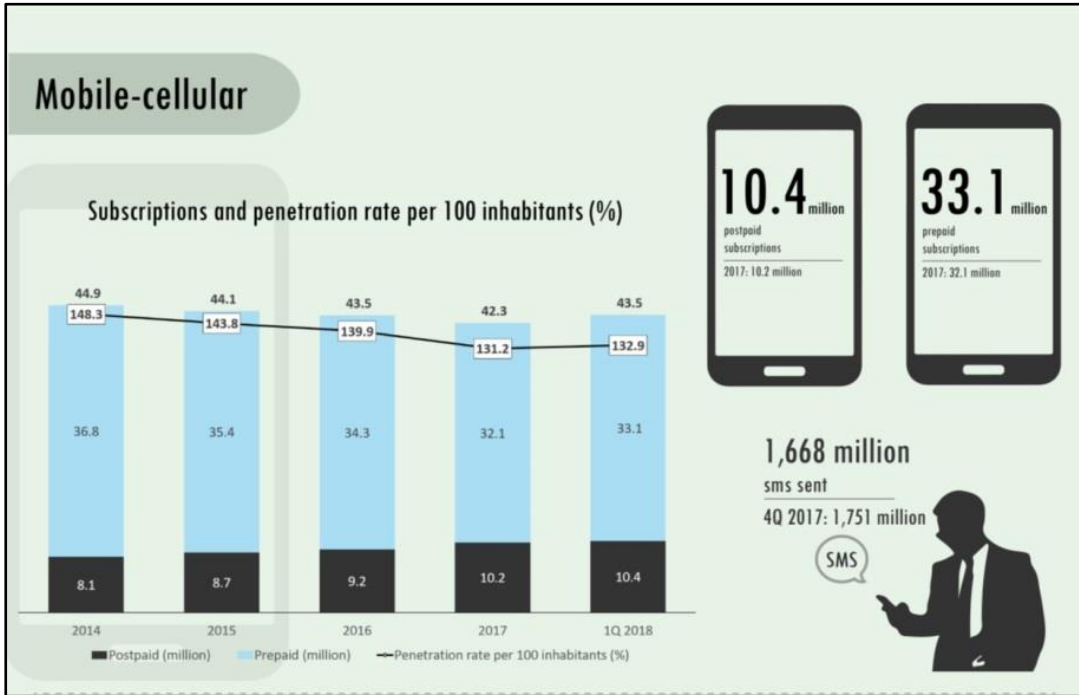
Appendix 1.1: An Overview of the Working Experience

Chart 1: An overview of the working generations

Characteristics	Maturists (pre-1945)	Baby Boomers (1945-1960)	Generation X (1961-1980)	Generation Y (1981-1995)	Generation Z (Born after 1995)
Formative experiences	Second World War Rationing Fixed-gender roles Rock 'n' Roll Nuclear families Defined gender roles — particularly for women	Cold War Post-War boom "Swinging Sixties" Apollo Moon landings Youth culture Woodstock Family-orientated Rise of the teenager	End of Cold War Fall of Berlin Wall Reagan / Corbachey Thatcherism Live Aid Introduction of first PC Early mobile technology Latch-key kids, rising levels of divorce	9/11 terrorist attacks PlayStation Social media Invasion of Iraq Reality TV Google Earth Glasgowbury	Economic downturn Global warming Global focus Mobile devices Energy crisis Arab Spring Produce own media Cloud computing Wiki-leaks
Percentage in U.K. workforce*	3%	33%	35%	29%	Currently employed in either part-time jobs or new apprenticeships
Aspiration	Home ownership	Job security	Work-life balance	Freedom and flexibility	Security and stability
Attitude toward technology	Largely disengaged	Early information technology (IT) adaptors	Digital Immigrants	Digital Natives	"Technoholics" — entirely dependent on IT; limited grasp of alternatives
Attitude toward career	Jobs are for life	Organisational — careers are defined by employers	Early "portfolio" careers — loyal to profession, not necessarily to employer	Digital entrepreneurs — work "with" organisations not "for"	Career multitaskers — will move seamlessly between organisations and "pop-up" businesses
Signature product	Automobile	Television	Personal Computer	Tablet/Smart Phone	Google glass, graphene, nano-computing, 3-D printing, driverless cars
Communication media	Formal letter	Telephone	E-mail and text message	Text or social media	Hand-held (or integrated into clothing) communication devices
Communication preference	Face-to-face	Face-to-face ideally, but telephone or e-mail if required	Text messaging or e-mail	Online and mobile (text messaging)	Facetime

Source: Sachs, G. (2015). *The Generation Guide - Millennials, Gen X, Y, Z and Baby Boomers.*

Appendix 2.1: Mobile-cellular Subscriptions and Penetration rate in 1Q 2018



Source: Malaysian Communications and Multimedia Commission. (2018c). *Communications and Multimedia: Facts and Figures, 1Q 2018*.

Appendix 3.1 Data of students in UTAR Kampar

1. UTAR STUDENT ENROLMENT (ALL STATUS) (AS AT 31-05-2018)
Kampar campus- 13542
2. Total number of Faculty of Business and Finance (AS AT 31-05-2018)- 5042
3. Number of Students by Gender (AS AT 31-05-2018)
Faculty of Business and Finance

Programme	No. of Students		
	Male	Female	Total
AC	383	904	1,287
BA	319	516	835
BF	343	597	940
EN	128	86	214
FE	181	144	325
FN	430	388	818
MK	309	292	601
RM	11	11	22
Total	2,104	2,938	5,042

Appendix 3.2 Survey Questionnaire Permission Letter



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

12th June 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 Business Administration (Hons) Banking and Finance* 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.

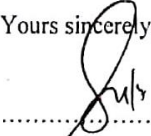
The students are as follows:


<u>Name of Student</u>	<u>Student ID</u>
Chern Yong Xian	15ABB07147
Kong Sing Yien	15ABB07641
Lee Von Ai	14ABB01574
Lim Sin Yi	15ABB07150
Ong Chun Ping	15ABB07260

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

Thank you.

Yours sincerely,


.....
Ms Kuah Yoke Chin
Head of Department
Faculty of Business and Finance
Email: kuahyc@utar.edu.my


.....
Ms Chia Mei Si
Supervisor
Faculty of Business and Finance
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Kampar Campus : Jalan Universiti, Bandar Barat. 31900 Kampar, Perak Darul Ridzuan, Malaysia
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Tel: (603) 9086 0288 Fax: (603) 9019 8868
Postal Address: PO Box 11348, 50744 Kuala Lumpur, Malaysia
Website: www.utar.edu.my

Appendix 3.3 Survey Questionnaire Sample



**UNIVERSITY TUNKU ABDUL RAHMAN
FACULTY OF BUSINESS AND FINANCE
BACHELOR OF BUSINESS
ADMINISTRATION (HONS) BANKING
AND FINANCE**

FINAL YEAR PROJECT

RESEARCH TOPIC:

Moving into Cashless Society: Factors Affecting Adoption of E-wallet

Dear Respondent,

We are final year undergraduate students of Bachelor of Business Administration (HONS) Banking and Finance, Universiti Tunku Abdul Rahman (UTAR). The purpose of this survey is to conduct a research to investigate how factors will affect the consumers' intention on adoption of E-wallet. 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 only and will be kept strictly confidential.

Thank you for your participations.

Instructions:

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

Group members:		
No.	Name	Student ID
1.	Chern Yong Xian	15ABB07147
2.	Kong Sing Yien	15ABB07641
3.	Lee Von Ai	14ABB01574
4.	Lim Sin Yi	15ABB07150
5.	Ong Chun Ping	15ABB07260

Questionnaires

Please tick (√) the following answer box for each question.

1. Are you using a smartphone?

- Yes
- No

2. Do you consider using E-wallet (e.g. AliPay, WechatPay, SamsungPay) in the future?

- Yes
- No

Section A: Demographic Profile

1. Gender

- Male
- Female

2. Age

- 19 years old
- 20 years old
- 21 years old
- 22 years old
- 23 years old
- Above 24 years old

3. State

- Northern Region (Perlis, Kedah, Penang, Perak)
- East Coast Region (Kelantan, Terengganu)
- Southern Region (Negeri Sembilan, Melaka, Johor)
- Central Region (Selangor, Kuala Lumpur, Pahang)
- East Malaysia (Sabah, Sarawak)

Section B

Please indicate your degree of agreement on the following statements by circling the numbers given ranging from:

Strongly Disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, Strongly Agree = 5

Dependent Variable – Adoption of E-wallet

	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
AD1	E-wallet can substitute the cash based payment method.	5	4	3	2	1
AD2	E-wallet can support the existing payment method.	5	4	3	2	1
AD3	Using E-wallet is beneficial.	5	4	3	2	1
AD4	Using E-wallet is wise.	5	4	3	2	1
AD5	Using E-wallet is interesting.	5	4	3	2	1

Independent Variable

(i) Convenience

	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
CV1	E-wallet are easy to use	5	4	3	2	1
CV2	Ensures access of account when abroad	5	4	3	2	1
CV3	Convenient to use while on travel	5	4	3	2	1
CV4	I would find a mobile payment procedure to be flexible to interact with	5	4	3	2	1
CV5	Using mobile payment would make me perform my financial transactions more quickly	5	4	3	2	1

(ii) Social Influence

	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
SI1	People who influence my behavior think that I should use mobile payment.	5	4	3	2	1
SI2	My friends think that I should use mobile payment.	5	4	3	2	1
SI3	Using mobile payment is considered a status symbol among my friends.	5	4	3	2	1
SI4	People who are important to me expect me to use mobile payment technology.	5	4	3	2	1
SI5	People who are important to me are likely to recommend using mobile payment technology	5	4	3	2	1

(iii) Security

	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
SE1	Satisfied with the security system	5	4	3	2	1
SE2	E-wallets keep customers information private and confidential	5	4	3	2	1
SE3	Customers' financial information are protected	5	4	3	2	1
SE4	It keeps my payment credentials secure	5	4	3	2	1
SE5	Wallets ensure protection against risk of fraud and financial loss	5	4	3	2	1

(iv) Speed

	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
SP1	I believe that using E-wallet will improve the speed of transaction	5	4	3	2	1
SP2	Transactions will be faster compared to traditional payment methods	5	4	3	2	1
SP3	It will save my time for using E-wallet payment system	5	4	3	2	1
SP4	Using E-wallet can get quick response	5	4	3	2	1
SP5	No waiting time/delay	5	4	3	2	1

- End of Questionnaire -

Appendix 3.4: Sources of Questionnaires

	Variables	Questions	Sources
AD1	Adoption of E-wallet	E-wallet can substitute the cash based payment method	Manikandan & Jayakodi (2017)
AD2		E-wallet can support the existing payment method	
AD3		Using E-wallet is beneficial	Ajzen (1991)
AD4		Using E-wallet is wise	
AD5		Using E-wallet is interesting	Schierz, Schilke, & Wirtz (2010)
CV1	Convenience	E-wallet are easy to use	Davis, Balaji, & Gurusamy (2017)
CV2		Ensures access of account when abroad	
CV3		Convenient to use while on travel	
CV4		I would find a mobile payment procedure to be flexible to interact with	Kim, Mirusmonov, & Lee (2010)
CV5		Using mobile payment would make me perform my financial transactions more quickly	Abrahao, Moriguchi, & Andrade (2016)
SI1	Social Influence	People who influence my behavior think that I should use mobile payment.	Lu, Yao, & Yu (2005)
SI2		My friends think that I should use mobile payment.	
SI3		Using mobile payment is considered a status symbol among my friends.	Koenig-Lewis, Marquet, Palmer, & Zhao (2015)
SI4		People who are important to me expect me to use mobile payment technology.	
SI5		People who are important to me are likely to recommend using mobile payment technology	

SE1	Security	Satisfied with the security system.	Davis, Balaji, & Gurusamy (2017)
SE2		E-wallets keep customers information private and confidential.	
SE3		Customers' financial information are protected.	
SE4		It keeps my payment credentials secure.	Taheem, Sharma, & Goswami (2016)
SE5		Wallets ensure protection against risk of fraud and financial loss.	Davis, Balaji, & Gurusamy (2017)
SP1	Speed	I believe that using E-wallet will improve the speed of transaction	Chen & Nath (2008)
SP2		Transactions will be faster compared to traditional payment methods	
SP3		It will save my time for using E-wallet payment system	
SP4		Using E-wallet can get quick response	Davis, Balaji, & Gurusamy (2017)
SP5		No waiting time/delay	