CUSTOMER SATISFACTION ON MOBILE BANKING IN PERAK, MALAYSIA.

BY

CHANG YONG HUI

FOO YEN TING

OOI YONG LE

WONG CHI SHIN

YONG YIN THENG

A final year project submitted in partial fulfillment of the requirement for the degree of

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DECLARATION

We hereby declare that:

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

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

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

(4) The word count of this research report is 11515 words.

Name of Student:	Student ID:	Signature:
1. CHANG YONG HUI	15ABB05730	
2. FOO YEN TING	16ABB05865	
3. OOI YONG LE	16ABB02767	
4. WONG CHI SHIN	16ABB02768	
5. YONG YIN THENG	16ABB05791	

Date: 22/04/2020

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DEDICATION

We would like to express our sincere gratitude to our supervisor, Mr. Hoon Hui for his valuable guidance, suggestions, encouragement and help us to complete this research project.

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LIST OF ABBREVIATIONS

A	Agree
ANOVA	Analysis of Variable
BT	Brand Trustworthiness
BTAT	Brand Trustworthiness Assimilation Theory
CS	Customer satisfaction on mobile banking
D	Disagree
EDT	Expectancy Disconfirmation Theory
ET	Equity Theory
MLR	Multiple Linear Regression Analysis
N	Neither agree nor disagree
SA	Strongly Agree
SD	Strongly disagree
SPSS	Statistical Package for Social Science
SQ	Service Quality
SQT	Service Quality Theory
ST	Security
TS	Transaction Speed
UTAR	Universiti Tunku Abdul Rahman
UTAUT	Unified Theory of Acceptance and Use of Technology

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PREFACE

This research project is submitted in partial fulfillment of the requirement for the degree of Bachelor of Business Administration (HONS) Banking and Finance at Universiti Tunku Abdul Rahman (UTAR). This study is conducted under the supervision of Mr. Hoon Hui. This study provides a detailed explanation of our topic we completed towards accomplishing our project goals.

The title for this report is "Customer Satisfaction on Mobile Banking in Perak, Malaysia." The dependent variable that we used in this study is Customer Satisfaction on Mobile Banking, whereas the independent variables that we used are Transaction Speed, Service Quality, Brand Trustworthiness, and Security. Furthermore, the objective of this study is to examine the impact of customer satisfaction on mobile banking in Perak.

Firstly, this study begins by introducing the topic selected and explaining the relationship between the independent variables and dependent variable. This study then examines the relationship between the variables according to the theory in detailed literature review.

Next, questionnaire distribution method is used in this study through convenience sampling method and the data collected is analyzed and presented in order to achieve the study's goals. The results of the relationship between the variables are provided and discussed.

Lastly, this study has concluded the discussion of major findings, result summary, policy implications, limitations and recommendations.

ABSTRACT

The advancement of new technology has caused the mobile banking become a famous and essential channel in banking industry. The usage of mobile phone has been expanded to global and consequently it will become a channel that could be more preferable by customers to conduct banking activities instead of traditional service channels. Mobile banking can be illustrated as a channel which is able to bring the connection between customer and bank through a mobile device. However, the adoption of mobile banking in Perak, Malaysia is considered low due to Perak still have many rural areas. Besides, those rural areas are unable to enjoy high speed of internet connectivity. This situation will influence the customer satisfaction on mobile banking. Furthermore, security also is the main concern for users in adopting the mobile banking. The quality of security protection may have a huge impact on reputation and adoption in using mobile banking. Moreover, there are many e-payment channels are competing in the market, hence, the quality of mobile banking services is important. Thus, the objective of this study is to examine whether the independent variables which are transaction speed, service quality, brand trustworthiness, and security have impact towards customer satisfaction on mobile banking in Perak, Malaysia.

Next, in-depth reviews from previous researchers will be discussed in the part of Literature Review. In this study, we have used primary source which is questionnaire surveys to collect the data from respondents in Perak who are using mobile banking. There are 400 sets of questionnaires which consists of 40 questions in total. The survey questionnaire involved the information about the demographic, customer satisfaction on mobile banking, transaction speed, brand trustworthiness, service quality, and security.

After collected date from respondents, the result of statistical analyses is analyzed by using Statistical Package for the Social Sciences (SPSS) software. In order to test the hypotheses developed in this research, there are few analyses conducted which are

Descriptive Analysis, Reliability Test, Pearson's Correlation Test, Multiple Linear Regression, and Analysis of Variance (ANOVA) Test.

In addition, there are few major findings found after the analyses were conducted. It can be concluded that there is a positive relationship between four independent variables (transaction speed, brand trustworthiness, service quality, and security) with the dependent variables (Customer satisfaction on mobile banking) which is consistent with the hypotheses developed.

Lastly, this study may provide some useful contributions for policy makers, regulators, mobile banking provider, and future researchers. For bankers, they may make improvement on their mobile banking quality in order to enhance the customer satisfaction on mobile banking. For mobile banking providers, they can understand the trend of mobile banking adoption and encouraged to implement this services in order to increase profit margin. For future researchers who intend to conduct a similar study, they may be able to get a better and more reliable results after taking into account the limitations of this study.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Background of Study

Mobile Banking development started in 1999, Short Message Service (SMS) banking services is applied by U.S bank. The SMS method was not unique to U.S bank but coincidentally the U.S post office used SMS method to inform the location of the customer letter. Wireless Application Protocol (WAP) system which was introduced to the business system in the year 1999 able reduce the cost of Internet and mobile services. Before the introduction of mobile banking, the use of Internet banking has brought convenience to customers by providing access to the bank account, so that bank customers can review the status of their account at any time and location. After that, mobile banking has been introduced to the whole world due to the limitation of internet banking which requires a computer or laptop and internet access. However, mobile banking has no restrictions in space, it is able to minimize the facilities and is widespread to mobile phone users. Therefore, the development of mobile banking has commenced (Poor Nick, 2010).

The introduction of GPRS technology in late 1999 and in 2000, Personal Office Mobile Services, Mobile Money in 2000, Third Generation Mobile in late 2001 has been formed the transformation of mobile banking development (Rahmani, 2012).

Nowadays, the usage of mobile phone has been expanded to global and consequently it will become a channel that could be more preferable by customers to conduct banking activities instead of traditional service channels (Safeena, Date, Kammani, & Hundewale, 2012). Mobile banking can be illustrated as a channel which is able to

bring the connection between customer and bank through a mobile device (Barnes & Corbitt, 2003). Finland was the first country that available the use of mobile banking. In 1992, mobile phones were apt to conduct some banking activities such as paying bills in Merita Nordbanken (Barnes & Corbitt, 2003).

There are many banks that were offering mobile banking in Malaysia in January 2012 such as Bank Simpanan Nasional, CIMB Bank, and other banks in Malaysia (Bank Negara Malaysia, 2012). Due to the convenient function of mobile banking, the number of mobile banking subscribers has increased in Malaysia (Mohamad, Normah, Nora'ayu, & Irni, 2012). In year 2017, there are 26.8% of mobile banking subscribers out of 35.4% of the population in Malaysia (Bank Negara Malaysia, 2019). Bank Negara Malaysia has established rules and regulations on mobile banking in terms of payment. In Malaysia, CIMB Bank and Maybank have provided the e-money services via their mobile banking application which is CIMB Pay and Maybank2U. Electronic money is one of the payment methods that enable the user of e-money to transfer funds to another party through the internet, mobile phones, or others. The prior purpose of establishing regulations on this e-money is to provide a protected platform to conduct the transactions, and it might lead to enhancing the confidence level while using e-money by users. The issuer of e-money should safeguard the user of e-money. They should provide a system to handle the user's complaint, and send an alert information in the case that the issuer is bankrupt, or made a wrong transaction. The issuer of e-money should transparent the terms and conditions about the e-money such as type of payments, amount of bill charges, refund policies, service care line, and others (Bank Negara Malaysia, 2019).

According to Tam and Oliveira (2017), mobile banking has become a crucial part of the blueprint for the financial industry in order to enhance the customer's satisfaction. This is because mobile banking is able to clarify customer's problems through self-service technologies. Customers could receive plenty of benefits by using self-service channels as known as mobile banking to conduct banking activities (Chandran, 2014).

According to Shaikh and Karjaluoto (2015), there are various services provided by mobile banking in the financial industry to satisfy their customer needs. Mobile banking can conduct two types of services which are financial services such as paying bills, transferring funds and others financial services, and non-financial services such as changing Personal Identity Number (PIN), and notification for payments.

In the strong competitive environment today, banks should enhance their existing products or services in order to retain the customer base of using mobile banking (Laukkanen, 2016). Now, banking industries are more focusing on customer centric. Therefore, they are more concerned about the satisfaction of customers when their customers are using their services in the mobile banking (Ibrahim, Joseph, & Ibeh, 2006).

This study aims to investigate the customer satisfaction on mobile banking in Perak, Malaysia. Perak citizens have been chosen as target respondents. In this study, there are few factors that may affect the customers' satisfaction on using mobile banking which are transaction speed, brand trustworthiness, service quality, and security.

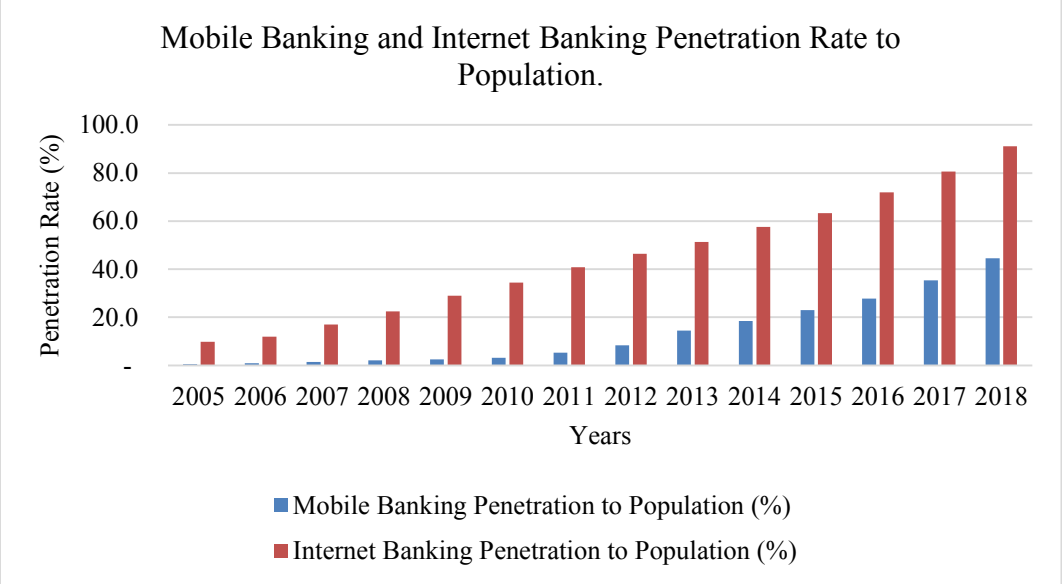

Figure 1.1: Mobile Banking and Internet Banking Penetration Rate to Population in Malaysia.

Source: Bank Negara Malaysia.

Table 1.1:

Mobile Banking and Internet Banking Penetration Rate to Population in Malaysia.

Internet Banking

Number of Subscribers			Penetration to population (%)
Total	Individual	Corporate	
2.6	2.5	0.1	9.8
3.2	3.2	0.0	12.0
4.6	4.5	0.1	16.9
6.2	6.1	0.1	22.5
8.1	8.0	0.2	28.9
9.8	9.6	0.2	34.4
11.9	11.6	0.2	40.9
13.7	13.4	0.2	46.4
15.5	15.2	0.3	51.4
17.6	17.3	0.3	57.5
19.8	19.2	0.6	63.3
22.8	22.0	0.8	72.0
25.5	24.6	0.9	80.6
29.5	28.3	1.2	91.1

Mobile Banking

000	Number of subscribers	Penetration rate (%)	
		To population	To mobile subscribers
2005	127.6	0.5	0.7
2006	246.7	0.9	1.3
2007	367.6	1.4	1.6
2008	574.6	2.1	2.1

2009	675.0	2.4	2.2
2010	898.5	3.1	2.6
2011	1560.3	5.3	4.3
2012	2446.2	8.3	5.9
2013	4378.8	14.5	10.2
2014	5639.2	18.4	12.6
2015	7182.2	23.0	16.3
2016	8794.8	27.8	20.0
2017	11348.2	35.4	26.8
2018	14444.4	44.6	34.1

Source: Bank Negara Malaysia.

Figure 1.1 showed the penetration rate of population and mobile subscribers in Malaysia from 2005 to 2018. Generally, it can be said that the mobile banking penetration to population had slightly increased among the year 2005 to 2010. Starting from the year 2011, the penetration rate was significantly increased until 2018. According to Appaduray (2017), the reason of the mobile banking and internet banking penetration rate increased probably is due to the trustiness of the banks, or companies that provide them a safety platform to make their transactions. Besides, mobile banking has occupied 53 per cent of Malaysian consumers' activities on their mobile devices. Moreover, Malaysian consumers also would like to use mobile banking to trade securities or buy any insurance products. Thus, they are also concerned about the security of the mobile banking ("Mobile Ecology: Are Malaysian Consumers Ready For The New Frontier Of Mobile Banking & Payment?", 2016).

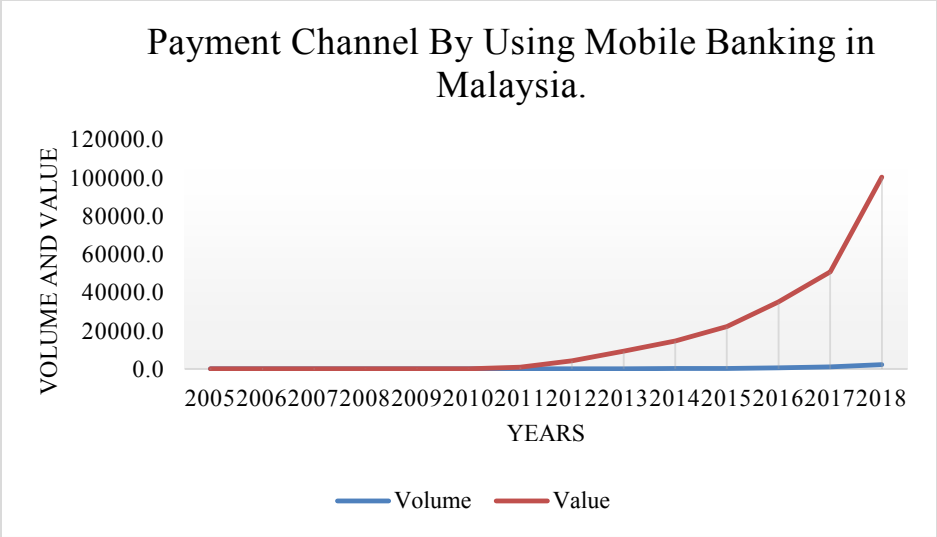

Figure 1.2: Payment Channel By Using Mobile Banking in Malaysia.

Source: Bank Negara Malaysia.

Table 1.2:

Payment Channel By Using Mobile Banking in Malaysia.

Mil/RM mil	Mobile Banking	
	Volume	Value
2005	0.4	4.5
2006	0.9	10.5
2007	1.4	21.2
2008	1.6	71.5
2009	2.5	140.9
2010	2.3	137.9
2011	13.6	852.1
2012	59.8	4236.6
2013	140.4	9242.7
2014	213.9	14677.5
2015	271.1	22123.3
2016	526.6	34985.3
2017	1051.8	50691.9
2018	2196.1	100127.3

Source: Bank Negara Malaysia.

Figure 1.2 showed the payment channel by using mobile banking in Malaysia from 2005 to 2018. Based on the line graph above, volume and value by using mobile banking had steadily increased from the year 2011 to 2018. In year 2018, the volume and value was doubled compared to the year 2017. According to Shankar (2019), around 65,000 merchants have started to implement mobile payments. However, non-bank e-money issuers such as iPay88 (M) Sdn. Bhd., PayPal Pte. Ltd, and others were occupied more than 50 per cent by implementing mobile payment (Bank Negara Malaysia, 2019).

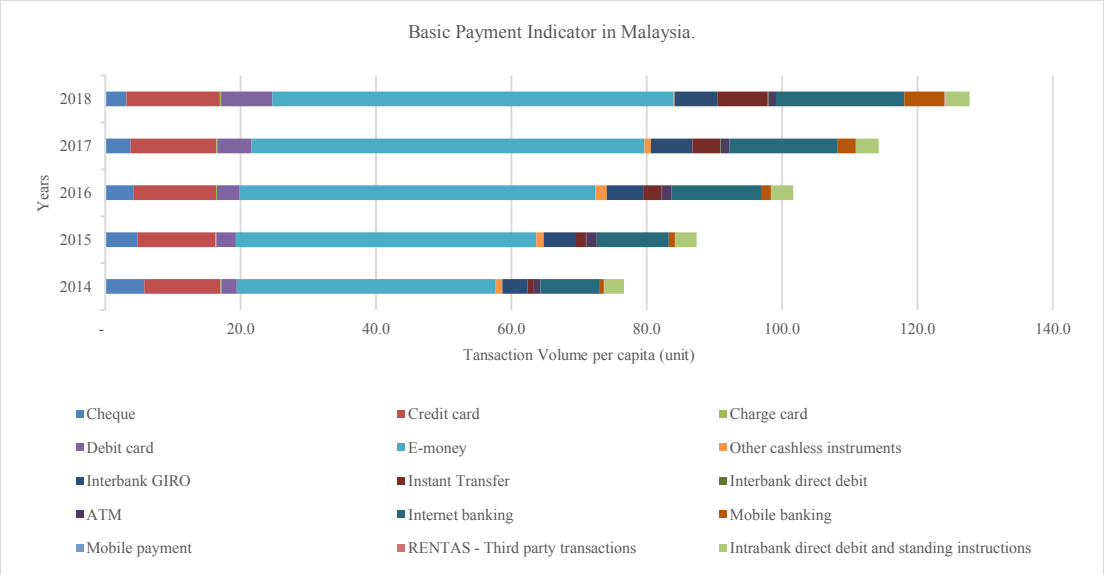

Figure 1.3: Basic Payment Indicator in Malaysia.

Source: Bank Negara Malaysia.

Figure 1.3 illustrates the basic payment indicator in Malaysia from year 2014 to year 2018. There are various types of payments indicator through e-payment such as credit cards, e-money, auto teller machine, internet banking, mobile banking, and others.

Generally, the statistics show the basic payments indicator in Malaysia had increased over these 5 years. As focus in mobile banking, the transaction per capita had increased among these 5 years. In order to emphasize the importance of the e-payment system in Malaysia, the Central Bank of Malaysia has designed a strategic plan which provides long term direction to the financial system over next ten years, named as Financial Sector Blueprint 2011-2020. Under the Blueprint, electronic payments is one of the focus areas in order to protect financial stability. The Central Bank of Malaysia targets to boost the number of e-payment transactions per capita, and enhance the e-payment infrastructure such as mobile phone banking in the next ten years (Bank Negara Malaysia, 2019).

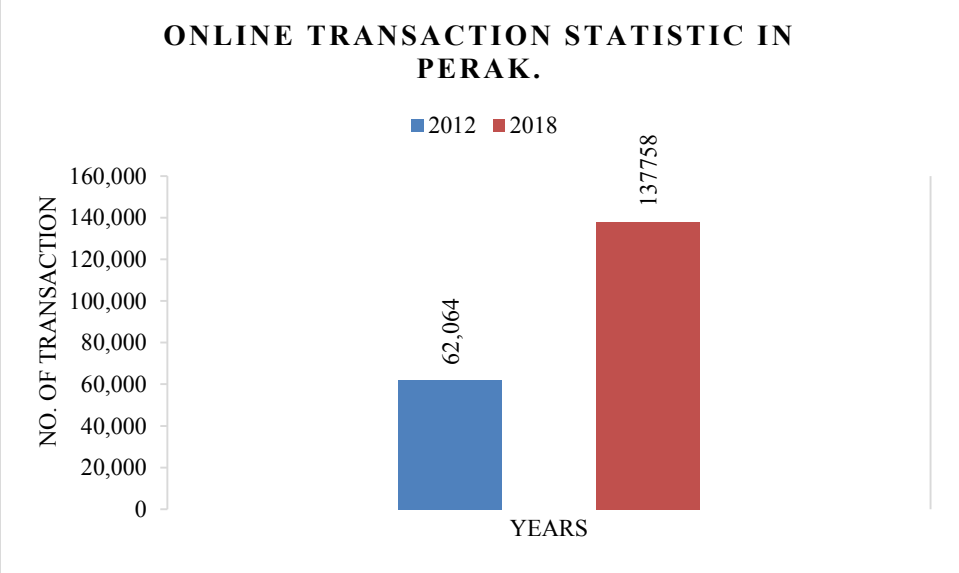

Figure 1.4: Online Transaction Statistic in Perak.

Source: Ipoh City Council User Report Statistic Online.

Figure 1.4 illustrates the online transaction statistics in Malaysia between year 2012 and 2018. The online transaction statistics include e-Services, e-Checks and e-Print, e-Payment and e-Banking. Based on the graph above, the number of transactions in year 2018 had increased as compared to the earlier year 2012. This increment might be

caused by one of the factors, which is the contractual relationship between The Perak Government, and AmBank Islamic Berhad. According to Kaur (2018), The Perak Government and AmBank Islamic Berhad were agreed to enter a memorandum of understanding (MoU) in order to promote the use of JomPay to collect the quit rent. The Perak Government has assigned AmBank Islamic Berhad as the JomPay collection bank, and delivered an encouragement for customers to adopt digital payment channel. Perak Menteri Besar stated that RM5 million collected from the quit rent via JomPay at the end of the year 2018.

Service Provider	Throughput		Network Latency	
	Average Download Speed	**Speeds over 650 kbit/s**	**% of the time Latency ≤ 250 ms**	**Packet Loss**
Celcom	18.28 Mbps	98.48 %	99.12 %	0.53 %
DiGi	15.57 Mbps	98.80 %	99.61 %	0.52 %
Maxis	25.60 Mbps	99.66 %	99.51 %	0.13 %
U Mobile	7.86 Mbps	94.77 %	92.48 %	0.99 %
Webe	7.30 Mbps	96.67 %	97.13 %	1.42 %
*YES (LTE)**	*13.60 Mbps*	*99.39 %*	*99.91 %*	*2.37 %*

Figure 1.5: Key metrics scorecard for Cellular Mobile Broadband of Malaysia

Source: Network Performance Report 2017

Figure 1.5 illustrated the highlight result of the average download throughput speeds across all the states of Malaysia for different cellular mobile broadband. Based on the results aboved, it can show that Maxis recorded the highest average download speeds in overall Malaysia with 25.60 Mbps. Meanwhile, Webe has recorded the slowest average download speeds which is 7.30 Mbps.

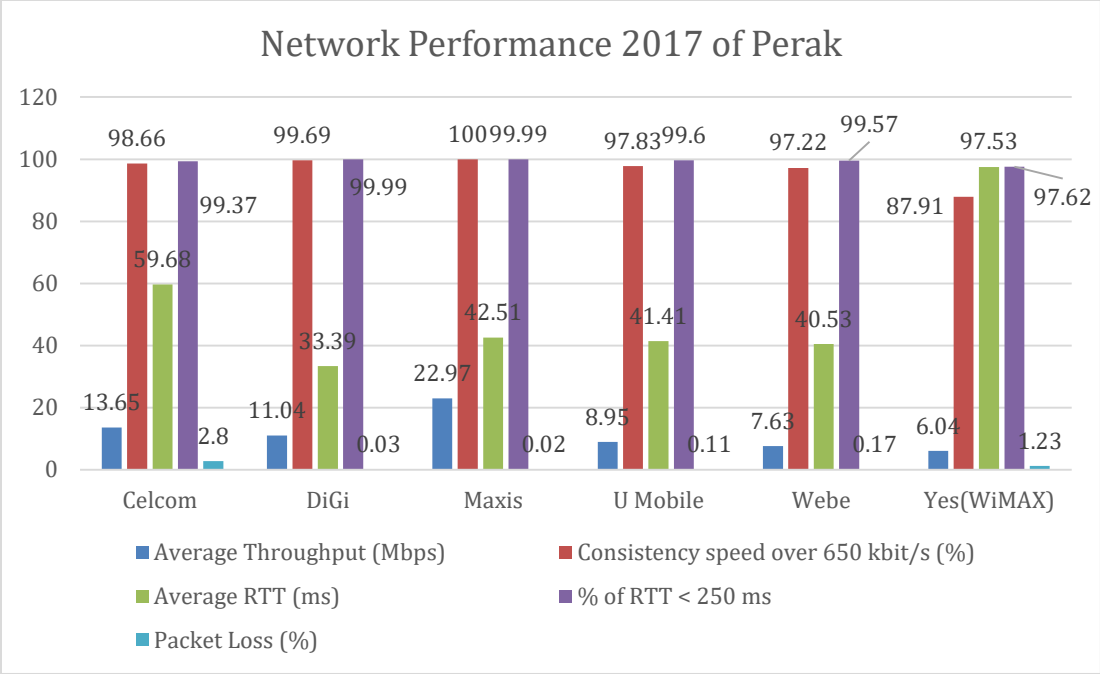

Figure 1.6: Key metrics for Cellular Mobile Broadband – Perak

Source: Network Performance Report 2017

Figure 1.6 showed Maxis has the highest average throughput with 22.97 Mbps while Celcom average throughput is second to Maxis which is 13.65 Mbps. Maxis and Digi have shown a good performance on providing 100% and 99.69% respectively provide consistency speed over 650 kbps. All the operators are able to provide more than 80% of consistency speed over 650 kbps. In terms of network latency performance, YES WiMAX has poor performance with average packet RTT of 97.53ms while Digi has the highest performance with average packet RTT of 33.39ms. Besides that, all the operators are able to provide packet loss less than 3%.

1.1 Problem Statement

Customer satisfaction on mobile banking is a measure of how a service provider meets to exceed customer expectations. If the customer satisfaction expectations are not met, the potential that user will not use mobile banking services.

According to the Network Performance Report 2017 measurement was carried out in town and residential areas such as Ipoh, Teluk Intan and Taiping. The outcome showed that the urban areas are enjoying the high internet speed compared to the rural areas such as Kampar, Jeram, Seri Iskandar, Batu Gajah, etc. Among these measurement areas, overall all the operators such as Celcom, DiGi, Maxis, U Mobile, Webe and WiMAX are performed more than 80% of consistency for throughput with more than 650 kbps. Meanwhile, residents out of these areas are unable to enjoy the high speed internet especially resident stay in urban areas. This will lead to less adoption of mobile banking in those areas. Low internet speed will lead to the low transaction speed to the mobile banking user. Low transaction speeds make it inconvenient for the entrepreneurs or customers to transfer money and solve transaction problems in an emergency. This situation will decrease the customer satisfaction on mobile banking. A case in Seri Iskandar is a rural area and the internet coverage of Seri Iskandar will influence the adoption and usage of Internet among entrepreneurs in Seri Iskandar (Osman, 2014).

Security issues are the main concern for users in adopting the mobile banking especially in the new way of doing things. Furthermore, the security issues will indirectly affect the users' trust on using mobile banking and the bank. There is one issue that happens in CIMB Bank. According to The Star Online dated 17 December 2018, CIMB Bank introduced a few additional measures to enhance the security of its CIMB Clicks transactions. The enhancement is to ensure that the system is able to hold strong

passwords which range from 8 characters and up to 20 characters (The Star Online, 2018). Moreover, it also added reCaptcha security measures on CIMB Clicks to ensure that users are aware of the changes (The Star Online, 2018). However, on 17 December 2018, CIMB Clicks faced data breach on customers' bank account (Malaymail, 2018). Customer bank accounts have charged for services that users have not subscribed on PayPal. Most suspected cases involve debit cards and unauthorized transactions via PayPal. Interestingly, one of the users reported that the user had never created a PayPal account before. It is said that you can add a CIMB card to Paypal without mobile number verification (Malaymail, 2018). This issue may let CIMB's customers lose confidence towards CIMB Bank and may reduce the brand trustworthiness and security of CIMB Bank. This situation may have a huge impact on reputation and image. Therefore, the issues will decrease user adoption in using mobile banking.

Furthermore, nowadays many E-payment is increased gradually in recent years. As mobile payment providers develop more new and innovative applications to engage users with digital payment services, including the currently undeveloped parts, this is expected to further promote a more dynamic ecosystem (Lee and Khaw, 2018). E-Payment is a more convenient channel to process transactions of cash compared to Mobile Banking in the field of merchants. This gives customers many choices of which channel makes payments more convenient. If the E-payment services quality is better than mobile banking, many customers will tend to switch to use E-payment such as Alipay, Wechat pay, Boost, and others compared to mobile banking. As many different channels are competing, the quality of mobile banking services is important.

Therefore, the aim of this study is to test the factors that affect customer satisfaction on mobile banking in Perak. Compared to previous study, the data of this study is easier to collect due to the stabilization of mobile banking application and e-payments system, and enhancement on network connectivity of Malaysia.

1.2 Research Objective

The objective of this study is to examine the impact of customer satisfaction on mobile banking in Perak. The specific objectives are:

1. To examine the impact of transaction speed towards customer satisfaction on mobile banking.

2. To examine the impact of brand trustworthiness towards customer satisfaction on mobile banking.

3. To examine the impact of service quality towards customer satisfaction on mobile banking.

4. To examine the impact of security towards customer satisfaction on mobile banking.

1.3 Research Question

1. Are the qualities of mobile banking services influence people to use?

2. Is the lack of trust in mobile banking security preventing people from using mobile banking services?

3. Does the brand of the bank affect customer satisfaction on mobile banking?

4. Are the speed of mobile banking services affect citizens to use them?

1.4 Significance of study

This study able to contribute valuable information regarding the transaction speed, brand trustworthiness, security, and service quality affect the customer satisfaction on mobile banking in Perak, Malaysia. This study could provide guidance to banking institutions in order to improve their customer satisfaction on mobile banking. The findings in this study are useful for banks by implementing future decision making and determining the depth of customer needs on mobile banking.

Besides, this study also provides valuable information to Bank Negara Malaysia in order to enhance the user's usage on mobile banking in Malaysia. The objective of the Financial Sector Masterplan is to establish a competent financial system that can result in economic growth, and encourage local financial institutions to implement more technology driven. This also encourages these financial institutions to get prepared for the challenges of liberalisation and globalisation (Bank Negara Malaysia, n.d.). This study provides information about customer satisfaction on mobile banking from 400 mobile banking users in Perak, Malaysia. This information can help Bank Negara Malaysia to improve the mobile banking in order to increase the customer satisfaction level.

Furthermore, this study can provide valuable information to those merchants in Perak, Malaysia. With the result of this study, merchants such as retail shops, telecommunications companies, as well as restaurants in Perak, Malaysia are able to figure out the customer satisfaction on mobile banking.

CHAPTER 2: LITERATURE REVIEW

2.1 Underlying Theories

2.1.1 Expectancy Disconfirmation Theory (EDT)

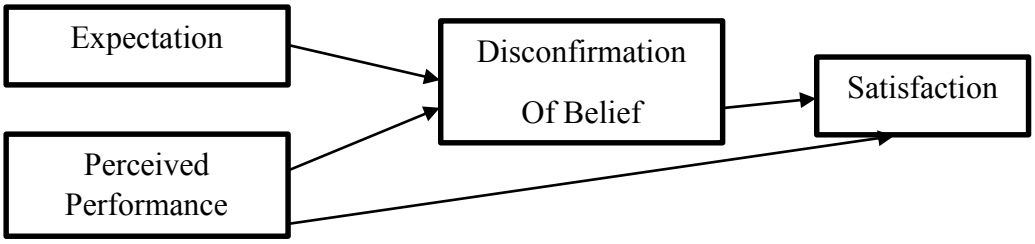

Figure 2.1.1 EDT Framework.

Source: Oliver (1980).

EDT is a theory that examines customer satisfaction based on the service quality, or product quality. Disconfirmation is created by comparing the expectation between before and after consuming the products or services (Oliver, 1980). This means that consumers will be satisfied when they consume the product and service by equalizing their expectations before and after the consumption. On the other hand, consumers will not be satisfied when their expectations before consumption is lower than expectations (Oliver, 1980). The consumer might not purchase or use the products or services in the future if the consumers are dissatisfied (Susanto, Chang, & Ha, 2015).

2.1.2 Service Quality Theory (SQT)

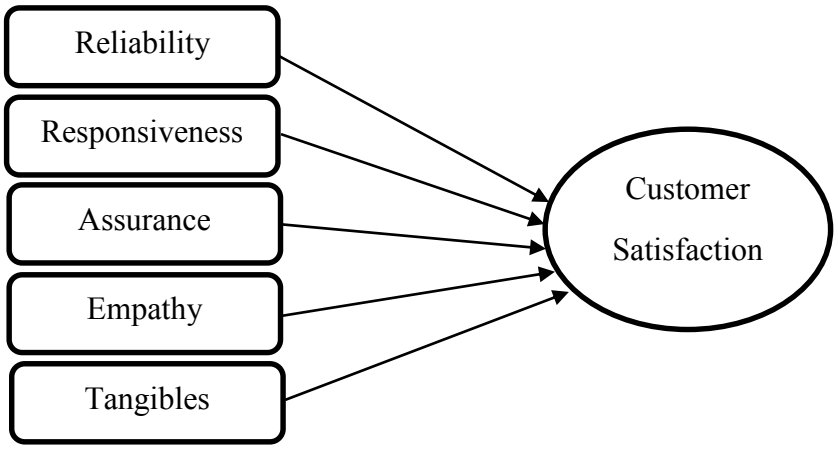

Figure 2.1.2 SQT Framework.

Source: Parasuraman, Zeithaml, and Berry (1988)

Parasuraman, Zeithaml, and Berry (1988) developed this model to examine the customer expectation and service quality by using 22 item scale which is known as SERVQUAL model. In this theory, the SERVQUAL model is adopted in order to examine the service quality. Reliability, Responsiveness, Assurance, Empathy and Tangibles are the five aspects of the SERVQUAL model (Shaban, 2014). Tangibility indicates the physical attributes around the service such as appearance of physical building. Reliability indicates the ability of service providers to constantly deliver accurate services to customers. Responsiveness indicates the willingness of a company to offer fast and useful service to overcome the customer problems. Assurance indicates the way of the company's employees convey their professional knowledge and behavior to enhance the confidence of the customer. Empathy indicates that firm's willingness to offer tailored service to each customer (Shaban, 2014). As the theory of EDT and SERVQUAL model explained that service quality will affect

the customer satisfaction on mobile banking due to their expectation on the perceived services.

2.1.3 Unified Theory of Acceptance and Use of Technology (UTAUT)

Effort Expectancy Theory

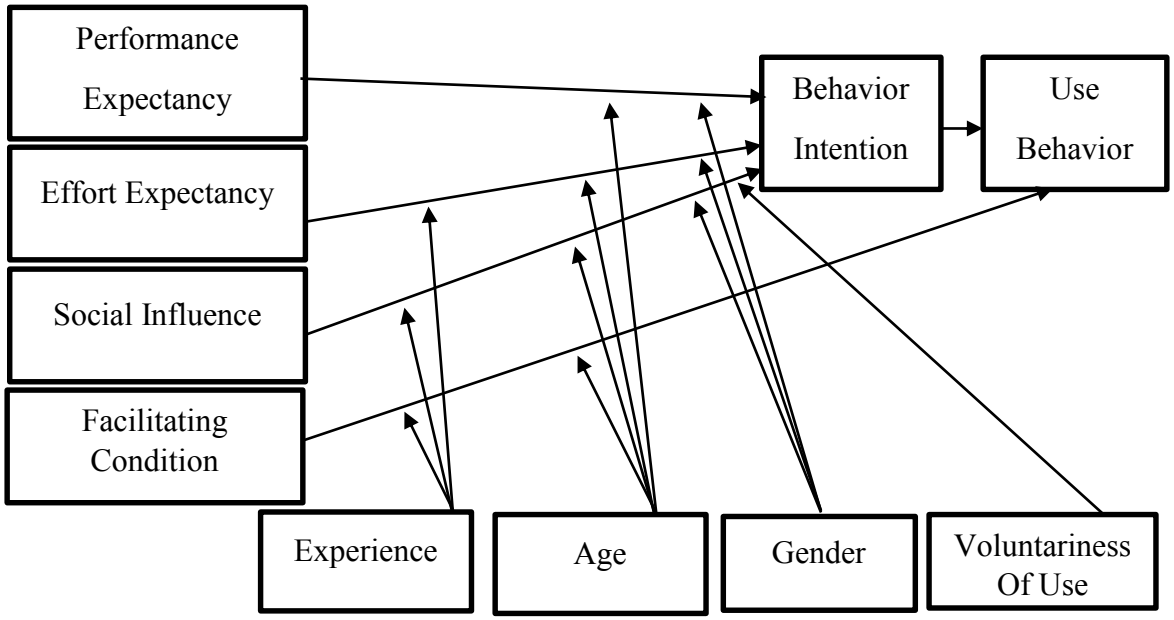

Figure 2.1.3 UTAUT Framework.

Source: Venkatesh, Morris, Davis and Davis (2003)

UTAUT theory has combined Technology Acceptance Model, Planned Behavior Theory, and other theory that used to illustrate the user adoption of information technology (Venkatesh, Morris, Davis, & Davis, 2003). This

theory determined four main aspects which are performance expectancy, effort expectancy, social influence, and facilitating conditions. Effort expectancy will be adopted in this study due to it provides similar meaning with the ease of use of mobile banking (Venkatesh, Morris, Davis, & Davis, 2003). According to Riquelme and Rios (2010), this theory should be evaluated because it contains complexity by adopting mobile to conduct mobile banking transactions. Based on this theory, it enables users to conduct fast and effortless transactions by using mobile banking. Mobile banking is also able to save those users' time to conduct the transactions (Carlsson, 2006 & Zhou, 2010; Bankole, Bankole, & Brown, 2011). Financial institutions should enhance the transactions speed of mobile banking in order to create greater customer's satisfaction levels (Gu, Lee, & Suh, 2009; Boonsiritomachai, & Pitchayadejanant, 2017).

2.1.4 Equity Theory (ET)

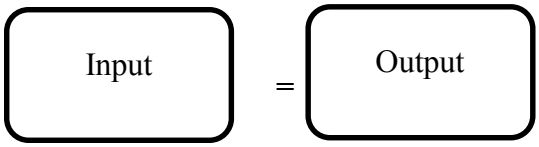

Figure 2.1.4 ET Framework.

Source: Adams (1965).

ET focuses on the exchange relationship where individuals expect to receive return on their contribution (Adams, 1965). The built of this theory is based on "a man's rewards in exchange with others should be proportional to his investments" (Oliver &Swan, 1989). Equity theory commonly defined as

individuals compare their input and output ratios with those of others and that the consumer will be satisfied if the net gain is perceived to be fair (Poisz, 1988). Equity theory focuses on the exchange process because it proposes after the exchange, the customer will start evaluation which results in customer's satisfaction or dissatisfaction on the equity of the exchange (Oliver, 1988). In other words, the equity concept suggests constant across between participants in an exchange and the ratio of outcomes to inputs. Customer satisfaction exists when the customer believes that his outcomes to input ratio is equal to that exchange person (Athiyaman, 2004). In the handful of studies that have examined the effect of equity on customer satisfaction, equity appears to have a moderate effect on customer satisfaction and post-purchase communication behavior (Oliver & Swan, 1989).

Based on the theory discussed above, this theory is adopted to justify the security quality impact to customer satisfaction. Au (2008) has constructed a ratio, effort or benefit which originated from the input or output ratio (Oliver & Swan, 1989). In transactions, customers invest inputs as money and receive outcomes which are security provided by the bank. With respect to the distribution of outcomes, individuals seek to maximize gains and minimize losses (Vicente Martínez-Tur, 2006). As qualities and benefits received from the purchases or services will be compared by users, internet users desire higher security authentication than low security authentication (Lee, 2012).

2.1.5 Brand Trustworthiness Assimilation Theory (BTAT)

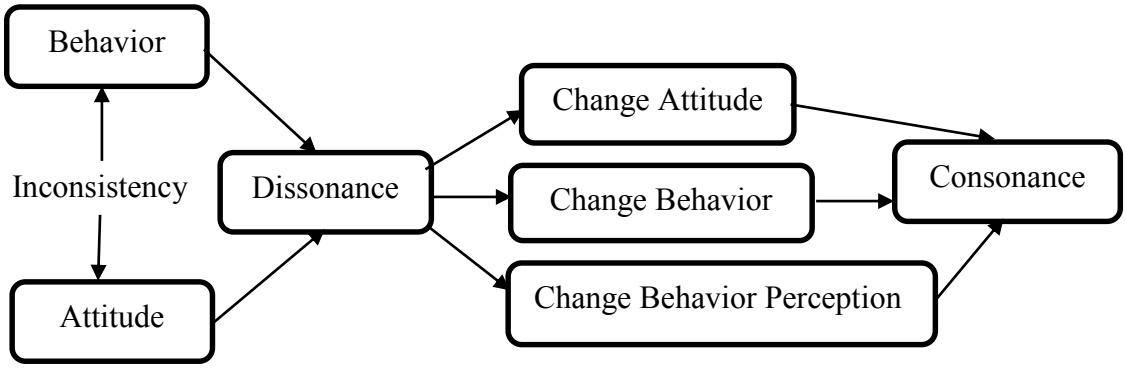

Figure 2.1.5 BTAT Framework.

Source: Festinger (1957).

Assimilation theory can be justified by dissonance theory from Festinger's (1957) because assimilation theory originated by dissonance theory. Assimilation theory has concluded that customers will make some cognitive comparison between their expectations towards product and the actual performance of the product (Peyton, 2003). The assimilation theory appears when a customer uses the product and finds out the evaluations on it. Consumers will adjust perception towards a product to more matching with their expectations to avoid dissonance (Anderson, 1973). Consumers can reduce the tension resulting from a difference between the expectations and actual product performance (Olson, 1979). In the marketing research, consumer's trust has a strong connection with consumer's perception (Assael, 1998; Setyawan, 2015). Trust can be defined as an expression of a feeling (Brugha, 1999). Trust also can be defined as the expectation of the agents involved in a transaction and the risk which related with the expectation and behavior (Rai, 2013). If the products and services meet the expectation of the

customer, it has a higher likelihood of repeating purchases in time (Zeithaml, 1996). There is a high chance that customers will make recommendations to their friend about a product or services if a company built a good trust relationship with customer (Ian, 2011).

2.2 Review of Variables

Review of variables is study about the relationship between independent variables (transaction speed, brand trustworthiness, service quality, and security) and dependent variable (customer satisfaction on mobile banking).

2.2.1 Transaction Speed

Transaction speed is about how much time needed to do a banking transaction. It takes less time to perform transactions by using mobile banking application as compared to going to branches to perform the same transaction (Alsamydai, Yassen, Alnaimi, Dajani & Al-Qirem, 2014).

There were some studies that pointed out transaction speed positively influences customer satisfaction. For example, Alsamydai, Yassen, Alnaimi, Dajani and Al-Qirem (2014) noted that positive relationships exist between transaction speed and customer satisfaction. This means that when faster the transaction speed, the customer feels useful and satisfied with mobile banking. In addition, Jannat and Ahmed (2015) showed that one of the factors which was

transaction speed can bring effect to customer satisfaction on mobile banking. Their empirical results showed that transaction speed and customer satisfaction had a significantly positive relationship. Last but not least, the study had proved that there was a strong correlation in positive relationship between transaction speed and customer satisfaction, hence the transaction process increased customer satisfaction (Muluka, 2015).

Therefore, it hypothesized that transaction speed will positively influence customer satisfaction on mobile banking in this study. Since it had evidence to prove that transaction speed was a factor that can affect customer satisfaction on mobile banking.

2.2.2 Brand Trustworthiness

Onyancha (2013) pointed out that in recent years, brands have become one of the frequently talked over phenomena in market research, hence brand name has become an important concept for all the company. The design of the application needs to uniquely design (Page (2014); Chrispine (2017)). The customers have to feel happy when the application keeps launching. In addition. it had further pointed out when banks design the application, banks need to ensure that the brand, design and package of the application is complete in order to come with a unique brand and easy to recognize it (Roman (2010); Chrispine (2017).

Onyancha (2013) showed the empirical results of brand image and customer satisfaction and loyalty had a positive relationship. This means that when the

bank has a positive brand image, it directly improves customer satisfaction and customer loyalty. Bank's brand image acts as an important factor to enhance customer satisfaction, loyalty and service quality. Lee and Chung (2009) noted that consumers who trust an institution will have expectations for satisfaction to the institution's website. Positive satisfaction will be directed to the bank's mobile banking if there is a trustworthy in offline banking. This is the reason that trusting mobile banking has a positive effect on customer satisfaction. Masrek, Mohamed, Daud and Omar (2013) pointed out that the empirical research results showed the website trusts was positively correlated with mobile banking satisfaction. Their finding further demonstrates the significance of website trust on mobile banking satisfaction. When customers trust the bank's website means that they are trustworthy for that particular bank. It will bring a positive relationship between brand trustworthiness and mobile banking satisfaction.

Since there was evidence to prove that brand trustworthiness was also a factor that positively affect customer satisfaction on mobile banking. Hence, it hypothesized that brand trustworthiness will positively influence customer satisfaction on mobile banking in this study.

2.2.3 Service Quality

Malviya (2015) pointed out that service quality meant as customers overall assessment of the services. He noted that competitiveness of a company depended on the service quality. For a bank that provides high service quality able to differentiate themselves from their competitors.

Zhao, Zhang and Chau (2012) stated that quality of service was closely related with the customer satisfaction because it reflects the customer's assessment of service provider performance. Different researchers propose different dimensions to capture the essence of the key factors affecting customer satisfaction. There was an extensive study of the service quality and customer satisfaction for their relationship, and sufficient evidence that service quality significantly affects customer satisfaction had been collected. Similar conclusions have been reached in mobile service research. They found that service quality was also a significant factor that positively affect customer satisfaction. This means that when the application's provider provides a high level of service quality, the customers using that application feel more satisfied. Besides, the researchers had further pointed out that the provider of application of mobile banking needs to give the service that is high quality for users to let users to complete their specific transaction (Al-Jabri & Sohail, 2012; Chrispine, 2017). Moreover, Mahalakshmi and Kalaiyarasi (2016) stated that customer satisfaction and service quality had a positive relationship and impact. Aghdaie and Faghani (2012) conclude that there was a positive relationship in between service quality and customer satisfaction where satisfaction of the customer was increased when the mobile banking's service quality had increased. Malviya (2015) found out that service quality on mobile banking was a significant factor to improve the reputation of the bank, attract new customers, and retain customers. Hence, service quality on mobile banking was a critical factor to influence customer satisfaction for them to compare the services of mobile banking offered by the different banks. In addition, Chrispine (2017) noted that the study was about the service quality of mobile banking affected customer satisfaction in the banking industry of Kenyan. The study points out that customers can complete their full transaction by using mobile banking application because of the good quality of the mobile banking application. It also showed that the frequency of customers using the mobile banking application was determined by the level of service quality and hence it improved customer satisfaction. It means there was a positive relationship in

between the service quality and customer satisfaction on mobile banking. Besides, Sagib and Zapan (2014) found a significant influence of service quality on customer satisfaction. The empirical result of the study showed that there was a positive relationship in between the service quality and customer satisfaction on mobile banking in Bangladeshi. Furthermore, when customers feel that the service quality is high, then their satisfaction will be high also. It means that customers feel satisfied and they will repeat to use the mobile banking when the service of mobile banking exceeds their expectations (Ganesh et al. 2000, Caruana, 2002; Gerald, 2016).

It had more prior studies showing that service quality was an important factor and positively influenced customer satisfaction on mobile banking. Thus, it concluded that service quality will positively influence the customer satisfaction on mobile banking.

2.2.4 Security

The function of the security must present in mobile banking because this is a necessary and there is a potential to make the quality of the people life to become better and also improve the bank's efficiency through mobile banking technology (Malaquias, 2016; Lafraxo, Hadri1, Amhal & Rossafi, 2018). Shilpa and Veena (2018) pointed out that more and more customers use the mobile banking services day to day to do their transaction because they feel satisfied that the bank had taken measures to secure the transaction in the mobile banking.

There were some studies that pointed out security positively affected customer satisfaction. Jannat and Ahmed (2015) noted that their empirical results showed security and trust were the most crucial factors that can affect the customer satisfaction on mobile banking because it had the highest value of beta among the other independent variables. There is a strong power of security and trust on the customers satisfaction on mobile banking. They also pointed out that in their empirical result, customer satisfaction and security and trust showed a strong relationship. This indicates that there was a strong positive impact on customer satisfaction from security and trust. Besides, Gomachab and Maseke (2018) stated that there was a strong positive relationship in between the security and trust and customer satisfaction. In their empirical result, it showed that the ranking of customer satisfaction was influenced by the mobile banking services. The factor of security and trust was strong to influence customer satisfaction but still ranked at second rank which was ranked after an accuracy of transaction.

Based on previous studies, there was some evidence that showed security significantly influences customer satisfaction on mobile banking. Therefore, it hypothesized that security will positively influence customer satisfaction on mobile banking.

2.3 Proposed Conceptual Framework

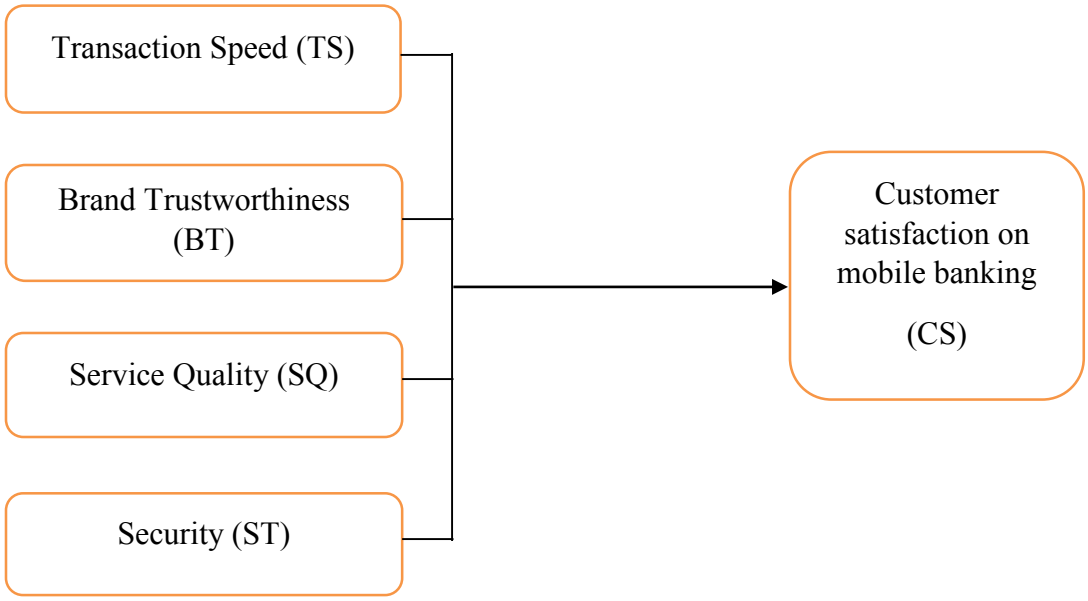

Figure 2.3: Research Model

Source: Developed for this research

Figure 2.3 showed the research model in explaining the relationship between dependent variable (Customer Satisfaction on Mobile Banking) and independent variables (Transaction Speed, Brand Trustworthiness, Service Quality, and Security). In this study, the transaction speed is adopted by the theory of UTAUT, brand trustworthiness is adopted by the theory of BTAT, service quality is adopted by the theory of EDT and SQT, whereas security is adopted by the theory of ET.

It is quantitative research that uses primary source to collect the data. Survey questionnaire will be divided into six sections. Section A will be asked respondents' demographic in terms of age, gender, and education level which focus on "Do they use mobile banking". Section B will be asked the level of customer satisfaction by using

mobile banking. Section C will be asked the level of customer satisfaction on transaction speed by using mobile banking. Section D will be asked the level of customer satisfaction on brand trustworthiness by using mobile banking, followed by Section E (service quality), and Section F (security).

2.4 Hypotheses Development

H_1 : Transaction speed will positively influence customer satisfaction on mobile banking.

H_2: Brand Trustworthiness will positively influence customer satisfaction on mobile banking.

H_3: Service Quality will positively influence customer satisfaction on mobile banking.

H_4: Security will positively influence customer satisfaction on mobile banking.

CHAPTER 3: METHODOLOGY

3.0 Introduction

Research techniques used in this study.

3.1 Study Design

This study is regarding Customer Satisfaction on Mobile Banking in Perak, Malaysia. This is a method and techniques framework for researchers to describe their research and ensure that research is in a logic and in a manner of valid and those problems can be handled effectively. Descriptive statistics is one of the study designs used to examine the impacts that will influence customer satisfaction on mobile banking. By using this method the researcher can gather data by using test, questionnaire, interview as well as observation (Atmowardoyo, 2018). Next, quantitative analysis is also used in this research. Conclusions drawn by researchers are based on logic, evidence as well as argument. Not only that, researchers are using tables, graphs or charts to represent their study (Trochim, 2006; Soiferman, 2010). Besides, deductive research is also considered in this study. Priority step is start from theory then based on theory to derive the hypotheses, test hypotheses and revise the theory when the result is different from theory (Woiceshyn & Daellenbach, 2018).

3.2 Data Collection Method

Survey questionnaire is used to collect data from respondents in Perak who are using mobile banking. Survey questionnaire involved the information about the demographic, CS, TS, BT, SQ, and ST.

Researchers are invited respondents who stay or come from Perak, Malaysia to participate in the survey questionnaire. As using Krejcie and Morgan (1970), 384 respondents are the sample size for this study. Researchers can distribute the survey questionnaire to their relatives, family members, or friends who stay or come from Perak.

By using a convenience sampling method, researchers will distribute the survey questionnaire to respondents who are most close to the researcher or respondents who are easy to access. Part of the survey will be distributed to students, staff or even lecturers who study or work in UTAR, Kampar. Another part of the survey questionnaire will be distributed to respondents who are outside UTAR, Kampar but are the residents from Perak or respondents who stay in Perak.

After collecting data from respondents, 400 survey questionnaires will be divided into equal quantities which means each of the researcher in a group will get 80 questionnaires and key in data into excel. After completing key in data, researcher will conduct checking on the data input to ensure no coding error or missing data before transfer to SPSS for further analysis.

3.2.1 Data of Primary

Researchers can used interview, questionnaires to collect data from targeted respondents. This study is using primary data due to researchers collecting data by using questionnaires. Researchers will distribute questionnaires through hardcopy questionnaires.

3.2.2 Questionnaire

The objective in this study's questionnaire is to receive feedback or opinions from respondents. Questionnaire is to collect data and enable the data collected is consistent for analysis which it has followed the standard. Closed-ended question is applied in this study where it has included the questions regarding yes or no, and also the likert scale (Roopa & Rani, 2012). For respondents who are invited in this questionnaire must stay or come from Perak, Malaysia and have use mobile banking. The requirement needed to set up a high-quality questionnaire is the question must be clear and understandable. High quality questionnaires can provide valid and reliable results.

3.3 Sampling Design

Sampling is a statistical foundation which is collected from respondents. Sampling design is a combination of sampling method which follow the procedures and rules that

include all elements for populations in a sample and estimator which formulate the statistic of sample result.

3.3.1 Target Population

As follow the objective in this study, the target respondents are those who used mobile banking and staying or come from Perak, Malaysia. Perak is chosen to investigate the CS because researchers tend to investigate what reason will cause Perak to have less people using mobile banking.

3.3.2 Elements of Sampling

Certain elements must be fulfilled which are the respondents who participate in this study must stay or come from Perak. Moreover, respondents that are invited are those who have using mobile banking.

3.3.3 Techniques of Sampling

This study applied the method of convenience sampling. Convenience sample means respondents are easy to access and those respondents are most close to the researcher. Convenience Sample helps to eliminate limitations throughout this study. Besides that, friends or family members can become the respondents

due to the fact that they are easy to access as compared to the stranger in the market (Taherdoost, 2016).

3.3.4 Sample size

Krejcie and Morgan (1970) was used to determine the sample size required for this study. It is easy for researchers to figure out the sample size by using Perak populations due to Krejcie and Morgan (1970) having a fixed number of sample size. By using the table from Krejcie and Morgan (1970), 384 target respondents in Perak will be participated in this survey questionnaire with the population of 2.49 million (Department of Statistics Malaysia, Official Portal, 2019). We distributed 400 questionnaires to the target respondents and collected 400 questionnaires from the target respondents.

Table 3.3.4:

Determining Sample Size for Given Population

N	S	N	S	N	S
10	10	220	140	1200	291
5	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

Source: Krejcie and Morgan (1970).

3.4 Study Instrument

Study Instrument are the tools of measurement whether researchers are using the design of questionnaires or interview to collect data on the study.

3.4.1 Pilot Test

Pilot-test is required to conduct before distributing questionnaires to the public in order to minimize mistakes or error for this study. The objective of pilot-test is to ensure the questions in the questionnaire are clearly understood by the respondents. The pilot-test for this study involved 30 respondents to provide feedback and to test the reliability and validity of the survey questionnaire. Author who are Kieser and Wassmer as well as Browne recommended that pilot test should involve 20 to 40 sample size (Whitehead, Cooper and Campbell, 2015)

Table 3.4.1:

Pilot Test

Variable	Construct	Cronbach's Alpha	No.of item
DV	Customer Satisfaction on Mobile Banking	0.708	7
IV1	Transaction Speed	0.809	7
IV2	Brand Trustworthiness	0.708	7
IV3	Service Quality	0.887	7
IV4	Security	0.800	7

Source: Developed from this research

Table 3.4.1 shows overall Cronbach's Alpha generated from SPSS falls between 0.708 and 0.887. Refer to Pilot test's benchmark, the results for SQ, TS, and ST are very good reliability while CS and BT consider good reliability. Variable that has the highest Cronbach's Alpha is SQ amounting to 0.887 while TS is the second highest amounting to 0.809. Moreover, ST is third highest amounting to 0.800 while CS and BT is the lowest amounting to 0.708.

3.4.2 Designation of Questionnaire

In this study, the survey questionnaire was separated into six sections. Cover page of the survey questionnaire provided an overview purpose of this study. Section A contains the information about whether they have an account in bank,

do they use mobile banking, do their bank offers mobile banking facilities, age group, gender, occupation, and education level. Section B to F contains the information on CS, TS, BT, SQ, and ST. Section B to Section F measured by using 5-likert-scale.

3.5 Constructs Measurement

Questionnaire is constructed using scale of nominal and likert.

3.5.1 Nominal Scale

It categorizes the observation but not quantify the difference between the observations (Gravetter & Vallnau, 2010). For the questionnaire, Section A has used nominal scale to contract the questions. For example, options for education level are separated into different categories.

3.5.2 Likert Scale

It is used for Section B to Section F in questionnaire. Respondents provide the level of agreement based on five-likert-scale where "1", "2","3","4" and "5" represents strongly disagree (SD), disagree (D), neither agree nor disagree (N), agree (A) and strongly agree (SA) respectively.

3.6 Data Processing

After the data collected, SPSS software is used to analyse the data.

Step 1: Data Checking

The objectives are to ensure the validity or reliability of the survey questionnaire. The data is considered valid in the condition that the questionnaire is understandable and clear. After the Pilot test with the comments, the correction will be done in order to increase the questionnaire's quality and validity.

Step 2: Data Editing

After the questionnaire is collected, the amendment is conducted to ensure that the results are accurate. After analyzing the comments, amendments were conducted on the sentences that are unclear and restructure the sentence that have grammar or tenses mistake as well as change the interrogative sentence to declarative sentence.

Step 3: Data Coding

This step is to derive code from data that obtained. The objective is to bring out the meaning of data provided by respondents. Numerical coding is applied for each section, different code represents a different meaning in the questionnaire. The likert scale in this study is in between “1” to “5”.

Step 4: Data Transcribing

This is the process regarding researcher will key in the survey's data into excel, then import to SPSS. By doing this way, each of the researchers only have to key in almost 80 questionnaires in this study. This action is to ensure zero error and avoid carelessness when researcher key in data.

Step 5: Data Cleaning

This is the process of taking out or excluding the questionnaire that has missing data or information. After checking, those questionnaires having missing data were considered error and should be taken out. This action is to ensure the result that generate is reliable and valid for this study.

3.7 Analysis of Data

3.7.1 Descriptive Analysis

It is defined as exploring something that existed and something that is new. Besides, it consists of collecting data related to people, individuals, products, and events. After the collection, researches have to compute, organize, and interpret the outcome (Loeb, et al., 2017).

In this study's questionnaire, Section A is using nominal scales to identify the respondent's information such as age, gender, education level, and occupation. However, in Section B to Section F of the questionnaire are using the scale of likert to evaluate each variable. Data can be collected from 384 respondents in Perak, Malaysia. The frequency counts of each variable are recorded in order to interpret the data by identifying mean, median, mode, standard deviation, as well as correlation of each variable.

3.7.2 Reliability Test

Cronbach's Alpha used to test or determine scale internal consistency and it will express in the range between 0 and 1. Internal consistency is to analyse how the test or survey is reliable and the items evaluate the same concept so that it can ensure the items are interconnected within the test. High reliable in internal consistency is when the scale of items is to measure the same concept. As the expected reliability increase, the chances of test score consider error will be decreased (Tavakol & Dennick, 2011). There are six cut-point reliability test below:

Table 3.7.2:

Rule of Thumb for Reliability test

Cronbach's Alpha	Internal Consistency
0.80 and above	very good reliability
0.70 to 0,80	good reliability
0.60 to 0.70	fair reliability

Below 0.60	poor reliability

Source: Zikmund, Barry, Jon and Mitch (2010).

3.7.3 Inferential Analysis

3.7.3.1 Pearson Correlation Coefficient, R

R is also known as the Pearson product-moment correlation (PPMC). R used to evaluate the strength between DV and one of the IV. The test's range is between 0 and 1.

Table 3.7.3.1:

Rule of Thumb for Interpreting the Size of a Correlation Coefficient

Size of Correlation	Interpretation
.90 to 1.00 (-.90 to -1.00)	Very high positive (negative) correlation
.70 to .90 (-.07 to -.90)	High positive (negative) correlation
.50 to .70 (-.05 to -.70)	Moderate positive (negative) correlation
.30 to .50 (-.03 to -.50)	Low positive (negative) correlation
.00 to .30 (-.00 to -.30)	Negligible correlation

Adopted by: Mukaka (2012).

For this test, it used to measure correlations among a couple of variables, correlations within and between pairs of variables. Next, this test is to evaluate the strength of relationships between pairs of variables as well as whether two variables have significant linear relationship.

3.7.3.2 Multiple Linear Regression Analysis (MLR)

This analysis is to forecast more than two variable's value. DV is the variable that wants to predict. In other words, the value DV is predicted by the IV. Assumptions of MLR are DV and IV have linear relationship, IV are not highly correlated with each other, residual must be normally distributed, as well as y observation is independently (Kenton, 2019).

Multiple Linear Regression Analysis Equation:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$

Where Y= CS

X_1 = TS

X_2 = BT

X_3 = SQ

X_4 =ST.

ϵ = residual

β_0 = y- intercept (constant term)

β_p = slope coefficients for independence variable

3.7.4 Analysis of Variable (ANOVA)

There are few assumptions in the ANOVA. Firstly, the data used in ANOVA can be in the form of parametric data which is in ratio or interval, and non-parametric data which measured the ranked data. Secondly, the assumption of ANOVA is ANOVA must be normally distributed. Thirdly, the assumption of ANOVA is the variance must be homogeneity. In addition, the value of each observation must be independent means each observation is not influenced by other observations (Sawyer, 2009).

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

This chapter introduces the pattern and analysis of results. Data were collected from 400 respondents and the validity of the hypotheses was tested using the SPSS. The results are represented in tabular form. This chapter is mainly divided into several parts.

4.1 Descriptive Analysis

It is to investigate whether the respondents are holding bank account or not, whether the respondents have used mobile banking or not, whether the respective banks offer mobile banking facilities or not, age, gender, occupation, and education levels.

4.1.1 Demographic Profile of Respondents

Table 4.1.1:

Total Response of Mobile Banking Users

		Frequency	Percentage (%)
Do you have bank account?	Yes	400	100
	No	0	0
Do you use mobile banking?	Yes	400	100
	No	0	0
Does your bank offer facilities on mobile banking?	Yes	400	100
	No	0	0

Source: Developed from this research

Table 4.1.1 shows the percentage and frequency of 400 respondents who have been selected randomly to complete the questionnaire for our study purpose. Among these 400 respondents, all of them are having bank accounts and using mobile banking. Besides, the respondent's respective bank does offer mobile banking facilities. Therefore, it shows 100% for these 3 questions.

Table 4.1.2:

Age

		Frequency	Percentage (%)
Age	Below 20	51	12.8
	20-29	326	81.5
	30-39	16	4.0
	40-49	6	1.5
	50 and above	1	0.3

Source: Developed from this research

Table 4.1.2 shows the percentage and frequency of the age for 400 respondents. From the table, the age of respondents of our study were contains 51 respondents (12.80%) are below the age of 20, 326 respondents (81.50%) are from between the age of 20 to 29, 16 respondents (4.00%) are from between the age of 30 to 39, 6 respondents (1.50%) are from between the age of 40 to 49, and 1 respondent (0.30%) are from the age of 50 and above. Based on the percentage, the age between 20 to 29 represent the highest percentage among the age group, whereas the age of 50 and above represent the lowest percentage among the age group.

Table 4.1.3:

Gender

		Frequency	Percentage (%)
Gender	Male	163	40.8
	Female	237	59.3

Source: Developed from this research

Table 4.1.3 shows the percentage and frequency of the gender of 400 respondents. Based on the table, there are 163 respondents (40.80%) who are male in this study. Nonetheless, there are 237 respondents (59.30%) who are female in this study.

Table 4.1.4:

Occupation

		Frequency	Percentage (%)
Occupation	Student	366	91.5
	Government Servant	3	0.8
	Retired	1	0.3
	Homemaker	4	1.0
	Self-employed	9	2.3
	Others	17	4.3

Source: Developed from this research

Table 4.1.4 shows the percentage and frequency of the occupation for 400 respondents. From the table, students were occupied by 366 people (91.50%) which is the highest among all the occupation groups. Furthermore, for government servants, retired, homemaker, self-employed were occupied 3 people (0.80%), 1 person (0.30%), 4 people (1.0%), and 9 people (2.30%) respectively. On the other hand, others contained 17 people (4.3%) in total, where the categories for others were banker, designer, doctor, educator, full time employee, lecturer, and private sector.

Table 4.1.5:

Education level

		Frequency	Percentage (%)
Education level	Diploma	20	5.0
	Degree	351	87.8
	Master	12	3.0
	PhD	2	0.5
	Others	15	3.8

Source: Developed from this research

Table 4.1.5 shows the percentage and frequency of the education level for 400 respondents. From the table, the education level of the respondents mostly are from degree holders which consists 351 respondents (87.80%) of the respondents. Whereas, for diploma holders, master holders, and PhD are 20 respondents (5.00%), 12 respondents (3.00%), and 2 respondents (0.50%) respectively. The others consist of 15 respondents (3.80%) in total where the categories for others were foundation, SPM, and STPM.

4.2 Central Tendencies Measurement of Constructs

Centralized trend metrics are useful for evaluating each variable using averages and rankings. Table 4.2.1 lists the centralized trend measures for the DV.

Table 4.2.1:

Customer Satisfaction on mobile banking (CS)

Statement	SD (%)	D (%)	N (%)	A (%)	SA (%)	Mean	Standard Deviation	Variance	Ranking
CS 01	0.0	0.8	6.0	65.5	27.8	4.20	0.572	0.327	1
CS 02	0.0	3.5	22.5	39.8	34.3	4.05	0.841	0.707	4

CS 03	0.3	1.5	10.8	60.0	27.5	4.13	0.670	0.449	2
CS 04	0.3	1.5	17.8	51.5	29.0	4.08	0.739	0.546	3
CS 05	0.5	4.5	26.8	39.8	28.5	3.91	0.879	0.772	5

Source: Developed from this research

Table 4.2.1 shows the highest ranking of the statement is 'Mobile banking facilities is easy to use' and the value of mean is 4.20.The percentage of the respondents rate for A (65.5%), SA (27.8%), N (6.0%), D (0.8%), and SD (0.0%) .

The second ranking of the statement is 'I am satisfied the service provided by mobile banking' with the mean value 4.13. The percentage of the respondents rate for A (60.0%), SA (27.5%), N (10.8%), D (1.5%) and SD (0.3%).

The third ranking of the CS statement is 'I feel confident to use mobile banking facilities due to bank reputation' and with a mean value of 4.08. The percentage of respondents rated for A (51.5%), SA (29.0%), N (17.8%), D (1.5%), and SD (0.3%).

Besides, the following ranking of the CS statement is 'I use mobile banking facilities frequently'. This statement has 4.05 of the value of mean. The

percentage of the respondents rate for A (39.8%), SA (34.3%), N (22.5%), D (3.5%), and SD (0.0%).

The lowest ranking of the statement is 'The bank able to solve problem that related to mobile banking in a shorter time' and it has 3.91 of mean value. The percentage of the respondents rate for A (39.8%), SA (28.5%), N (26.8%), D (4.5%) and SD (0.5%).

Table 4.2.2:

Transaction Speed (TS)

Statement	SD (%)	D (%)	N (%)	A (%)	SA (%)	Mean	Standard Deviation	Variance	Ranking
TS 01	0.0	0.3	6.8	61.5	31.5	4.24	0.578	0.335	5
TS 02	0.0	0.8	5.5	54.0	39.8	4.33	0.613	0.376	2
TS 03	0.0	0.0	3.8	37.3	59.0	4.55	0.568	0.323	1
TS 04	0.0	1.3	15.5	47.5	35.8	4.18	0.730	0.532	6
TS 05	2.5	10.5	25.5	41.3	20.3	3.66	0.996	0.991	7
TS 06	0.0	0.3	6.3	60.8	32.8	4.26	0.577	0.333	4

TS 07	0.3	0.0	11.8	48.3	39.8	4.27	0.681	0.464	3

Source: Developed from this research

Table 4.2.2 shows the statement that represents first ranking for TS is 'Mobile banking saves my time compare to make transactions at branch or ATM' with the mean of 4.55. The percentage of the respondents rate for A (37.3%), SA (59.0%), N (3.8%), D (0.0%), and SD (0.0%).

The second ranking of the statement for TS is 'Mobile banking provide speedy transaction rather than traditional banking'. The value of mean is 4.33 and percentage of the respondents response to A (54.0%), SA (39.8%), N (5.5%), D (0.8%) and SD (0.0%).

It followed by a third ranking statement which is 'One of the reasons that I would like to use mobile banking is due to the speed of transaction' with the mean value of 4.27 and the percentage of the respondents rate for A (48.3%), SA (39.8%), N (11.8%), D (0.0%) and SD (0.3%).

The following ranking of the statement is 'Mobile banking can speed up my payment transactions'. This statement has the mean values of 4.26 which the percentage of the respondents who rated for A (60.8%), SA (32.8%), N (6.3%), D (0.3%), and SD (0.0%).

'I need longer time to complete the mobile banking transaction due to network connectivity' is the next ranking statement. It has a mean value of 4.24 and

percentage of the respondents response to A (61.5%), SA (31.5%), N (6.8%), D (0.3%), and SD (0.0%).

The next ranking statement is 'Transactions run smoothly and quick access when I am using mobile banking'. This statement has a mean value of 4.18 and the percentage that respondents rate for A (47.5%), SA (35.8%), N (15.5%), D (1.3%), and SD (0.0%).

'The speed of mobile banking has increased my consumption' is the last ranking statement for TS which has 3.66 of the mean value. The percentage of the respondents who rated for A (41.3%), SA (20.3%), N (25.5%), D (10.5%) and SD (2.5%).

Table 4.2.3:

Brand Trustworthiness (BT)

Statement	SD (%)	D (%)	N (%)	A (%)	SA (%)	Mean	Standard Deviation	Variance	Ranking
BT 01	0.0	0.8	15.3	61.5	22.5	4.06	0.637	0.405	5
BT 02	0.3	0.8	17.8	54.5	26.8	4.07	0.703	0.494	4
BT 03	0.0	1.3	16.3	50.7	31.8	4.13	0.717	0.514	1
BT 04	0.3	1.0	16.3	52.5	30.0	4.11	0.717	0.514	2

BT 05	0.0	1.0	16.5	56.0	26.5	4.08	0.682	0.465	3
BT 06	0.5	3.5	36.0	40.8	19.3	3.75	0.822	0.675	7
BT 07	0.8	3.0	24.5	39.0	32.8	4.00	0.873	0.762	6

Source: Developed from this research

Table 4.2.3 shows the statement that has the highest ranking of BT is 'Mobile banking offered by trusted channels' with the mean of 4.13. The percentage of the respondents who rated for A (50.7%), SA (31.8%), N (16.3%), D (1.3%), and SD (0.0%).

The second ranking of the statement for BT is 'Mobile banking creates a positive experience to the user' with the mean value of 4.11.The percentage of the respondents who rated for A (52.5%), SA (30.0%), N (16.3%), D (1.0%), and SD (0.3%).

The next ranking statement is 'The bank comply for all transactions confidentiality in mobile banking'. It has a mean value of 4.08. The percentage of the respondents who rated for A (56.0%), SA (26.5%), N (16.5%), D (1.0%), and SD (0.0%).

It followed by a fourth ranking statement which is 'Mobile banking offered by the bank is competent'. It has a mean value of 4.07 and percentage of the

respondents response to A (54.5%), SA (26.8%), N (17.8%), D (0.8%), and SD (0.3%).

Besides, the following ranking of the BT statement is 'Mobile banking offered by the bank is trustworthy'. It has 4.06 of the mean value. The percentage of the respondents who rated for A (61.5%), SA (22.5%), N (15.3%), D (0.8%) and SD (0.0%).

The sixth ranking of the BT statement is 'I feel trusted on the icon of mobile banking application' and with a mean of 4.00. The percentage of the respondents who rated for A (39.0%), SA (32.8%), N (24.5%), D (3.0%), and SD (0.8%).

The lowest ranking of the statement is 'The bank respond quickly when user have any queries on the mobile banking application' and it has a mean value of 3.75. The percentage of the respondents who rated for A (40.8%), SA (19.3%), N (36.0%), D (3.5%), and SD (0.5%).

Table 4.2.4:

Service Quality (SQ)

Statement	SD (%)	D (%)	N (%)	A (%)	SA (%)	Mean	Standard Deviation	Variance	Ranking
SQ 01	0.3	0.3	11.3	45.8	42.5	4.30	0.694	0.481	1
SQ 02	0.8	2.8	16.3	47.0	33.3	4.09	0.816	0.666	4
SQ 03	0.5	1.3	10.8	50.7	36.8	4.22	0.723	0.523	2
SQ 04	0.0	0.8	15.3	61.5	22.5	4.06	0.637	0.405	5
SQ 05	0.3	1.5	25.8	49.5	23.0	3.94	0.753	0.567	6
SQ 06	0.0	2.8	14.5	49.0	33.8	4.14	0.758	0.575	3
SQ 07	0.3	3.8	25.8	50.2	20.0	3.86	0.782	0.612	7

Source: Developed from this research

Table 4.2.1 shows the highest ranking of the SQ statement is 'I feel better using Mobile Banking service compared to going branch or ATM' and the value of mean is 4.30. The percentage of the respondents who rated for A (45.8%), SA (42.5%), N (11.3%), D (0.3%) and SD (0.3%).

It is followed by the statement of 'The service quality obtained from the mobile banking application has greatly affected my satisfaction', the mean of this statement is 4.22. The percentage of the respondents who rated for A (50.7%), SA (36.8%), N (10.8%), D (1.3%) and SD (0.5%).

The third ranking of the statement is 'The interaction with the mobile banking systems is clear and understandable' and with a mean of 4.14. The percentage of the respondents who rated for A (49.0%), SA (33.8%), N (14.5%), D (2.8%) and SD (0.0%).

Besides, the following ranking of the SQ statement is 'The mobile banking application can function well as needed all the time'. It has a mean of 4.09. The percentage of the respondents who rated for A (47.0%), SA (33.3%), N (16.3%), D (2.8%), and SD (0.8%).

The fifth ranking of the statement is 'The mobile transactions provided by the bank are accurate' and with a mean of 4.06. The percentage of the respondents who rated for A (61.5%), SA (22.5%), N (15.3%), D (0.8%), and SD (0.0%).

'The mobile banking service provider's capabilities can easily access to the solution' is the next ranking of the statement with the value of mean of 3.94. The percentage of the respondents who rated for A (49.5%), SA (23.0%), N (25.8%), D (1.5%) and SD (0.3%).

The lowest ranking of the statement is 'If there are problems related to mobile banking transaction, I can talk to a customer service representative' and it has

the mean value of 3.86. The percentage of the respondents who rated for A (50.2%), SA (20.0%), N (25.8%), D (3.8%), and SD (0.3%).

Table 4.2.5:

Security (ST)

Statement	SD (%)	D (%)	N (%)	A (%)	SA (%)	Mean	Standard Deviation	Variance	Ranking
ST 01	0.0	1.3	6.8	64.3	27.8	4.19	0.601	0.362	3
ST 02	0.0	1.0	9.3	72.0	17.8	4.07	0.554	0.307	7
ST 03	0.3	0.5	16.0	57.0	26.3	4.09	0.677	0.459	6
ST 04	0.0	2.3	16.0	47.3	34.5	4.14	0.760	0.577	4
ST 05	0.0	1.5	17.8	48.8	32.0	4.11	0.739	0.546	5
ST 06	0.0	0.3	7.2	43.5	49.0	4.41	0.635	0.403	2
ST 07	0.0	0.0	8.8	31.5	59.8	4.51	0.653	0.426	1

Source: Developed from this research

Table 4.2.5 shows the highest ranking of the statement for ST is 'Customer are expecting more security for regular transaction using mobile device'. The value of mean is 4.51. The percentage of the respondents who rated for A (31.5%), SA (59.8%), N (8.8%), D (0.0%), and SD (0.0%).

The next ranking statement is 'Authentication is important to ensure end to end user' with the mean of 4.41. The percentage of the respondents who rated A (43.5%), SA (49.0%), N (7.2%), D (0.3%), and SD (0.0%).

The third ranking of the statement is 'Identity theft may not know information about my online transactions if I use mobile banking application'. This statement has the mean values of 4.19 and the percentage of the respondents who rated for A (64.3%), SA (27.8%), N (6.8%), D (1.3%) and SD (0.0%).

It is followed by a fourth ranking statement which is 'While using mobile banking, I believe that the security system provides a secure environment' and has a mean of 4.14. The percentage of the respondents who rated for A (47.3%), SA (34.5%), N (16.0%), D (2.3%), and SD (0.0%).

The following ranking statement for ST is 'While using mobile banking, I believe that the security system stops any unauthorized changes to a transaction'. The mean value for this statement is 4.11. The percentage of the respondents who rated for A (48.8%), SA (32.0%), N (17.8%), D (1.5%), and SD (0.0%).

'While using mobile banking, I believe that the security system does not allow unauthorized access to the account' is the next ranking of the statement with the

value of mean of 4.09. The percentage of the respondents who rated for A (57.0%), SA (26.3%), N (16.0%), D (0.5%), and SD (0.3%).

The last ranking statement for ST is 'While using mobile banking, I believe that the security system will confirm my identity before processing transactions' and it has a mean of 4.07. The percentage of the respondents who rated for A (72.0%), SA (17.8%), N (9.3%), D (1.0%), and SD (0.0%).

4.3 Internal Reliability Test

Table 4.3.1:

Reliability Test

Variable	**Cronbach's Alpha**	**No.of items**
Customer Satisfaction on Mobile Banking (CS)	0.725	5
Transaction Speed (TS)	0.746	7
Brand Trustworthiness (BT)	0.796	7
Service Quality (SQ)	0.752	7
Security (ST)	0.718	7

Source: Developed from this research.

Table 4.3.1 shows the result of Cronbach's alpha for DV which is CS is 0.725. CS is having good reliability because their values have exceeded 0.7. For independent vaariables, ST is the smallest value which is 0.718 and BT is the highest value which is 0.796. Besides, TS and SQ are 0.746 and 0.752 respectively. Based on the result, the Cronbach's alpha for DV and IVs is exceeded 0.7. It is not necessary to remove any questions from the survey.

4.4 Inferential analysis

4.4.1 Pearson Correlation Coefficient, R

Table 4.4.1:

Pearson Correlation Coefficient

	Transaction Speed	Brand Trustworthiness	Service Quality	Security
Customer Satisfaction on mobile banking	0.481** (0.000)	0.539** (0.000)	0.613** (0.000)	0.466** (0.000)

**Correlation is significant at the 0.01 level (1 tail)

Source: Developed from this research

Pearson correlation is a test to measure the association between DV and IV. One-tailed test is used since previous hypotheses had stated that all of the IVs have positive relationships with DV which there is only in one direction (right hand side).

Table 4.4.1 showed that there is a positive relationship between CS and all of the IVs (TS, BT, SQ, and ST) because all Pearson correlation coefficients are in positive values. BT (0.539) and SQ (0.613) are considered as moderate positive strength of the association between the DV and IV since the values of R are fall within the range of 0.50 to 0.70. BT is consider positive strength with DV which supported by Lee and Chung (2009) and SQ is supported by Chrispine (2017). On the other hand, the TS (0.481) and ST (0.466) are considered as low positive strength of association because the values of R are between the range of 0.30 to 0.50. TS is consider positive strength with DV which is supported by Alsamydai, Yassen, Alnaimi,Dajani and Al-Qirem (2014) and security is supported by Jannat and Ahmed (2015). Since all p-values in Table 4.4.1 are 0.000 which is less than the level of significance at 1%, it concludes that there are positive relationships in between CS and all of the IVs (TS, BT, SQ, and ST).

4.4.2 MLR

Table 4.4.2.1:

Multiple Linear Regression for Customer Satisfaction on Mobile Banking and four independent variable

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.662	0.439	0.433	0.38890

Predictors: (Constant), TS, BT, SQ, ST

Dependent Variable: CS

Source: Developed from this research

Correlation coefficient, R is used to examine the linear relationship between DV and IV in terms of strength and direction. Based on Table 4.4.2.1, R is 0.662 which means the IV (TS, BT, SQ and ST) are moderate positive correlation with the DV (CS). Coefficient of determination, R Square is used to measure the proportion of independent variable can be explained to dependent variable in a model of regression. R square is 0.439 means about 43.90% of the variation in predicted CS is explained by the variation in TS, BT, SQ and ST. However, this study has 56.10% not explained because this study does not involve the major variables that will affect the CS. Adjusted R-Square is for this study is about 43.30% of the variation in predicted CS is explained by the variation in TS, BT, SQ and ST, after the degree of freedom is taken into account.

Table 4.4.2.2:

Multiple Linear Regression for Customer Satisfaction on Mobile Banking and four independent variable

Model		Unstandardized Coefficients		Standardized Coefficient	t	Sig.	
		B	Std. Error	Beta			
1	(Constant)	.261	.241		1.086	.278	Significant (<0.05)
	TS	.258**	.052	.218	4.985	.000	Significant (<0.05)
	BT	.128**	.061	.123	2.086	.038	Significant (<0.05)
	SQ	.378**	.067	.343	5.675	.000	Significant (<0.05)
	ST	.158**	.062	.123	2.555	.011	Significant (<0.05)

*,**,*** indicates 10%, 5% and 1% respectively

Source: Developed from this research

Table 4.4.2.2 shows SQ is the biggest contribution to CS compared to the other three variables. The value of unstandardized coefficients B and standardized coefficient Beta value for SQ is the highest, followed by TS, ST and BT.

For SQ, the value of coefficient for unstandardized B and standardized Beta are 0.378 and 0.067 respectively. The interpretation for coefficient of unstandardized is when SQ increases by 1 score, the estimated CS increases by 0.378, ceteris paribus. The interpretation for coefficient of standardized Beta is when one standard deviation increases in SQ, the standard deviation for CS increases by 0.067, ceteris paribus. The independent variable is significantly to explain the dependent variable, as p-value is less than 0.05 level of significant. P-value for SQ is 0.000 which indicates SQ is a significant relationship with CS. This outcome is consistent with Sagib and Zapan (2014).

For TS, the value of coefficient for unstandardized Beta and standardized B are 0.258 and 0.052 respectively. The interpretation for coefficient of unstandardized B is when TS increases by 1 score, the estimated CS increases by 0.258, ceteris paribus. The interpretation for coefficient of standardized Beta is when one standard deviation increases in TS, the standard deviation for CS increases by 0.052, ceteris paribus. The p-value for TS is 0.000 which indicates TS is a significant relationship with CS. This outcome is consistent with Muluka, Jannat and Ahmed (2015).

For ST, the value of coefficient for unstandardized B and standardized Beta are 0.158 and 0.062 respectively. The interpretation for coefficient of unstandardized B is when ST increases by 1 score, the estimated CS increases by 0.158, ceteris paribus. The interpretation for coefficient of standardized Beta is when one standard deviation increases in ST, the standard deviation for CS increases by 0.062, ceteris paribus. The p-value for ST is 0.011 which indicates ST is a significant relationship with CS. This outcome is consistent with Gomachab and Maseke (2018).

For BT, the value of coefficient for unstandardized B and standardized Beta are 0.128 and 0.061 respectively. The interpretation for coefficient of unstandardized B is when BT increases by 1 score, the estimated CS increases by 0.128, ceteris paribus. The interpretation for coefficient of standardized Beta is when one standard deviation increase in BT, the standard deviation for CS increase by 0.061, ceteris paribus. The p-value for BT is 0.038 which indicates BT is a significant relationship with CS. This outcome is consistent with Onyancha, Masrek, Mohamed, Daud and Omar (2013).

Equation 4.4.2.2

$\widehat{CS} = \widehat{\beta_0} + \widehat{\beta_1}$ **TS** $+ \widehat{\beta_2}$ **BT** $+ \widehat{\beta_3}$ **SQ**$+\widehat{\beta_4}$ **ST**

$\widehat{CS}$ **= 0.261 + 0.258 TS +0.128 BT + 0.378 SQ + 0.158 ST**

Interpretation for Equation 4.4.2.2:

$\widehat{\beta_0}$ = 0.261; When TS, BT, SQ and ST are zero, the predicted CS is 0.261 unit.

$\widehat{\beta_1}$ = 0.258; It indicates that the predicted CS increases by 0.258 units for each additional 1 unit in TS with holding all other variables constant.

$\widehat{\beta_2}$ = 0.128; It indicates that the predicted CS increases by 0.128 units for each additional 1 unit in BT with holding all other variables constant.

$\widehat{\beta_3}$ = 0.378; It implies that if SQ is increased by 1 unit, the predicted CS increases by 0.378 units with holding all other variables constant.

$\widehat{\beta_4}$ = 0.158; It implies that if ST is increased by 1 unit, the predicted CS increases by 0.158 units with holding all other variables constant.

4.5 One-way ANOVA

Table 4.5.1:

ANOVA One Way Test (Overall Model)

ANOVA						
Model		Sum of Square	df	Mean Square	F	Sig.
1	Regression	46.698	4	11.674	77.190	.000**
	Residual	59.741	395	.151		
	Total	106.439	399			

Predictors: (Constant), TS, BT, SQ, ST

Dependent Variable: CS

*,**,*** indicates 10%, 5% and 1% respectively.

Source: Developed from this research

H_0: The respondents' level of agreement have no distinct opinion towards CS.

H_1: At least one respondent's level of agreement have distinct opinion towards CS.

Table 4.5.1 shows p-value (0.000) is lower than the 0.05 significance level. F is sufficient to determine the table is fitted. There is acceptable testimony to conclude that at least one of the respondents' level of agreement have distinct opinion towards CS due to null hypothesis is rejected.

4.6 Conclusion

This chapter describes descriptive analysis where the data were obtained from 400 respondents who have been selected randomly. This study implemented internal reliability test, inferential analysis to test the data. In the next chapter, discussion involved discussion of major findings, implication, limitation and recommendation.

CHAPTER 5: DISCUSSION, CONCLUSION, IMPLICATION

5.0 Summary

This study examines TS, BT, SQ, and ST influence customer satisfaction on mobile banking in Perak, Malaysia. According to Tam and Oliveira (2017), mobile banking has become a crucial part of the blueprint for the financial industry in order to enhance the satisfaction of customers. This is because mobile banking is able to clarify customer's problems through self-service technologies. By using self-service channels as known as mobile banking to conduct banking activities, customers could receive plenty of benefits (Chandran, 2014). Several issues such as network performance, security issues, service quality and penetration of E-Payment have been examined in this study.

In this research, EDT and SQT have been adopted to explain the variable of SQ. According to Oliver (1980), this theory stated disconfirmation that indicated customer satisfaction by comparing the expectation between before and after consumption on the products or services. Consumers will be satisfied when they meet their expectations of the products or services. ET was adopted to explain the variable of ST. According to ratio constructed by Au (2008), effort or benefit which originated from input or output ratio by Oliver and Swan (1989), individuals seek to get optimal gains and minimize losses (Vicente Martinez-Tur, 2006). BT was explained by AT. This theory is originated by dissonance theory. This theory stated that customers will have cognitive comparison between their expectations about the product and the actual performance

of the product (Peyton, 2003). Consumers will adjust perception towards a product to more matching with their expectations to avoid dissonance (Anderson, 1973).

One-Way ANOVA test resulted in at least one respondents' level of agreement having distinct opinion among all IVs towards CS. Besides, One-Way ANOVA test can be concluded it is suitable in illustrating the opinions of targeted respondents on TS, BT, SQ, and ST impact toward CS.

The result shows in the reliability test, Cronbach's alpha for CS is 0.725 which is exceeded 0.7 and categorized as having good reliability. Cronbach's alpha is used for the reliability test which aims to test internal consistency between DV and IV in this study. Results also show that all IV's Cronbach's Alpha has greater than 0.7, where BT carries the greatest value of Cronbach's alpha at 0.796 while the SQ has 0.752 Cronbach's alpha which is the smallest value.

In Pearson Correlation Test, the results show CS and and all IVs are positive relationships in this study since all values of R are in positive. The values fall between the range 0.50 to 0.70 is considered as moderate positive strength of the association between the DV and IVs. BT and SQ have fallen within this range since the value of R are 0.539 and 0.613 respectively. On the other hand, ST and TS are considered as low positive strength of association since the value of R for these two variables are 0.466 and 0.481 respectively which is fall within the range of 0.30 to 0.50.

In Multiple Linear Regression, the value of unstandardized coefficients B and standardized coefficient Beta value for SQ is the highest amounting to 0.378 and 0.067 respectively. Moreover, the value of coefficient for unstandardized Beta and standardized B for TS is the second highest amounting to 0.258 and 0.052 respectively.

Furthermore, the value of coefficient for unstandardized B and standardized Beta for ST is third highest amounting to 0.158 and 0.062 respectively. Lastly, the value of coefficient for unstandardized B and standardized Beta for BT is the lowest amounting to 0.128 and 0.061 respectively. The p-value for SQ (0.000), TS (0.000), ST (0.011) and BT (0.038) is lesser than the significant level (0.05). Hence, all the IVs are significant relationship CS. Hypothesis in Chapter 2 is consistent with the results generated in this study.

5.1 Discussion of Major Finding

Zhao, Zhang and Chau (2012) stated SQ is significantly positive with CS which means if the level of service that provided by application is high, the customer satisfaction toward mobile banking will increase. According to Mahalakshmi and Kalaiyarasi (2016), Aghdaie and Faghani (2012) studied there are positive relationships between SQ and CS. According to Chrispine (2017) stated the level of service quality will influence the frequency of customers to use mobile banking. Customers are using mobile banking to make payment transactions due to the good service provided by the application of mobile banking. Therefore, it determines SQ and CS is a positive relationship. Based on the theory of Expectancy Disconfirmation Theory (EDT), it stated consumers satisfaction will be increased when the expectation for before and after consumption is equalized. In contrast, consumers' satisfaction will be reduced when the expectation for before and after consumption is not equal (Oliver, 1980). Based on the theory of Service Quality Theory, it used to examine the variable of SQ with the aspects of tangibles, reliability, responsiveness, assurance, and empathy. It examine in terms of physical attributes around the service, the ability of provide accurate service to consumer, the company's willingness to offer the service that is useful and fast, enhance consumer confidence by providing professional knowledge,

and company's willingness to offer service that is special for each of the consumers (Shaban, 2014).

Alsamydai, Yassen, Alnaimi, Dajani and Al-Qirem (2014) stated TS and CS is a positive relationship. When the speed of transaction is fast, it will increase the customer satisfaction toward mobile banking. Jannat and Ahmed (2015), Muluka (2015) studied there are positive relationships between TS and CS. Based on the theory of Effort Expectancy Theory, it enables consumers to conduct transactions fastly and effortlessly by using mobile banking. Not only that, mobile banking saves user's time when they use mobile banking to conduct the transaction (Carlsson, 2006 & Zhou, 2010; Bankole, Bankole & Brown, 2011). Financial institutions should enhance the speed of transaction on mobile banking and leads to increase the level of consumer satisfaction on mobile banking.

Jannat and Ahmed (2015); Gomachab and Maseke (2018) studied ST and CS is a positive relationship between each other. According to Shilpa and Veena (2018), more customers are using mobile banking nowaday due to the bank had taken the measurement on transaction security in mobile banking. Based on the theory of Equity Theory, internet users will tend to use higher security authentication than lower security authentication by comparing the purchases or services' qualities and benefit (Lee, 2012).

Onyancha (2013), the bank's image of brand is an important impact to enhance customer satisfaction. Not only that, the study stated when the brand has a positive image, the customer satisfaction is improved. Hence, there is a positive relationship between BT and CS. According to Masrek, Mohamed, Daud and Omar (2013) showed websites trust is a positive relationship with mobile banking satisfaction. When a customer trusts the bank's website which means customers are trustworthy for a particular bank. Based on the theory of Brand Trustworthiness Assimilation Theory, if

the customer is satisfied with the product and service, the customer will have higher chances of repeating purchase (Zeithaml, 1996). Not only that, customers will recommend to their relatives or friends about the product or service when the company retains good trust relationship with customers (Ian, 2011).

5.1.1 Result Summary

Table 5.1.1.1:

Reliability Test

Variable	**Cronbach's Alpha**	**No.of items**
Customer Satisfaction on Mobile Banking	0.725 (>0.70)	5
Transaction Speed	0.746 (>0.70)	7
Brand Trustworthiness	0.796 (>0.70)	7
Service Quality	0.752 (>0.70)	7
Security	0.718 (>0.70)	7

Table 5.1.1.2:

Pearson Correlation Coefficient

Independent Variable	Pearson Correlation	Finding
Transaction Speed	.481**	Low positive correlation
Brand Trustworthiness	.539**	Moderate positive correlation
Service Quality	.613**	Moderate positive correlation
Security	.466**	Low positive correlation

Table 5.1.1.3:

MLR

Independent Variables	Sig. Value	Findings
Transaction Speed	.000	Significant (<0.05)
Brand Trustworthiness	.038	Significant (<0.05)
Service Quality	.000	Significant (<0.05)
Security	.011	Significant (<0.05)

Table 5.1.1.4:

One-way ANOVA

ANOVA						
Model		Sum of Square	df	Mean Square	F	Sig.
1	Regression	46.698	4	11.674	77.190	.000** (<0.05)
	Residual	59.741	395	.151		
	Total	106.439	399			

Table 5.1.1.5:

Hypothesis Result

1. H10: There is no significant relationship between transaction speed and customer satisfaction on mobile banking.	.000	significant
2. H20: There is no significant relationship between brand trustworthiness and customer satisfaction on mobile banking.	.038	significant
3. H30: There is no significant relationship between service quality and customer satisfaction on mobile banking.	.000	significant
4. H40: There is no significant relationship		

between security and customer satisfaction on mobile banking.	.011	significant

5.2 Implication of study

5.2.1 Practical Implications and Theoretical Implications

Based on this study, CS is influenced by four variables which are TS, BT, SQ, and ST. All the IVs in this study showed a significant relationship towards customer satisfaction on mobile banking in Perak, Malaysia.

Firstly, this study is able to provide the information about customer satisfaction on mobile banking in Perak, Malaysia to policy maker like Bank Negara Malaysia and financial institutions. As taking TS into consideration, mobile banking users wish to fasten the speed of transactions. Therefore, banks could provide biometrics technology as additional options for users to fasten the transaction speed by verifying the user's fingerprint, or using voice identification instead of using SMS method. Furthermore, SQ also resulted in a significant relationship towards CS in this study. As most of the users are seeking efficient, accurate, and clear solutions when they encounter any problem on using the mobile banking services. Hence, the knowledge and attitude of the front line staff are extremely important. Banks can always

conduct training for front line staff to enrich themselves and explore more skills and abilities. In addition, BT also showed significant relationship in this study, a good experience when using mobile banking facilities can enhance the customer satisfaction on mobile banking. Therefore, policy maker shall make improvements on mobile banking facilities in order to enhance the bank reputation and increase the satisfaction level of the users. Moreover, ST also showed a significant relationship in this study. A more secure platform to perform transactions can provide more satisfaction to the user while using mobile banking. Hence, the banks should strengthen the protection on the customer's personal details and ensure that it will not be easily spread out.

Secondly, this study is also applicable for mobile banking service providers such as merchants to understand the customer satisfaction on mobile banking in Perak, Malaysia. From the result showed, TS and ST are significantly affected on CS. Therefore, when customers are satisfied with the mobile banking, they could increase the usage of mobile banking and use it to conduct business transactions. Hence, those merchants in Perak, Malaysia are encouraged to implement mobile banking to conduct any financial transactions with customers in order to increase profit margin and become more efficient.

Thirdly, the results showed that all variables are positively and significantly affect customer satisfaction on mobile banking in Perak, Malaysia. However, the result of R-squared showed the IVs in this study are not enough to explain the CS. Therefore, this study provides guidance for future researchers to investigate other variables to be studied.

5.3 Limitation of the study

While conducting this study is to examine the customer satisfaction on mobile banking in Perak (Malaysia), two limitations were identified.

The first limitation is the age of target respondents. In this study, most respondents are from age between 20-29 years old whose majority come from UTAR. Younger generations are exposed to the latest technology and internet which make it more likely to adopt these mobile banking services. Nevertheless, most elder people also might accept these services. The information provided by elderly respondents might affect our study. If more elderly respondents are involved in the study, the results may be different. Moreover, most of our respondents are students in UTAR. This might ignore some opinions from other groups of people.

The second limitation of our study is that there are only four IVs which are TS, BT, SQ and ST in the study. These four variables may not determine all possible determinants of customer satisfaction on mobile banking in Perak, Malaysia. There might be omitted other variables that could affect CS in this study. In addition, the final results of our study indicate that the IVs are not enough to explain the DV. These IVs explained only 43.9% of the DV. It means that 56.1% of the IVs did not explain the DV.

5.4 Recommendations

There are two recommendations suggested to future researchers in order to solve the limitations found in this study. Firstly, the respondents should be targeted on different types of age groups averagely instead of targeting more on younger generations (students) which from the age of 20-29. This is because different types of age groups might have different opinions on customer satisfaction on mobile banking and it might affect the results. Not only that, the elderly group's opinions might also be useful to ensure a more generalized result, so their opinions also need to be encompassed into the study as well. Hence, future researchers should target the respondents on different types of age groups averagely in order to get more accurate results. By doing this, this might assist to build in more comprehension in customer satisfaction on mobile banking.

In addition, include other suitable IVs into study to rectify the problem of factors constraint. By including other suitable IVs, it will directly increase the r-square value. When r-square value increases, it means that the IVs can be explained more to DV and at the same time there is less percentage that is left to explain. Therefore, future researchers should include other IVs which are more suitable into the study in order to get better results.

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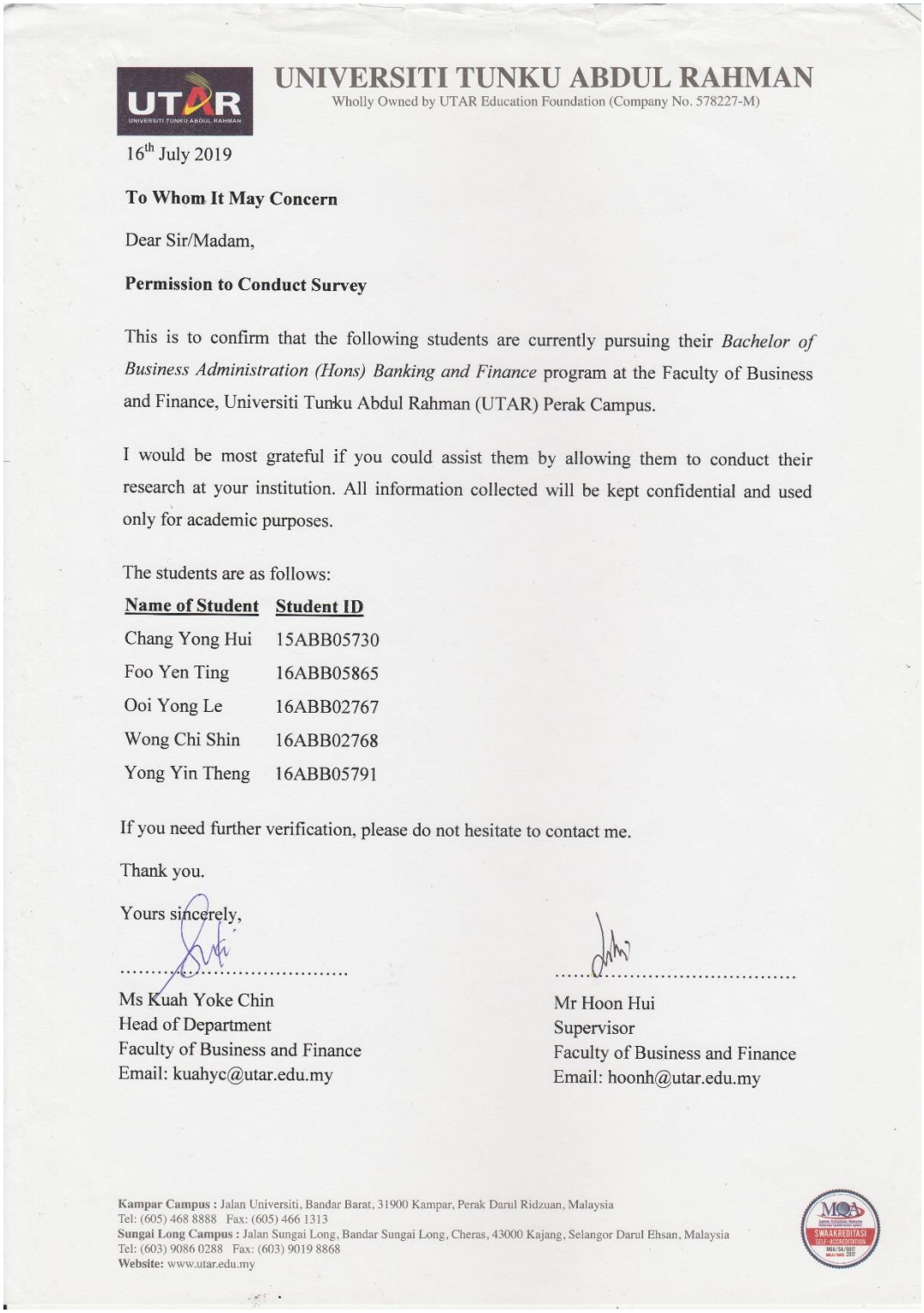
APPENDICES

APPENDIX A: Permission to Conduct Survey



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

16th July 2019

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:

Name of Student	Student ID
Chang Yong Hui	15ABB05730
Foo Yen Ting	16ABB05865
Ooi Yong Le	16ABB02767
Wong Chi Shin	16ABB02768
Yong Yin Theng	16ABB05791

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

Thank you.

Yours sincerely,

.....

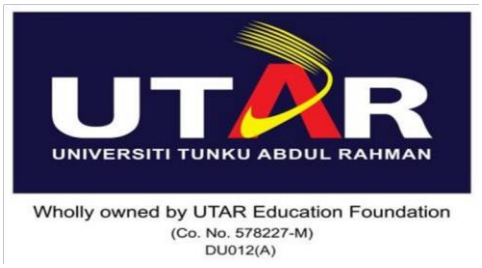
Ms Kuah Yoke Chin
Head of Department
Faculty of Business and Finance
Email: kuahyc@utar.edu.my

.....

Mr Hoon Hui
Supervisor
Faculty of Business and Finance
Email: hoonh@utar.edu.my

Kampar Campus : Jalan Universiti, Bandar Barat, 31900 Kampar, Perak Darul Ridzuan, Malaysia
Tel: (605) 468 8888 Fax: (605) 466 1313
Sungai Long Campus : Jalan Sungai Long, Bandar Sungai Long, Cheras, 43000 Kajang, Selangor Darul Ehsan, Malaysia
Tel: (603) 9086 0288 Fax: (603) 9019 8868
Website: www.utar.edu.my

APPENDIX B: Questionnaire



UNDERGRADUATE FINAL YEAR PROJECT (FYP)

BACHELOR OF ADMINISTRATION (HONS) BANKING AND FINANCE

Survey Questionnaire

CUSTOMER SATISFACTION ON MOBILE BANKING IN PERAK, MALAYSIA

Dear Respondent,

We are final year undergraduate final year students from Universiti Tunku Abdul Rahman (UTAR). The purpose of this study questionnaire is to investigate about Customer Satisfaction on Mobile Banking in Perak, Malaysia.

This questionnaire contains six sections and will take approximately 10 minutes to complete. Section A is demographic while Section B, C, D, and E are the levels of agreement that consists of 7 questions in each section. Information will be kept confidential and will only be used for academic purpose. Your kind in completing all questions in this research questionnaire are much appreciated. Thank you very much for taking your golden time to complete this survey.

Group members,

1.	Chang Yong Hui	15ABB05730
2.	Foo Yen Ting	16ABB05865
3.	Ooi Yong Le	16ABB02767
4.	Wong Chi Shin	16ABB02768
5.	Yong Yin Theng	16ABB05791

Section A: Demographics

Instruction: Please tick (✓) or fill in appropriate space.

1. Do you have bank account?

☐ Yes ☐ No

2. Do you use mobile banking?

☐ Yes ☐ No

3. Does your bank offer facilities on mobile banking?

☐ Yes ☐ No

4. Age group

☐ Below 20 ☐ 20-29 ☐30-39 ☐40-49 ☐50 and above

5. Gender

☐ Male ☐ Female

6. Occupation

☐ Student ☐ Lecturer ☐ Retired ☐ Government Servant ☐ Self-employed ☐Others:

_____

7. Education Level

☐ Diploma ☐ Degree ☐ Master ☐ PhD ☐ Others: _____

Please circle ONE number in the appropriate box based on the level of agreement.

Section B: Customer Satisfaction on Mobile Banking.

	LEVELS OF AGREEMENT	**Strongly Disagree**	**Disagree**	**Neither Agree Nor Disagree**	**Agree**	**Strongly Agree**
CS 01	Mobile banking facilities is easy to use.	**1**	**2**	**3**	**4**	**5**
CS 02	I use mobile banking facilities frequently.	**1**	**2**	**3**	**4**	**5**
CS 03	I am satisfied the service provided by mobile banking.	**1**	**2**	**3**	**4**	**5**
CS 04	I feel confident to use mobile banking facilities due to bank reputation.	**1**	**2**	**3**	**4**	**5**
CS 05	The bank able to solve problem that related to mobile banking in a shorter time.	**1**	**2**	**3**	**4**	**5**

Section C: Transaction Speed.

	LEVELS OF AGREEMENT	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
TS 01	I need longer time to complete the mobile banking transaction due to network connectivity.	**1**	**2**	**3**	**4**	**5**
TS 02	Mobile banking provide speedy transaction rather than traditional banking.	**1**	**2**	**3**	**4**	**5**
TS 03	Mobile banking saves my time compare to make transactions at branch or ATM.	**1**	**2**	**3**	**4**	**5**
TS 04	Transactions run smoothly and quick access when I am using mobile banking.	**1**	**2**	**3**	**4**	**5**
TS 05	The speed of mobile banking has increased my consumption.	**1**	**2**	**3**	**4**	**5**
TS 06	Mobile banking can speed up my payment transactions.	**1**	**2**	**3**	**4**	**5**
TS 07	One of the reasons that I would like to use mobile banking is due to the speed of transaction.	**1**	**2**	**3**	**4**	**5**

Section D: Brand Trustworthiness.

	LEVELS OF AGREEMENT	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
BT 01	Mobile banking offered by the bank is trustworthy.	**1**	**2**	**3**	**4**	**5**
BT 02	Mobile banking offered by the bank is competent.	**1**	**2**	**3**	**4**	**5**
BT 03	Mobile banking offered by trusted channels.	**1**	**2**	**3**	**4**	**5**
BT 04	Mobile banking create a positive experience to the user.	**1**	**2**	**3**	**4**	**5**
BT 05	The bank comply for all transactions confidentiality in mobile banking.	**1**	**2**	**3**	**4**	**5**
BT 06	The bank respond quickly when user have any queries on the mobile banking application.	**1**	**2**	**3**	**4**	**5**
BT 07	I feel trusted on the icon of mobile banking application.	**1**	**2**	**3**	**4**	**5**

Section E: Service Quality.

	LEVELS OF AGREEMENT	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
SQ 01	I feel better using Mobile Banking service compared to going branch or ATM.	**1**	**2**	**3**	**4**	**5**
SQ 02	The mobile banking application can function well as needed all the time.	**1**	**2**	**3**	**4**	**5**
SQ 03	The service quality obtained from the mobile banking application has greatly affected my satisfaction.	**1**	**2**	**3**	**4**	**5**
SQ 04	The mobile transactions provided by the bank are accurate.	**1**	**2**	**3**	**4**	**5**
SQ 05	The mobile banking service provider's capabilities can easily access to the solution.	**1**	**2**	**3**	**4**	**5**
SQ 06	The interaction with the mobile banking systems is clear and understandable.	**1**	**2**	**3**	**4**	**5**
SQ 07	If there are problems related to mobile banking transaction, I can talk to a customer service representative.	**1**	**2**	**3**	**4**	**5**

Section F: Security Quality

	LEVELS OF AGREEMENT	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
ST 01	Identity theft may not know information about my online transactions if I use mobile banking application.	**1**	**2**	**3**	**4**	**5**
ST 02	While using mobile banking, I believe that the security system will confirm my identity before processing transactions.	**1**	**2**	**3**	**4**	**5**
ST 03	While using mobile banking, I believe that the security system does not allow unauthorized access to the account.	**1**	**2**	**3**	**4**	**5**
ST 04	While using mobile banking, I believe that the security system provides a secure environment.	**1**	**2**	**3**	**4**	**5**
ST 05	While using mobile banking, I believe that the security system stops any unauthorized changes to a transaction.	**1**	**2**	**3**	**4**	**5**
ST 06	Authentication is important to ensure end to end user.	**1**	**2**	**3**	**4**	**5**
ST 07	Customer are expecting more security for regular transaction using mobile device.	**1**	**2**	**3**	**4**	**5**

----------END OF QUESTIONNAIRE----------

APPENDIX C: Review of Variables

	Customer satisfaction on mobile banking (DV)		
	Significant		Insignificant
	Positive	Negative	
Transaction Speed (IV)	• Alsamydai, Yassen, Alnaimi,Dajani and Al-Qirem (2014) • Jannat and Ahmed (2015) • Muluka (2015)	-	-
Brand Trustworthiness (IV)	• Onyancha (2013) • Lee and Chung (2009) • Masrek, Mohamed, Daud and Omar (2013)	-	-
Service Quality (IV)	• Zhao, Zhang and Chau (2012) • Mahalakshmi and Kalaiyarasi (2016) • Aghdaie and Faghani (2012) • Malviya (2015) • Chrispine (2017) • Sagib and Zapan (2014) • Ganesh et al. (2000), Caruana, (2002); Gerald, (2016)	-	-
Security (IV)	• Jannat and Ahmed (2015) • Gomachab and Maseke (2018)	-	-

APPENDIX D: Central Tendencies Measurement of Constructs

CS01					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	.8	.8	.8
	Neither Agree Nor Disagree	24	6.0	6.0	6.8
	Agree	262	65.5	65.5	72.3
	Strongly Agree	111	27.8	27.8	100.0
	Total	400	100.0	100.0	

CS02					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	14	3.5	3.5	3.5
	Neither Agree Nor Disagree	90	22.5	22.5	26.0
	Agree	159	39.8	39.8	65.8
	Strongly Agree	137	34.3	34.3	100.0
	Total	400	100.0	100.0	

CS03					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	6	1.5	1.5	1.8
	Neither Agree Nor Disagree	43	10.8	10.8	12.5
	Agree	240	60.0	60.0	72.5
	Strongly Agree	110	27.5	27.5	100.0
	Total	400	100.0	100.0	

CS04					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	6	1.5	1.5	1.8
	Neither Agree Nor Disagree	71	17.8	17.8	19.5
	Agree	206	51.5	51.5	71.0
	Strongly Agree	116	29.0	29.0	100.0

	Total	400	100.0	100.0	

CS05

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	.5	.5	.5
	Disagree	18	4.5	4.5	5.0
	Neither Agree Nor Disagree	107	26.8	26.8	31.8
	Agree	159	39.8	39.8	71.5
	Strongly Agree	114	28.5	28.5	100.0
	Total	400	100.0	100.0	

TS01

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	.3	.3	.3
	Neither Agree Nor Disagree	27	6.8	6.8	7.0
	Agree	246	61.5	61.5	68.5
	Strongly Agree	126	31.5	31.5	100.0
	Total	400	100.0	100.0	

TS02

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	.8	.8	.8
	Neither Agree Nor Disagree	22	5.5	5.5	6.3
	Agree	216	54.0	54.0	60.3
	Strongly Agree	159	39.8	39.8	100.0
	Total	400	100.0	100.0	

TS03

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neither Agree Nor Disagree	15	3.8	3.8	3.8
	Agree	149	37.3	37.3	41.0
	Strongly Agree	236	59.0	59.0	100.0
	Total	400	100.0	100.0	

TS04					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	5	1.3	1.3	1.3
	Neither Agree Nor Disagree	62	15.5	15.5	16.8
	Agree	190	47.5	47.5	64.3
	Strongly Agree	143	35.8	35.8	100.0
	Total	400	100.0	100.0	

TS05					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	10	2.5	2.5	2.5
	Disagree	42	10.5	10.5	13.0
	Neither Agree Nor Disagree	102	25.5	25.5	38.5
	Agree	165	41.3	41.3	79.8
	Strongly Agree	81	20.3	20.3	100.0
	Total	400	100.0	100.0	

TS06					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	.3	.3	.3
	Neither Agree Nor Disagree	25	6.3	6.3	6.5
	Agree	243	60.8	60.8	67.3
	Strongly Agree	131	32.8	32.8	100.0
	Total	400	100.0	100.0	

TS07					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Neither Agree Nor Disagree	47	11.8	11.8	12.0
	Agree	193	48.3	48.3	60.3
	Strongly Agree	159	39.8	39.8	100.0
	Total	400	100.0	100.0	

BT01					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	.8	.8	.8
	Neither Agree Nor Disagree	61	15.3	15.3	16.0
	Agree	246	61.5	61.5	77.5
	Strongly Agree	90	22.5	22.5	100.0
	Total	400	100.0	100.0	

BT02					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	3	.8	.8	1.0
	Neither Agree Nor Disagree	71	17.8	17.8	18.8
	Agree	218	54.5	54.5	73.3
	Strongly Agree	107	26.8	26.8	100.0
	Total	400	100.0	100.0	

BT03					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	5	1.3	1.3	1.3
	Neither Agree Nor Disagree	65	16.3	16.3	17.5
	Agree	203	50.7	50.7	68.3
	Strongly Agree	127	31.8	31.8	100.0
	Total	400	100.0	100.0	

BT04					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	4	1.0	1.0	1.3
	Neither Agree Nor Disagree	65	16.3	16.3	17.5
	Agree	210	52.5	52.5	70.0
	Strongly Agree	120	30.0	30.0	100.0
	Total	400	100.0	100.0	

BT05					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	1.0	1.0	1.0
	Neither Agree Nor Disagree	66	16.5	16.5	17.5
	Agree	224	56.0	56.0	73.5
	Strongly Agree	106	26.5	26.5	100.0
	Total	400	100.0	100.0	

BT06					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	.5	.5	.5
	Disagree	14	3.5	3.5	4.0
	Neither Agree Nor Disagree	144	36.0	36.0	40.0
	Agree	163	40.8	40.8	80.8
	Strongly Agree	77	19.3	19.3	100.0
	Total	400	100.0	100.0	

BT07					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	.8	.8	.8
	Disagree	12	3.0	3.0	3.8
	Neither Agree Nor Disagree	98	24.5	24.5	28.2
	Agree	156	39.0	39.0	67.3
	Strongly Agree	131	32.8	32.8	100.0
	Total	400	100.0	100.0	

SQ01					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	1	.3	.3	.5
	Neither Agree Nor Disagree	45	11.3	11.3	11.8
	Agree	183	45.8	45.8	57.5
	Strongly Agree	170	42.5	42.5	100.0
	Total	400	100.0	100.0	

SQ02					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	.8	.8	.8
	Disagree	11	2.8	2.8	3.5
	Neither Agree Nor Disagree	65	16.3	16.3	19.8
	Agree	188	47.0	47.0	66.8
	Strongly Agree	133	33.3	33.3	100.0
	Total	400	100.0	100.0	

SQ03					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	.5	.5	.5
	Disagree	5	1.3	1.3	1.8
	Neither Agree Nor Disagree	43	10.8	10.8	12.5
	Agree	203	50.7	50.7	63.2
	Strongly Agree	147	36.8	36.8	100.0
	Total	400	100.0	100.0	

SQ04					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	.8	.8	.8
	Neither Agree Nor Disagree	61	15.3	15.3	16.0
	Agree	246	61.5	61.5	77.5
	Strongly Agree	90	22.5	22.5	100.0
	Total	400	100.0	100.0	

SQ05					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	6	1.5	1.5	1.8
	Neither Agree Nor Disagree	103	25.8	25.8	27.5
	Agree	198	49.5	49.5	77.0
	Strongly Agree	92	23.0	23.0	100.0
	Total	400	100.0	100.0	

SQ06					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	11	2.8	2.8	2.8
	Neither Agree Nor Disagree	58	14.5	14.5	17.3
	Agree	196	49.0	49.0	66.3
	Strongly Agree	135	33.8	33.8	100.0
	Total	400	100.0	100.0	

SQ07					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	15	3.8	3.8	4.0
	Neither Agree Nor Disagree	103	25.8	25.8	29.8
	Agree	201	50.2	50.2	80.0
	Strongly Agree	80	20.0	20.0	100.0
	Total	400	100.0	100.0	

ST01					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	5	1.3	1.3	1.3
	Neither Agree Nor Disagree	27	6.8	6.8	8.0
	Agree	257	64.3	64.3	72.3
	Strongly Agree	111	27.8	27.8	100.0
	Total	400	100.0	100.0	

ST02					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	1.0	1.0	1.0
	Neither Agree Nor Disagree	37	9.3	9.3	10.3
	Agree	288	72.0	72.0	82.3
	Strongly Agree	71	17.8	17.8	100.0
	Total	400	100.0	100.0	

ST03					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	2	.5	.5	.8
	Neither Agree Nor Disagree	64	16.0	16.0	16.8
	Agree	228	57.0	57.0	73.8
	Strongly Agree	105	26.3	26.3	100.0
	Total	400	100.0	100.0	

ST04					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	9	2.3	2.3	2.3
	Neither Agree Nor Disagree	64	16.0	16.0	18.3
	Agree	189	47.3	47.3	65.5
	Strongly Agree	138	34.5	34.5	100.0
	Total	400	100.0	100.0	

ST05					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	6	1.5	1.5	1.5
	Neither Agree Nor Disagree	71	17.8	17.8	19.3
	Agree	195	48.8	48.8	68.0
	Strongly Agree	128	32.0	32.0	100.0
	Total	400	100.0	100.0	

ST06					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	.3	.3	.3
	Neither Agree Nor Disagree	29	7.2	7.2	7.5
	Agree	174	43.5	43.5	51.0
	Strongly Agree	196	49.0	49.0	100.0
	Total	400	100.0	100.0	

ST07					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neither Agree Nor Disagree	35	8.8	8.8	8.8
	Agree	126	31.5	31.5	40.3
	Strongly Agree	239	59.8	59.8	100.0
	Total	400	100.0	100.0	

APPENDIX E: Internal Reliability Test

Customer Satisfaction on Mobile Banking:

Reliability Statistics	
Cronbach's Alpha	N of Items
.725	5

Transaction speed:

Reliability Statistics	
Cronbach's Alpha	N of Items
.746	7

Brand trustworthiness:

Reliability Statistics	
Cronbach's Alpha	N of Items
.796	7

Service quality:

Reliability Statistics	
Cronbach's Alpha	N of Items
.752	7

Security:

Reliability Statistics	
Cronbach's Alpha	N of Items
.718	7

APPENDIX F: Pearson Correlation Coefficient, R

Correlations						
		CS	BT	SQ	TS	ST
CS	Pearson Correlation	1	.539**	.613**	.481**	.466**
	Sig. (1-tailed)		.000	.000	.000	.000
	N	400	400	400	400	400
BT	Pearson Correlation	.539**	1	.740**	.408**	.592**
	Sig. (1-tailed)	.000		.000	.000	.000
	N	400	400	400	400	400
SQ	Pearson Correlation	.613**	.740**	1	.498**	.568**
	Sig. (1-tailed)	.000	.000		.000	.000
	N	400	400	400	400	400
TS	Pearson Correlation	.481**	.408**	.498**	1	.343**
	Sig. (1-tailed)	.000	.000	.000		.000
	N	400	400	400	400	400
ST	Pearson Correlation	.466**	.592**	.568**	.343**	1
	Sig. (1-tailed)	.000	.000	.000	.000	
	N	400	400	400	400	400
**. Correlation is significant at the 0.01 level (1-tailed).						

APPENDIX G: MLR

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.662	.439	.433	.38890	.439	77.190	4	395	.000	1.913

a. Predictors: (Constant), ST, TS, BT, SQ

b. Dependent Variable: CS

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.261	.241		1.086	.278	-.212	.734
	BT	.128	.061	.123	2.086	.038	.007	.249
	SQ	.378	.067	.343	5.675	.000	.247	.509
	TS	.258	.052	.218	4.985	.000	.156	.360
	ST	.158	.062	.123	2.555	.011	.036	.279

a. Dependent Variable: CS

APPENDIX H: One-way ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.698	4	11.674	77.190	.000[b]
	Residual	59.741	395	.151		
	Total	106.439	399			
a. Dependent Variable: CS						
b. Predictors: (Constant), ST, TS, BT, SQ						