

**A STUDY ON FACTORS INFLUENCING LOYALTY
INTENTION TOWARDS THE UTILIZATION OF MOBILE
BANKING AMONG IPTA STUDENTS IN MALAYSIA**

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“A Study on Factors Influencing Loyalty Intention Towards the Utilization of Mobile Banking Among IPTA Students in Malaysia”

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A thesis submitted in fulfillment of the requirements for the degree of Bachelor of Business Administration (Islamic Banking and Finance)

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LIST OF ABBREVIATIONS

IPTA	Bachelor's Degree Student at Higher Learning Institution
SPSS	Statistical Package for Social Science
ATM	Automated Teller Machine
UTAUT	Unified Theory of Acceptance and Use of Technology
TAM	Technology Acceptance Model
PEOU	Perceived Ease of Use
PU	Perceived Usefulness
SERVQUAL	Service Quality Model - SERVQUAL
UM	Universiti Malaya
USM	Universiti Sains Malaysia
UKM	Universiti Kebangsaan Malaysia
UPM	Universiti Putra Malaysia
UTM	Universiti Teknologi Malaysia
UUM	Universiti Utara Malaysia
IIUM	International Islamic University of Malaysia
UNIMAS	Universiti Malaysia Sarawak
USM	Universiti Malaysia Sabah
UPSI	Universiti Pendidikan Sultan Idris
UiTM	Universiti Teknologi MARA
UniSZA	Universiti Sultan Zainal Abidin
UMT	Universiti Malaysia Terengganu
USIM	Universiti Sains Islam Malaysia
UTHM	Universiti Tun Hussein Onn Malaysia
UTeM	Universiti Teknikal Malaysia Melaka

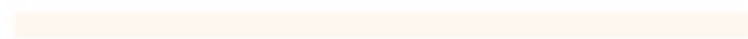
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UMP	Universiti Malaysia Pahang
UNIMAP	Universiti Malaysia Perlis
UMK	Universiti Malaysia Kelantan
UPNM	Universiti Pertahanan Nasional Malaysia

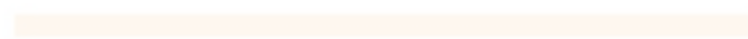
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KAJIAN MENGENAI FAKTOR-FAKTOR YANG MEMPENGARUHI NIAT KESETIAAN TERHADAP PENGGUNAAN PERBANKAN MUDAH ALIH DI KALANGAN PELAJAR IPTA DI MALAYSIA

ABSTRAK

Perbankan mudah alih dianggap sebagai salah satu kemudahan yang diwujudkan untuk memudahkan transaksi perbankan dalam talian. Kajian ini bertujuan untuk mengkaji hasrat kesetiaan terhadap penggunaan perbankan mudah alih dalam kalangan pelajar IPTA di Malaysia dan bertujuan untuk menentukan faktor manakah yang mempengaruhi hasrat kesetiaan. Kajian penyelidikan kuantitatif telah dijalankan secara dalam talian dalam kalangan 300 responden daripada pelajar ijazah sarjana muda di institusi pengajian tinggi (IPTA) di Malaysia menggunakan borang soal selidik. Sebaliknya, kajian ini juga menggunakan Statistical Package for Social Sciences (SPSS) untuk mengira dan menjana keputusan bagi kesahan dan kebolehpercayaan soalan dalam tinjauan bagi memastikan soalan yang dikemukakan adalah relevan dan difahami oleh responden. Selain itu, analisis korelasi juga digunakan untuk menganalisis hubungan antara pembolehubah bersandar iaitu niat kesetiaan dan pembolehubah tidak bersandar iaitu kualiti sistem, kualiti perkhidmatan, jaminan keselamatan dan reka bentuk antara muka. Oleh itu, semua kemungkinan pemacu niat kesetiaan akan dinilai termasuk kualiti sistem, kualiti perkhidmatan, jaminan keselamatan dan reka bentuk antara muka. Hasilnya, terdapat hubungan yang positif antara faktor-faktor yang menyumbang kepada kajian ini.

Kata Kunci: Niat Kesetiaan, Penyelidikan Kuantitatif, Pelajar Ijazah Sarjana Muda di Institusi Pengajian Tinggi (IPTA), Pakej Statistik Sains Sosial (SPSS), Analisis Korelasi, Kualiti Sistem, Kualiti Perkhidmatan, Jaminan Keselamatan, Reka Bentuk Antaramuka.

**A STUDY ON FACTORS INFLUENCING LOYALTY INTENTION
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STUDENTS IN MALAYSIA**

ABSTRACT

Mobile banking is considered as one of the facilities established to ease online banking transactions. This study aims to examine the loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia and has the purpose of determining which factor influences the loyalty intention. A quantitative research study was conducted online among 300 respondents from bachelor's degree student at higher learning institution (IPTA) in Malaysia using a survey questionnaire. On the other hand, this study also uses Statistical Package for Social Sciences (SPSS) to calculate and generate the result for validity and reliability of questions in the survey in order to ensure the questions asked are relevant and understood by respondents. Furthermore, correlation investigation is utilized to investigate the connection between the dependent variable (loyalty intention) and the independent variables (system quality, service quality, security assurance, interface design). Thus, all those possible drivers of loyalty intention will be evaluated including system quality, service quality, security assurance and interface design. As a result, there are positive relationships between those factors contributed to this study.

Keywords: Loyalty Intention, Quantitative Research, bachelor's degree Student at Higher Learning Institution (IPTA), Statistical Package for Social Sciences (SPSS), Correlation Analysis, System Quality, Service Quality, Security Assurance, Interface Design.

1.1 Background of the Study

With the evolution of technology, the current state of the banking sector has also evolved. According to Laukkanen (2006), the chance to avoid queuing at an Automated Teller Machine (ATM) is a key aspect of the introduction of electronic banking. This is because technology has developed progressively more important factor in the competitive environment of financial services businesses. Mobile banking, in particular, allows users to log on to banking facilities from their mobile devices, destroying the need to visit physical locations like ATMs. This accessibility enhances convenience for users, enabling them to manage their finances anywhere and anytime without the constraints of traditional banking practices.

Mobile banking means a facility proposed by a bank or any other financial institution that allows users of the organization to perform various banking operations through mobile devices, such as mobile phones, tablets or personal digital assistants. This is available 24 hours a day and is frequently reliant on the availability of an internet or data connection to the mobile device. With the proliferation of mobile applications, mobile banking has become more accessible. Customers may access their accounts, view their bank statements, make transfers, and even acquire prepaid services online.

In continuity with the fact that people all over the world have been exposed to the current technologies, they are also exposed to the current digital technologies such as mobile banking. In this study, it can be seen that students, working people and other adult generations are the group of persons who are used towards digital technologies especially mobile banking. This is because mobile banking has become a profitable innovation because it is proven to have feasible value to banks and customers

(Baabdullah et al., 2019). In addition, with the use of cashless transactions using mobile phones, it is believed that this will give efficiency to banks and consumers. Therefore, it can be seen from all over the world that mobile banking has been part of daily life activity such as making online payment transactions, investment, querying the account, relating with the credit cards and so on.

According to Shaikh and Karjaluo (2014), According to Shaikh and Karjaluo (2014), mobile banking made its debut in the late 1990s through the collaborative efforts of the German business Paybox and Deutsche Bank. Initially, this service was introduced and tested predominantly in European countries, including Germany and Spain. The implementation and acceptance of mobile banking can be attributed to technological advancements, increased smartphone penetration, and the growing reliance on digital solutions for everyday tasks. However, several studies have confirmed the rising popularity of mobile banking globally, highlighting its significance as a convenient and accessible way for individuals to manage their finances.

Furthermore, Malaysia's central bank (Bank Negara Malaysia) officially recognized and authorized mobile banking services in 2005 (Cheah et al., 2011), and in 2009, it became the initial bank in the Malaysian banking sector to suggest mobile banking services to customers, developing a banking application (M2UMap) for iPhone users. Bill payment, prepaid top-up, and money transfer are three of Maybank's most prevalent mobile banking services. Even Maybank expects the value of banking transactions on its mobile platform to increase by more than 50% in 2017 to almost RM25 billion, owing to the new Maybank2u app and the growing momentum achieved last year. (Maybank, 2017)

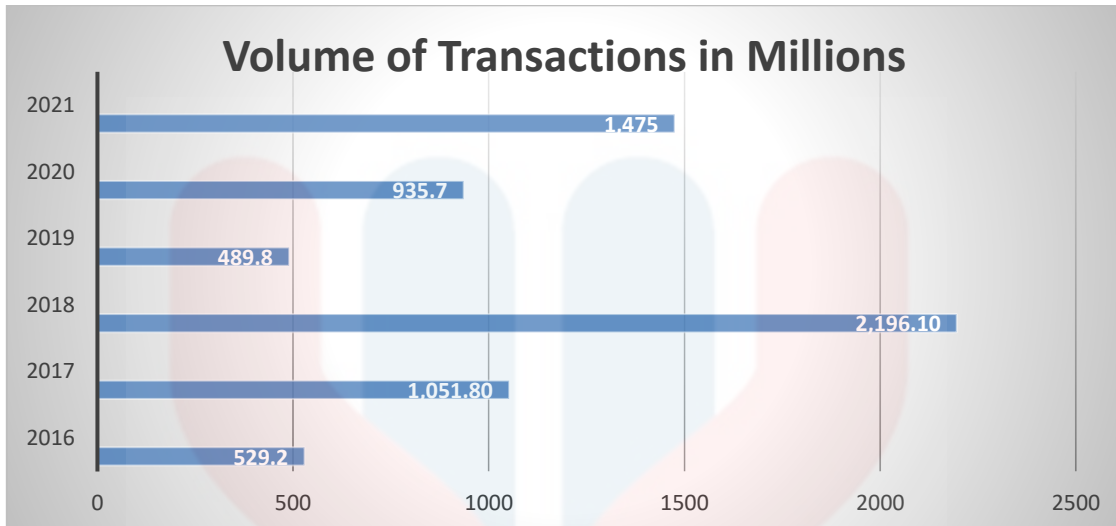


Figure 1.1: Volume of mobile banking transactions in Malaysia from 2016-2021

Source: Statista Research Department

Based on figure 1.1, it shows that in 2018 recorded the highest transaction of 2,196.10 million. On the other hand, in 2019 recorded the lowest transaction of 489.8 million. In fact, these transactions began to show an increase from 2019 to 2021. This increase was 445.9 million from 2019 to 2020 and 539.3 million in 2021.

Moreover, mobile banking also gives the distribution for the economy. Financial technology, or Fintech as it has been known in Malaysia, is receiving a lot of attention due to its great potential to impact lives and economic growth. Malaysian Fintech developments are changing the landscape of the territory's monetary system. For instance, though conventional financial institutions' Fintech contributions are expanding, the number of physical commercial bank branches is declining, while the number of Automated Teller Machines has fallen in the last two years. Traditional Malaysian banks continue to dominate deposits, lending, and capital raising, while simultaneously embracing new technology and competing or collaborating with emergent digital enterprises. As of April 2019, Malaysia had around 200 enterprises in Fintech industries like payments, loans, and blockchain.

Mobile banking has proven to be one of the most convenient and beneficial financial platforms. It has several advantages. The advantages of using mobile banking are saving time such as being able to make transactions, examine balances, transfer capital, and make deposits only through mobile phone. Second, mobile banking is useful when it enables customers to rapidly pay bills without interfering with other activities. Thirdly, it is free since the bank often does not impose a regular administration, initiation, or registration cost. Lastly, it is secure. The verification codes, PINs, and a security mechanism that has been standardized by the bank are required for mobile banking services.

Despite the advantages of mobile banking, there are issues and challenges users should be aware of. The main concern for mobile banking is security. Security is one of the most critical difficulties for the mobile banking business due to inherent concerns. Although the financial system is supposed to be virtual, cyber assaults and fraudulent activities are still a reality. However, many users are unaware that their online behaviors may be putting them in danger. Next is technical issues. This is due to the fact that whenever we use the internet, we risk encountering technological and service problems. If your internet slows down, system stability and efficiency may limit your ability to access your account. System downtime may be difficult since it not only prevents users from transacting, but it also raises worries about the security of data and payments.

This research intends to assess the factors influencing loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia. This is because an increasing number of banks are leveraging new technologies, such as mobile banking, to obtain a competitive advantage (Shaikh & Karjaluoto, 2015). This study will measure customer loyalty as the dependent variable, which is impacted by customer satisfaction and the use of mobile banking. Therefore, the independent variables used in this study

were system quality, service quality, security assurance and interface design which will have an influence on the use of mobile banking which are dependent variables.

1.2 Problem Statement

Nowadays, mobile banking has attracted the attention of many participants to use it including universities students. In Malaysia, mobile banking also faced several challenges, obstacles, problems, and risk. Despite the fact that mobile banking gain popularity and even establishes a great opportunity for the banking industry to expand their business, it also has to bear with the challenges and risk since users or customers experience are far from fully understood.

According to Grönroos (1991), it is vital to assure loyalty intention and customer satisfaction in the assessment of the experience with regard to shopping, product or service usage, which will indirectly affect the client's long-term behavior. Pursuing this further, it is believed for mobile banking to receive more opportunity and generate benefit as well as profit if the utilization of mobile banking achieves the target and is continuously used by customers. However, the mobile banking application created should be convenient in accordance with the current situation and fulfil the customer's satisfaction since it is one of the benchmarks for the bank to measure the level of success of mobile banking.

In addition, the literature on satisfaction according to Morgan (1994), Bryant (2002), and Schaupp (2005) is usability, Krepapa (2003) and Oly Ndubisi (2005) is trust, Davis (1989) and Casaló (2008) is customer service and Bitner (1992) and Ganguli (2011) is loyalty Andreassen (1998). These are the elements that might be needed to enhance the mobile banking application by the bank and to ensure the customers' loyalty or continued intention to use mobile banking services in the context of Malaysia. Besides, this study also has the objective to analyze the service quality provided that

affects customers' satisfaction and loyalty among customers of banks in Malaysia.

On the other hand, apart from those prior studies, the issue of mobile banking in Malaysia has also become the topic of the mobile banking users in Malaysia. According to Al Tarawneh (2023), mobile payment and Mobile banking is becoming increasingly prevalent; with enhanced dispersion of technology and a large range of choices, customer acceptance of mobile financial solutions has increased. According to Bank Negara Malaysia, in 2018, as much as 44.6% of Malaysia's population signed up for mobile banking, while 91.1% used electronic banking. (See Figure 1.2)

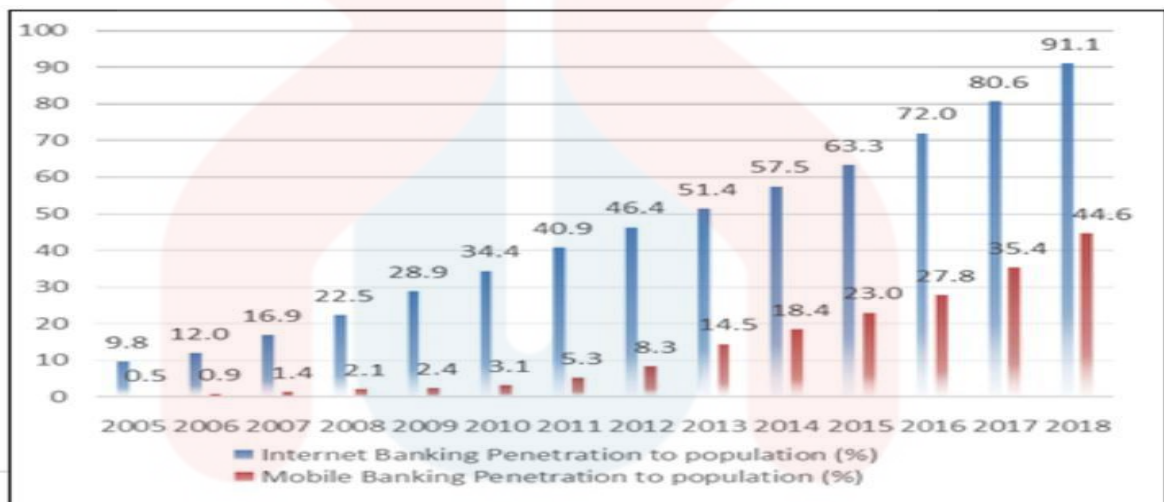


Figure 1.2: Usage of Mobile Banking

Source: BNM 2019 Report

However, in Malaysia, the issue of mobile banking includes secrecy, safety, bank customer's needs, development of banking infrastructure and legislative regulations as the significant encounters faced by individual consumers (Al Tarawneh, 2023). Online fraud or also usually called online scam, is an activity done by a scammer to generate money from an innocent person by his hoaxes. According to the Ministry of Communications and Digital's web portal, from 2017 to 2021, there were over 90,000 instances of online fraud, with losses exceeding RM3.3 billion. According to the news reported by Bernama (2023), Supt Rozeni Ismail, the associate leader

(telecommunications criminal investigations) of Bukit Aman Commercial Crime Investigation Department (CCID), said that there were more than 30,000 individuals were detained and 25,000 individuals from the number were charged in court. He also said that most of the scammers were from mule account holders and persons who were not sued in law court lies under the Crime Prevention Act 1959. The reason for the victory of the scam is that the scammer successfully deceived people by using telephones or social media. Thus, this shows that online transactions such as mobile banking are still in doubt in terms of its security and quality.

Moreover, nowadays, especially in Malaysia, the utilization of internet assessment is a must and the most crucial needs in conducting any online activities including mobile banking transaction. To explain this further, the mobile banking which can be conducted through mobile devices such as mobile phone is in need of internet assessment if users or customers want to conduct online transactions such as online payment, house loan payment and investment. The existence of internet assessment will ensure the success of a transaction. However, the absence of the internet assessment will prevent users from using the facilities in mobile banking such as check account balance and information, conduct online transaction, conduct repayment of loan and others. If there is no internet assessment, mobile banking cannot operate as usual as well as any other online transaction since internet assessment is quite crucial and significant to be utilized by people all around the world.

Additionally, the system quality and interface design also could be an issue in mobile banking. This can be explained by the poor system quality provided by the bank. According to Afshan (2016), the security system and the quality of mobile banking are substantially contributed to mobile banking usage. The poor system quality presented by the bank can lead to a maintenance problem. To explain this further, users or customers

cannot get to use the mobile banking system during the time of the maintenance and therefore it will lead to customer dissatisfaction. Meanwhile, it has been argued by Zamzami (2012) that the quality of the screen interface layout for banking services might be more obvious, whereby interface design quality is one of the possible elements of mobile banking use. Besides, the interface layout that provides customers with the simplicity of use of the application or system and the navigation functions (Zhou et al., 2021) is believed to help customers in using the mobile banking as well as adding the level of customer's loyalty.

Pursuing this further, the problem that customers are having in terms of system quality can be illustrated by the system failure as mentioned in past studies. The mobile banking app has a poor reaction rate, which leads to a low rate of final transactions by customers (Venkatesh and Goyal, 2010). Moreover, there is a support statement by Kamboj et al., (2022), that the apparent reason for customers not completing the last transaction by swiftly exiting the mobile banking e-page is due to the system collapse. Thus, this shows that customers reluctant to use the mobile banking if the system quality is poor and resulted in a failure whereby the system failure involve non-navigability, inaccessibility, non-compliance, insecurity and lag linked with the system. (Kamboj et al., 2022).

Meanwhile, in terms of interface design, there is a user who refuses to use and condemns the interface design of a bank's mobile banking app whereby it has been said that the mobile banking does seem to have a refreshed design except it is probably one of the worst and most unacceptable mobile design that he ever seen (Ling, 2014). He feels dissatisfied and disappointed that the bank's mobile banking app whereby the use of the splash screen is considered as unnecessary since it took 10 seconds to dismiss without any reason.

On the other hand, the dashboard design seems to look old fashioned or lame and the flipping animation on the logo at the dashboard screen seems to be unnecessary or pointless (Ling, 2014). Therefore, this example as one of the interface design problems shows that the poor and bad quality as well as unattractive interface design of mobile banking can influence the intention of users or clients whether to use the mobile banking or vice versa. It is true that the interface design can be considered as the main thing that the user takes a look before making a decision to continue to use mobile banking and be loyal or otherwise.

1.3 Research Question

In order to accomplish the goals of the research, the following questions were developed:

- I. In order to attain the objectives of the research, the following questions were developed: Does system quality have the relationship with loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia?
- II. Does service quality have the relationship with loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia?
- III. Does security assurance have the relationship with loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia?
- IV. Does interface design have the relationship with loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia?

1.4 Research Objectives

The general objectives of the study in the research attempted to:

- I. To investigate the relationship between system quality and loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia.
- II. To analyze the relationship between service quality and loyalty intention

towards the utilization of mobile banking among IPTA students in Malaysia.

III. To determine the relationship between security assurance and loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia.

IV. To examine the relationship between interface design and loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia.

1.5 Scope of the Study

The determination of this study is to investigate the factors of loyalty towards mobile banking, taking into account several factors such as system quality, service quality, security assurance and interface design. This study was conducted among undergraduate students at public universities in Malaysia which is a total of 377,103 students in 2022 and this research uses purposive sampling technique. Our study focused on public university students as respondents to examine the level of mobile banking. The sample size for our study are 200 respondents from various public universities in Malaysia. This target is determined by using power analysis as suggested by Green (1991). Our study uses UTAUT and TAM theory.

1.6 Significance of Study

Nowadays, mobile banking is very important for people in their daily life. In mobile banking, they can use almost every banking service. They also do not need to go to a bank branch. For example, they can transfer money, make payments, pay bills and get bank statements through this service. In addition, they may also have an urgent need to transfer or withdraw money. This is where digital services like mobile banking play a big role as they don't have to visit bank branches, stand in long queues, or delay urgent transactions. They can do it instantly through mobile phones and can also make bill payments at any time. Through mobile banking as well, they can always check their

finances and can monitor expenses and avoid reckless spending. This can be part of their budget development. Over time, they will be enhanced better at financial management and store more funds.

In addition, mobile banking is also very important to the financial services industry. This is because compared to old ATMs and transactions, mobile applications for banking are more secure. The app requires user authentication for every transaction. Therefore, the chances of compromised security will be reduced. The Instant Account feature of the mobile banking app, as the name implies, allows users to open a bank account immediately. Users can also submit the required documents online to complete the verification process. Furthermore, the bank uses mobile application customer support techniques to facilitate the process. By integrating Artificial Intelligence (AI) chatbots, banking apps make the customer service experience easy for users. Chatbot AI provides mobile banking features and benefits such as quick response, intelligent query resolution and so on. Additionally, the mobile app provides support in multiple languages to cover a wide range of audiences.

1.7 Definition of Term

Table 1.1: Definition of Term

Variable	Definition	Sources
Loyalty	The intention of a customer to choose a product or a company over others for a certain need. A loyal client is someone who consistently purchases goods and services from one vendor and constantly and enthusiastically recommends those to all of their family members and friends.	(Mohammadi,2015)
System Quality	The attributes that make an information system appealing. For instance: user friendliness, system adaptability, system dependability, and system simplicity, as well as system attributes of sensitivity sophistication, adaptability, and reaction times.	(Stacie Petter, 2008)
Service Quality	The level of service that the Information Technology support team and Information System department provide to system users. For instance, the personnel staff's responsiveness, correctness, dependability, technical proficiency, and empathetic nature.	(Pitt et al., 1995)

<p>Security Assurance</p>	<p>When users interact with a program, they are certain that access control, security rights, and enforcement will be maintained over time.</p>	<p>(De la Rosa Algarín & Demurjian, 2014)</p>
<p>Interface Design</p>	<p>Interface design primarily pertains to the application's usability, interface layout, and navigational features.</p>	<p>(Zhou et al., 2021)</p>

1.8 Organization of the Study

There are five chapters in this report that go into greater detail about the Malaysian IPTAs' student's loyalty to mobile banking. In Chapter 1, the background and implementation of mobile banking are explained, along with the issues, questions, and goals of the research. First is the background of the study that explains the topic that is a problem or issue that is being faced by IPTA students. The research questions that will be posed and those that can be connected to the subject being examined follow. Additionally, a description of the term that goes into more detail about how mobile banking is becoming the go-to option for making payments nowadays.

Chapter 2 discusses analytical literature. This chapter begins with an explanation of mobile banking theory. This chapter includes introduction, basic theory, previous studies, hypothesis, and conceptual framework. The researcher examines the factors that influence loyalty towards the consumption of mobile banking among IPTA students in Malaysia and a theoretical framework. The theory used is the Unified Theory of Acceptance and Use of Technology (UTAUT) to relate all independent variables.

Chapter 3 includes the research design, data collection methods, population and sampling, sampling procedures, research instrument construction, variable

measurement, and conclusion. This chapter explains the research method, which is the step of analyzing data and information to obtain research results. One of them is the research design, which demonstrates the model to conduct the study by creating unique processes to get the required data. The next step is to determine how to gather information from all pertinent sources to perform the study. Next, data from a set of people, things, circumstances, and measurements are used to create the research population. When the population size exceeds a certain point, the sample size is then employed in the analysis. Then, to generate statistics and estimate demographic characteristics, members of the population are chosen using sampling procedures. The tools and techniques utilized in research are then developed into research instruments. Additionally, variable measurement is a technique used to establish a connection between numerical values that the researcher has defined. The process for data analysis that uses scientific tools to convert raw information to numbers is the next step.

The study's findings and the analytical procedures were covered in Chapter 4. Statistical findings from the data analysis and demographic data were among the components. Data analysis is discussed in Chapter 5, along with a summary of the findings. This chapter also included recommendations for further research as well as the implications of the study's limitations and results.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter is to review the literature on customer loyalty to mobile banking applications. This study will provide insight into the current state of research, identify gaps in the literature, and establish a theoretical and conceptual basis for the study. This chapter will cover a survey of related literature, a review by researchers on the factors that determine loyalty desire to utilize mobile banking among IPTA students in Malaysia, and a theoretical framework. In addition, in this study as well, the theory used is Unified Theory of Acceptance and Use of Technology (UTAUT) to relate all the independent variables.

2.2 Underpinning Theory

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

According to Venkatesh et al., (2003) Integrated Technology Acceptance and Use Theory (UTAUT) was developed to identify the availability of users to use it and the theoretical framework has emerged since the beginning of the twenty-first century and it continues to develop until now. The development of this theory takes place from various perspectives including cognitive intention, emotion, motivation, and behavior (Hernandez, 2017) Technology Acceptance and Use Theory (UTAUT) and frameworks have been developed as models for understanding how users accept new technologies, use them, and what factors exist for users to continue using them.

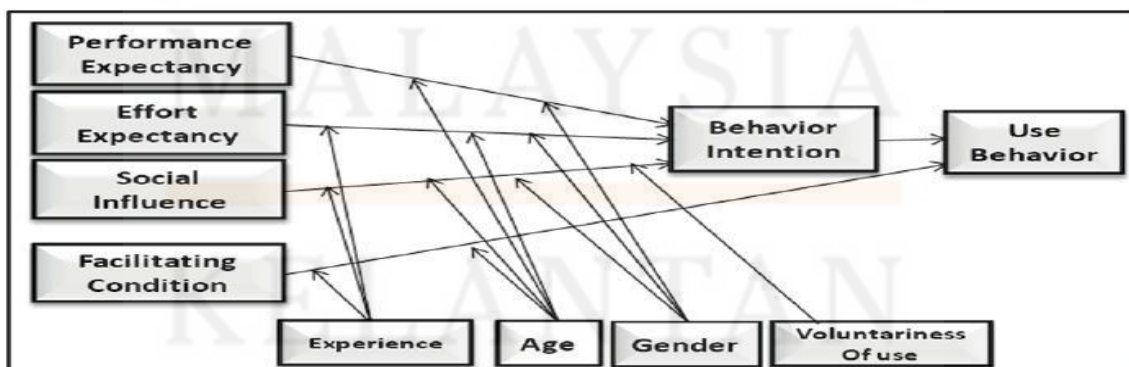


Figure 2.1: Unified Theory of Acceptance and Use of Technology (UTAUT)

Based on the UTAUT theory above, the practical use of technology is determined by behavioral intentions. The expectations for users to use technology are based on four important components, namely performance expectations, attempt expectations, social impact, and facilitating conditions. According to Venkatesh et al., (2003), behavioral intentions are influenced by performance expectancies, which are regulated by gender and age. Effort expectancy modulates behavioral intention and is modified by gender, age, and experience at the beginning of experience. Social influence dominated by behavioral intention and regulated by all moderating factors and facilitating condition constructs had no impact on behavioral intention, however it affected behavior moderated by age and experience.

Koivumäki, Ristola, and Kesti (2008) used UTAUT to investigate user perceptions of mobile services. The researchers studied 243 people in northern Finland on their usage of mobile services and their understanding of technology. According to the findings, improving user skills leads to a better knowledge of mobile services and increases users' intent to continue using them. The researchers discovered that the time spent using the device has no influence on the user's purpose to use, but that being always connected to the device and exercising skills has a favorable effect on the mobile service.

2.2.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) measures how much a technology tool is accepted by clients based on how simple it is to use. The technology acceptance model is a concept that explains how humans initially started to embrace and utilize technology. It is a notion from the field of computer systems. Real approach utilization is the point at which individuals actually utilize the technology Subawa et al., (2021). Perceived ease of use (PEOU) and perceived usefulness (PU) are the two main factors

that influence an individual's intention to utilize new technology, making TAM one of the most significant models of technology adoption.

The Technology Acceptance Model (TAM) is a theory of information systems that describes how customers learn to accept and use technology Davis et al., (1989). The TAM2 model explains how new technology might improve people's lives by employing subjective, visual, and work-related criteria as constructs of perceived usefulness. This method may be employed in other technology-focused domains such as transportation, urban planning, and infrastructure management. The TAM3 model will give a safe platform to managers and decision-makers across numerous sectors. According to Davis (1989), perception is the belief that using mobile banking would increase one's efficiency, whereas ease of use is the opinion that using mobile banking will be easy.

TAM is the most often used approach for studying customer satisfaction towards using mobile banking. According to (Normalini & Ramayah, 2019), TAM model replication has a theoretical foundation and increases user impression of its utility and simplicity. The main aspect, which has a significant influence on attitude, is based on a user-friendly and secure system. Furthermore, many TAM studies exclude attitudes and focus entirely on the effects of perceived usefulness and perceived ease of use on intention to use Venkatesh et al., (2003).

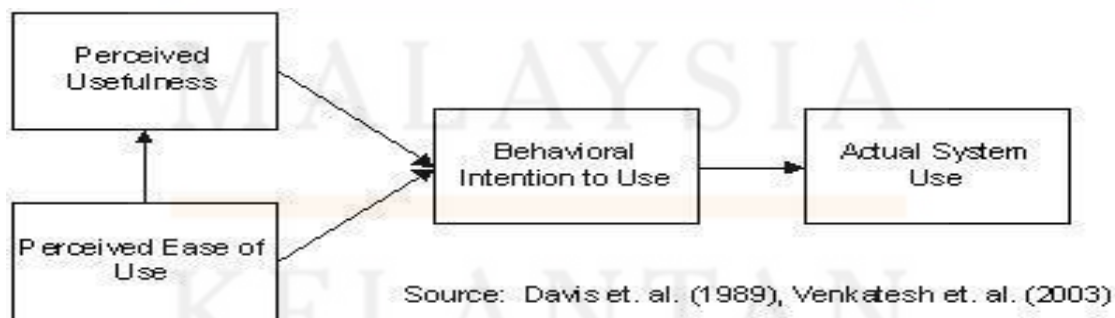


Figure 2.2: Technology Acceptance Model (TAM)

The Technology Acceptance Model, seen in Figure 2.2, was established by Davis in 1989 to better understand the relationship between technology attitudes and user behavior such as perceived ease of use and perceived usefulness. In addition, Davis has aimed to reveal the elements that influence users of information systems to adopt technology, as well as to explain and predict the behavior of computer users (Klopping & Mckinney, 2004).

Besides, the TAM model states that a person's outlook concerning the use of certain habits includes both positive and negative thoughts that are greatly influenced by behavioral intentions. Fishbein and Ajzen's in 1975 Theory of Reasoned Action (TRA) was the first to make this assertion. Then, Davis et al. (1989) further supported and extended this theory (confidence, satisfaction, attitude, and interest) by developing the Technology Acceptance Model (TAM), which links the connection between external characteristics and internal variables. In this study, satisfaction with usage is used to evaluate a person's decision in that direction.

In summary, the theory UTAUT and TAM can be used to understand the factor of users' loyalty intention in using mobile banking. Satisfaction in mobile banking allows the users to make decisions and make choices to be loyal. But if the mobile banking system can be maintained well, it will guarantee continued loyalty to its use. As a result of UTAUT and TAM, if a technology or innovation that has been made improves a person's performance, it is considered beneficial.

2.3 Previous Studies

2.3.1 Loyalty Intention

According to Edvardsson et al. (2000), the term "loyalty" refers to a circumstance where a client intends to continue with a specific brand or organization for a longer amount of time. Customers that consistently buy their favored goods or

services, despite alluring marketing or other rivals' acts, are showing some sort of internal commitment (Oliver, 1999). Customers form an emotional bond with the businesses, goods, and services because of this psychological connection (Hallowell, 1996). Without a doubt, loyalty is a valuable commodity and is one of the most significant elements in ensuring the triumph and sustainability of a business or organization (Flavián et al., 2006). Numerous empirical studies backed up the idea that loyalty always produces favorable results for an organization. For instance, Reichheld and Sasser (1990) found that in some e-commerce divisions, such as the virtual sale of consumer electronics, manuscripts and groceries, a 5% decline in defection results in effectiveness increases of 20% to 85%. Another example is Amazon.com, which was able to increase 66% of its revenue solely as a result of repeat business (Peet, 2000).

The cognitive component of loyalty is highlighted by attitudinal loyalty. Customers have a strong mindset to persist with their favored items as a result. Customers that exhibit attitudinal faithfulness are very dedicated to a specific brand name or business where they enjoy making repeated purchases of products and services and are strongly impacted by this internal disposition (Day, 1969). Attitudinal loyalty is most frequently associated with the psychological ties and attitudinal support that customers have for the company (Rauyrueen & Miller, 2007). Additionally, consumers that exhibit this form of loyalty are likely to spread good word of mouth about the company's goods and services and, most importantly, to urge others to do the same (Zeithaml et al., 1996). Because it is the best way to understand customers' intents to remain with a certain brand or organization, this study focuses mostly on attitudinal loyalty (Auh et al., 2007).

The level of brand awareness among customers has an impact on loyalty as well. Here, brand awareness is defined as a potential customer's ability to identify a brand

within a specific product category (Aaker, 1991). Brand identification is a type of purchaser's capacity to reminisce given brand as an indication, whereas a brand can recall the customer to remember the brand from memory (Aaker, 1991). Due to customers' understanding of the brand constructed on their occurrences, this will further aid in enhancing the capacity to recognize and recall a brand.

Many models, like the attitude-behavior model, the quality-loyalty model, and Oliver's four-stage loyalty model, have been established to describe this crucial notion, according to the literature Pahlevi & Suhartanto (2020). The attitude-behavior model is one of the models that is frequently used in studies of the banking sector (Fusva et al., 2020). A continuance of previous activity is the most basic definition of consumer loyalty. According to Bakar et al. (2017), a bank customer is seen as loyal if they have done several transactions or have a long-standing relationship with the institution. The frequent and continued use of mobile banking services reveals a customer's behavioral loyalty. This behavioral approach, however, has a limitation since it is unable to differentiate between real, loyal bank clients and those who picked the bank just out of convenience (Suhartanto, 2019).

2.3.2 System Quality

According to Gu et al. (2009), system quality describes the ease of use and navigation, aesthetic appeal, and accessibility speed of mobile banking. Some mobile banking customers may observe that it is difficult to retrieve their financial data and undertake banking operations due to some mobile devices' limited displays and awkward input techniques. Retail banks are thus putting more emphasis on making sure that their mobile banking user interface is created with a transparent structure and convincing navigation, and that their mobile system persuades consumers to reply fast (Zhou, 2011). The mobile banking system must also deliver information that is

pertinent, ample, correct, and timely, and it must be secured by structural measures including technology advancements and legislative frameworks (Zhou, 2013). A thorough assessment of the writings finds two research by Kleijnen et al. (2004) and Olatokun & Owoeye (2012) providing realistic evidence for the claim that perceived system quality positively impacts attitudes, despite the literature's suggestion that system quality is a predecessor of trust. According to their judgments, this study assumes that consumers will be more likely to have a good outlook towards mobile banking if the system offers precise information quickly, is secure, and is simple to use.

According to Delone and McLean (2003), system quality is a technical indicator of a service's success. Usability, availability, dependability, flexibility, and reaction time are a few illustrations of technical traits that are evaluated for system quality (Delone & McLean, 2003). Thus, it can be concluded that several distinguishing qualities that may be quantified as independent variables are included in system quality. In other words, a certain technical service could be readily available but not necessarily reliable (Laforet & Li, 2005). As a result, system quality lacks both definitive and perfect criteria and instead relies on the technical proficiency of a particular service (Lee & Chung, 2009). This is a reference to the technological system's effectiveness and precision (Shannon & Weaver, 1998).

According to Peters et al. (2016), Upadhyay and Jahanyan (2016), customers are highly driven to embrace and employ systems that can deliver the extraordinary level of technological competence and anticipated precision. Delone and McLean (2003), established an Information System success model to properly assess the direct correlation between system quality and technology utilization. Due to the compassion of utilizing virtual monetary services, Mobile Banking clients' benefits will help them become more interested in using the facility, which will improve their tendency to use

the technology (Zhou, 2011). The greatest levels of effectiveness and precision in the available technologies are required due to this sensitivity.

System quality assesses the technical soundness of the system by characterizing the overall quality of information system processing, including software and data components. According to DeLone and McLean (2003), factors including usability, functionality, dependability, and adaptability are related to system quality. Based on prior research by Gorla et al. (2010), system quality attributes may be divided into double major categories: system features from the perspective of the system designer and system structures from the standpoint of the end user. According to Gorla et al. (2010), a user-friendly system is one that is simple to use, properly documented, has a rapid turnaround time, and makes use of contemporary technology to enable user-friendliness.

2.3.3 Service Quality

According to Delone and McLean (2003), "the overall support delivered by the service provider" is referred to as having high service quality. According to this element Arcand et al., (2017), Shareef et al. (2014), Shih and Fang (2006), providers provide clients with technology that is high in security/privacy, practicality, design/aesthetics, enjoyment, and sociality. According to Casalo et al. (2007), Shih and Fang, (2004), this assistance may be provided by a variety of intelligence technology providers, including Internet service providers, new organizational units, and Information System departments.

Jun and Cai (2001) reaffirmed the importance of service quality in the adoption of Internet banking. The banks or mobile service providers will assure the quality of the service in the context of mobile banking (Changchit et al., 2017, Lee & Chung, 2009). Since the users of mobile banking are also clients of these three providers, service

quality is crucial to increasing usage (Jaruwachirathanakul & Fink, 2005). If there is poor user support, there will be a higher throughput from the service provided, and one or more of the suppliers will drop out. People would use mobile banking more frequently if they believe that these services provide them greater benefits and possibilities with alluring deals (Faria, 2012; Zhou, 2011).

In the banking sector, client happiness is significantly affected by the quality of the services provided. The service quality model (SERVQUAL) has been used and modified by tons academic scholars and service businesses in a variety of research fields such as, banking service evaluation (Kumar et al., 2009, 2010; Amiri Aghdaie and Faghani, 2012; Ali and Raza, 2017); home appliance business; and after-sales services (Murali et al., 2016; Shokouhyar et al., 2020). Through the application of PAKSERV, Kashif et al. (2015) examined the Malaysian Islamic banks' level of customer service. According to their analysis, customization and sincerity have a significant impact on how it pleased clients are with Islamic banking services. However, it has been discovered that in Malaysia, dependability has no impact on how satisfied clients are with Islamic banking. In the meanwhile, research conducted in Pakistan by Kashif et al. (2016) utilizing PAKSERV discovered that all factors significantly influence customer satisfaction in Pakistan's Islamic banking. According to Karatape et al. (2005) and Alnaser et al. (2018), service quality characteristics developed in one culture may be used to represent service quality in another.

According to Royne Stafford, Stafford, and Wells (1998), financial service providers tend to offer homogenous products, hence service quality is primarily relevant to them. Customer satisfaction is defined as receiving a benefit that matches or exceeds their expectations. According to Dwyer et al. (1987) and Farrelly and Quester (2005), as well as Gaski and Nevin (1985), satisfaction is primarily defined in the context of

marketing as the overall appraisal of a firm's relationship fulfilment or the clearly impacted state resulting from the evaluation of a firm's working relationship. In order to understand any sort of interaction between members and a customer's satisfaction reaction, contentment is also one of the most crucial factors (Oliver, 2014). According to Yeo et al. (2015), customer happiness is recognized as a result of service quality, which means that it is positively related to the nature of the goods or services provided to the client.

Service quality was acknowledged by Arcand et al. (2017) as one of the principles to attain consumer happiness. According to Santos (2003), service quality is a key factor in internet commerce since it is practically free and practical to compare items' technical specifications online. Mobile service quality is defined as the clients' overall assessment and judgment of the excellence and quality of mobile banking service offerings within the framework of mobile banking (Jun and Palacios, 2016). It was emphasized in the Deloitte analysis by Johnstone et al. (2010) that mobile banking has assisted several banks' bottom lines. For instance, by analyzing data gathered from users of mobile banking applications, banks were capable of broadening their market reach and gaining a better knowledge of client demands.

2.3.4 Security assurance

In virtual transactions, customers prioritize security above all else. Security, according to Ghosh and Barua (2014), is the safeguarding and preservation of data. Due to fraud and hacking, financial concerns are intimately tied to security in the context of information as well (Kabir, 2013). According to a study by Raza et al. (2017), clients are happier with the service when they believe their financial transactions are safe. Customer satisfaction is highly impacted by a mobile banking application's security and dependability, according to Ahanthem (2022). Customers of mobile banking are

obviously concerned about it, as it will guarantee the safety of their regular usage of mobile banking, which includes services like credit cards, loan, payment transaction, and enquiry services. This result so confirms earlier research's hypothesis that consumers' perceptions of high security might lead to their perceptions of excellent service quality (Chang and Thai, 2016).

Customers using mobile banking applications are concerned about security since they believe someone may access their data and have control over their bank account (Harris et al., 2016). Prior studies by Amin and Ramayah (2010) and Balapour et al. (2020) have shown that security assurance is one of the considerations most impacting the acceptance and use behaviour of mobile app users. In the context of mobile banking, security assurance is the certainty that using mobile banking services would protect bank clients' privacy (Hanif & Lallie, 2021). Additionally, the study by Gu et al. (2009) provides strong verification that security assurance is a prerequisite for consumer trust, which might enhance the adoption of mobile banking. As an additional example, Olkiewicz, Terebecki, and Wolniak (2019) investigated the security of information channels in financial services and suggested cutting-edge techniques to ensure information security for a bank's stakeholders. Like how Olkiewicz et al. (2019) concentrated on the banking stakeholders, Sundaram, Thomas, and Agilandeewari (2019) examined the online security of bank clients using PCs and smartphones and came to the conclusion that feature learning and ranking models were combined to provide security.

According to Beldad et al. (2010) and Sharma et al. (2018), customers deem promises of privacy and security to be crucial when assessing a company's trustworthiness. It particularly refers to any safeguards that might successfully ensure the client of their anticipated results, such as contracts, guarantees, laws, or transaction

protocols (Chien et al., 2012). Private credit card numbers, bank account information, and high-risk financial transactions are frequently involved with mobile banking. Because they are afraid of potential hazards and damage, users may decide to withdraw or stop using the service. Users and financial institutions suffer financial losses because of data breaches, which erodes public confidence in the banking industry [89]. The breach of client data may result in identity theft, financial fraud, and other nefarious acts. Customers may begin to doubt financial institutions' capacity to secure their information because of such instances, which erodes trust in the banking industry. The main causes of customers switching financial institutions are dissatisfaction and a lack of confidence [90]. Because of this, these guarantees are even more important for winning over clients if there are no tangible services provided.

2.3.5 Interface Design

The user interface design for mobile banking considers the perceived usability of mobile banking (Davis, 1989) and how evidence is provided and demonstrated (Bharati and Chaudhury, 2004). According to Wang and Liao (2008) made the supposition that mobile banking's usability would have an impact on its utilization and encourage clients to utilize it for financial services. Additionally, the viewpoint towards the utility and service quality of mobile banking will be impacted by the perceived simplicity of use of the mobile banking program (Schierz et al., 2010). An appropriate and practical model of the mobile banking application will draw people's awareness since consumers construct their impressions based on the initial information. The interface is also the first thought that users have of mobile banking. Appropriate interface design can help people develop confidence in mobile banking systems' reliability and security assurance (Everard and Galletta, 2005). Mobile banking interfaces that could be better designed would result in extra effort and harm in how clients use mobile banking.

In the present world, the primary component defining distinct types of systems, along with their complexity, is the growing growth and improvement of information technology. Users frequently struggle to adapt to new software because of the interface's bad design and excessively complicated function. Interaction design is crucial to tackling the graphical interface for the effective and simple manner to use (Preece et al., 2015). This is done by developing pleased user interaction. Since the beginning of time, humans have created things and split them into a variety of specialties to make sure that they fully satisfy human needs while also being comprehensible and useable (Norman, 2013). The term "interaction design" encompasses a number of disciplines, including "human-centered design," "user interface design," "software design," and "application design," among others. According to (Preece et al., 2015), "interaction design" focuses on "developing people's knowledge when using graphical interface by taking into consideration their profile like page, culture, or background".

The user interface design is a key component of creating a connection between a system and users by presenting the information and application goals. For users to complete desired tasks with the least amount of annoyance or resistance, the user interface design is often developed with pertinent and vital information (Fernandes, 1995). Additionally, the consistent User Interface design helps consumers find things and comprehend them (Norman, 2013). When utilizing programs, these elements boost user productivity and assist them in reaching their objectives. As a result, the only aspect of the software that users can see is the user interface (UI). A poor user interface breeds confusion and prevents consumers from receiving information (Mayhew & Winer, 1992). Therefore, creating a decent user interface design is challenging and involves plenty of work. Jakob Nielsen, however, gave instructions on how to accomplish it.

The point of interaction and communication between people and computers in a system is the user interface. This can include visual displays, keyboards, mice, and desktop settings. Additionally, it is the method through which a user interacts with a website or application. The user interface, which may include the device's visual appearance, reaction speed, and the material displayed to the user within the user interface context, is also addressed in combination with user experience. The definition of Human-Computer contact (HCI), which is the area of study that focuses on the development of computer technology and human contact with all facets of information technology design, includes both concepts.

In terms of user experience, Goodman et al. (2004) and Gatsou et al. (2013) highlighted that inexperienced users often have more trouble using computer equipment or learning new computer skills than experienced users do. The internet banking software is both a great and a bad experience for senior customers. The biggest obstacles to adopting online banking are potential users' lack of knowledge about how to get started and their frustration and confusion with current online banking. The effectiveness of the user experience determines whether seniors will accept or embrace the technology. The user experience is improved, and new consumers may be drawn in when the user interface is designed properly (Gatsou et al., 2012). Additionally, the pointing performance of mobile displays is determined by the smartphone user interface and heuristic evaluation for older persons (Salman et al., 2018), and (Sano ,2017).

Consumers can cooperate directly with the equipment, service, or product thanks to interface design (Miraz et al., 2021). As a result, complicated app interfaces or frequent changes to app interface designs might have a negative influence on user engagement. Interface design in terms of mobile banking relates to the app interface's structure, usability, and navigational features (Zhou et al., 2021). The importance of

interface design affects both banks and customers. According to earlier research Patel et al. (2020), interface design has a significant impact on consumer intentions. In this way, interface design directly affects perceived satisfaction, which has a favorable effect on app uptake when used on mobile devices.

2.4 Hypotheses Statement

The research hypothesis in this study is utilized to determine the study's objectives and organization. Previous research on the relationship between all factors supports the proposed theory. As a result, the hypotheses offered are especially designed to meet the research problems erected by this study.

2.4.1 System Quality and its relationship with Loyalty Intention towards Mobile Banking.

System quality is one of the variables that will persuade the aim of the customer to be loyal in using Mobile Banking. According to Liu & Arnett (2000) and DeLone & McLean (2003), users can be the evaluators who evaluate the system quality of mobile banking by their perception whereby it has been observed as the value of an application system's performance. Moreover, based on the statement of Ja-Chul Gu (2009), system quality describes the ease of use and navigation, aesthetic appeal, and accessibility speed of mobile banking. Compatibility, solidity, and reply speed of the system, as well as the online customer service of mobile banking can be regarded as the mobile banking's system quality whereas the increase in quality of mobile banking will undoubtedly lead to have great security assurance as well as great level of belief and loyalty intention by the customers (McKnight, 2002). The high level of system quality in mobile banking will lead customers to perceived ease of use in utilizing the system or application.

For instance, good, accurate, speed and smooth system of mobile banking will ease customers to make an online transaction without any delay, misplaced money

transferred and avoiding them from any online fraud since there will be an encryption before the transfer of money can be made. Therefore:

H1: There is a positive relationship between system quality and loyalty intention towards mobile banking.

2.4.2 Service Quality and its relationship with Loyalty Intention towards Mobile Banking

Mobile banking functions that can completely undergo the requirements of customers are the definition of mobile banking's service quality. Among the functions of service quality are mortgage service, query service, investment service, payment transaction service and credit card service which can be offered with reasonable fees. In addition, according to Cronin Jr (2000), McDougall (2000), and Petrick (2002), service quality is a crucial and significant determinant of customer satisfaction and loyalty intentions. This is because, it is making sense if customer want to be loyal towards a bank's mobile banking service if the bank provides its customers or equip the mobile banking services with the most appropriate service quality such as make the mobile banking system with understandable features and the system generate transaction with speed and high level of accuracy as well as high level of security.

According to Venkatesh et al. (2003), behavioral intentions are influenced by performance expectations, which are regulated by gender and age. Therefore, customers or users will have the intention to be loyal if their expectations towards the service or products can be made. By presenting the most appropriate service quality will aid both customers and bank to receive benefits as well as perceiving usefulness. This is because, best service quality such as smooth and no maintenance problem of mobile banking will be useful for both banks and customers whereby both will receive profit, convenience and useful mobile banking service. Thus, the following hypotheses is proposed:

H2: There is a positive relationship between service quality and loyalty intention towards mobile banking.

2.4.3 Security assurance and its relationship with Loyalty Intention towards Mobile Banking

Even though the internet transaction service has existed since a long time ago, risk will always exist and may continuously increase in the payment transaction through mobile devices (Ndubisi and Sinti, 2006). The assurance of the safety of account and funds refers to the highsecurity of mobile banking in terms of the definition of mobile banking security assurance. Security assurance is one of the crucial variables in order to convince customers and ensure the continuance intention of loyalty towards the utilization of mobile banking services or systems. This is because, according to Koenig- Lewis et al., (2010) and Lee et al., (2007), the risk's perception of customers frequently determined by the uncertainties with regard to the level of changeability between their verdict and real behavior whereby the risk existed will determine the level of trust, gratification and loyalty of customers towards mobile banking.

Therefore, by perceived security assurance of mobile banking, it will generate an impression on the service quality of mobile banking as well. On the other hand, the security guarantee will ensure the level or perceiving usefulness in terms of customers whereby customers can be at their ease without worrying about their cash flow that will flow to non-authorized or wrong account. It is said to be useful because customers will not have to go to find people to always check on their transaction or to pay more only to secure their account. The security assurance provided is very useful so that customers will continue to utilize mobile banking in the future without any doubt or worries. Thus:

H3: There is a positive relationship between security assurance and loyalty intention towards mobile banking.

2.4.4 Interface Design and its relationship with Loyalty Intention towards Mobile Banking

Interface design can be defined as the information shown and displayed in a system or application and for this study of mobile banking, the interface design displays the information in the mobile banking (Bharati, 2004) application as well as perceived ease of using mobile banking (Davis, 1989). Pursuing this further, the ease of use of mobile banking will indirectly affect the usage of mobile banking. This is because, it will urge customers to utilize the mobile banking in their financial services as believed by (Wang, 2008).

According to the words of Everard (2005), excellent interface design quality can develop the formation of faith in the mobile banking system quality and security assurance of mobile banking. Therefore, it is believed for the customers to generate a good first impression since interface is the first thing they will see. The right and competent design of mobile banking app will draw more customers or users to pay more attention to its mobile banking service as well as generate consciousness according to the primary information. Based on that, interface design also shows a substantial role in ensuring customer's approval as well as their intention to be loyal towards mobile banking.

H4: There is a positive relationship between interface design and loyalty intention towards mobile banking.

2.5 Conceptual Framework

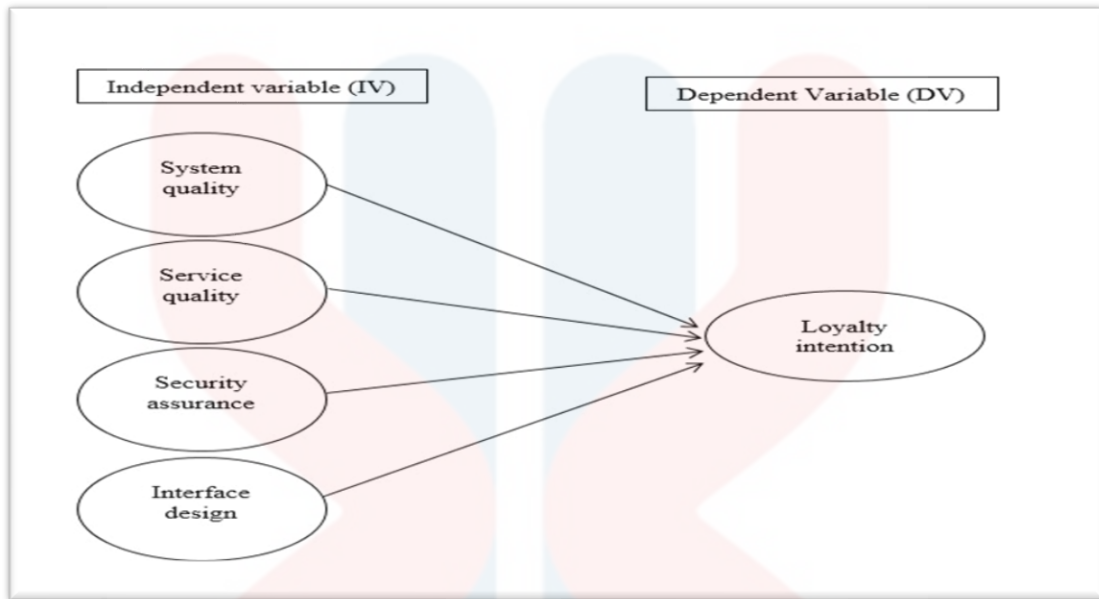


Figure 2.3: The Conceptual Framework

This section presents a conceptual framework that comprises two key variables, the independent variable and the dependent variable, which are examined as factors influencing client loyalty to mobile banking transactions.

2.6 Conclusion

This literature review has stipulated an outline of the framework, theories used to guide research and past studies on the variables that make up the factors that influence customer loyalty towards mobile banking. In addition, the Unified Theory of Acceptance and Use of Technology (UTAUT) and Technology Acceptance Model (TAM) are basic theories that help explain the variable criteria in this study. Clearly, the research hypothesis is advanced in our understanding of customer loyalty intentions on mobile banking.

Table 2.1: Summary of Hypothesis

Hypothesis	Statement
Hypothesis 1	There is a positive relationship between system quality and loyalty intention towards mobile banking.
Hypothesis 2	There is a significant positive relationship between service quality and loyalty intention towards mobile banking.
Hypothesis 3	There is a significant positive relationship between security assurance and loyalty intention towards mobile banking.
Hypothesis 4	There is a significant positive relationship between interface design and loyalty intention towards mobile banking.

CHAPTER 3: RESEARCH METHODS

3.1 Introduction

This chapter focuses on methods for research, which are utilized for data that has been collected, analyzed, and assessed. Next, this part also outlines the research method and gives an explanation of the processes that have been followed to ensure the research project's success. The study methodology includes an introduction, research design, data collection method, study population, sample size, sampling strategy, research equipment creation, variable measurement, data analysis procedure, and conclusion. Obviously, this chapter will provide the reader with a clear image of how the researcher conducted the investigation.

3.2 Research Design

A research design, according to Sekaran and Bougie (2016), is a strategy for gathering, measuring, and interpreting data to answer specific research questions. This is a step-by-step strategy used by a researcher before the data collection and analysis procedure to completely archive the study objectives. There are two sorts of research designs which are quantitative research (the procedure of gathering and assessing numerical data) and qualitative research (a method used for market research that tries to get data through open-ended questions and interaction with the intended consumers). The researcher used a quantitative method since the empirical assessment included numerical, measurement, and analysis. To make this study more obvious and easier, the initial data was gathered using an online questionnaire survey. This study's sample size consists of Malaysian students studying at a public university. They were chosen to represent people who will participate in our survey on mobile banking loyalty.

3.3 Data Collection Method

In order to answer the study question and assess the findings, the data collecting approach gathers information from every relevant source (Dudovskiy, 2022). Researchers collect data to define, evaluate and validate goals, objectives, and study. The study used a questionnaire as a data collection approach to collect information. It is standard to use questionnaires to collect enormous amounts of quantitative data. Quantitative techniques can also be faster and cheaper than qualitative techniques (Dudovskiy, 2018). To determine the important elements that influence student loyalty in mobile banking, the parameters that should be included, and the results that we can conclude from the last online questionnaire, we conducted a population with 377,103 students. The structure of an online or electronic survey is usually a web architecture with a database to store responses from respondents.

The URL to the Google form provided also contains instructions for completing the survey. This makes it easier for our survey participants to respond. Additionally, after our respondents submitted their responses using the Google form link, the data was imported into the Social Science Software (SPSS) version 26.0. The most popular program, SPSS, was chosen because of its close association with the intellectual and professional community. In addition, SPSS is a customizable software that enables different investigations, data transformations and design of results; generally, it will meet our needs. In order to identify the reliability analysis results, the data was determined and analyzed in the SPSS 26.0 form.

3.4 Study Population

The target group for the research methodology is bachelor's degree students at a higher learning institution (IPTA) in Malaysia. There are 377,103 students from 20 public universities in Malaysia. The source for the total number of students is from the Ministry of Higher Education (2022). This research study proposes a survey to collect data. After that, enough data will be collected to determine the sample size.

Table 3.1: List of Public University in Malaysia

NO.	UNIVERSITY
1.	Universiti Malaya (UM)
2.	Universiti Sains Malaysia (USM)
3.	Universiti Kebangsaan Malaysia (UKM)
4.	Universiti Putra Malaysia (UPM)
5.	Universiti Teknologi Malaysia (UTM)
6.	Universiti Utara Malaysia (UUM)
7.	International Islamic University of Malaysia (IIUM)
8.	Universiti Malaysia Sarawak (UNIMAS)
9.	Universiti Malaysia Sabah (USM)
10.	Universiti Pendidikan Sultan Idris (UPSI)
11.	Universiti Teknologi Mara (UiTM)
12.	Universiti Sultan Zainal Abidin (UniSZA)
13.	Universiti Malaysia Terengganu (UMT)
14.	Universiti Sains Islam Malaysia (USIM)
15.	Universiti Tun Hussein Onn Malaysia (UTHM)
16.	Universiti Teknikal Malaysia Melaka (UTeM)
17.	Universiti Malaysia Pahang (UMP)
18.	Universiti Malaysia Perlis (UNIMAP)
19.	Universiti Malaysia Kelantan (UMK)
20.	Universiti Pertahanan Nasional Malaysia (UPNM)



3.5 Sample Size

The definition of sample size can be extracted as the person or individuals needed to determine the estimations of a given population. In addition, sample size may also be clarified as the total number of respondents who actively participated in a particular study made by a researcher. This is because it would be easier for researchers to analyze, generate findings and observe the characteristics as well as the conclusions drawn by the questions answered by respondents. According to Green (1991), by referring to the Power Analysis Table, the sample size is needed to find out the number of respondents that contributed to this study.

In this study, the number of predictors consists of four predictors and therefore it requires a medium effect size which equals 0.15. Furthermore, by referring to table 3.2, the recommended numbers of respondents for four predictors are 84 which are located under the medium effect size. As a result, a sample size of 300 respondents is recommended for this study in order to obtain 80% power and a significance level of 0.05. On the other hand, in this study the aims of IPTA students all over Malaysia has been mentioned in the population part above. The estimation of the students is around 377,103 students according to the statistics from Ministry of Higher Education (2022).

Number of predictors	Sample sizes based on power analysis		
	Effect size		
	Small (0.02)	Medium (0.15)	Large (0.35)
1	390	53	24
2	481	66	30
3	547	76	35
4	599	84	39
5	645	91	42
6	686	97	46
7	726	102	48
8	757	108	51
9	788	113	54
10	844	117	56
15	982	138	67
20	1060	156	77
30	1247	187	94
40	1407	213	110

Figure 3.1: Power of Analysis Table

Source: (Green, 1991)

3.6 Sampling Techniques

Sampling can be described as the method or way to analyze or study the population by collecting information and observing the data such as the characteristics of the respondent, tendency of the respondent towards something, interest and into what extent respondents are able to survive using a product or service. Therefore, in this study the technique or method of sampling used will be explained further in the next section.

Sampling techniques consist of two types which are probability sampling and non-probability sampling. Probability sampling is a method that utilizes some form of arbitrary selection whereby all respondents will get the chance to select the sample from the whole sample space. Meanwhile, non-probability sampling states a vice versa meaning with probability sampling whereby it can be concluded as the method used by researcher to select sample according to the subjective judgement of the researcher or it also can be called as utilization of some form not at the random selection.

3.6.1 Non-Probability Sampling

The definition of non-probability sampling can be expressed as a method where the opportunity of every population participating in the study is limited. In other words, it simplifies that not every respondent in the population could have the chance to contribute to study. On the other hand, as has been mentioned above, non-probability sampling is a method of sampling not selected at random.

The non-probability sampling consists of several types of sampling which are convenience sampling, consecutive sampling, quota sampling, purposive sampling, and snow sampling. In this study, we use non-probability sampling which is purposive sampling. Purposive sampling can be described as a method of sampling where the respondents fulfil the criteria requirement that the study wants. For instance, our study aims for students from public universities or also called IPTA throughout Malaysia to be our respondents. Moreover, by using this purposive sampling method, it is believed that the opportunity to obtain highly accurate answers with a minimum marginal error can be achieved since our knowledge is instrumental in creating the samples.

Pursuing this further, our study aims to collect as much as 300 respondents as the sample of our study and it should be from IPTA students throughout Malaysia regardless of their gender, religions, and culture. Our study also only aims undergraduate students to contribute to our study and therefore we purposely create the survey to be answered by them. Therefore, since this study uses purposive sampling, it is also believed that the purpose respondents can deem fit to participate in this research study.

3.7 Research Instrument Development

In this study this section describes and elucidates the self-administered questionnaires created by the researcher in order to achieve the data and information from the respondents or participants. According to Lavrakas (2008), the respondents or

participants will finish the questionnaire given devoid of involvement of the researcher in the process since the set of questions are purposely designed for them to generate information as well as measure the item employed in this study. In this study, there are six sections that need to be completed by respondents. The demographic section represents section A in this study. The demographic section contains of respondent's details such as age, sexual category, income, marital status, course, university's name, and their race. Next, for section B, it represents about the dependent variable in this study which is loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia.

Moving to the next part, section C, D, E and F represents the independent variables conducted in this study. Section C, which is system quality is the independent variable in this study which will talk about the quality of the mobile banking system. Section D is service quality, section E is security assurance and section F is interface design which are all located under the term of independent variables. The scale or measure that this study employed is the five- point Likert Scales.

According to Yoo and Gretzel (2011), it is recommended for researchers to use five-point Likert Scales in a questionnaire. Thus, the five-point Likert Scales consists of five rated points whereby the lowest rate which is 1 represents as the 'strongly disagree' while the highest rate which is 5 represents as the 'strongly agree' for their verbal statements respectively. In addition, the majority of researchers advise using a five-point Likert scale in this findings since it would reduce respondents' levels of tolerance and irritability while simultaneously improving the response rate and quality (Sachdev & Verma, 2004).

Table 3.2: Five-Point Likert Scale

Strongly Disagree	Disagree	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5

Table 3.3: Overview of the Research Instruments

SECTION	VARIABLES	ITEMS	AUTHORS
A	Demographic	4	-
B	Loyalty Intention	6	(Arcand et al., 2017; Baabdullah et al., 2019; Lee & Chung, 2009)
C	System Quality	4	(McKnight et al., 2002a, 2002b)
D	Service Quality	5	(Cronin Jr et al., 2000; McDougall & Levesque, 2000; Petrick & Backman, 2002; Shankar et al., 2020)
E	Security Assurance	5	(Luarn & Lin, 2005)
F	Interface Design	3	(Bharati & Chaudhury, 2004; Schierz et al., 2010)
		27	

3.7.1 Dependent Variable – Loyalty Intention

The loyalty intention concept in this study refers to a circumstance where a client intends to continue with a specific brand or organization for a longer amount of time. Customers that consistently buy their favored goods or services, despite alluring marketing or other rivals' acts, show some sort of internal commitment (Oliver, 1999). The measurement of loyalty intention in this study is adapted from (Arcand et al., 2017; Baabdullah et al., 2019; Lee & Chung, 2009) and (Cheng et al., 2006). A 5-point Likert scale was used where respondents rate their opinion on loyalty intention with values ranging from 1 – ‘strongly disagree’ to 5 – ‘strongly agree’.

Table 3.4: Items constructing Loyalty Intention

Original Items	Sources	Modified Items
1. The bank improves the service experience of the mobile banking through service innovation.	(Arcand et al., 2017; Baabdullah et al., 2019; Lee & Chung, 2009)	1. The bank improves the service experience of the mobile banking through service innovation.
2. The innovative service makes customers willing to use and recommend to others.		2. The innovative service makes customers willing to use and recommend the mobile banking app to others.
3. There are good coordination and cooperation between the mobile banking and offline branches.		3. There are good coordination between the mobile banking and offline branches.
4. There are good coordination and cooperation between the mobile banking and offline branches.		4. There are good cooperation between the mobile banking and offline branches.

5. I would continue to use the IB for my banking needs	(Cheng et al., 2006)	5. I would continue to use the mobile banking for my banking needs
6. I would continue to see myself using the IB for handling my banking needs		6. I would continue to see myself using the mobile banking for handling my banking needs

3.7.2 Independent Variable

3.7.2.1 System Quality

The system quality in this study refers to the ease of use and navigation, aesthetic appeal, and accessibility speed of mobile banking (Gu et al., 2009). The measurement of system quality in this study is adapted from (McKnight et al., 2002a, 2002b) and (Tan et al., 2016). A 5-point Likert scale was used where respondents rate their opinion on mobile banking’s system quality with values ranging from 1 – ‘strongly disagree’ to 5 – ‘strongly agree’.

Table 3.5: Items constructing System Quality

Original Items	Sources	Modified Items
1. Mobile banking is of good compatibility, stable and smooth operation.	(McKnight et al., 2002a, 2002b)	1. Mobile banking is of good compatibility, stable and smooth operation.
2. Mobile banking response speed is fast.		2. Mobile banking response speed is fast.
3. Online customer service is professional, timely and effective to solve problems.		3. Online customer service is professional, timely and effective to solve problems.
4. You are able to access the services you want to access and feel flexible while using m-banking services	(Tan et al., 2016)	4. I am able to access the services that I want to access and feel flexible while using the mobile banking services

3.7.2.2 Service Quality

The high service quality in this study refers to the whole support supplied by the service provider (DeLone & McLean, 2003). The measurement of service quality in this study is adapted from (Cronin Jr et al., 2000; McDougall & Levesque, 2000; Petrick & Backman, 2002; Shankar et al., 2020). A 5-point Likert scale was used where respondents rate their opinion on mobile banking’s service quality with values ranging from 1 – ‘strongly disagree’ to 5 – ‘strongly agree’.

Table 3.6: Items constructing Service Quality

Original Items	Sources	Modified Items
1. Mobile banking functions can fully meet the needs of daily business	(Cronin Jr et al., 2000; McDougall & Levesque, 2000; Petrick & Backman, 2002; Shankar et al., 2020)	1. Mobile banking functions can fully meet the needs of daily business
2. I am satisfied with investment business service.		2. I am satisfied with investment business service offered in the mobile banking app
3. I am satisfied with credit card business service.		3. I am satisfied with credit card business service offered in the mobile banking app
4. I am satisfied with the diversity of business		4. I am satisfied with the diversity of business that can be settled by using mobile banking
5. The service price is rationality.		5. The service price is affordable and in line with the quality of service offered

3.7.2.3 Security Assurance

The security assurance in this study refers to the safety that a person may have access to their data and control over their bank account is a worry for consumers with

mobile banking apps (Harris et al., 2016). The measurement of security assurance in this study is adapted from (Luarn & Lin, 2005; Pikkarainen et al., 2004). A 5-point Likert scale was used where respondents rate their opinion on mobile banking’s security assurance with values ranging from 1 – ‘strongly disagree’ to 5 – ‘strongly agree’.

Table 3.7: Items constructing Security Assurance

Original Items	Sources	Modified Items
1. Mobile banking is of high security, which can ensure the security of account and funds.	(Luarn & Lin, 2005; Pikkarainen et al., 2004)	1. Mobile banking is of high security, which can ensure the security of account and funds.
2.The transaction process and data are transparent and traceable.		2.The transaction process and data are transparent and traceable.
3. I trust in the ability of an online bank to protect my privacy		3. I trust in the ability of a mobile banking to protect my privacy
4. I am not worried about the security of an online bank		4. I am not worried about the security of a mobile banking
5. Using an online bank is financially secure		5. I believe that using mobile banking is financially secure

3.7.2.4 Interface Design

The interface design in this study refers to the user interface design for mobile banking considers the perceived usability of mobile banking (Davis, 1989) and how information is provided and displayed (Bharati & Chaudhury, 2004). The measurement

of interface design in this study is adapted from (Bharati & Chaudhury, 2004; Schierz et al., 2010). A 5-point Likert scale was used where respondents rate their opinion on mobile banking’s interface design with values ranging from 1 – ‘strongly disagree’ to 5 – ‘strongly agree’.

Table 3.8: Items constructing Interface Design

Original Items	Sources	Modified Items
1. It is easy to use mobile banking.	(Bharati & Chaudhury, 2004; Schierz et al., 2010)	1. The mobile banking interface is simple, and it is easy to be used
2. The interface design of mobile banking application is of good appearance.		2. The interface design of mobile banking application is of good appearance.
3. The navigation design is easy to find out various functions		3. The navigation design is easy to find out various functions

3.8 Questionnaire Development

This study’s questionnaire is developed by using the five-point Likert Scale. A simple and straightforward questions should be implemented in order to make them easier to understand the questions (Felipe & Kumar, 2014). Besides, the questions should also be understandable by employing understandable phrases, language or slang and the questionnaire must be in a straightforward and familiar vocabulary (Krosnick & Presser, 2010). Therefore, this study employs suitable, appropriate, and easy to comprehend questions in order to aid respondents to answer the survey. For instance, this study uses the five-point Likert Scale for respondents to answer the questions where it aids in facilitating them answer the questions without wasting their golden time to understand and answer the questions for a long period of time. The five-point Likert Scale has 5 rating points, with the lowest is 1 for 'strongly disagree' and the highest is 5 for 'strongly agree'.

Respondents only need to choose or to rate the questions from rated 1 to 5 depending on their choice, understanding and knowledge.

Pursuing this further, it is believed that the questionnaire's format must be simple and agreeable to read, that the order of the questions should make it straightforward for respondents to respond, and that the items themselves should be accurate. Based on that, the questionnaire is established in an online 'Google Form' with a suitable font and size for the sake of respondents' understanding. Additionally, this study conducted non-open-ended questions or also called as close-ended questions in the survey. Based on the statement above, it means that there will be no personal information or opinion needed or requested in answering this survey as well as it will not be biased questions since it will significantly affect the research done.

3.8.1 Content Validity

Content validity can be described as the item used to measure the variable of interest. In addition, it also can be used to determine the suitable sampling of the content field of items in a questionnaire (Yaghmaie, 2003). Therefore, it can be seen that the content validity is crucial and important item in conducting a measurement of a study. This is because a test or questionnaire is believed to be measured comprehensively and represents all facets of the construct it is intended to measure. According to Kumar (2014), researchers, readers, or experts in the field also mediated regarding content validity according to the statement or question that contains connected issues that should be evaluated. This scholar also said that a lot of researchers often report the origin of each item based on literature review. Hence, the validity of questions will be relevant, suitable for the study and understood by our respondents in answering the survey. It is also believed that this is a significant and vital concept in modern research due to its utilization to upgrade the precision of assessment and estimation of research

work (Tavakol & Dennick, 2011). Besides, according to Forza (2002), it will be hard or difficult to justify the measurement error of the relationship theory that being measured if the assessment of reliability and validity of the instrument is absent.

3.8.2 Pilot Study

A pilot test is a small study used to create larger confirmatory research (Arain et al., 2010). According to (Thabane et al., 2010), a good description of exactly what a pilot study is has been provided, indicating that such a study may serve a variety of goals. For example, testing study protocols, determining the validity of tools, estimating recruitment rates, and estimating factors such as the variance of the outcome variable to determine sample size, among others.

This study uses pilot testing before spreading the questionnaire to actual respondents. A pilot test was conducted whereby 16 respondents were involved. This is because we need to ensure that there are not any questionnaire-related faults such as undefined or unsure queries. This permits us to discover and undertake various potential obstacles during the questionnaire's organizing and adjustment before its organization.

We used Google Form to appropriate surveys for pilot test and collected as much as 16 respondents for pilot test as information. After gathering the survey, the IBM SPSS Version 26 was utilized to conduct the reliability test. Cronbach's Alpha is the most popular dependability technique for measuring internal correctness. Cronbach's Alpha is also the most popular dependability method for measuring a scale's internal correctness. Cronbach's Alpha is the average dependability coefficient calculated from standardized products under thorough analysis.

3.9 Measurement of Variables

An unidentified property that can admit one or more values and determines a particular entity is called a measurement variable. Understanding the degree of

measurement used to study variables is crucial because it affects the kind of statistical investigation that can be run and, consequently, the decisions that can be taken from the study. To determine the statistical judgement test that will be used to look at each variable on the scale, the researchers will gather and analyze information.

Besides, the four types of measurement scales are nominal, ordinal, interval, and ratio. In this survey, nominal and ordinal measurement scales are employed, with the conventional Likert scale being a 5- or 7-point ordinal scale. We organized the questionnaire into six pieces. Section A is the first section, and it contains the demographic profile of the respondent. The second section is section B, which contains the item for dependent variables. The following sections, C, D, E, and F, contain a series of questions on the independent variables.

3.9.1 Nominal Scale

A Nominal Scale is a measurement scale that exclusively uses numbers as "tags" or "labels" to identify or classify objects. These measurements are usually only related to non-numerical (quantitative) variables or when numbers have no value. Thus is the most simple and inexpensive method of measurement. Using a nominal scale, responses are simply labeled or scored. The questionnaire is prepared in part. To determine each respondent's demographic profile, ask a question using a nominal scale. Among the things found in this section are gender, age, course, university name, income, marital status, and race are all determined in a nominal scale based on a questionnaire to analyze the target respondents.

3.9.2 Ordinal Scale

Quantitative variables employ an ordinal variable. It is a measurement variable that will only accept ranks or values in a specified order. The ordinal variable is the next level of measurement after the nominal variable. This scale ranks items from least

to most fulfilling in descending order of level of satisfaction. Ordinal scales, as opposed to nominal scales, allow for comparisons between the levels of the dependent variable in two subjects.

The Likert scale was one of the most frequently used scales in this study. Strongly disagreed (1), disagree (2), slightly agree (3), agree (4), and strongly agree (5) are the five possible outcomes on the Likert scale. It is used to gauge how forcefully comments are voiced to agree or disagree. The Likert scale is a rating system, and it also was used in the questionnaire to examine the items in sections B, C, D, E, and F.

3.10 Procedures for Data Analysis

Data collection is described as the process of gathering, measuring, and analyzing correct insights for research using established approved procedures. We analyzed the data acquired through a questionnaire to see the factors that influencing loyal intention towards the utilization of mobile banking among IPTA students in Malaysia. Based on the research questions, we have built a questionnaire form.

However, the data analysis plan is a road map of how we arrange and analyze data collected from 300 random respondents among undergraduate students IPTA across Malaysia from various courses. Therefore, data was gathered utilizing a questionnaire form. The researcher interpreted the primary data using the computer software Statistical Programmer for Social Science (SPSS) version 29.0. This method saves time and makes data calculation easier, allowing for faster and more efficient quantitative analysis.

3.10.1 Descriptive statistics

The purpose of descriptive statistics is to deliver descriptive samples as well as to explain the sum of data in the analysis. As a result, descriptive statistics can also give

an analysis of replies, which will aid in achieving the study's goals. In this study, the data set consists of a allocation of values, which will be quantified in statistics or data and displayed in part A through a Pie Chart.

3.10.2 Correlation Analysis

Correlation analysis is a statistical tool for determining whether and how strong a relationship exists between two variables or datasets. In terms of market research, correlation analysis is used to examine quantitative data collected through research methods such as surveys and polls to determine whether there are any noteworthy links, patterns, or trends between the two.

According to the dependent variable information regarding the variables that influence loyalty toward the use of banking mobile phones among IPTA students in Malaysia, this study is also used to analyze the association between the variables of each data collected by respondents related to independent variables on system quality, service quality, security insurance, and interface design.

3.11 Conclusion

Finally, the quantitative analysis methodology that will be used in this study has been discussed in this chapter. A survey methodology had determined appropriate to validate this model. The basic stage in this study is to see the factors that influence loyal intention towards the utilization of mobile banking among IPTA students in Malaysia. After that, data was collected through questionnaires in Google Form and the result will be shown in Chapter 4. The total respondents on questionnaire among university students in Malaysia was 300 respondents and this data will be analyzed with SPSS.

CHAPTER 4: DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter discusses data analysis, including validity and reliability tests, hypothesis testing, normality tests, descriptive analysis, preliminary analysis, and a summary of the chapter. To investigate "A Study on Factors Influencing Loyalty Intention Towards the Utilization of Mobile Banking Among IPTA Students in Malaysia," all data analysis was utilized to assess the questions in the probing questions. 300 respondents took part in the questionnaire and the findings were collected. Promoting reading and comprehension through data analysis using the Social Science software programming statistics software package (SPSS) version 26.

4.2 Preliminary Analysis

4.2.1 Validity and Reliability Test

In this study, validity and reliability are two principal components in analysing the quality of this research and evaluations. Validity is defined as how accurately an idea is measured in a quantitative investigation. Meanwhile, the accuracy of an instrument or the extent to which a research instrument consistently produces the same results when utilized in the same context on a regular basis is described as reliability (Heale & Twycross, 2015).

Therefore, in this study or research, we used both validity and reliability to test the quality of our research either it is suitable, clear and easy to be understand by our respondents or otherwise. The questionnaire that has been distributed for pilot test shows a good result of validity and reliability. Therefore, a thorough review on the questions has been made to observe the validity and reliability of the questions that we distributed to 300 actual respondents. Cronbach's Alpha is utilized in this section to verify the reliable of the instrument. The value of Cronbach's Alpha of each construct

that reaches 0.7 is considered very good and it shows that the survey questions is reliable.

4.2.2 Result of Reliability for Pilot Test

The reliability analysis was used for the purpose of determination of the questionnaires’ reliability. Besides, the Cronbach’s Alpha analysis was used to indicate the data’s reliability and inner consistency reliability. Therefore, the table 4.1 shows the Rule of Thumb of Cronbach’s Alpha coefficient size corresponding to Hair et. al (2003).

Table 4.1: Rule of Thumb of Cronbach’s Alpha Coefficient Size

Alpha Coefficient Range	Strength of Association
< 0.6	Poor
0.6 to <0.7	Moderate
0.7 to < 0.8	Good
0.8 to < 0.9	Very Good
0.9 >	Excellent

Source: Hair et.al (2003); Essential of Business Research Method.

Based on the Table 4.1 above, it illustrates the whole consistency of pilot test for the dependent variable and independent variable. This study conducts a pilot test with 16 respondents to assess the validity of the questionnaire items.

Table 4.2: Result of Cronbach’s Alpha

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.947	.944	23

Based on the table 4.2, it can be seen that all variables are analysed for reliability with the value of Cronbach’s Alpha coefficient is 0.947. As a result, the questionnaire is

trustworthy and apt for use in this study.

Table 4.3: Result of Reliability Coefficient Alpha for The Independent Variables and Dependent Variable

Variables	Number of Item	Cronbach's Alpha Coefficient	Strength of Association
Loyalty Intention	6	0.817	Very Good
System Quality	4	0.743	Good
Service Quality	5	0.872	Very Good
Security Assurance	5	0.765	Good
Interface Design	3	0.726	Good
Overall Variables	23	0.785	Good

According to Table 4.3, it shows the total value of Cronbach's Alpha Coefficient for our study that include independent and dependent variables. Based on the table, it can be concluded that Cronbach's Alpha Coefficient for all variables are above 0.7 and made the average of overall variables are 0.785. Thus, the result demonstrated that all items in the study in sufficient, reliable, and appropriate.

Based on the table 4.3, there were three items or questions in measuring the interface design of mobile banking which it indicates the lowest value of Cronbach's Alpha with 0.726. It shows a good strength of association and therefore the coefficient obtained are precise. Next, the Cronbach's Alpha value followed by the variable of system quality. The system quality consists of four items, and it has a value of 0.743 which also indicates a good strength of association. Thus, the coefficient obtained for this variable is reliable.

Pursuing this further, the security assurance consists of five items or questions in measuring the security of mobile banking. The value of Cronbach's Alpha coefficient for this variable is 0.765 which is good. Thus, the coefficient achieved shows that this variable is reliable. Next, the variable of loyalty intention with six items shows the result of 0.817 for Cronbach's Alpha coefficient which is very good. Therefore, the coefficient obtained for this variable is also reliable.

Lastly, there are five items in measuring the service quality of mobile banking. This variable indicates the highest value of Cronbach's Alpha coefficient with the value of 0.872 which is very good in terms of strength of association. Therefore, the coefficient value achieved for this variable is reliable.

Based on the results above, this study can be proceeded to the next step since the Cronbach's Alpha coefficient for all variables is greater than 0.7. Furthermore, every proof of dependability presumes that the respondent correctly comprehended the questions, which confirms that the questionnaires were accepted for this study.

4.3 Demographic Profile of Respondent

This section explains the results of data analysis based on respondents' responses to a questionnaire that was distributed to 300 respondents from public university students in Malaysia which contains demographic information such as age, gender, race, and university name. The demographic respondent in this survey is shown in the table below.

Table 4.4: Overall Demographic Profile Respondents

Demographic variable	Frequency	Percentage (%)
Age		
19-21	88	29.3
22-24	187	62.3
25-27	24	8.0
27 and above	1	0.3
Gender		
Female	205	68.3
Male	95	31.7
Race		
Bumiputera Sabah	2	0.7
Chinese	21	7.0
Iban	1	0.3
Indian	6	2.0
Malay	264	88.0
Melanau	2	0.7
Semelai	1	0.3
Sikh	1	0.3
Suluk	1	0.3

FACULTY ENTREPRENEURSHIP AND BUSINESS

Sungel	1	0.3
University Name		
IIUM	15	5.0
UiTM	15	5.0
UKM	15	5.0
UM	15	5.0
UMK	15	5.0
UMP	15	5.0
UMS	15	5.0
UMT	15	5.0
UniMAP	15	5.0
UNIMAS	15	5.0
UniSZA	15	5.0
UPM	15	5.0
UPNM	15	5.0
UPSI	15	5.0
USIM	15	5.0
USM	15	5.0
UTeM	15	5.0
UTHM	15	5.0
UTM	15	5.0
UUM	15	5.0

The essential strategy for this investigation included a frequency analysis. Section A of the questionnaire contained questions about respondents' age, gender, race, and university name. Therefore, a table and pie chart were used to display the demographic characteristics of the respondents.

4.3.1 Age

Table 4.5: Number of Respondents by Age

Age	Frequency	Percentage (%)	Cumulative percentage (%)
19-21	88	29.3	29.3
22-24	187	62.3	91.7
25-27	24	8.0	99.7
27 and above	1	0.3	100.0
Total	300	100.0	

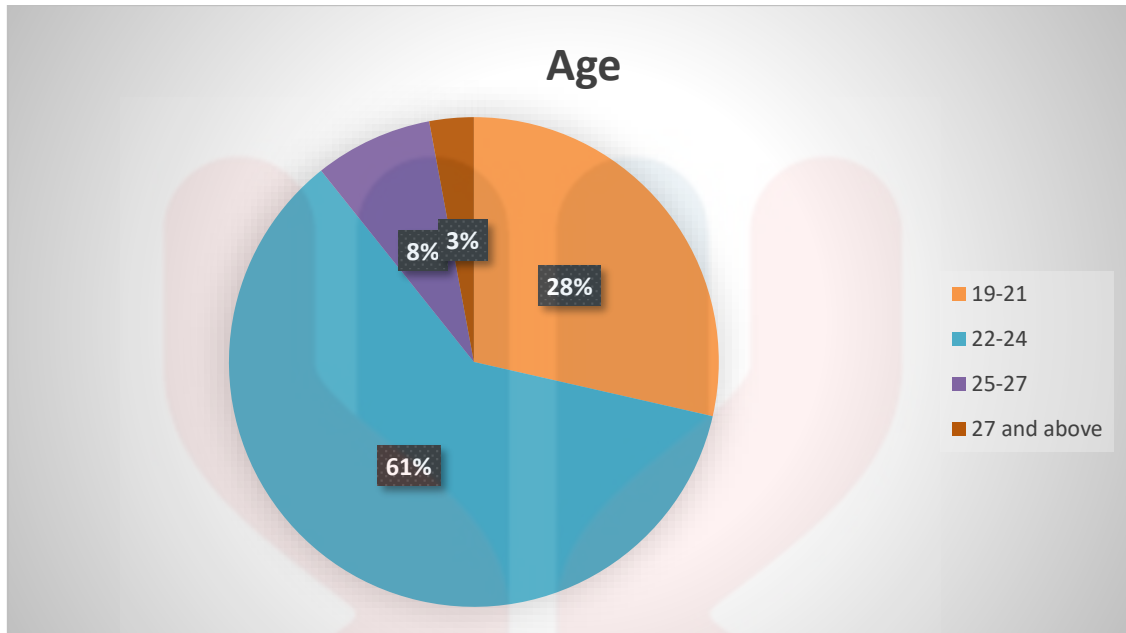


Figure 4.1: Percentage of Respondents by Age

Table 4.5 and Figure 4.1 show the number of respondents by age. Based on 300 respondents who were surveyed, respondents aged 19-21 years old represented 28% (88 respondents), 22-24 years old represented 61% (187 respondents), 25-27 years old represented 8% (24 respondents) while 27 years old above represented 3% (1 respondent). Figure 4.1 showed the highest percentage of respondents who have a range of age from 22-24 years old (61%) and lowest percentage of respondents who have a range of age from 27 and above years old (3%).

4.3.2 Gender

Table 4.6: Number of Respondents by Gender

Gender	Frequency	Percentage (%)	Cumulative percentage (%)
Female	205	68.3	68.3
Male	95	31.7	100.0
Total	300	100.0	

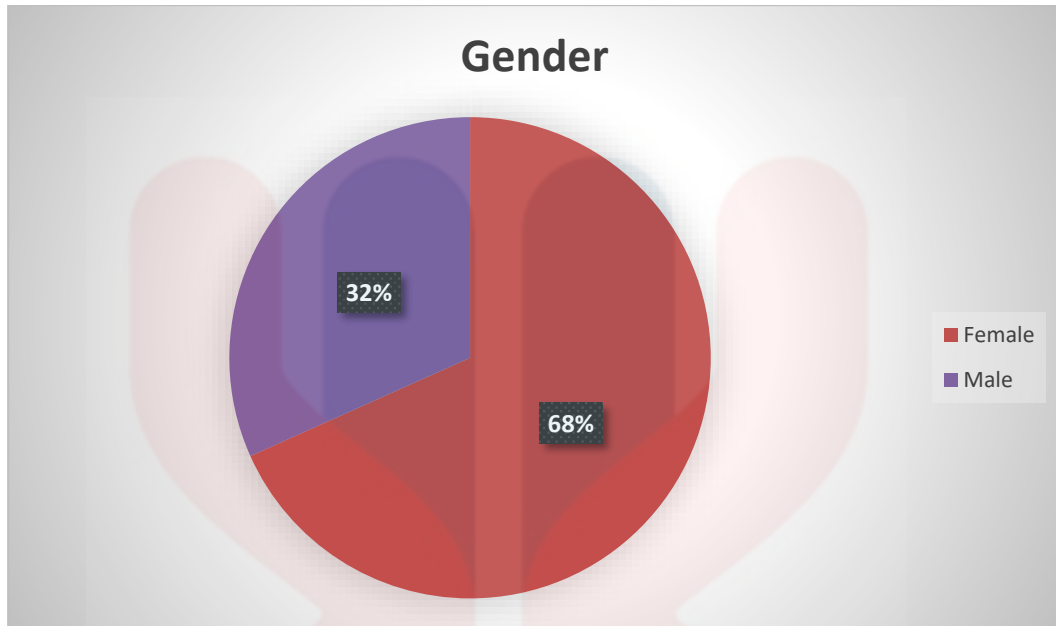


Figure 4.2: Percentage of Respondents by Gender

Table 4.6 and Figure 4.2 showed the gender of respondents. Male respondents totaled 205, while female respondents totaled 95. Thus, out of 300 respondents, 32% were male and 68% were female.

4.3.3 Race

Table 4.7: Number of Respondents by Race

Race	Frequency	Percentage (%)	Cumulative percentage (%)
Bumiputera Sabah	2	0.7	0.7
Chinese	21	7.0	7.7
Iban	1	0.3	8.0
Indian	6	2.0	10.0
Malay	264	88.0	98.0
Melanau	2	0.7	98.7
Semelai	1	0.3	99.0
Sikh	1	0.3	99.3
Suluk	1	0.3	99.7
Sungel	1	0.3	100.0
Total	300	100.0	

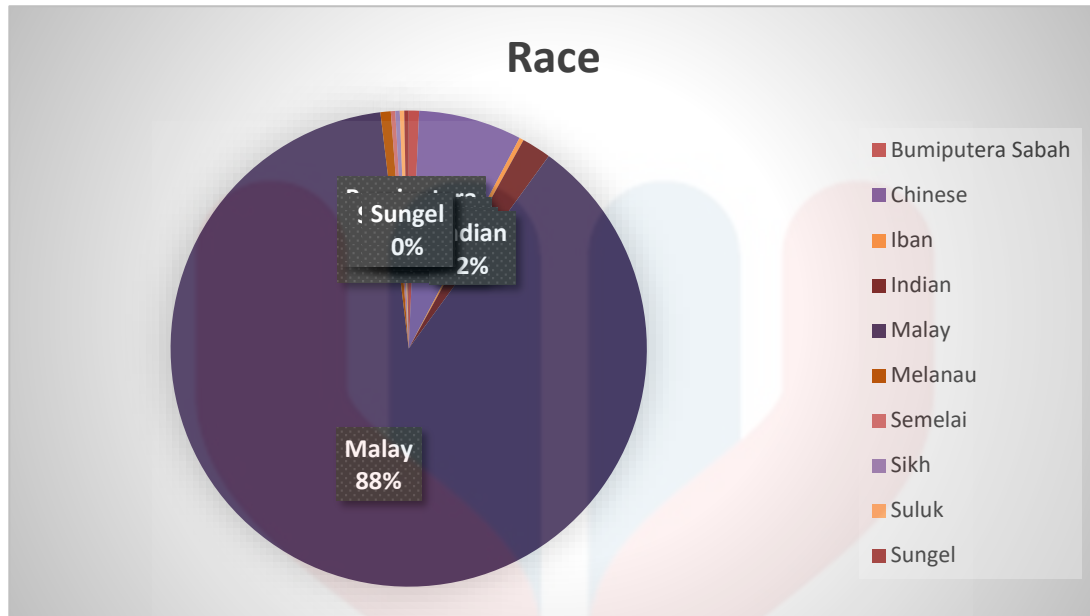


Figure 4.3: Percentage of Respondents by Race

Table 4.7 and Figure 4.3 showed the total respondents by race. 300 respondents consist of Bumiputera Sabah (2 respondents), Chinese (21 respondents), Iban (1 respondents), Indian (6 respondents), Malay (264 respondents), Melanau (2 respondents), Semelai (1 respondents), Sikh (1 respondents), Suluk (1 respondents) and Sungel (1 respondents) had responded to the questionnaire. Figure 4.3 showed the highest percentage of respondents is Malay (88%) and followed by Chinese (7%), Indian (2%), Bumiputera Sabah and Melanau (7%) and the lowest percentage respondents was Iban, Semelai, Sikh, Suluk and Sungei (3%).

4.3.4 University Name

Table 4.8: Number of Respondents by University Name

University Name	Frequency	Percentage (%)	Cumulative percentage (%)
IIUM	15	5.0	5.0
UiTM	15	5.0	10.0
UKM	15	5.0	15.0
UM	15	5.0	20.0
UMK	15	5.0	25.0
UMP	15	5.0	30.0

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UMS	15	5.0	35.0
UMT	15	5.0	40.0
UniMAP	15	5.0	45.0
UNIMAS	15	5.0	50.0
UniSZA	15	5.0	55.0
UPM	15	5.0	60.0
UPNM	15	5.0	65.0
UPSI	15	5.0	70.0
USIM	15	5.0	75.0
USM	15	5.0	80.0
UTeM	15	5.0	85.0
UTHM	15	5.0	90.0
UTM	15	5.0	95.5
UUM	15	5.0	100.0
Total	300	100.0	

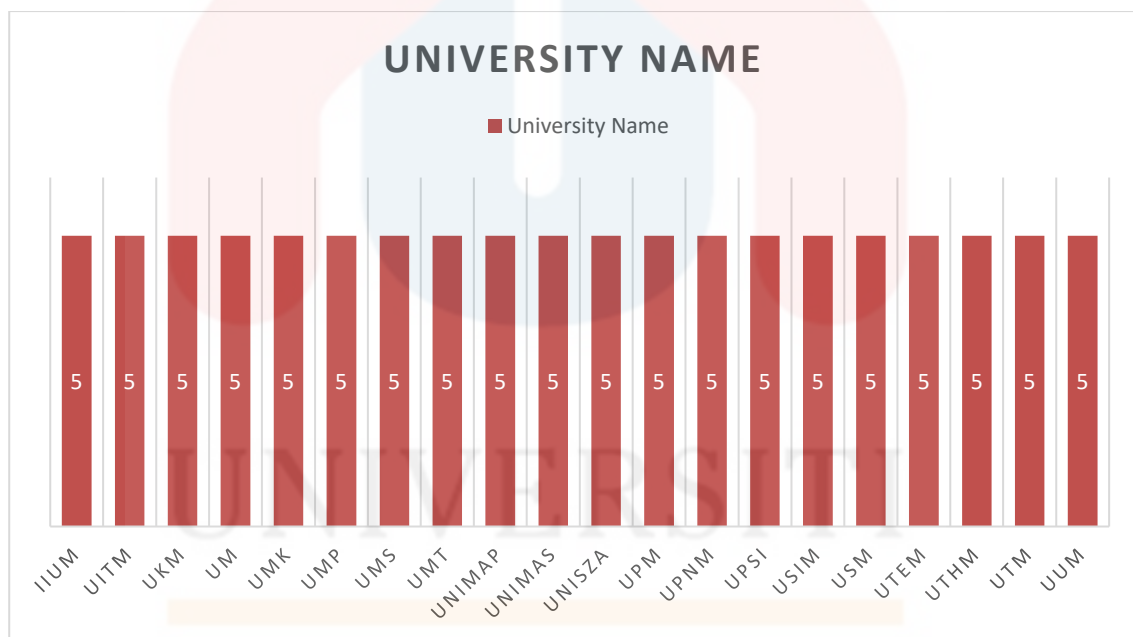


Figure 4.4: Percentage of Respondents by University Name

Table 4.8 and Figure 4.4 showed the total respondents by university name. 300 respondents, consisting of IIUM, UiTM, UKM, UM, UMK, UMP, UMS, UMT, UniMAP, UNIMAS, UniSZA are equal which needs 15 respondents per university.

4.4 Descriptive Analysis

Generally, descriptive analysis can be described as an analysis that summarize data in an organized manner. Descriptive analysis also describes the relationship between dependent variable and independent variables in a sample or population. Furthermore, descriptive statistics are important, particularly when doing research, and should always be performed before performing inferential statistical comparisons (Kaur et al., 2018).

In this study, we use mean to analyse which independent variables that has the influence on loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia. The independent variables include system quality, service quality, security assurance and interface design. The mean for each variable for every question are contrasted in this section and the Likert Scale has been used in answering the survey whereby 1 as Strongly Disagree, 2 as Disagree, 3 as Slightly Agree, 4 as Agree and 5 as Strongly Agree. The result of descriptive analysis can be illustrated as follows:

4.4.1 Loyalty Intention

Table 4.9: Descriptive Statistics Loyalty Intention
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
The bank improves the service experience of the mobile banking through service innovation.	300	1	5	4.10	.684
The innovative service makes customers willing to use and recommend the mobile banking app to others.	300	1	5	4.18	.640

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There are good coordination between the mobile banking and offline branches.	300	1	5	3.99	.696
There are good cooperation between the mobile banking and offline branches.	300	1	5	4.02	.724
I would continue to use the mobile banking for my banking needs.	300	1	5	4.38	.662
I would continue to see myself using the mobile banking for handling my banking needs.	300	1	5	4.29	.683
Valid N (listwise)	300				
Average Mean				4.16	

Table 4.9 shows that question 5 had the highest mean score of 4.38, with a standard deviation of 0.662. This illustrated that respondents from IPTA students are willing to be loyal in using the mobile banking application. The respondents also tend to stay loyal in using mobile banking in order to handle their own banking needs for the present and the future, with a mean score of 4.29 and a standard deviation of 0.683. Next, respondents agreed that the innovative service by mobile banking makes customers willing to use and recommend the mobile banking app to others with a mean score of 4.18 and a standard deviation of 0.640. Respondents also agree that mobile banking has improved the service experience through service innovation with a mean score of 4.10 and a standard deviation of 0.684. Mobile banking is believed to have a good cooperation with offline branches whereby it computes a mean score of 4.02 and a standard deviation of 0.724. Thus, this will strengthen the loyalty intention of IPTA students to be loyal and continue in using mobile banking application. Finally,

respondents also think that mobile banking has a good coordination with offline branches whereby it generates a mean score of 3.99 and a standard deviation of 0.696. Therefore, those results show that respondents among IPTA students will likely to be loyal and keep on using mobile banking in the future.

4.4.2 System Quality

Table 4.10: Descriptive Statistics System Quality
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Mobile banking is of good compatibility, stable and smooth operation.	300	1	5	3.98	.729
Mobile banking response speed is fast.	300	1	5	3.82	.870
Online customer service is professional, timely and effective to solve problems.	300	1	5	3.91	.807
I am able to access the services that I want to access and feel flexible while using the mobile banking services.	300	1	5	4.07	.670
Valid N (listwise)	300				
Average Mean				3.95	

The table 4.10 shows that question 4 had the highest mean score of 4.07, with a standard deviation of 0.670. This demonstrated that mobile banking has a good service

quality since it has made respondents feel flexible in using it. The respondents also believe that mobile banking has good compatibility, stable and smooth operation whereby it generates a mean score of 3.98 and a standard deviation of 0.729. Next, mobile banking online customer service is effective and efficient with a mean score of 3.91 and a standard deviation of 0.807. Finally, respondents think that mobile banking has a good and fast response speed with a mean score of 3.82 and a standard deviation of 0.870.

4.4.3 Service Quality

Table 4.11: Descriptive Statistics Service Quality
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Mobile banking functions can fully meet the needs of daily business	300	1	5	4.12	.660
I am satisfied with investment business service offered in the mobile banking app	300	1	5	3.95	.757
I am satisfied with debit card business service offered in the mobile banking app	300	1	5	4.12	.672
I am satisfied with the diversity of business that can be settled by using mobile banking	300	1	5	4.13	.657
The service price is affordable and in line with the quality of service offered	300	1	5	4.07	.728
Valid N (listwise)	300				
Average Mean				4.08	

Table 4.11 shows that question 4 had the highest mean score of 4.13, with a standard deviation of 0.657. This demonstrated that diversified service offered by

mobile banking increases the number of utilizations by IPTA students. Next, both question 1 and 3 recorded a mean score of 4.12 and a standard deviation of 0.660 and 0.672 respectively. This illustrates that mobile banking can fulfil the needs of its customer’s daily business such as debit card business service.

Besides, the service fee of mobile banking is reasonable and affordable for customers to pay since it is worth the service provided, with a mean score of 4.07 and a standard deviation of 0.728. Lastly, respondents think that mobile banking also offered a good investment business service since it generates a result of mean score with 3.95 and a standard deviation of 0.757. Thus, this shows that IPTA students agreed that mobile banking is also capable of aiding and providing its users or customers with investment services.

4.4.4 Security Assurance

Table 4.12: Descriptive Statistics Security Assurance
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Mobile banking is of high security, which can ensure the security of account and funds	300	1	5	3.97	.760
The transaction process and data are transparent and traceable	300	1	5	4.07	.675
I trust in the ability of a mobile banking to protect my privacy	300	1	5	3.95	.835
I am not worried about the security of a mobile banking	300	1	5	3.53	1.137

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I believe that using mobile banking is financially secure	300	1	5	3.94	.801
Valid N (listwise)	300				
Average Mean				3.90	

Table 4.12 shows that question 2 had the highest mean score of 4.07, with a standard deviation of 0.675. This demonstrated that mobile banking ensures the transaction made by its users is safe and easy to trace if any uncertainty happens. Next, the respondents believe that mobile banking provides them with a high level of protection in terms of their account and funds whereby the mean score for this question is 3.97 and a standard deviation of 0.760. Moreover, the mean score for question 3 is 3.95 and a standard deviation of 0.835. This shows that our respondents have a better trust in the protection of their privacy in the utilization of mobile banking. Most of the respondents believe that mobile banking establishment could secure their financial information whereby the outcome of a mean score for question 5 is 3.94 and a standard deviation of 0.801. Lastly, respondents believe that they will not need to worry about the safety and security of a mobile banking and ensure that mobile banking provide them with the best security assurance whereby the result of a mean is 3.53 and standard deviation of 1.137.

4.4.5 Interface Design

Table 4.13: Descriptive Statistics Interface Design
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
The mobile banking interface is simple, and it is easy to be used	300	1	5	4.13	.652

The interface design of mobile banking application is of good appearance	300	1	5	4.15	.678
The navigation design is easy to find out various functions	300	1	5	4.17	.657
Valid N (listwise)	300				
Average Mean				4.15	

Table 4.13 shows that question 3 had the highest mean score of 4.17, with a standard deviation of 0.657. This demonstrated that respondents find it easy to navigate functions in mobile banking and feel the ease of use. Next, respondents think that the interface design is suitable, and appropriate to be used whereby it generates a mean score of 4.15 and a standard deviation of 0.678. Finally, respondents also believe and think that mobile banking interface is simple to understand that it led to the ease of use of mobile banking whereby it generates a mean score of 4.13 and a standard deviation of 0.652.

4.5 Normality Test

Table 4.14: Normality Test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
MeanLI	.139	300	.000	.928	300	.000
MeanSQ	.139	300	.000	.951	300	.000
MeanSRQ	.186	300	.000	.923	300	.000
MeanSA	.137	300	.000	.951	300	.000
MeanID	.233	300	.000	.865	300	.000

a. Lilliefors Significance Correction

According to the table 4.14, we recode the name for all variables into simple abbreviation. The MeanLI refers to mean for loyalty intention while MeanSQ refers to

the mean of system quality. Next, MeanSRQ refers to the mean for service quality and MeanSA refers to the mean for security assurance. Lastly, MeanID refers to the mean for interface design.

The table above shows the findings of two well-known normality tests: the Shapiro-Wilk Test and the Kolmogorov-Smirnov Test. The Shapiro-Wilk test can handle sample sizes of up to 2000, however it works best with small samples (50). To determine normality in the numerical data, we employed the Shapiro-Wilk test. The table above demonstrates that the results for the dependent and independent variables are not normal. This is because data is considered normal if the Sig. Shapiro-Wilk Test value is greater than 0.05.

According to Habibzadeh (2023), a number less than 0.05 indicates that the data deviates significantly from a normal distribution. The results demonstrate that all of the dependent and independent variables are less than 0.05. The reason why the data for these questions is out of the ordinary is that all IPTA students are using mobile banking but do not necessarily want to stay loyal in using mobile banking and certainly accept the service provided by mobile banking.

4.6 Hypotheses Testing

In this section of our research, we will conclude regarding the hypothesis between all variables that involves or used in our study. Generally, hypothesis testing is the process of assuming the strength of evidence from a sample and providing a framework for making population judgments. In other words, it is a method for determining how accurate the results of a small sample study are when extrapolated to the wider population from which the sample was drawn.

In generating the hypothesis between dependent variable and independent variables, researcher need to define either the result of the data from normality test is

normal or abnormal. If the data is normal, a researcher is needed to apply the Pearson Correlation Analysis to calculate the strength and connection of the variable. Meanwhile, if the data is abnormal, a researcher is needed to use the Spearman Correlation Analysis to verify the strength and relationship of the variables.

Since the normality test showed that the data is not normal, thus, this study use Spearman Correlation Analysis to determine the strength of the relationship for all variables. The Spearman Correlation Coefficient is used to calculate the strength of relationship between loyalty intention, system quality, service quality, security assurance and interface design. In this section, the mediator is used as a dependent variable to assess the relationship. This Spearman Correlation Coefficient can statistically represent the path and intensity of the linear link between IVs and DVs.

The general rules of thumb for determining the correlation coefficient are shown in table 4.15. If the relationship proved significant, researchers should consider if the strength of the correlation is acceptable. Spearman Correlation Coefficient analysis was important because it can quantify the strength of a linear interaction between an independent and dependent variable.

Therefore, hypothesis testing suggests that the hypothesis will be accepted if p-value is less than 0.05, (p-value < 0.05).

Table 4.15: The Size of Correlation Coefficient

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

Source: (Mukaka, 2012)

4.6.1 The Relationship between Loyalty Intention and System Quality

Table 4.16: Result the Relationship between Loyalty Intention and System Quality

Correlations			MeanLI	MeanSQ
Spearman's rho	MeanLI	Correlation Coefficient	1.000	.626**
		Sig. (1-tailed)	.	.000
		N	300	300
	MeanSQ	Correlation Coefficient	.626**	1.000
		Sig. (1-tailed)	.000	.
		N	300	300

** . Correlation is significant at the 0.01 level (1-tailed).

Based on the result Table 4.16, the p-value for the relationship between loyalty intention and system quality is equal to 0.000 which is less than 0.05 and the correlation value, r is equal to 0.626. A Spearman product-moment correlation coefficient is computed to judge the relationship between loyalty intention and system quality. Based on the result, there is a significant and moderate positive correlation between the two variables, (r = 0.626, n = 300, p = 0.000). There was statistically significant correlation between loyalty intention and system quality. It means that a good system quality will increase loyalty intention.

4.6.2 The Relationship between Loyalty Intention and Service Quality

Table 4.17: Result the Relationship between Loyalty Intention and Service Quality

Correlations			MeanLI	MeanSRQ
Spearman's rho	MeanLI	Correlation Coefficient	1.000	.637**
		Sig. (1-tailed)	.	.000
		N	300	300
	MeanSRQ	Correlation Coefficient	.637**	1.000
		Sig. (1-tailed)	.000	.
		N	300	300

** . Correlation is significant at the 0.01 level (1-tailed).

Based on the result Table 4.17, the p-value for the relationship between loyalty intention and service quality is equal to 0.000 which is less than 0.05 and the correlation value, r is equal to 0.637. A Spearman product-moment correlation coefficient is computed to assess the relationship between loyalty intention and service quality. There is a significant and moderate positive correlation between the two variables, ($r = 0.637$, $n = 300$, $p = 0.000$). Thus, it indicates that when service quality increase, the customer's loyalty will also increase.

4.6.3 The Relationship between Loyalty Intention and Security Assurance

Table 4.18: Result the Relationship between Loyalty Intention and Security Assurance

		Correlations		
			MeanLI	MeanSA
Spearman's rho	MeanLI	Correlation Coefficient	1.000	.477**
		Sig. (1-tailed)	.	.000
		N	300	300
	MeanSA	Correlation Coefficient	.477**	1.000
		Sig. (1-tailed)	.000	.
		N	300	300

** . Correlation is significant at the 0.01 level (1-tailed).

Based on the result Table 4.18, the p-value for the relationship between loyalty intention and security assurance is equal to 0.000 which is less than 0.05 and the correlation value, r is equal to 0.477. A Spearman product-moment correlation coefficient is computed to assess the relationship between loyalty intention and security assurance. There is a significant positive correlation between the two variables, ($r = 0.477$, $n = 300$, $p = 0.000$). However, the strength is low. Thus, it can be illustrated that when security assurance increase, the loyalty intention of customers will also increase.

4.6.4 The Relationship between Loyalty Intention and Interface Design

Table 4.19: Result the Relationship between Loyalty Intention and Interface Design

Correlations			MeanLI	MeanID
Spearman's rho	MeanLI	Correlation Coefficient	1.000	.613**
		Sig. (1-tailed)	.	.000
		N	300	300
MeanID	MeanID	Correlation Coefficient	.613**	1.000
		Sig. (1-tailed)	.000	.
		N	300	300

** . Correlation is significant at the 0.01 level (1-tailed).

Based on the result Table 4.19, the p-value for the relationship between loyalty intention and interface design is equal to 0.000 which is less than 0.05 and the correlation value, r is equal to 0.613. A Spearman product-moment correlation coefficient is computed to assess the relationship between loyalty intention and interface design. There is a significant and moderate positive correlation between the two variables, (r = 0.613, n = 300, p = 0.000). Therefore, it indicates that when interface design increase, the customer’s loyalty will also increase.

4.7 Conclusion

After analysing the interactions between all of the variables, the researchers found that the study's two ideas were valid. For loyalty intension, the Pearson correlation coefficients between the independent variables and the dependent variable are 0.626 0.637, 0.477 and 0.613 for system quality, service quality, security assurance and interface design of mobile banking respectively. The correlation relationship between variables in this study is both positive and negative, indicating that the dependent and independent variables are related or not related and have an effect on one another. For example, all independent variables in this study have a positive association

with the dependent variable since they are strongly related. Cronbach's alpha was used to assess the questionnaire's safety and relevance to the study. The questionnaire's validity was established utilizing a small sample size in this study.

4.8 Summary of Hypothesis

Table 4.20: Summary of Hypothesis

Hypothesis	Relationship
The Relationship between Loyalty Intention and System Quality	Supported
The Relationship between Loyalty Intention and Service Quality	Supported
The Relationship between Loyalty Intention and Security Assurance	Supported
The Relationship between Loyalty Intention and Interface Design	Supported

CHAPTER 5: DISCUSSION AND CONCLUSION

5.1 Introduction

Following the results of Chapter 4's analysis, the outline of the descriptive analysis will be examined further in this chapter. On the other hand, in this study, a comparison of overall of the study with the objective which was set from the beginning of the study is determined. Besides, there is a more intensive explanation in important findings regarding how the independent variables influence the dependent variables. Furthermore, this chapter will explore the limitations of this study and make suggestions for further research. An overall conclusion has been specified to get the apparent picture as well as to summaries the entire research study.

5.2 Key Findings

This study was carried out to identify the factors that influence IPTA students' loyalty intention to use mobile banking in Malaysia. The independent factors are system quality, service quality, security assurance, and interface design. In this study, a Google Forms questionnaire was used to collect all of the data from the respondents, who were IPTA students, in order to obtain the essential information. The researcher was able to collect 300 respondents utilizing the distributed questionnaire, as well as an online survey tool, which was then used to analyze data. This study's research framework provided a guide for the analysis, which was carried out using the data analysis software SPSS. Variability, reliability, frequency analysis, and descriptive analysis are all measured in data analysis.

In addition, a descriptive analysis was performed to access the demographic section data and identify the respondent's approach to each question. A reliability test was done to verify the questionnaires' relevance to the study participants. The normality test is used to compare the dependent and independent variables. This study employs

descriptive analysis since it is capable of precisely capturing the properties of a huge amount of data. It is also used to compute average, percentage, and frequency. Descriptive analysis makes it possible to identify the important independent variables for the dependent variables. Also, this study has four objectives to discuss in hypothesis. First, the relationship between system quality to loyalty intention towards mobile banking. Second, the relationship between service quality to loyalty intention towards mobile banking. Third, the relationship between system quality to security assurance towards mobile banking and fourth the relationship between system quality to interface design towards mobile banking.

5.3 Discussion

5.3.1 Hypothesis 1: The Relationship between Loyalty Intention and System Quality

According to hypothesis 1, there was a moderate relationship between loyalty intention and system quality of mobile banking that influencing customer among IPTA students in Malaysia to stay loyal on it. Based on the results, there was a moderate and positive relationship with a correlation coefficient of 0.626 and a p-value of 0.000, which was less than the highly significant amount of 0.05. As a result, H1 was supported.

According to Liu & Arnett (2000) and DeLone & McLean (2003), users can be the ones who are able to assess the system quality of mobile banking by using their perception, which has been noted as the performance quality of an application system. The high level of system quality in mobile banking will lead customers to perceived ease of use in utilizing the system or application.

5.3.2 Hypothesis 2: The Relationship between Loyalty Intention and Service

Quality

According to hypothesis 2, there was a moderate relationship between loyalty intention and service quality of mobile banking that influencing customer among IPTA students in Malaysia to stay loyal on it. According to the results, there was a moderate positive correlation with a correlation coefficient of 0.637 and a p-value of 0.000, which was less than the highly significant level of 0.05. As a result, H2 was supported.

Furthermore, Cronin Jr (2000), McDougall (2000), and Petrick (2002) contend that service quality is a critical and substantial factor of customer satisfaction and loyalty intentions. A bank's mobile banking service should be of high quality, providing customers with understandable features and speedy, accurate, and secure transactions to foster loyalty.

5.3.3 Hypothesis 3: The Relationship between Loyalty Intention and Security

Assurance

According to hypothesis 3, there was a low positive relationship between loyalty intention and security assurance of mobile banking. That influencing customer among IPTA students in Malaysia to stay loyal on it. According to the results, there was a low positive correlation with a correlation coefficient of 0.477 and a p-value of 0.000, which was less than 0.05. As a result, H3 was supported.

Based on the previous study, Koenig-Lewis et al., (2010) and Lee et al., (2007) perceived security assurance in mobile banking significantly impacts service quality and customer satisfaction. It ensures customers feel secure, preventing cash flow to non-authorized or wrong accounts. This security assurance eliminates the need to check transactions or pay extra for security. This ensures customers continue to use mobile banking without doubt or worry, fostering a positive perception of its usefulness

in the future.

5.3.4 Hypothesis 4: The Relationship between Loyalty Intention and Interface

Design.

According to hypothesis 4, there was a moderate positive relationship between loyalty intention and interface design of mobile banking that influencing customer among IPTA students in Malaysia. According to the results, there was a moderate positive correlation with a correlation coefficient of 0.613 and a p-value of 0.000, which was less than the highly significant level of 0.05. As a result, H4 was supported.

According to Everard (2005), outstanding interface design quality may improve the building of trust in the quality of the mobile banking system and the security assurance of mobile banking. As a result, customers are expected to make a solid first impression because the interface is the first thing they see. A well-designed mobile banking app can attract more customers and generate positive impressions based on the original information provided.

5.4 Implication of The Study

This study has significance for banks' client acquisition and retention tactics related to mobile banking. To boost client loyalty, decision makers and financial institutions should consider the functions of interface design, system quality, security assurance, and service quality when it comes to mobile banking applications. The results advise mobile banking application developers to create customer-focused concepts for their apps while taking the apps' adaptability, safety, and agility into account. Customers may trust their mobile banking if it offers a reliable, accurate, and secure system with quick response times and effective services (such payment and transaction processing, credit card services, etc.). In the meanwhile, to improve consumers' perception of security when utilizing mobile banking apps, developers must

also incorporate multi-level security measures. Banks must furnish consumers with well-documented policies and structural guarantees to enhance confidentiality and warn against any hazards when using mobile banking services for transactions, investments, and other purposes. The banks must raise the bar on service quality to help customers around the clock, as this would boost user happiness and encourage more use of mobile banking services.

5.5 Limitations of The Study

This analysis identifies a limitation. The first limitation relates to the questionnaire's comprehension and how answering the questions affected the accuracy and dependability of the data. Some responders could find it tough to read the question and give an honest response. In addition, respondents who did not read the questions marked their responses on the form at their discretion. This questionnaire does not require a lot of funds and energy because it uses google form online, but the researcher cannot ensure the person who answered the question. There are also some respondents who refuse to open the link that has been given. This causes the process of obtaining survey data to be slow and difficult. The accuracy of information is impacted by these assumptions.

Since the researcher is a student, the second barrier is time. Students conducting research must be very good time managers to complete their assignments, quizzes, presentations, final exams, and other assignments. After then, the researchers waited a very long time for respondents to finish the survey that was sent using Google Form. Since some people find it difficult to cooperate while answering questions online, it is quite tough to finish the data swiftly.

5.6 Recommendations / Suggestion for Future Research

According to the results of the study, among the future studies suggested is to swell the sample of respondents to the general public of mobile banking users such as professionals, academics and government employees. This is because this group is the early adopter before generation Z uses this mobile banking. They are more aware of the reasons why until today customers are loyal to this mobile banking in their banking transactions. The bank should be pleasant with students and other community members about the features and services provided, as well as convince them of the benefits of mobile banking in order to encourage them to utilize it more frequently.

Next, it is also advised that the sample size contain a varied range of educational qualifications among Malaysian university students. Students seeking diplomas, degrees, master's, and doctoral degrees, for example, may have a unique perspective that influences their intention to use mobile banking with loyalty. As a result, additional research should be conducted with individuals from varied educational backgrounds to help them do better in their studies of the mobile banking system.

Last but not least, researchers can continue the study of customer service in mobile banking in more depth. Emphasis on the responsiveness of customer service staff at the bank to its customers. Researchers can focus on how quickly and effectively customer support responds to queries, issues, or concerns raised by IPTA students. The data collection includes questions or scenarios in surveys that assess the timeliness of responses from customer support. Analyze whether prompt responses positively impact user satisfaction and loyalty.

Finally, future researchers can make a study about technological literacy and acceptance of mobile banking. Among the ways is to examine the role of technology in the acceptance of mobile banking services among university students in Malaysia that

influences their loyalty in the adoption of mobile banking services. This could involve assessing their understanding of mobile banking features, security measures, and the overall functionality of the technology. So, by this, the study can examine how students' comfort with technology and their digital skills affect their willingness to use and stay loyal to mobile banking platforms.

5.7 Overall Conclusion of The Study

In today's digital age, mobile banking is significantly useful, with numerous banks granting remarkable applications. This research focuses on the factors that influence loyalty towards the use of mobile banking among IPTA with 300 students from 20 universities in Malaysia. Based upon the UTAUT and TAM theory model developed, this research aims to study the factors that influence loyalty towards the use of mobile banking with 300 students among IPTA students. To guarantee that this study's objectives are reached, this study will measure customer loyalty as the dependent variable that is influenced by customer satisfaction and the independent variables used in this study were system quality, service quality, security assurance and interface design which will have an influence on the use of mobile banking. The proposed model successfully provides several noteworthy findings, such as students' knowledge of how mobile banking can keep clients loyal to its use.

REFERENCES

- Aaker, D. A. (1991). *Managing Brand Equity. The Free Press.*
- Afshan, S., & Sharif, A. (2016). Acceptance of mobile banking framework in Pakistan. *Telematics and Informatics, 33*(2), 370-387.
- Alberto De la Rosa Algarín, S. A. D. (2014). Chapter 4 - An Approach to Facilitate Security Assurance for Information Sharing and Exchange in Big-Data Applications. *Emerging Trends in ICT Security, 65-83.*
- Ali, M., Raza, S.A., 2017. Service quality perception and customer satisfaction in Islamic banks of Pakistan: the modified SERVQUAL model. *Total Qual. Manag. Bus. Excel. 28* (5–6), 559–577.
- Alnaser, F.M.I., Abd Ghani, M. and Rahi, S. (2018), “*Service quality in Islamic banks: the role of PAKSERV model, customer satisfaction and customer loyalty*”, *Accounting, Vol. 4 No. 2*, pp. 63-72.
- Al Tarawneh, M. m. A., Nguyen, T. P. L., Yong, D. G. F., & Dorasamy, M. A. P. (2023). Determinant of M-Banking Usage and Adoption among Millennials. *Sustainability, 15*(10), 8216.
- Amin, H., & Ramayah, T. (2010). SMS banking: Explaining the effects of attitude, social norms, and perceived security and privacy. *The Electronic Journal of Information Systems in Developing Countries, 41*(1), 1–15.
- Amiri Aghdaie, S.F., Faghani, F., (2012). Mobile banking service quality and customer satisfaction (application of SERVQUAL model). *Int. J. Manag. Bus. Res. 2* (4), 351–361.
- Andreassen, T. W., & Lindestad, B. (1998). Customer loyalty and complex services: The impact of corporate image on quality, customer satisfaction and loyalty for customers with varying degrees of service expertise. *International Journal of service Industry management, 9*(1), 7-23.
- Arain, M., Campbell, M. J., Cooper, C. L., & Lancaster, G. A. (2010). Correspondence What is a pilot or feasibility study? A review of current practice and editorial policy.
- Arcand, M., PromTep, S., Brun, I., & Rajaobelina, L. (2017). Mobile banking service quality and customer relationships. *International Journal of Bank Marketing, 35*(7), 1068–1089.
- Auh, S., Bell, S.J., McLeod, C.S. and Shih, E. (2007). Co-production and customer loyalty in financial services. *Journal of Retailing, Vol. 83 No.3*, 359-370.
- Baabdullah, A. M., Alalwan, A. A., Rana, N. P., Kizgin, H., & Patil, P. (2019). Consumer use of mobile banking (M-Banking) in Saudi Arabia: Towards an integrated model. *International journal of information management, 44*, 38-52.

- Bakar, J. A., Clemes, M.D. and Bicknell, K. (2017). A comprehensive hierarchical model of retail banking. *International Journal of Bank Marketing*, Vol. 35(No.4), 662-684.
- Balapour, A., Nikkhah, H. R., & Sabherwal, R. (2020). Mobile application security: Role of perceived privacy as the predictor of security perceptions. *International Journal of Information Management*, 52, 102063. <https://doi.org/10.1016/j.ijinfomgt.2019.102063>
- Bernama. (2023, March, 10). Bukit Aman : Over 90,000 Online Fraud Cases From 2017-2021, Involving RM3.3b Losses. <https://www.kkd.gov.my/en/public/news/21562-bukit-aman-over-90-000-online-fraud-cases-from-2017-2021-involving-rm3-3b-losses>
- Bharati, P., Chaudhury, A., (2004). An empirical investigation of decision-making satisfaction in web-based decision support systems. *Decis. Support Syst.* 37 (2), 187–197.
- Bitner, M. J. (1992). Servicescapes: The impact of physical surroundings on customers and employees. *Journal of marketing*, 56(2), 57-71.
- Bryant, A., & Colledge, B. (2002). Trust in electronic commerce business relationships. *J. Electron. Commer. Res.*, 3(2), 32-39.
- B. Jaruwachirathanakul, D. Fink (2005) ‘Internet banking adoption strategies for a developing country: The case of Thailand’, *Internet Research*, 15 (3), pp. 295-311
- Casalo, L. V., Flavián, C., & Guinalú, M. (2007). The influence of satisfaction, perceived reputation and trust on a consumer’s commitment to a website. *Journal of Marketing Communications*, 13(1), 1–17.
- Casaló, L. V., Flavián, C., & Guinalú, M. (2008). The role of satisfaction and website usability in developing customer loyalty and positive word-of-mouth in the e-banking services. *International journal of bank marketing*, 26(6), 399-417.
- Cheah, C. M., Teo, A. C., Sim, J. J., Oon, K. H., & Tan, B. I. (2011). Factors affecting Malaysian mobile banking adoption: An empirical analysis. *International Journal of Network and Mobile Technologies*, 2(3), 149-160.
- Cronin Jr, J. J., Brady, M. K., & Hult, G. T. M. (2000). Assessing the effects of quality, value, and customer satisfaction on consumer behavioral intentions in service environments. *Journal of retailing*, 76(2), 193-218.
- Changchit, C., Lonkani, R., & Sampet, J. (2017). Mobile banking: Exploring determinants of its adoption. *Journal of Organizational Computing and Electronic Commerce*, 27(3), 239–261.
- C. Narendiran, S. Albert Rabara, and N. Rajendran (2009), —Public key infrastructure for mobile banking security, || Global Mobile Congress, pp. 1-6

- Davis, F.D., (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Q.* 319–340.
- Day, G. S. (1969). A two-dimensional concept of brand loyalty. *Journal of Advertising Research*, Vol.9 No.3, 29-35.
- Delone, W.H. and McLean, E.R. (2003) ‘The Delone and McLean Model of Information Systems Success: A ten-year update’, *Journal of Management Information Systems*, 19(4), pp. 9–30. doi:10.1080/07421222.2003.11045748.
- De la Rosa Algarín, A., & Demurjian, S. A. (2014). An approach to facilitate security assurance for information sharing and exchange in big-data applications. *Emerging Trends in ICT Security*, 65–83. <https://doi.org/10.1016/b978-0-12-411474-6.00004-9>
- Dudovskiy, J. (2018). Quantitative Data Analysis. Retrieved from <https://research-methodology.net/research-methods/data-analysis/quantitative-data-analysis/>
- Dudovskiy, J. (2022). Data Collection Methods. Retrieved from <https://research-methodology.net/research-methods/data-collection/>
- Dwyer, F.R., Schurr, P.H. and Oh, S. (1987) ‘Developing buyer-seller relationships’, *Journal of Marketing*, 51(2), 11-27
- Edvardsson, B., Johnson, M.D., Gustafsson, A. and Strandvik, T. (2000). The effects of satisfaction and loyalty on profits and growth: Products versus services. *Total Quality Management*, Vol.11 No. 7, 917-927.
- Everard, A., Galletta, D.F., (2005). How presentation flaws affect perceived site quality, trust, and intention to purchase from an online store. *J. Manag. Inf. Syst.* 22 (3), 56–95.
- Farrelly, F., & Quester, P. (2005). Investigating large-scale sponsorship relationships as co-marketing alliances. *Business Horizons*, 48(1), 55–62.
- Featherman, M.S. and Pavlou, P.A. (2003), “Predicting e-services adoption: a perceived risk facets perspective”, *International Journal of Human-Computer Studies*, Vol. 59 No. 4, pp. 451-74.
- Fernandes, T. (1995). *Global Interface Design*. Morgan Kaufmann.
- Flavián, C., Guinalíu, M. and Gurrea, R. (2006). The role played by perceived usability, satisfaction and consumer trust on website loyalty. *Information and Management*, Vol. 43 No. 1, 1-14.
- Fusva, A., Dean, D., Suhartanto, D., Syarief Moch, E., Arifin Agus, Z., Suhaeni, T. and Rafdinal, W. (2020). Loyalty Formation and Its Impact on Financial Performance of Islamic Banks. *Journal of Islamic Marketing*, Vol. 12(9).
- Ganguli, S., & Roy, S. K. (2011). Generic technology-based service quality dimensions in banking: Impact on customer satisfaction and loyalty. *International journal of bank marketing*, 29(2), 168-189.

- Gaski, J.F. and Nevin, J.R. (1985) 'The differential effects of exercised and unexercised power sources in a marketing channel', *Journal of Marketing Research*, 22(2), p. 130. doi:10.2307/3151359.
- Gatsou, C., Politis, A., & Zevgolis, D. (2012). The importance of mobile interface icons on user interaction. *International Journal of Computer Science and Applications*, 9(3), 92-107.
- Gatsou, C., Politis, A., & Zevgolis, D. (2013). Exploring inexperienced user performance of a mobile tablet application through usability testing. *Federated Conference on Computer Science and Information Systems*. 557-564.
- Goodman, J., Gray, P., Khammampad, K., & Brewster, S. (2004). Using landmarks to support older people in navigation. *Mobile Human-Computer Interaction – Mobile HCI 2004 Lecture Notes in Computer Science*, 38-48.
- Gorla, N., Somers, T.M. and Wong, B. (2010) 'Organizational impact of system quality, information quality, and service quality', *The Journal of Strategic Information Systems*, 19(3), pp. 207–228.
- Green, S. B. (1991). How many subjects does it take to do a regression analysis. *Multivariate behavioral research*, 26(3), 499-510.
- Grönroos, C. (1991). The marketing strategy continuum: towards a marketing concept for the 1990s. *Management decision*, 29(1).
- Gu, J. C., Lee, S. C., & Suh, Y. H. (2009). Determinants of behavioral intention to mobile banking. *Expert Systems with Applications*, 36(9), 11605–11616. <https://doi.org/10.1016/j.eswa.2009.03.024>
- Hair, J. F. Jr., Babin, B., Money, A. H., & Samouel, P. (2003). *Essential of business research methods*. John Wiley & Sons: United States of America
- Hallowell, R. (1996). The relationships of customer satisfaction, customer loyalty, and profitability: an empirical study. *International Journal of Service Industry Management*, Vol. 7 No. 4, 27-42.
- Hanif, Y., & Lallie, H. S. (2021). Security factors on the intention to use mobile banking applications in the UK older generation (55+). A mixed-method study using modified UTAUT and MTAM-with perceived cyber security, risk, and trust. *Technology in Society*, 67, 101693.
- Harris, M. A., Brookshire, R., & Chin, A. G. (2016). Identifying factors influencing consumers' intent to install mobile applications. *International Journal of Information Management*, 36(3), 441–450.
- Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence Based Nursing*, 18(3), 66-67. <https://doi.org/10.1136/eb-2015-102129>

- Hernandez, A. A. (2017). Green IT Adoption Practices in Education Sector: A Developing Country Perspective. *International Journal of Sociotechnology and Knowledge Development*, 9(3), 1-16
- Jaruwachirathanakul, B., & Fink, D. (2005). Internet Banking Adoption Strategies for a Developing Country: The Case of Thailand. *Internet Research*, 15, 295-311.
- Ja-Chul Gu, S.-C. L., Yung-Ho Suh. (2009). Determinants of behavioral intention to mobile banking. *Expert Systems with Applications*, 36(9), 11605-11616.
- Johnstone, B., Bercum, M., Pascini E. (2010). Mobile Banking: A catalyst for improving bank performance. Deloitte Consulting. <http://oportunidades.deloitte.cl/marketing/Reportes-internos/Financiera/Diciembre/deloitte-bancaMovil.pdf>
- Juniper. (2016). Mobile banking users to reach 2 billion by 2020, representing more than 1 in 3 of global adult population.
- Jun, M. and Cai, S. (2001) The Key Determinants of Internet Banking Service Quality: A Content Analysis. *International Journal of Bank Marketing*, 19, 276-291.
- Jun, M., & Palacios, S. (2016). Examining the key dimensions of mobile banking service quality: an exploratory study. *International Journal of Bank Marketing*, 34(3), 307–326.
- Karatape, O., Yavas, U. and Babakus, E. (2005), “*Measuring service quality of banks: scale development and validation*”, *Journal of Retailing and Consumer Services*, Vol. 12 No. 5, pp. 373-383.
- Kashif, M., Abdur Rehman, M. and Pileliene, L. (2016) ‘Customer perceived service quality and loyalty in Islamic Banks’, *The TQM Journal*, 28(1), pp. 62–78. doi:10.1108/tqm-01-2014-0006.
- Kashif, M., Wan Shukran, S. S., Rehman, M. A., & Sarifuddin, S. (2015). Customer satisfaction and loyalty in Malaysian Islamic Banks: A PAKSERV investigation. *International Journal of Bank Marketing*, 33(1), 23–40.
- Kaur, P., Stoltzfus, J., & Yellapu, V. (2018). Descriptive statistics. *International Journal of Academic Medicine*, 4(1), 60-63. https://doi.org/10.4103/ijam.Ijam_7_18
- Kevin Butler (no date) *Digital Financial Services security assurance framework*. Available at: https://figi.itu.int/wp-content/uploads/2021/04/Technical-report-on-Digital-Financial-Services-Security-Assurance-Framework_f-1-1.pdf (Accessed: 02 June 2023).
- Kim, G., Shin, B. and Lee, H.G. (2009), “Understanding dynamics between initial trust and usage intentions of mobile banking”, *Information Systems Journal*, Vol. 19 No. 3, pp. 283-311.
- Kleijnen, M., Wetzels, M., & de Ruyter, K. (2004). Consumer acceptance of Wireless Finance. *Journal of Financial Services Marketing*, 8(3), 206–217.

- Klopping, I. M., & McKinney, E. (2004). Extending the technology acceptance model and the task-technology fit model to consumer e-commerce. *Information Technology, Learning & Performance Journal*, 22(1).
- Koenig-Lewis, N., Palmer, A. and Moll, A. (2010) 'Predicting young consumers' take up of Mobile Banking Services', *International Journal of Bank Marketing*, 28(5), pp. 410–432.
- Koivumäki, T., Ristola, A., & Kesti, M. (2008). The perceptions towards mobile services: an empirical analysis of the role of use facilitators. *Personal and Ubiquitous Computing*, 12, 67-75.
- Krepapa, A., Berthon, P., Webb, D., & Pitt, L. (2003). Mind the gap: an analysis of service provider versus customer perceptions of market orientation and the impact on satisfaction. *European Journal of Marketing*, 37(1/2), 197-218.
- Krosnick JA, Presser S. 2010. Question and questionnaire design. In Handbook of Survey Research, ed. PV Marsden, JD Wright, pp. 263–313. Bingley, UK: Emerald
- Kumar, M., Tat Kee, F., Charles, V., 2010. Comparative evaluation of critical factors in delivering service quality of banks: an application of dominance analysis in modified SERVQUAL model. *Int. J. Qual. Reliab. Manag.* 27 (3), 351–377.
- Kumar, M., Tat Kee, F., Taap Manshor, A., 2009. Determining the relative importance of critical factors in delivering service quality of banks: an application of dominance analysis in SERVQUAL model. *Manag. Serv. Qual.* 19 (2), 211–228.
- Lee, K.C. and Chung, N. (2009) 'Understanding factors affecting trust in and satisfaction with mobile banking in Korea: A modified Delone and McLean's model perspective', *Interacting with Computers*, 21(5–6), pp. 385–392.
- Laforet, S. and Li, X. (2005) 'Consumers' attitudes towards online and mobile banking in China', *International Journal of Bank Marketing*, 23(5), pp. 362–380.
- Laukkanen, T. (2006). Customer-perceived value of e-financial services: a means-end approach. *International journal of electronic finance*, 1(1), 5-17.
- Lavrakas, P. J. (2008). *Encyclopedia of survey research methods*. Sage publications.
- L.V. Casalo, C. Flavián, M. Guinaliú (2007) 'The role of security, privacy, usability and reputation in the development of online banking', *Online Information Review*, 31 (5), pp. 583-603
- Lee, I. *et al.* (2007) 'Culture-technology fit: Effects of cultural characteristics on the post-adoption beliefs of mobile internet users', *International Journal of Electronic Commerce*, 11(4), pp. 11–51.
- Lee, K.C. and Chung, N. (2009) 'Understanding factors affecting trust in and satisfaction with mobile banking in Korea: A modified Delone and McLean's model perspective', *Interacting with Computers*, 21(5–6), pp. 385–392.

- Lee, M.K.O. and Turban, E. (2001), "A trust model for consumer internet shopping", *International Journal of Electronic Commerce*, Vol. 6 No. 1, pp. 75-91.
- Leyland F. Pitt, R. T. W. a. C. B. K. (1995). Service quality: a measure of information systems effectiveness. *MIS Quarterly*, 19, 173-187.
- Liu, C., & Arnett, K. P. (2000). Exploring the factors associated with Web site success in the context of electronic commerce. *Information & management*, 38(1), 23-33.
- Luarn, P. and Lin, H.-H. (2005) 'Toward an understanding of the behavioral intention to use mobile banking', *Computers in Human Behavior*, 21(6), pp. 873-891.
- Maybank. (2009). Maybank introduces first ever mobile banking services information for iphone applications in Malaysia, 10-11. Retrieved from <https://www.maybank.com/en/about-us/history.page>.
- Mayhew, G. E., & Winer, R. S. (1992). An Empirical Analysis of Internal and External Reference Prices Using Scanner Data. *Journal of Consumer Research*, 19(1), 62.
- McDougall, G. H., & Levesque, T. (2000). Customer satisfaction with services: putting perceived value into the equation. *Journal of services marketing*, 14(5), 392-410.
- McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). Developing and validating trust measures for e-commerce: An integrative typology. *Information systems research*, 13(3), 334-359.
- Ministry of Higher Education. (2023). *Statistik Pendidikan tinggi 2022 - mohe.gov.my*. Macro Higher Education Institutions. <https://www.mohe.gov.my/muat-turun/statistik/2022-3/1177-statistik-pendidikan-tinggi-2022-bab-1-makro-institusi-pendidikan-tinggi/file>
- Miraz, M. H., Ali, M., & Excell, P. S. (2021). Adaptive user interfaces and universal usability through the plasticity of user interface design. *Computer Science Review*, 40, 100363.
- Mirella Kleijnen, M. W., and ko de ruyter. (2004). Consumer acceptance of wireless finance. *Journal of Financial Services Marketing*. *Financial Services Marketing*, vol 8(3), 206-271. doi:10.1057/palgrave.fsm.4770120.
- Mohammadi, H. (2015). A study of mobile banking loyalty in Iran. *Computers in Human Behavior*, 44, Pages 35-47.
- Momani, A. M. (2020). The unified theory of acceptance and use of technology: A new approach in technology acceptance. *International Journal of Sociotechnology and Knowledge Development (IJSKD)*, 12(3), 79-98
- Mukaka, M. (2012). Statistics corner: a guide to appropriate use of correlation in medical research. *Malawi Med J*, 24(3), 69-71.
- Murali, S., Pugazhendhi, S., Muralidharan, C., 2016. Modelling and investigating the

relationship of after sales service quality with customer satisfaction, retention and loyalty—a case study of home appliances business. *J. Retailing Consum. Serv.* 30, 67–83.

- M. Arcand, S. PromTep, I. Brun, L. Rajaobelina (2017) ‘Mobile banking service quality and customer relationships’, *International Journal of Bank Marketing*, 35 (7), pp. 1068-1089
- M.G. Faria (2012) ‘Mobile banking adoption: A novel model in the Portuguese context’, *Universidade Nova de Lisboa*
- M. Jun, S. Cai (2001) ‘The key determinants of internet banking service quality: A content analysis’, *International Journal of Bank Marketing*, 19 (7), pp. 276-291
- Normalini, M., & Ramayah, T. (2019). The Impact of Security Factors towards Internet Banking Usage Intention among Malaysians. *Global Business and Management Research*, 11(2), 241-251.
- Norman, D. (2013). *The Design of Everyday Things: Revised and Expanded Edition*.
- Olatokun, W., and Owoeye, O. J. (2012). Influence of individual, organizational and system factors on attitude of online banking users. *Proceedings of Informing Science & IT Education Conference*, 12, 389-403.
- Oliver, R. L. (1999). Whence customer loyalty? *Journal of Marketing*, Vol. 63(Special Issue), 33-44.
- Oliver, R. L. (2014). *Satisfaction: A behavioral perspective on the consumer: A behavioral perspective on the consumer*. Routledge.
- Oliver, R.L. (2015) *Satisfaction a behavioral perspective on the consumer*. Oxfordshire England: Routledge.
- Oly Ndubisi, N., & Kok Wah, C. (2005). Factorial and discriminant analyses of the underpinnings of relationship marketing and customer satisfaction. *International journal of bank marketing*, 23(7), 542-557.
- Oly Ndubisi, N. and Sinti, Q. (2006) ‘Consumer attitudes, system’s characteristics and internet banking adoption in Malaysia’, *Management Research News*, 29(1/2), pp. 16–27.
- Pahlevi, M. R. a. S., D. (2020). The integrated model of green loyalty: evidence from ecofriendly plastic products. *Journal of Cleaner Production*, Vol. 257, 120844.
- Papassapa Rauyruen, K. E. M. (2007). Relationship quality as a predictor of B2B customer loyalty. *Journal of Business Research*, Vol. 60 No. 1, 21-31.
- Patel, V., Das, K., Chatterjee, R., & Shukla, Y. (2020). Does the interface quality of mobile shopping apps affect purchase intention? An empirical study. *Australasian Marketing Journal (AMJ)*, 28(4), 300-309.

- Peet, J. (2000). E-commerce: shopping around the world. *The Economist*, Vol 2, 51-54.
- Peters, T., Işık, Ö., Tona, O., & Popovič, A. (2016). How system quality influences mobile bi use: The mediating role of Engagement. *International Journal of Information Management*, 36(5), 773–783.
- Petrick, J. F., & Backman, S. J. (2002). An examination of the construct of perceived value for the prediction of golf travelers' intentions to revisit. *Journal of travel research*, 41(1), 38-45.
- Petter, S., DeLone, W., & McLean, E. (2008). Measuring Information Systems Success: Models, dimensions, measures, and Interrelationships. *European Journal of Information Systems*, 17(3), 236–263. <https://doi.org/10.1057/ejis.2008.15>
- Pitt, L. F., Watson, R. T., & Kavan, C. B. (1995). Service quality: A measure of information systems effectiveness. *MIS Quarterly*, 19(2), 173. <https://doi.org/10.2307/249687>
- Preece, J., Sharp, H., & Rogers, Y. (2015). *Interaction Design: Beyond Human-Computer Interaction*.
- P. Upadhyay, S. Jahanyan (2016) 'Analyzing user perspective on the factors affecting use intention of mobile based transfer payment', *Internet Research*, 26 (1), PP.38-56.
- Qingji Zhou, F. J. L., Han Yu, Gaoqian Xu, Xiaoyu Ren, Dan Liu., & Xiangxin Wang, X. M., Hong Xu. (2020). A study on factors affecting service quality and loyalty intention in mobile banking. *Journal of Retailing and Consumer Services*.
- Rauyruen, P., & Miller, K. E. (2007). Relationship quality as a predictor of B2B customer loyalty. *Journal of Business Research*, 60(1), 21–31.
- Rehman, Z. U., & Zabri, S. B. M. (2020). Determinants of mobile banking adoption in Malaysia: A conceptual framework. *Journal for Studies in Management and Planning*, 4(13), 260-270.
- Reichheld, F., and W. E. Sasser Jr. (1990). Zero defections: quality comes to services. *Harvard Business Review*, Vol. 68 No. 5, 105-111.
- Royne Stafford, M., Stafford, T.F. and Wells, B.P. (1998) 'Determinants of service quality and satisfaction in the auto casualty claims process', *Journal of Services Marketing*, 12(6), pp. 426–440.
- Salman, H. M. Wan Ahmad, W. F., Sulaiman, S. (2018). Usability evaluation of the smartphone user interface in supporting elderly users from experts' perspective. *IEEE Access*, 6, 22578-22591.
- Sano, A. (2017). Touchscreen smartphone user interfaces for older adults. *Scholarly Horizons*, University of Minnesota, Morris Undergraduate Journal, 4, (2), 1-6.
- Santos, J. (2003). E-service quality: a model of virtual service quality dimensions. *Managing Service Quality: An International Journal*, 13(3), 233–246. <https://doi.org/10.1108/09604520310476490>.

- Schaupp, L. C., & Bélanger, F. (2005). A conjoint analysis of online consumer satisfaction1. *Journal of electronic commerce research*, 6(2), 95.
- Schierz, P.G., Schilke, O., Wirtz, B.W., 2010. Understanding consumer acceptance of mobile payment services: an empirical analysis. *Electron. Commer. Res. Appl.* 9 (3), 209–216.
- Suhartanto, D. (2019). Predicting behavioural intention towards Islamic bank: a multi-group analysis approach. *Journal of Islamic Marketing*, Vol. 10 No. 4, 1091-1103.
- Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*. John Wiley & sons.
- Shaikh, A. A., & Karjaluo, H. (2015). Mobile banking adoption: A literature review. *Telematics and informatics*, 32(1), 129-142.
- Shannon, C.E. and Weaver, W. (1998) 'The mathematical theory of communication' University of Illinois Press, Urbana-Champaign.
- Shareef, M.A., Dwivedi, Y.K., Stamati, T., & Williams, M.D. (2014) 'SQ mGov: A comprehensive service-quality paradigm for mobile government', *Information Systems Management*, 31 (2), pp. 126-142
- Shih, Y., & Fang, K. (2004). The use of a decomposed theory of planned behavior to study internet banking in Taiwan. *Internet Research*, 14(3), 213–223.
- Shih, Y.-Y., & Fang, K. (2006). Effects of network quality attributes on customer adoption intentions of internet banking. *Total Quality Management & Business Excellence*, 17(1), 61–77.
- Shokouhyar, S., Shokoohyar, S., Safari, S., 2020. Research on the influence of after-sales service quality factors on customer satisfaction. *J. Retailing Consum. Serv.* 56, 102139.
- Stacie Petter, W. D. E. M. (2008). Measuring information systems success: models, dimensions, measures, and interrelationships. *European Journal of Information Systems volume*, 17, 236-263.
- Subawa, N. S. (2021). Differences of gender perception in adopting cashless transaction using Technology Acceptance Model. Available at SSRN 3948415.
- Sulaiman, A., Jaafar, N. I., & Mohezar, S. (2007). An overview of mobile banking adoption among the urban community. *International Journal of Mobile Communications*, 5(2), 157-168.
- Thabane, L., Ma, J., Chu, R., Cheng, J., Ismaila, A., Rios, L. P., Robson, R., Thabane, M., Giangregorio, L., & Goldsmith, C. H. (2010). A tutorial on pilot studies: the what, why and how. *BMC Med Res Methodol*, 10, 1. <https://doi.org/10.1186/1471-2288-10-1>

- Upadhyay, P. and Jahanyan, S. (2016) Analyzing User Perspective on the Factors Affecting Use Intention of Mobile Based Transfer Payment. *Internet Research*, 26, 38-56.
- Ur Rehman, Z. (2019). *Factors influencing the adoption of mobile banking among generation Y in Malaysia* Universiti Tun Hussein Onn Malaysia.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.
- Wang, Y.S., Liao, Y.W., 2008. Assessing eGovernment systems success: a validation of the DeLone and McLean model of information systems success. *Govern. Inf. Q.* 25 (4), 717–733.
- Wang, Y.-S., Lin, H.-H. and Luarn, P. (2006), “Predicting consumer intention to use mobile services”, *Information Systems Journal*, Vol. 16 No. 2, pp. 157-79.
- Wang, Y.-S., Wang, Y.-M., Lin, H.-H. and Tang, T.-I. (2003), “Determinants of user acceptance of internet banking: an empirical study”, *International Journal of Service Industry Management*, Vol. 14 No. 5, pp. 501-19.
- Yeo, G.T., Thai, V.V. and Roh, S.Y. (2015) ‘An analysis of Port Service Quality and customer satisfaction: The case of korean container ports’, *The Asian Journal of Shipping and Logistics*, 31(4), pp. 437–447.
- Yoo, K.-H., & Gretzel, U. (2011). Influence of personality on travel-related consumer-generated media creation. *Computers in human behavior*, 27(2), 609-621.
- Y. Shih, K. Fang (2006) ‘Effects of network quality attributes on customer adoption intentions of internet banking’, *Total Quality Management*, 17 (1), pp. 61-77
- Zamzami, I., & Mahmud, M. (2012). Mobile interface for m-Government services: A framework for information quality evaluation. *Int. J. Sci. Eng. Res*, 3(8).
- Zeithaml, V. A., Berry, L.L. and Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing*, Vol. 60 No. 2, 31-46.
- Zhou, T. (2011). An empirical examination of initial trust in mobile banking. *Internet Research*, 21(5), 527-540.
- Zhou, T. (2013). An empirical examination of continuance intention of mobile payment service. *Decision Support Systems*, 54(2), 1085-1091.
- Zhou, Q., Lim, F. J., Yu, H., Xu, G., Ren, X., Liu, D., Wang, X., Mai X., & Xu, H. (2021). A study on factors affecting service quality and loyalty intention in mobile banking. *Journal of Retailing and Consumer Services*, 60, 102424.

APPENDIX A - Draft of Questionnaire

SECTION A: DEMOGRAPHIC PROFILE

Choose the right answer to describe yourself.

1. Age
 - 19 – 21
 - 22 – 24
 - 25 – 27
 - 27 and above
2. Gender
 - Male
 - Female
3. Race
 - Malay
 - Chinese
 - Indian
4. University Name

SECTION B – DEPENDENT VARIABLE

The scale used is five-point Likert scale from “strongly disagree” pointed as 1 until “strongly agree” pointed as 5.

1. Strongly Disagree
2. Disagree
3. Slightly Agree
4. Agree
5. Strongly Agree

Instruction: Choose only one answer for each of the following statements according to the scale provided.



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DEPENDENT VARIABLE: LOYALTY INTENTION

Items	Measured items	Strongly Disagree (1)	Disagree (2)	Slightly Agree (3)	Agree (4)	Strongly Agree (5)
1.	The bank improves the service experience of the mobile banking through service innovation.					
2.	The innovative service makes customers willing to use and recommend the mobile banking app to others.					
3.	There is good coordination between the mobile banking and offline branches.					
4.	There is good cooperation between the mobile banking and offline branches.					
5.	I would continue to use the mobile banking for my banking needs.					
6.	I would continue to see myself using the mobile banking for handling my banking needs.					

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SECTION C – INDEPENDENT VARIABLES

The scale used is five-point Likert scale from “strongly disagree” pointed as 1 until “strongly agree” pointed as 5.

1. Strongly Disagree
2. Disagree
3. Slightly Agree
4. Agree
5. Strongly agree

Instruction: Choose only one answer for each of the following statements according to the scale provided.

INDEPENDENT VARIABLES: SYSTEM QUALITY

Items	Measured items	Strongly Disagree (1)	Disagree (2)	Slightly Agree (3)	Agree (4)	Strongly Agree (5)
1.	Mobile banking is of good compatibility, stable and smooth operation.					
2.	Mobile banking response speed is fast.					
3.	Online customer service is professional, timely and effective to solve problems.					
4.	I am able to access the services that I want to access and feel flexible while using the mobile banking services.					

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SECTION D – INDEPENDENT VARIABLES

The scale used is five-point Likert scale from “strongly disagree” pointed as 1 until “strongly agree” pointed as 5.

1. Strongly Disagree
2. Disagree
3. Slightly Agree
4. Agree
5. Strongly agree

Instruction: Choose only one answer for each of the following statements according to the scale provided.

INDEPENDENT VARIABLES: SERVICE QUALITY

Items	Measured items	Strongly Disagree (1)	Disagree (2)	Slightly Agree (3)	Agree (4)	Strongly Agree (5)
1.	Mobile banking functions can fully meet the needs of daily business					
2.	I am satisfied with investment business service offered in the mobile banking app					
3.	I am satisfied with credit card business service offered in the mobile banking app					
4.	I am satisfied with the diversity of business that can be settled by using mobile banking.					
5.	The service price is affordable and in line with the quality of service offered.					

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SECTION E – INDEPENDENT VARIABLES

The scale used is five-point Likert scale from “strongly disagree” pointed as 1 until “strongly agree” pointed as 5.

1. Strongly Disagree
2. Disagree
3. Slightly Agree
4. Agree
5. Strongly agree

Instruction: Choose only one answer for each of the following statements according to the scale provided.

INDEPENDENT VARIABLES: SECURITY ASSURANCE

Items	Measured items	Strongly Disagree (1)	Disagree (2)	Slightly Agree (3)	Agree (4)	Strongly Agree (5)
1.	Mobile banking is of high security, which can ensure the security of account and funds.					
2.	The transaction process and data are transparent and traceable.					
3.	I trust in the ability of a mobile banking to protect my privacy.					
4.	I am not worried about the security of a mobile banking.					
5.	I believe that using mobile banking is financially secure.					

SECTION F – INDEPENDENT VARIABLES

The scale used is five-point Likert scale from “strongly disagree” pointed as 1 until “strongly agree” pointed as 5.

1. Strongly Disagree
2. Disagree
3. Slightly Agree
4. Agree
5. Strongly agree

Instruction: Choose only one answer for each of the following statements according to the scale provided.

INDEPENDENT VARIABLES: INTERFACE DESIGN

Items	Measured items	Strongly Disagree (1)	Disagree (2)	Slightly Agree (3)	Agree (4)	Strongly Agree (5)
1.	The mobile banking interface is simple, and it is easy to be used.					
2.	The interface design of mobile banking application is of good appearance.					
3.	The navigation design is easy to find out various functions.					

APPENDIX B – Gantt Chart

Month	April			May			June		
Week Activity									
Project Title		■	■						
Projection Research & Finding Journal			■						
Introduction				■					
Literature Review					■				
Research Methodology						■			
Final review of draft Research Project proposals							■		
Submission of draft Research Project Proposals to the supervisor and review by the supervisor							■		
Correction of draft Research Project Proposals							■		
Final Submission							■	■	
Preparation for Research Proposal Presentation									■ ■

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Month	October				November				December			
Week Activity												
Meet with supervisor & Data Collection	■	■	■									
Writing Chapter 4				■	■	■	■	■				
Writing Chapter 5				■	■	■	■	■				
Review of draft Research Project Proposals									■			
Submission of draft Research Project Proposals to the supervisor and review by the supervisor										■	■	
Correction of draft Research Project proposals										■	■	
Final Submission Full Report											■	
Preparation for Research Proposal Presentation											■	■

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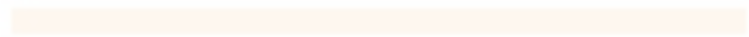
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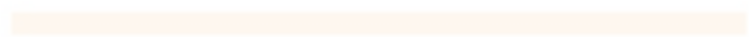
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PPTA II

by Nurul Athirah

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KAJIAN MENGENAI FAKTOR-FAKTOR YANG MEMPENGARUHI NIAT KESETIAAN TERHADAP PENGGUNAAN PERBANKAN MUDAH ALIH DI KALANGAN PELAJAR IPTA DI MALAYSIA**ABSTRAK**

Perbankan mudah alih dianggap sebagai salah satu kemudahan yang diwujudkan untuk memudahkan transaksi perbankan dalam talian. Kajian ini bertujuan untuk mengkaji hasrat kesetiaan terhadap penggunaan perbankan mudah alih dalam kalangan pelajar IPTA di Malaysia dan bertujuan untuk menentukan faktor manakah yang mempengaruhi hasrat kesetiaan. Kajian penyelidikan kuantitatif telah dijalankan secara dalam talian dalam kalangan 300 responden daripada pelajar ijazah sarjana muda di institusi pengajian tinggi (IPTA) di Malaysia menggunakan borang soal selidik. Sebaliknya, kajian ini juga menggunakan Statistical Package for Social Sciences (SPSS) untuk mengira dan menjana keputusan bagi kesahan dan kebolehpercayaan soalan dalam tinjauan bagi memastikan soalan yang dikemukakan adalah relevan dan difahami oleh responden. Selain itu, analisis korelasi juga digunakan untuk menganalisis hubungan antara pembolehubah bersandar iaitu niat kesetiaan dan pembolehubah tidak bersandar iaitu kualiti sistem, kualiti perkhidmatan, jaminan keselamatan dan reka bentuk antara muka. Oleh itu, semua kemungkinan pemacu niat kesetiaan akan dinilai termasuk kualiti sistem, kualiti perkhidmatan, jaminan keselamatan dan reka bentuk antara muka. Hasilnya, terdapat hubungan yang positif antara faktor-faktor yang menyumbang kepada kajian ini.

Kata Kunci: Niat Kesetiaan, Penyelidikan Kuantitatif, Pelajar Ijazah Sarjana Muda di Institusi Pengajian Tinggi (IPTA), Pakej Statistik Sains Sosial (SPSS), Analisis Korelasi, Kualiti Sistem, Kualiti Perkhidmatan, Jaminan Keselamatan, Reka Bentuk Antaramuka.

**A STUDY ON FACTORS INFLUENCING LOYALTY INTENTION
TOWARDS THE UTILIZATION OF MOBILE BANKING AMONG IPTA
STUDENTS IN MALAYSIA**

ABSTRACT

Mobile banking is considered as one of the facilities established to ease online banking transactions. This study aims to examine the loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia and has the purpose of determining which factor influencing the loyalty intention. A quantitative research study was conducted online among 300 respondents from bachelor's degree student at higher learning institution (IPTA) in Malaysia using a survey questionnaire. On the other hand, this study also uses ²² Statistical Package for Social Sciences (SPSS) to calculate and generate the result for validity and reliability of questions in the survey in order to ensure the questions asked are relevant and understood by respondents. Furthermore, correlation investigation is utilized to investigate the connection ²⁸ between the dependent variable (loyalty intention) and the independent variables (system quality, service quality, security assurance, interface design). Thus, all those possible drivers of loyalty intention will be evaluated including system quality, service quality, security assurance and interface design. As a result, there are positive relationships between those factors contributed to this study.

Keywords: Loyalty Intention, Quantitative Research, bachelor's degree Student at Higher Learning Institution (IPTA), Statistical Package for Social Sciences (SPSS), Correlation Analysis, System Quality, Service Quality, Security Assurance, Interface Design.

1.1 Background of the Study

With the evolution of technology, the current state of the banking sector has also evolved. According to Laukkanen (2006), the chance to avoid queuing at an Automated Teller Machine (ATM) is a key aspect of the introduction of electronic banking. This is because technology has developed progressively more important factor in the competitive environment of financial services businesses. Mobile banking, in particular, allows users to log on to banking facilities from their mobile devices, destroying the need to visit physical locations like ATMs. This accessibility enhances convenience for users, enabling them to manage their finances anywhere and anytime without the constraints of traditional banking practices.

Mobile banking means a facility proposed by a bank or any other financial institution that allows users of the organization to perform various banking operations through mobile devices, such as mobile phones, tablets or personal digital assistants. This is available 24 hours a day and is frequently reliant on the availability of an internet or data connection to the mobile device. With the proliferation of mobile applications, mobile banking has become more accessible. Customers may access their accounts, view their bank statements, make transfers, and even acquire prepaid services online.

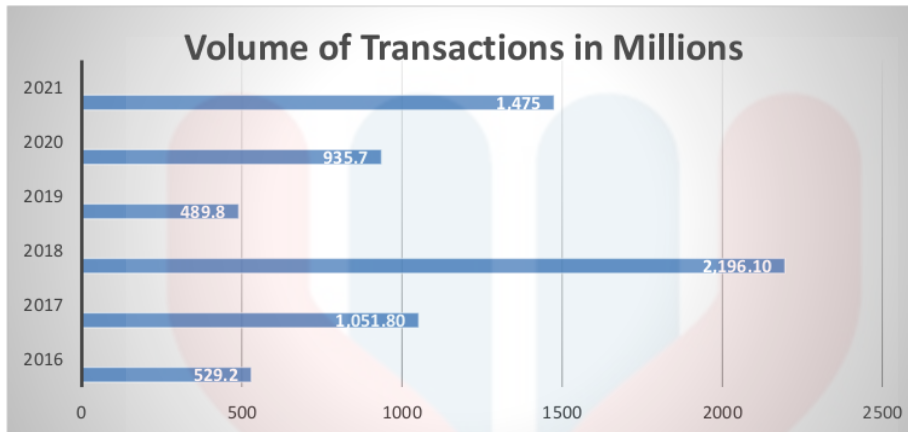
In continuity with the fact that people all over the world have been exposed to the current technologies, they are also exposed to the current digital technologies such as mobile banking. In this study, it can be seen that students, working people and other adult generations are the group of persons who are used towards digital technologies especially mobile banking. This is because mobile banking has become a profitable innovation because it is proven to have feasible value to banks and customers

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(Baabdullah et al., 2019). In addition, with the use of cashless transactions using mobile phones, it is believed that this will give efficiency to banks and consumers. Therefore, it can be seen from all over the world that mobile banking has been part of daily life activity such as making online payment transactions, investment, querying the account, relating with the credit cards and so on.

According to Shaikh and Karjaluo (2014), According to Shaikh and Karjaluo (2014), mobile banking made its debut in the late 1990s through the collaborative efforts of the German business Paybox and Deutsche Bank. Initially, this service was introduced and tested predominantly in European countries, including Germany and Spain. The implementation and acceptance of mobile banking can be attributed to technological advancements, increased smartphone penetration, and the growing reliance on digital solutions for everyday tasks. However, several studies have confirmed the rising popularity of mobile banking globally, highlighting its significance as a convenient and accessible way for individuals to manage their finances.

Furthermore, Malaysia's central bank (Bank Negara Malaysia) officially recognized and authorized mobile banking services in 2005 (Cheah et al., 2011), and in 2009, it became the initial bank in the Malaysian banking sector to suggest mobile banking services to customers, developing a banking application (M2UMap) for iPhone users. Bill payment, prepaid top-up, and money transfer are three of Maybank's most prevalent mobile banking services. Even Maybank expects the value of banking transactions on its mobile platform to increase by more than 50% in 2017 to almost RM25 billion, owing to the new Maybank2u app and the growing momentum achieved last year. (Maybank, 2017)



⁴³ **Figure 1.1:** Volume of mobile banking transactions in Malaysia from 2016-2021
Source: Statista Research Department

Based on figure 1.1, it shows that in 2018 recorded the highest transaction of 2.196.10 million. On the other hand, in 2019 recorded the lowest transaction of 489.8 million. In fact, these transactions began to show an increase from 2019 to 2021. This increase was 445.9 million from 2019 to 2020 and 539.3 million in 2021.

Moreover, mobile banking also gives the distribution for the economy. ⁵² Financial technology, or Fintech as it has been known in Malaysia, is receiving a lot of attention ⁵² due to its great potential to impact lives and economic growth. Malaysian Fintech developments are changing the landscape of the territory's monetary system. For instance, though conventional financial institutions' Fintech contributions are expanding, ¹⁴ the number of physical commercial bank branches is declining, while the number of Automated Teller Machines has fallen in the last two years. Traditional Malaysian banks continue to dominate deposits, lending, and capital raising, while simultaneously embracing new technology and competing or ⁶⁰ collaborating with emergent digital enterprises. As of April 2019, Malaysia had around 200 enterprises in Fintech industries like payments, loans, and blockchain.

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Mobile banking has proven to be one of the most convenient and beneficial financial platforms. It has several advantages. The advantages of using mobile banking are saving time such as being able to make transactions, examine balances, transfer capital, and make deposits only through mobile phone. Second, mobile banking is useful when it enables customers to rapidly pay bills without interfering with other activities. Thirdly, it is free since the bank often does not impose a regular administration, initiation, or registration cost. Lastly, it is secure. The verification codes, PINs, and a security mechanism that has been standardized by the bank are required for mobile banking services.

Despite the advantages of mobile banking, there are issues and challenges users should be aware of. The main concern for mobile banking is security. Security is one of the most critical difficulties for the mobile banking business due to inherent concerns. Although the financial system is supposed to be virtual, cyber assaults and fraudulent activities are still a reality. However, many users are unaware that their online behaviors may be putting them in danger. Next is technical issues. This is due to the fact that whenever we use the internet, we risk encountering technological and service problems. If your internet slows down, system stability and efficiency may limit your ability to access your account. System downtime may be difficult since it not only prevents users from transacting, but it also raises worries about the security of data and payments.

²⁰ This research intends to assess the factors influencing loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia. This is because an increasing number of banks are leveraging new technologies, such as mobile banking, to obtain a competitive advantage (Shaikh & Karjaluo, 2015). This study will measure customer loyalty as the dependent variable, which is impacted by customer satisfaction and the use of mobile banking. Therefore, the independent variables used in this study

were system quality, service quality, security assurance and interface design which will have an influence on the use of mobile banking which are dependent variables.

1.2 Problem Statement

Nowadays, mobile banking has attracted the attention of many participants to use it including universities students. In Malaysia, mobile banking also faced several challenges, obstacles, problems, and risk. Despite the fact that mobile banking gain popularity and even establishes a great opportunity for the banking industry to expand their business, it also has to bear with the challenges and risk since users or customers experience are far from fully understood.

According to Grönroos (1991), it is vital to assure loyalty intention and customer satisfaction in the assessment of the experience with regard to shopping, product or service usage, which will indirectly affect the client's long-term behavior. Pursuing this further, it is believed for mobile banking to receive more opportunity and generate benefit as well as profit if the utilization of mobile banking achieves the target and is continuously used by customers. However, the mobile banking application created should be convenient in accordance with the current situation and fulfil the customer's satisfaction since it is one of the benchmarks for the bank to measure the level of success of mobile banking.

In addition, the literature on satisfaction according to Morgan (1994), Bryant (2002), and Schaupp (2005) is usability, Krepapa (2003) and Oly Ndubisi (2005) is trust, Davis (1989) and Casaló (2008) is customer service and Bitner (1992) and Ganguli (2011) is loyalty Andreassen (1998). These are the elements that might be needed to enhance the mobile banking application by the bank and to ensure the customers' loyalty or continued intention to use mobile banking services in the context of Malaysia. Besides, this study also has the objective to analyze the service quality provided that

affects customers' satisfaction and loyalty among customers of banks in Malaysia.

On the other hand, apart from those prior studies, the issue of mobile banking in Malaysia has also become the topic of the mobile banking users in Malaysia. According to Al Tarawneh (2023), mobile payment and Mobile banking is becoming increasingly prevalent; with enhanced dispersion of technology and a large range of choices, customer acceptance of mobile financial solutions has increased. According to Bank Negara Malaysia, in 2018, as much as 44.6% of Malaysia's population signed up for mobile banking, while 91.1% used electronic banking. (See Figure 1.2)

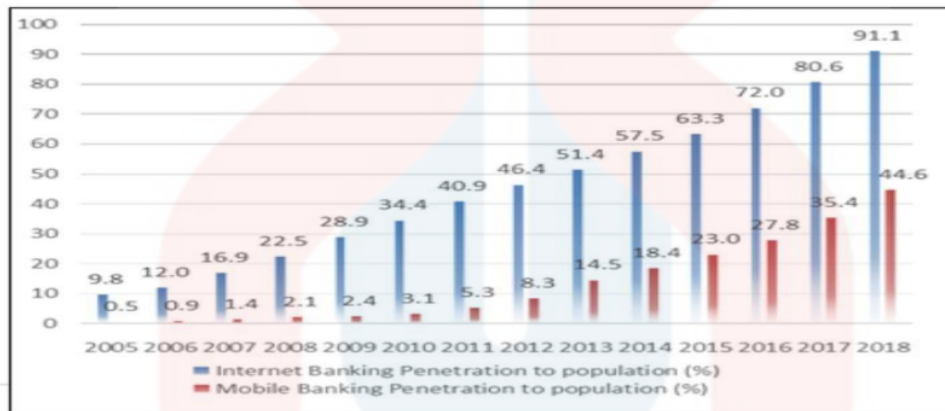


Figure 1.2: Usage of Mobile Banking
Source: BNM 2019 Report

However, in Malaysia, the issue of mobile banking includes secrecy, safety, bank customer's needs, development of banking infrastructure and legislative regulations as the significant encounters faced by individual consumers (Al Tarawneh, 2023). Online fraud or also usually called online scam, is an activity done by a scammer to generate money from an innocent person by his hoaxes. According to the Ministry of Communications and Digital's web portal, from 2017 to 2021, there were over 90,000 instances of online fraud, with losses exceeding RM3.3 billion. According to the news reported by Bernama (2023), Supt Rozeni Ismail, the associate leader

(telecommunications criminal investigations) of Bukit Aman Commercial Crime Investigation Department (CCID), said that there were more than 30,000 individuals were detained and 25,000 individuals from the number were charged in court. He also said that most of the scammers were from mule account holders and persons who were not sued in law court lies under the Crime Prevention Act 1959. The reason for the victory of the scam is that the scammer successfully deceived people by using telephones or social media. Thus, this shows that online transactions such as mobile banking are still in doubt in terms of its security and quality.

Moreover, nowadays, especially in Malaysia, the utilization of internet assessment is a must and the most crucial needs in conducting any online activities including mobile banking transaction. To explain this further, the mobile banking which can be conducted through mobile devices such as mobile phone is in need of internet assessment if users or customers want to conduct online transactions such as online payment, house loan payment and investment. The existence of internet assessment will ensure the success of a transaction. However, the absence of the internet assessment will prevent users from using the facilities in mobile banking such as check account balance and information, conduct online transaction, conduct repayment of loan and others. If there is no internet assessment, mobile banking cannot operate as usual as well as any other online transaction since internet assessment is quite crucial and significant to be utilized by people all around the world.

Additionally, the system quality and interface design also could be an issue in mobile banking. This can be explained by the poor system quality provided by the bank. According to Afshan (2016), the security system and the quality of mobile banking are substantially contributed to mobile banking usage. The poor system quality presented by the bank can lead to a maintenance problem. To explain this further, users or customers

cannot get to use the mobile banking system during the time of the maintenance and therefore it will lead to customer dissatisfaction. Meanwhile, it has been argued by Zamzami (2012) that the quality of the screen interface layout for banking services might be more obvious, whereby interface design quality is one of the possible elements of mobile banking use. Besides, the interface layout that provides customers with the simplicity of use of the application or system and the navigation functions (Zhou et al., 2021) is believed to help customers in using the mobile banking as well as adding the level of customer's loyalty.

Pursuing this further, the problem that customers are having in terms of system quality can be illustrated by the system failure as mentioned in past studies. The mobile banking app has a poor reaction rate, which leads to a low rate of final transactions by customers (Venkatesh and Goyal, 2010). Moreover, there is a support statement by Kamboj et al., (2022), that the apparent reason for customers not completing the last transaction by swiftly exiting the mobile banking e-page is due to the system collapse. Thus, this shows that customers reluctant to use the mobile banking if the system quality is poor and resulted in a failure whereby the system failure involve non-navigability, inaccessibility, non-compliance, insecurity and lag linked with the system. (Kamboj et al., 2022).

Meanwhile, in terms of interface design, there is a user who refuses to use and condemns the interface design of a bank's mobile banking app whereby it has been said that the mobile banking does seem to have a refreshed design except it is probably one of the worst and most unacceptable mobile design that he ever seen (Ling, 2014). He feels dissatisfied and disappointed that the bank's mobile banking app whereby the use of the splash screen is considered as unnecessary since it took 10 seconds to dismiss without any reason.

On the other hand, the dashboard design seems to look old fashioned or lame and the flipping animation on the logo at the dashboard screen seems to be unnecessary or pointless (Ling, 2014). Therefore, this example as one of the interface design problems shows that the poor and bad quality as well as unattractive interface design of mobile banking can influence the intention of users or clients whether to use the mobile banking or vice versa. It is true that the interface design can be considered as the main thing that the user takes a look before making a decision to continue to use mobile banking and be loyal or otherwise.

1.3 Research Question

In order to accomplish the goals of the research, the following questions were developed:

- I. In order to attain the objectives of the research, the following questions were developed: Does system quality have the relationship with loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia?
- II. Does service quality have the relationship with loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia?
- III. Does security assurance have the relationship with loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia?
- IV. Does interface design have the relationship with loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia?

1.4 Research Objectives

The general objectives of the study in the research attempted to:

- I. To investigate the relationship between system quality and loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia.
- II. To analyze the relationship between service quality and loyalty intention

towards the utilization of mobile banking among IPTA students in Malaysia.

III. To determine the relationship between security assurance and loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia.

IV. To examine the relationship between interface design and loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia.

1.5 Scope of the Study

The determination of this study is to investigate the factors of loyalty towards mobile banking, taking into account several factors such as system quality, service quality, security assurance and interface design. This study was conducted among undergraduate students at public universities in Malaysia which is a total of 377,103 students in 2022 and this research uses purposive sampling technique. Our study focused on public university students as respondents to examine the level of mobile banking. The sample size for our study are 200 respondents from various public universities in Malaysia. This target is determined by using power analysis as suggested by Green (1991). Our study uses UTAUT and TAM theory.

1.6 Significance of Study

Nowadays, mobile banking is very important for people in their daily life. In mobile banking, they can use almost every banking service. They also do not need to go to a bank branch. For example, they can transfer money, make payments, pay bills and get bank statements through this service. In addition, they may also have an urgent need to transfer or withdraw money. This is where digital services like mobile banking play a big role as they don't have to visit bank branches, stand in long queues, or delay urgent transactions. They can do it instantly through mobile phones and can also make bill payments at any time. Through mobile banking as well, they can always check their

finances and can monitor expenses and avoid reckless spending. This can be part of their budget development. Over time, they will be enhanced better at financial management and store more funds.

In addition, mobile banking is also very important to the financial services industry. This is because compared to old ATMs and transactions, mobile applications for banking are more secure. The app requires user authentication for every transaction. Therefore, the chances of compromised security will be reduced. The Instant Account feature of the mobile banking app, as the name implies, allows users to open a bank account immediately. Users can also submit the required documents online to complete the verification process. Furthermore, the bank uses mobile application customer support techniques to facilitate the process. By integrating Artificial Intelligence (AI) chatbots, banking apps make the customer service experience easy for users. Chatbot AI provides mobile banking features and benefits such as quick response, intelligent query resolution and so on. Additionally, the mobile app provides support in multiple languages to cover a wide range of audiences.

1.7 Definition of Term

Table 1.1: Definition of Term

Variable	Definition	Sources
Loyalty	The intention of a customer to choose a product or a company over others for a certain need. A loyal client is someone who consistently purchases goods and services from one vendor and constantly and enthusiastically recommends those to all of their family members and friends.	(Mohammadi,2015)
System Quality	The attributes that make an information system appealing. For instance: user friendliness, system adaptability, system dependability, and system simplicity, as well as system attributes of sensitivity sophistication, adaptability, and reaction times.	(Stacie Petter, 2008)
Service Quality	The level of service that the Information Technology support team and Information System department provide to system users. For instance, the personnel staff's responsiveness, correctness, dependability, technical proficiency, and empathetic nature.	(Pitt et al., 1995)

<p>Security Assurance</p>	<p>When users interact with a program, they are certain that access control, security rights, and enforcement will be maintained over time.</p>	<p>(De la Rosa Algarín & Demurjian, 2014)</p>
<p>Interface Design</p>	<p>Interface design primarily pertains to the application's usability, interface layout, and navigational features.</p>	<p>(Zhou et al., 2021)</p>

1.8 Organization of the Study

There are five chapters in this report that go into greater detail about the Malaysian IPTAs' student's loyalty to mobile banking. In Chapter 1, the background and implementation of mobile banking are explained, along with the issues, questions, and goals of the research. First is the background of the study that explains the topic that is a problem or issue that is being faced by IPTA students. The research questions that will be posed and those that can be connected to the subject being examined follow. Additionally, a description of the term that goes into more detail about how mobile banking is becoming the go-to option for making payments nowadays.

Chapter 2 discusses analytical literature. This chapter begins with an explanation of mobile banking theory. This chapter includes introduction, basic theory, previous studies, hypothesis, and conceptual framework. The researcher examines the factors that influence loyalty towards the consumption of mobile banking among IPTA students in Malaysia and a theoretical framework. The theory used is the Unified Theory of Acceptance and Use of Technology (UTAUT) to relate all independent variables.

Chapter 3 includes the research design, data collection methods, population and sampling, sampling procedures, research instrument construction, variable

measurement, and conclusion. This chapter explains the research method, which is the step of analyzing data and information to obtain research results. One of them is the research design, which demonstrates the model to conduct the study by creating unique processes to get the required data. The next step is to determine how to gather information from all pertinent sources to perform the study. Next, data from a set of people, things, circumstances, and measurements are used to create the research population. When the population size exceeds a certain point, the sample size is then employed in the analysis. Then, to generate statistics and estimate demographic characteristics, members of the population are chosen using sampling procedures. The tools and techniques utilized in research are then developed into research instruments. Additionally, variable measurement is a technique used to establish a connection between numerical values that the researcher has defined. The process for data analysis that uses scientific tools to convert raw information to numbers is the next step.

The study's findings and the analytical procedures were covered in Chapter 4. Statistical findings from the data analysis and demographic data were among the components. Data analysis is discussed in Chapter 5, along with a summary of the findings. This chapter also included recommendations for further research as well as the implications of the study's limitations and results.

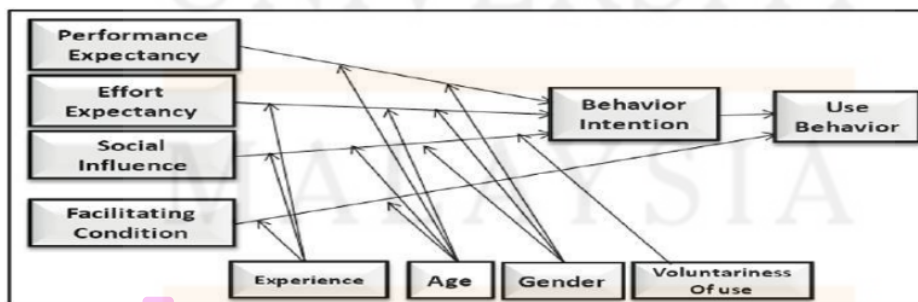
2.1 Introduction

The purpose of this chapter is to review the literature on customer loyalty to mobile banking applications. This study will provide insight into the current state of research, identify gaps in the literature, and establish a theoretical and conceptual basis for the study. This chapter will cover a survey of related literature, a review by researchers on the factors that determine loyalty desire to utilize mobile banking among IPTA students in Malaysia, and a theoretical framework. In addition, in this study as well, the theory used is Unified Theory of Acceptance and Use of Technology (UTAUT) to relate all the independent variables.

2.2 Underpinning Theory

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

According to Venkatesh et al., (2003) Integrated Technology Acceptance and Use Theory (UTAUT) was developed to identify the availability of users to use it and the theoretical framework has emerged since the beginning of the twenty-first century and it continues to develop until now. The development of this theory takes place from various perspectives including cognitive intention, emotion, motivation, and behavior (Hernandez, 2017) Technology Acceptance and Use Theory (UTAUT) and frameworks have been developed as models for understanding how users accept new technologies, use them, and what factors exist for users to continue using them.



38
Figure 2.1: Unified Theory of Acceptance and Use of Technology (UTAUT)

Based on the UTAUT theory above, the practical use of technology is determined by behavioral intentions. The expectations for users to use technology are based on four important components, namely performance expectations, attempt expectations, social impact, and facilitating conditions. According to Venkatesh et al., (2003), behavioral intentions are influenced by performance expectancies, which are regulated by gender and age. Effort expectancy modulates behavioral intention and is modified by gender, age, and experience at the beginning of experience. Social influence dominated by behavioral intention and regulated by all moderating factors and facilitating condition constructs had no impact on behavioral intention, however it affected behavior moderated by age and experience.

Koivumäki, Ristola, and Kesti (2008) used UTAUT to investigate user perceptions of mobile services. The researchers studied 243 people in northern Finland on their usage of mobile services and their understanding of technology. According to the findings, improving user skills leads to a better knowledge of mobile services and increases users' intent to continue using them. The researchers discovered that the time spent using the device has no influence on the user's purpose to use, but that being always connected to the device and exercising skills has a favorable effect on the mobile service.

⁷¹ 2.2.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) measures how much a technology tool is accepted by clients based on how simple it is to use. The technology acceptance model is a concept that explains how humans initially started to embrace and utilize technology. It is a notion from the field of computer systems. Real approach utilization is the point at which individuals actually utilize the technology Subawa et al., (2021). ²⁰ Perceived ease of use (PEOU) and perceived usefulness (PU) are the two main factors

that influence an individual's intention to utilize new technology, making TAM one of the most significant models of technology adoption.

The Technology Acceptance Model (TAM) is a theory of information systems that describes how customers learn to accept and use technology Davis et al., (1989). The TAM2 model explains how new technology might improve people's lives by employing subjective, visual, and work-related criteria as constructs of perceived usefulness. This method may be employed in other technology-focused domains such as transportation, urban planning, and infrastructure management. The TAM3 model will give a safe platform to managers and decision-makers across numerous sectors. According to Davis (1989), perception is the belief that using mobile banking would increase one's efficiency, whereas ease of use is the opinion that using mobile banking will be easy.

TAM is the most often used approach for studying customer satisfaction towards using mobile banking. According to (Normalini & Ramayah, 2019), TAM model replication has a theoretical foundation and increases user impression of its utility and simplicity. The main aspect, which has a significant influence on attitude, is based on a user-friendly and secure system. Furthermore, many TAM studies exclude attitudes and focus entirely on the effects of perceived usefulness and perceived ease of use on intention to use Venkatesh et al., (2003).

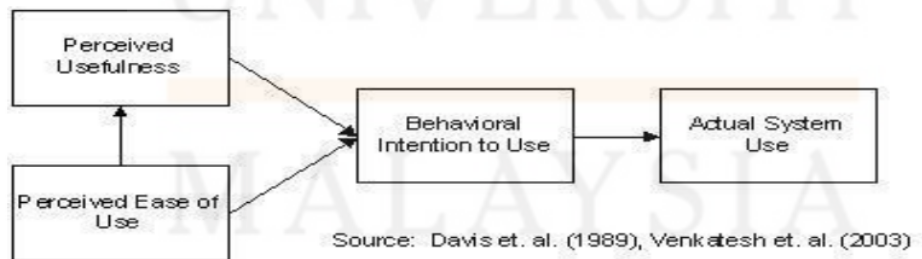


Figure 2.2: Technology Acceptance Model (TAM)

The Technology Acceptance Model, seen in Figure 2.2, was established by Davis in 1989 to better understand the relationship between technology attitudes and user behavior such as perceived ease of use and perceived usefulness. In addition, Davis has aimed to reveal the elements that influence users of information systems to adopt technology, as well as to explain and predict the behavior of computer users (Klopping & Mckinney, 2004).

Besides, the TAM model states that a person's outlook concerning the use of certain habits includes both positive and negative thoughts that are greatly influenced by behavioral intentions. Fishbein and Ajzen's in 1975 Theory of Reasoned Action (TRA) was the first to make this assertion. Then, Davis et al. (1989) further supported and extended this theory (confidence, satisfaction, attitude, and interest) by developing the Technology Acceptance Model (TAM), which links the connection between external characteristics and internal variables. In this study, satisfaction with usage is used to evaluate a person's decision in that direction.

In summary, the theory UTAUT and TAM can be used to understand the factor of users' loyalty intention in using mobile banking. Satisfaction in mobile banking allows the users to make decisions and make choices to be loyal. But if the mobile banking system can be maintained well, it will guarantee continued loyalty to its use. As a result of UTAUT and TAM, if a technology or innovation that has been made improves a person's performance, it is considered beneficial.

2.3 Previous Studies

2.3.1 Loyalty Intention

According to Edvardsson et al. (2000), the term "loyalty" refers to a circumstance where a client intends to continue with a specific brand or organization for a longer amount of time. Customers that consistently buy their favored goods or

services, despite alluring marketing or other rivals' acts, are showing some sort of internal commitment (Oliver, 1999). Customers form an emotional bond with the businesses, goods, and services because of this psychological connection (Hallowell, 1996). Without a doubt, loyalty is a valuable commodity and is one of the most significant elements in ensuring the triumph and sustainability of a business or organization (Flavián et al., 2006). Numerous empirical studies backed up the idea that loyalty always produces favorable results for an organization. For instance, Reichheld and Sasser (1990) found that in some e-commerce divisions, such as the virtual sale of consumer electronics, manuscripts and groceries, a 5% decline in defection results in effectiveness increases of 20% to 85%. Another example is Amazon.com, which was able to increase 66% of its revenue solely as a result of repeat business (Peet, 2000).

The cognitive component of loyalty is highlighted by attitudinal loyalty. Customers have a strong mindset to persist with their favored items as a result. Customers that exhibit attitudinal faithfulness are very dedicated to a specific brand name or business where they enjoy making repeated purchases of products and services and are strongly impacted by this internal disposition (Day, 1969). Attitudinal loyalty is most frequently associated with the psychological ties and attitudinal support that customers have for the company (Rauyruen & Miller, 2007). Additionally, consumers that exhibit this form of loyalty are likely to spread good word of mouth about the company's goods and services and, most importantly, to urge others to do the same (Zeithaml et al., 1996). Because it is the best way to understand customers' intents to remain with a certain brand or organization, this study focuses mostly on attitudinal loyalty (Auh et al., 2007).

The level of brand awareness among customers has an impact on loyalty as well. Here, brand awareness is defined as a potential customer's ability to identify a brand

within a specific product category (Aaker, 1991). Brand identification is a type of purchaser's capacity to reminisce given brand as an indication, whereas a brand can recall the customer to remember the brand from memory (Aaker, 1991). Due to customers' understanding of the brand constructed on their occurrences, this will further aid in enhancing the capacity to recognize and recall a brand.

Many models, like the attitude-behavior model, the quality-loyalty model, and Oliver's four-stage loyalty model, have been established to describe this crucial notion, according to the literature Pahlevi & Suhartanto (2020). The attitude-behavior model is one of the models that is frequently used in studies of the banking sector (Fusva et al., 2020). A continuance of previous activity is the most basic definition of consumer loyalty. According to Bakar et al. (2017), a bank customer is seen as loyal if they have done several transactions or have a long-standing relationship with the institution. The frequent and continued use of mobile banking services reveals a customer's behavioral loyalty. This behavioral approach, however, has a limitation since it is unable to differentiate between real, loyal bank clients and those who picked the bank just out of convenience (Suhartanto, 2019).

2.3.2 System Quality

According to Gu et al. (2009), system quality describes the ease of use and navigation, aesthetic appeal, and accessibility speed of mobile banking. Some mobile banking customers may observe that it is difficult to retrieve their financial data and undertake banking operations due to some mobile devices' limited displays and awkward input techniques. Retail banks are thus putting more emphasis on making sure that their mobile banking user interface is created with a transparent structure and convincing navigation, and that their mobile system persuades consumers to reply fast (Zhou, 2011). The mobile banking system must also deliver information that is

pertinent, ample, correct, and timely, and it must be secured by structural measures including technology advancements and legislative frameworks (Zhou, 2013). A thorough assessment of the writings finds two research by Kleijnen et al. (2004) and Olatokun & Owoeye (2012) providing realistic evidence for the claim that perceived system quality positively impacts attitudes, despite the literature's suggestion that system quality is a predecessor of trust. According to their judgments, this study assumes that consumers will be more likely to have a good outlook towards mobile banking if the system offers precise information quickly, is secure, and is simple to use.

⁹⁶ According to Delone and McLean (2003), system quality is a technical indicator of a service's success. Usability, availability, dependability, flexibility, and reaction time are a few illustrations of technical traits that are evaluated for system quality (Delone & McLean, 2003). Thus, it can be concluded that several distinguishing qualities that may be quantified as independent variables are included in system quality. In other words, a certain technical service could be readily available but not necessarily reliable (Laforet & Li, 2005). As a result, system quality lacks both definitive and perfect criteria and instead relies ¹¹ on the technical proficiency of a particular service (Lee & Chung, 2009). This is a reference to the technological system's effectiveness and precision (Shannon & Weaver, 1998).

¹¹ According to Peters et al. (2016), Upadhyay and Jahanyan (2016), customers are highly driven to embrace and employ systems that can deliver the extraordinary level of technological competence and anticipated precision. ¹⁰⁰ Delone and McLean (2003), established an Information System success model to properly assess the direct correlation between system quality and technology utilization. Due to the compassion of utilizing virtual monetary services, Mobile Banking clients' benefits will help them become more interested in using the facility, which will improve their tendency to use

the technology (Zhou, 2011). The greatest levels of effectiveness and precision in the available technologies are required due to this sensitivity.

System quality assesses the technical soundness of the system by characterizing the overall quality of information system processing, including software and data components. According to DeLone and McLean (2003), factors including usability, functionality, dependability, and adaptability are related to system quality. Based on prior research by Gorla et al. (2010), system quality attributes may be divided into double major categories: system features from the perspective of the system designer and system structures from the standpoint of the end user. According to Gorla et al. (2010), a user-friendly system is one that is simple to use, properly documented, has a rapid turnaround time, and makes use of contemporary technology to enable user-friendliness.

2.3.3 Service Quality

According to Delone and McLean (2003), "the overall support delivered by the service provider" is referred to as having high service quality. According to this element Arcand et al., (2017), Shareef et al. (2014), Shih and Fang (2006), providers provide clients with technology that is high in security/privacy, practicality, design/aesthetics, enjoyment, and sociality. According to Casalo et al. (2007), Shih and Fang, (2004), this assistance may be provided by a variety of intelligence technology providers, including Internet service providers, new organizational units, and Information System departments.

Jun and Cai (2001) reaffirmed the importance of service quality in the adoption of Internet banking. The banks or mobile service providers will assure the quality of the service in the context of mobile banking (Changchit et al., 2017, Lee & Chung, 2009). Since the users of mobile banking are also clients of these three providers, service

quality is crucial to increasing usage (Jaruwachirathanakul & Fink, 2005). If there is poor user support, there will be a higher throughput from the service provided, and one or more of the suppliers will drop out. People would use mobile banking more frequently if they believe that these services provide them greater benefits and possibilities with alluring deals (Faria, 2012; Zhou, 2011).

In the banking sector, client happiness is significantly affected by the quality of the services provided. The service quality model (SERVQUAL) has been used and modified by tons academic scholars and service businesses in a variety of research fields such as, banking service evaluation (Kumar et al., 2009, 2010; Amiri Aghdaie and Faghani, 2012; Ali and Raza, 2017); home appliance business; and after-sales services (Murali et al., 2016; Shokouhyar et al., 2020). Through the application of PAKSERV, Kashif et al. (2015) examined the Malaysian Islamic banks' level of customer service. According to their analysis, customization and sincerity have a significant impact on how it pleased clients are with Islamic banking services. However, it has been discovered that in Malaysia, dependability has no impact on how satisfied clients are with Islamic banking. In the meanwhile, research conducted in Pakistan by Kashif et al. (2016) utilizing PAKSERV discovered that all factors significantly influence customer satisfaction in Pakistan's Islamic banking. According to Karatape et al. (2005) and Alnaser et al. (2018), service quality characteristics developed in one culture may be used to represent service quality in another.

According to Royne Stafford, Stafford, and Wells (1998), financial service providers tend to offer homogenous products, hence service quality is primarily relevant to them. Customer satisfaction is defined as receiving a benefit that matches or exceeds their expectations. According to Dwyer et al. (1987) and Farrelly and Quester (2005), as well as Gaski and Nevin (1985), satisfaction is primarily defined in the context of

marketing as the overall appraisal of a firm's relationship fulfilment or the clearly impacted state resulting from the evaluation of a firm's working relationship. In order to understand any sort of interaction between members and a customer's satisfaction reaction, contentment is also one of the most crucial factors (Oliver, 2014). According to Yeo et al. (2015), customer happiness is recognized as a result of service quality, which means that it is positively related to the nature of the goods or services provided to the client.

Service quality was acknowledged by Arcand et al. (2017) as one of the principles to attain consumer happiness. According to Santos (2003), service quality is a key factor in internet commerce since it is practically free and practical to compare items' technical specifications online. Mobile service quality is defined as the clients' overall assessment and judgment of the excellence and quality of mobile banking service offerings within the framework of mobile banking (Jun and Palacios, 2016). It was emphasized in the Deloitte analysis by Johnstone et al. (2010) that mobile banking has assisted several banks' bottom lines. For instance, by analyzing data gathered from users of mobile banking applications, banks were capable of broadening their market reach and gaining a better knowledge of client demands.

2.3.4 Security assurance

In virtual transactions, customers prioritize security above all else. Security, according to Ghosh and Barua (2014), is the safeguarding and preservation of data. Due to fraud and hacking, financial concerns are intimately tied to security in the context of information as well (Kabir, 2013). According to a study by Raza et al. (2017), clients are happier with the service when they believe their financial transactions are safe. Customer satisfaction is highly impacted by a mobile banking application's security and dependability, according to Ahanthem (2022). Customers of mobile banking are

obviously concerned about it, as it will guarantee the safety of their regular usage of mobile banking, which includes services like credit cards, loan, payment transaction, and enquiry services. This result so confirms earlier research's hypothesis that consumers' perceptions of high security might lead to their perceptions of excellent service quality (Chang and Thai, 2016).

Customers using mobile banking applications are concerned about security since they believe someone may access their data and have control over their bank account (Harris et al., 2016). Prior studies by Amin and Ramayah (2010) and Balapour et al. (2020) have shown that security assurance is one of the considerations most impacting the acceptance and use behaviour of mobile app users. In the context of mobile banking, security assurance is the certainty that using mobile banking services would protect bank clients' privacy (Hanif & Lallie, 2021). Additionally, the study by Gu et al. (2009) provides strong verification that security assurance is a prerequisite for consumer trust, which might enhance the adoption of mobile banking. As an additional example, Olkiewicz, Terebecki, and Wolniak (2019) investigated the security of information channels in financial services and suggested cutting-edge techniques to ensure information security for a bank's stakeholders. Like how Olkiewicz et al. (2019) concentrated on the banking stakeholders, Sundaram, Thomas, and Agilandeewari (2019) examined the online security of bank clients using PCs and smartphones and came to the conclusion that feature learning and ranking models were combined to provide security.

According to Beldad et al. (2010) and Sharma et al. (2018), customers deem promises of privacy and security to be crucial when assessing a company's trustworthiness. It particularly refers to any safeguards that might successfully ensure the client of their anticipated results, such as contracts, guarantees, laws, or transaction

protocols (Chien et al., 2012). Private credit card numbers, bank account information, and high-risk financial transactions are frequently involved with mobile banking. Because they are afraid of potential hazards and damage, users may decide to withdraw or stop using the service. Users and financial institutions suffer financial losses because of data breaches, which erodes public confidence in the banking industry [89]. The breach of client data may result in identity theft, financial fraud, and other nefarious acts. Customers may begin to doubt financial institutions' capacity to secure their information because of such instances, which erodes trust in the banking industry. The main causes of customers switching financial institutions are dissatisfaction and a lack of confidence [90]. Because of this, these guarantees are even more important for winning over clients if there are no tangible services provided.

2.3.5 Interface Design

The user interface design for mobile banking considers the perceived usability of mobile banking (Davis, 1989) and how evidence is provided and demonstrated (Bharati and Chaudhury, 2004). According to Wang and Liao (2008) made the supposition that mobile banking's usability would have an impact on its utilization and encourage clients to utilize it for financial services. Additionally, the viewpoint towards the utility and service quality of mobile banking will be impacted by the perceived simplicity of use of the mobile banking program (Schierz et al., 2010). An appropriate and practical model of the mobile banking application will draw people's awareness since consumers construct their impressions based on the initial information. The interface is also the first thought that users have of mobile banking. Appropriate interface design can help people develop confidence in mobile banking systems' reliability and security assurance (Everard and Galletta, 2005). Mobile banking interfaces that could be better designed would result in extra effort and harm in how clients use mobile banking.

In the present world, the primary component defining distinct types of systems, along with their complexity, is the growing growth and improvement of information technology. Users frequently struggle to adapt to new software because of the interface's bad design and excessively complicated function. Interaction design is crucial to tackling the graphical interface for the effective and simple manner to use (Preece et al., 2015). This is done by developing pleased user interaction. Since the beginning of time, humans have created things and split them into a variety of specialties to make sure that they fully satisfy human needs while also being comprehensible and useable (Norman, 2013). The term "interaction design" encompasses a number of disciplines, including "human-centered design," "user interface design," "software design," and "application design," among others. According to (Preece et al., 2015), "interaction design" focuses on "developing people's knowledge when using graphical interface by taking into consideration their profile like page, culture, or background".

The user interface design is a key component of creating a connection between a system and users by presenting the information and application goals. For users to complete desired tasks with the least amount of annoyance or resistance, the user interface design is often developed with pertinent and vital information (Fernandes, 1995). Additionally, the consistent User Interface design helps consumers find things and comprehend them (Norman, 2013). When utilizing programs, these elements boost user productivity and assist them in reaching their objectives. As a result, the only aspect of the software that users can see is the user interface (UI). A poor user interface breeds confusion and prevents consumers from receiving information (Mayhew & Winer, 1992). Therefore, creating a decent user interface design is challenging and involves plenty of work. Jakob Nielsen, however, gave instructions on how to accomplish it.

The point of interaction and communication between people and computers in a system is the user interface. This can include visual displays, keyboards, mice, and desktop settings. Additionally, it is the method through which a user interacts with a website or application. The user interface, which may include the device's visual appearance, reaction speed, and the material displayed to the user within the user interface context, is also addressed in combination with user experience. The definition of Human-Computer contact (HCI), which is the area of study that focuses on the development of computer technology and human contact with all facets of information technology design, includes both concepts.

In terms of user experience, Goodman et al. (2004) and Gatsou et al. (2013) highlighted that inexperienced users often have more trouble using computer equipment or learning new computer skills than experienced users do. The internet banking software is both a great and a bad experience for senior customers. The biggest obstacles to adopting online banking are potential users' lack of knowledge about how to get started and their frustration and confusion with current online banking. The effectiveness of the user experience determines whether seniors will accept or embrace the technology. The user experience is improved, and new consumers may be drawn in when the user interface is designed properly (Gatsou et al., 2012). Additionally, the pointing performance of mobile displays is determined by the smartphone user interface and heuristic evaluation for older persons (Salman et al., 2018), and (Sano ,2017).

Consumers can cooperate directly with the equipment, service, or product thanks to interface design (Miraz et al., 2021). As a result, complicated app interfaces or frequent changes to app interface designs might have a negative influence on user engagement. Interface design in terms of mobile banking relates to the app interface's structure, usability, and navigational features (Zhou et al., 2021). The importance of

interface design affects both banks and customers. According to earlier research Patel et al. (2020), interface design has a significant impact on consumer intentions. In this way, interface design directly affects perceived satisfaction, which has a favorable effect on app uptake when used on mobile devices.

2.4 Hypotheses Statement

The research hypothesis in this study is utilized to determine the study's objectives and organization. Previous research on the relationship between all factors supports the proposed theory. As a result, the hypotheses offered are especially designed to meet the research problems erected by this study.

2.4.1 System Quality and its relationship with Loyalty Intention towards Mobile Banking.

System quality is one of the variables that will persuade the aim of the customer to be loyal in using Mobile Banking. According to Liu & Arnett (2000) and DeLone & McLean (2003), users can be the evaluators who evaluate the system quality of mobile banking by their perception whereby it has been observed as the value of an application system's performance. Moreover, based on the statement of Ja-Chul Gu (2009), system quality describes the ease of use and navigation, aesthetic appeal, and accessibility speed of mobile banking. Compatibility, solidity, and reply speed of the system, as well as the online customer service of mobile banking can be regarded as the mobile banking's system quality whereas the increase in quality of mobile banking will undoubtedly lead to have great security assurance as well as great level of belief and loyalty intention by the customers (McKnight, 2002). The high level of system quality in mobile banking will lead customers to perceived ease of use in utilizing the system or application.

For instance, good, accurate, speed and smooth system of mobile banking will ease customers to make an online transaction without any delay, misplaced money

transferred and avoiding them from any online fraud since there will be an encryption before the transfer of money can be made. Therefore:

H1: There is a positive relationship between system quality and loyalty intention towards mobile banking.

2.4.2 Service Quality and its relationship with Loyalty Intention towards Mobile Banking

Mobile banking functions that can completely undergo the requirements of customers are the definition of mobile banking's service quality. Among the functions of service quality are mortgage service, query service, investment service, payment transaction service and credit card service which can be offered with reasonable fees. In addition, according to Cronin Jr (2000), McDougall (2000), and Petrick (2002), service quality is a crucial and significant determinant of customer satisfaction and loyalty intentions. This is because, it is making sense if customer want to be loyal towards a bank's mobile banking service if the bank provides its customers or equip the mobile banking services with the most appropriate service quality such as make the mobile banking system with understandable features and the system generate transaction with speed and high level of accuracy as well as high level of security.

According to Venkatesh et al. (2003), behavioral intentions are influenced by performance expectations, which are regulated by gender and age. Therefore, customers or users will have the intention to be loyal if their expectations towards the service or products can be made. By presenting the most appropriate service quality will aid both customers and bank to receive benefits as well as perceiving usefulness. This is because, best service quality such as smooth and no maintenance problem of mobile banking will be useful for both banks and customers whereby both will receive profit, convenience and useful mobile banking service. Thus, the following hypotheses is proposed:

H2: There is a positive relationship between service quality and loyalty intention towards mobile banking.

2.4.3 Security assurance and its relationship with Loyalty Intention towards Mobile Banking

Even though the internet transaction service has existed since a long time ago, risk will always exist and may continuously increase in the payment transaction through mobile devices (Ndubisi and Sinti, 2006). The assurance of the safety of account and funds refers to the high security of mobile banking in terms of the definition of mobile banking security assurance. Security assurance is one of the crucial variables in order to convince customers and ensure the continuance intention of loyalty towards the utilization of mobile banking services or systems. This is because, according to Koenig-Lewis et al., (2010) and Lee et al., (2007), the risk's perception of customers frequently determined by the uncertainties with regard to the level of changeability between their verdict and real behavior whereby the risk existed will determine the level of trust, gratification and loyalty of customers towards mobile banking.

Therefore, by perceived security assurance of mobile banking, it will generate an impression on the service quality of mobile banking as well. On the other hand, the security guarantee will ensure the level or perceiving usefulness in terms of customers whereby customers can be at their ease without worrying about their cash flow that will flow to non-authorized or wrong account. It is said to be useful because customers will not have to go to find people to always check on their transaction or to pay more only to secure their account. The security assurance provided is very useful so that customers will continue to utilize mobile banking in the future without any doubt or worries. Thus:

H3: There is a positive relationship between security assurance and loyalty intention towards mobile banking.

2.4.4 Interface Design and its relationship with Loyalty Intention towards Mobile Banking

Interface design can be defined as the information shown and displayed in a system or application and for this study of mobile banking, the interface design displays the information in the mobile banking (Bharati, 2004) application as well as perceived ease of using mobile banking (Davis, 1989). Pursuing this further, the ease of use of mobile banking will indirectly affect the usage of mobile banking. This is because, it will urge customers to utilize the mobile banking in their financial services as believed by (Wang, 2008).

According to the words of Everard (2005), excellent interface design quality can develop the formation of faith in the mobile banking system quality and security assurance of mobile banking. Therefore, it is believed for the customers to generate a good first impression since interface is the first thing they will see. The right and competent design of mobile banking app will draw more customers or users to pay more attention to its mobile banking service as well as generate consciousness according to the primary information. Based on that, interface design also shows a substantial role in ensuring customer's approval as well as their intention to be loyal towards mobile banking.

H4: There is a positive relationship between interface design and loyalty intention towards mobile banking.

2.5 Conceptual Framework

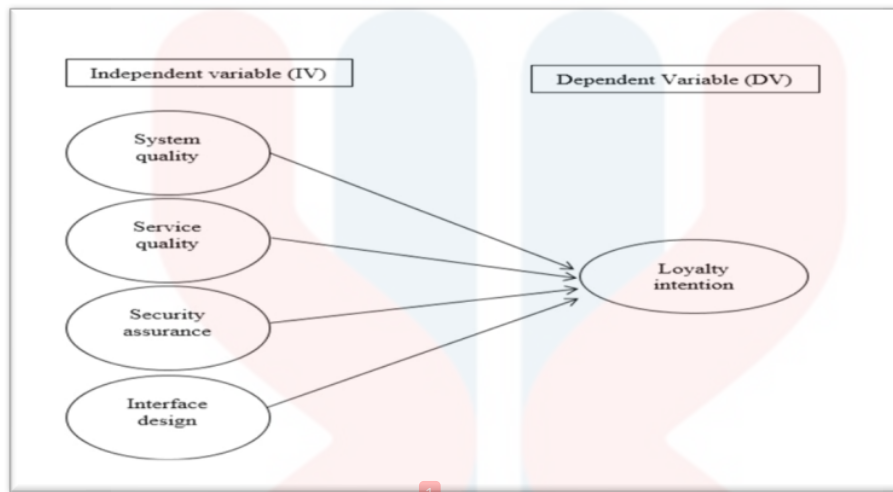


Figure 2.3: The Conceptual Framework

This section presents a conceptual framework that comprises two key variables, the independent variable and the dependent variable, which are examined as factors influencing client loyalty to mobile banking transactions.

2.6 Conclusion

This literature review has stipulated an outline of the framework, theories used to guide research and past studies on the variables that make up the factors that influence customer loyalty towards mobile banking. In addition, the Unified Theory of Acceptance and Use of Technology (UTAUT) and Technology Acceptance Model (TAM) are basic theories that help explain the variable criteria in this study. Clearly, the research hypothesis is advanced in our understanding of customer loyalty intentions on mobile banking.

¹
Table 2.1: Summary of Hypothesis

Hypothesis	Statement
⁸ Hypothesis 1	There is a positive relationship between system quality and loyalty intention towards mobile banking.
Hypothesis 2	There is a significant positive relationship between service quality and loyalty intention towards mobile banking.
Hypothesis 3	There is a significant positive relationship between security assurance and loyalty intention towards mobile banking.
Hypothesis 4	There is a significant positive relationship between interface design and loyalty intention towards mobile banking.

17
CHAPTER 3: RESEARCH METHODS

3.1 Introduction

This chapter focuses on methods for research, which are utilized for data that has been collected, analyzed, and assessed. Next, this part also outlines the research method and gives an explanation of the processes that have been followed to ensure the research project's success. The study methodology includes an introduction, research design, data collection method, study population, sample size, sampling strategy, research equipment creation, variable measurement, data analysis procedure, and conclusion. Obviously, this chapter will provide the reader with a clear image of how the researcher conducted the investigation.

9
3.2 Research Design

A research design, according to Sekaran and Bougie (2016), is a strategy for gathering, measuring, and interpreting data to answer specific research questions. This is a step-by-step strategy used by a researcher before the data collection and analysis procedure to completely archive the study objectives. There are two sorts of research designs which are quantitative research (the procedure of gathering and assessing numerical data) and qualitative research (a method used for market research that tries to get data through open-ended questions and interaction with the intended consumers). The researcher used a quantitative method since the empirical assessment included numerical, measurement, and analysis. To make this study more obvious and easier, the initial data was gathered using an online questionnaire survey. This study's sample size consists of Malaysian students studying at a public university. They were chosen to represent people who will participate in our survey on mobile banking loyalty.

¹
3.3 Data Collection Method

In order to answer the study question and assess the findings, the data collecting approach gathers information from every relevant source (Dudovski, 2022). Researchers collect data to define, evaluate and validate goals, objectives, and study. The study used a questionnaire as a data collection approach to collect information. It is standard to use questionnaires to collect enormous amounts of quantitative data. Quantitative techniques can also be faster and cheaper than qualitative techniques (Dudovskiy, 2018). To determine the important elements that influence student loyalty in mobile banking, the parameters that should be included, and the results that we can conclude from the last online questionnaire, we conducted a population with 377,103 students. The structure of an online or electronic survey is usually a web architecture with a database to store responses from respondents.

The URL to the Google form provided also contains instructions for completing the survey. This makes it easier for our survey participants to respond. Additionally, after our respondents submitted their responses using the Google form link, the data was imported into ¹the Social Science Software (SPSS) version 26.0. The most popular program, SPSS, was chosen because of its close association with the intellectual and professional community. In addition, SPSS is a customizable software that enables different investigations, data transformations and design of results; generally, it will meet our needs. In order to identify the reliability analysis results, the data was determined and analyzed in the SPSS 26.0 form.

3.4 Study Population

The target group for the research methodology is bachelor's degree students at a higher learning institution (IPTA) in Malaysia. There are 377,103 students from 20 public universities in Malaysia. The source for the total number of students is from the Ministry of Higher Education (2022). This research study proposes a survey to collect data. After that, enough data will be collected to determine the sample size.

Table 3.1: List of Public University in Malaysia

NO.	UNIVERSITY
1.	Universiti Malaya (UM)
2.	Universiti Sains Malaysia (USM)
3.	Universiti Kebangsaan Malaysia (UKM)
4.	Universiti Putra Malaysia (UPM)
5.	Universiti Teknologi Malaysia (UTM)
6.	Universiti Utara Malaysia (UUM)
7.	International Islamic University of Malaysia (IIUM)
8.	Universiti Malaysia Sarawak (UNIMAS)
9.	Universiti Malaysia Sabah (USM)
10.	Universiti Pendidikan Sultan Idris (UPSI)
11.	Universiti Teknologi Mara (UiTM)
12.	Universiti Sultan Zainal Abidin (UniSZA)
13.	Universiti Malaysia Terengganu (UMT)
14.	Universiti Sains Islam Malaysia (USIM)
15.	Universiti Tun Hussein Onn Malaysia (UTHM)
16.	Universiti Teknikal Malaysia Melaka (UTeM)
17.	Universiti Malaysia Pahang (UMP)
18.	Universiti Malaysia Perlis (UNIMAP)
19.	Universiti Malaysia Kelantan (UMK)
20.	Universiti Pertahanan Nasional Malaysia (UPNM)

3.5 Sample Size

The definition of sample size can be extracted as the person or individuals needed to determine the estimations of a given population. In addition, sample size may also be clarified as the total number of respondents who actively participated in a particular study made by a researcher. This is because it would be easier for researchers to analyze, generate findings and observe the characteristics as well as the conclusions drawn by the questions answered by respondents. According to Green (1991), by referring to the Power Analysis Table, the sample size is needed to find out the number of respondents that contributed to this study.

In this study, the number of predictors consists of four predictors and therefore it requires a medium effect size which equals 0.15. Furthermore, by referring to table 3.2, the recommended numbers of respondents for four predictors are 84 which are located under the medium effect size. As a result, a sample size of 300 respondents is recommended for this study in order to obtain 80% power and a significance level of 0.05. On the other hand, in this study the aims of IPTA students all over Malaysia has been mentioned in the population part above. The estimation of the students is around 377,103 students according to the statistics from Ministry of Higher Education (2022).

Number of predictors	Sample sizes based on power analysis		
	Effect size		
	Small (0.02)	Medium (0.15)	Large (0.35)
1	390	53	24
2	481	66	30
3	547	76	35
4	599	84	39
5	645	91	42
6	686	97	46
7	726	102	48
8	757	108	51
9	788	113	54
10	844	117	56
15	982	138	67
20	1060	156	77
30	1247	187	94
40	1407	213	110

Figure 3.1: Power of Analysis Table
Source: (Green, 1991)

3.6 Sampling Techniques

Sampling can be described as the method or way to analyze or study the population by collecting information and observing the data such as the characteristics of the respondent, tendency of the respondent towards something, interest and into what extent respondents are able to survive using a product or service. Therefore, in this study the technique or method of sampling used will be explained further in the next section.

Sampling techniques consist of two types which are probability sampling and non-probability sampling. Probability sampling is a method that utilizes some form of arbitrary selection whereby all respondents will get the chance to select the sample from the whole sample space. Meanwhile, non-probability sampling states a vice versa meaning with probability sampling whereby it can be concluded as the method used by researcher to select sample according to the subjective judgement of the researcher or it also can be called as utilization of some form not at the random selection.

3.6.1 Non-Probability Sampling

The definition of non-probability sampling can be expressed as a method where the opportunity of every population participating in the study is limited. In other words, it simplifies that not every respondent in the population could have the chance to contribute to study. On the other hand, as has been mentioned above, non-probability sampling is a method of sampling not selected at random.

The non-probability sampling consists of several types of sampling which are convenience sampling, consecutive sampling, quota sampling, purposive sampling, and snow sampling. In this study, we use non-probability sampling which is purposive sampling. Purposive sampling can be described as a method of sampling where the respondents fulfil the criteria requirement that the study wants. For instance, our study aims for students from public universities or also called IPTA throughout Malaysia to be our respondents. Moreover, by using this purposive sampling method, it is believed that the opportunity to obtain highly accurate answers with a minimum marginal error can be achieved since our knowledge is instrumental in creating the samples.

Pursuing this further, our study aims to collect as much as 300 respondents as the sample of our study and it should be from IPTA students throughout Malaysia regardless of their gender, religions, and culture. Our study also only aims undergraduate students to contribute to our study and therefore we purposely create the survey to be answered by them. Therefore, since this study uses purposive sampling, it is also believed that the purpose respondents can deem fit to participate in this research study.

3.7 Research Instrument Development

In this study this section describes and elucidates the self-administered questionnaires created by the researcher in order to achieve the data and information from the respondents or participants. According to Lavrakas (2008), the respondents or

participants will finish the questionnaire given devoid of involvement of the researcher in the process since the set of questions are purposely designed for them to generate information as well as measure the item employed in this study. In this study, there are six sections that need to be completed by respondents. The demographic section represents section A in this study. The demographic section contains of respondent's details such as age, sexual category, income, marital status, course, university's name, and their race. Next, for section B, it represents about the dependent variable in this study which is loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia.

Moving to the next part, section C, D, E and F represents the independent variables conducted in this study. Section C, which is system quality is the independent variable in this study which will talk about the quality of the mobile banking system. Section D is service quality, section E is security assurance and section F is interface design which are all located under the term of independent variables. The scale or measure that this study employed is the five- point Likert Scales.

According to Yoo and Gretzel (2011), it is recommended for researchers touse five-point Likert Scales in a questionnaire. Thus, the five-point Likert Scales consists of five rated points whereby the lowest rate which is 1 represents as the 'strongly disagree' while the highest rate which is 5 represents as the 'strongly agree' for their verbal statements respectively. In addition, the majority of researchers advise using a five-point Likert scale in this findings since it would reduce respondents' levels of tolerance and irritability while simultaneously improving the response rate and quality (Sachdev & Verma, 2004).

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Table 3.2: Five-Point Likert Scale

Strongly Disagree	Disagree	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5

Table 3.3: Overview of the Research Instruments

SECTION	VARIABLES	ITEMS	AUTHORS
A	Demographic	4	-
B	Loyalty Intention	6	(Arcand et al., 2017; Baabdullah et al., 2019; Lee & Chung, 2009)
C	System Quality	4	(McKnight et al., 2002a, 2002b)
D	Service Quality	5	(Cronin Jr et al., 2000; McDougall & Levesque, 2000; Petrick & Backman, 2002; Shankar et al., 2020)
E	Security Assurance	5	(Luarn & Lin, 2005)
F	Interface Design	3	(Bharati & Chaudhury, 2004; Schierz et al., 2010)
		27	

3.7.1 Dependent Variable – Loyalty Intention

The loyalty intention concept in this study refers to a circumstance where a client intends to continue with a specific brand or organization for a longer amount of time. Customers that consistently buy their favored goods or services, despite alluring marketing or other rivals' acts, show some sort of internal commitment (Oliver, 1999). The measurement of loyalty intention in this study is adapted from (Arcand et al., 2017; Baabdullah et al., 2019; Lee & Chung, 2009) and (Cheng et al., 2006). A 5-point Likert scale was used where respondents rate their opinion on loyalty intention with values ranging from 1 – 'strongly disagree' to 5 – 'strongly agree'.

Table 3.4: Items constructing Loyalty Intention

Original Items	Sources	Modified Items
1. The bank improves the service experience of the mobile banking through service innovation.	(Arcand et al., 2017; Baabdullah et al., 2019; Lee & Chung, 2009)	1. The bank improves the service experience of the mobile banking through service innovation.
2. The innovative service makes customers willing to use and recommend to others.		2. The innovative service makes customers willing to use and recommend the mobile banking app to others.
3. There are good coordination and cooperation between the mobile banking and offline branches.		3. There are good coordination between the mobile banking and offline branches.
4. There are good coordination and cooperation between the mobile banking and offline branches.		4. There are good cooperation between the mobile banking and offline branches.

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<p>15</p> <p>5. I would continue to use the IB for my banking needs</p>	<p>(Cheng et al., 2006)</p>	<p>5. I would continue to use the mobile banking for my banking needs</p>
<p>6. I would continue to see myself using the IB for handling my banking needs</p>		<p>6. I would continue to see myself using the mobile banking for handling my banking needs</p>

3.7.2 Independent Variable

3.7.2.1 System Quality

The system quality in this study refers to the ease of use and navigation, aesthetic appeal, and accessibility speed of mobile banking (Gu et al., 2009). The measurement of system quality in this study is adapted from (McKnight et al., 2002a, 2002b) and (Tan et al., 2016). A 5-point Likert scale was used where respondents rate their opinion on mobile banking's system quality with values ranging from 1 – 'strongly disagree' to 5 – 'strongly agree'.

Table 3.5: Items constructing System Quality

5 Original Items	Sources	Modified Items 2
1. Mobile banking is of good compatibility, stable and smooth operation.	(McKnight et al., 2002a, 2002b)	1. Mobile banking is of good compatibility, stable and smooth operation.
2. Mobile banking response speed is fast.		2. Mobile banking response speed is fast.
3. Online customer service is professional, timely and effective to solve problems.		3. Online customer service is professional, timely and effective to solve problems.
4. You are able to access the services you want to access and feel flexible while using m-banking services	(Tan et al., 2016)	4. I am able to access the services that I want to access and feel flexible while using the mobile banking services

3.7.2.2 Service Quality

The high service quality in this study refers to the whole support supplied by the service provider (DeLone & McLean, 2003). The measurement of service quality in this study is adapted from (Cronin Jr et al., 2000; McDougall & Levesque, 2000; Petrick & Backman, 2002; Shankar et al., 2020). A 5-point Likert scale was used where respondents rate their opinion on mobile banking’s service quality with values ranging from 1 – ‘strongly disagree’ to 5 – ‘strongly agree’.

Table 3.6: Items constructing Service Quality

Original Items	Sources	Modified Items
1. Mobile banking functions can fully meet the needs of daily business	(Cronin Jr et al., 2000; McDougall & Levesque, 2000; Petrick & Backman, 2002; Shankar et al., 2020)	1. Mobile banking functions can fully meet the needs of daily business
2. I am satisfied with investment business service.		2. I am satisfied with investment business service offered in the mobile banking app
3. I am satisfied with credit card business service.		3. I am satisfied with credit card business service offered in the mobile banking app
4. I am satisfied with the diversity of business		4. I am satisfied with the diversity of business that can be settled by using mobile banking
5. The service price is rationality.		5. The service price is affordable and in line with the quality of service offered

3.7.2.3 Security Assurance

The security assurance in this study refers to the safety that a person may have access to their data and control over their bank account is a worry for consumers with

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mobile banking apps (Harris et al., 2016). The measurement of security assurance in this study is adapted from (Luarn & Lin, 2005; Pikkarainen et al., 2004). A 5-point Likert scale was used where respondents rate their opinion on mobile banking's security assurance with values ranging from 1 – 'strongly disagree' to 5 – 'strongly agree'.

Table 3.7: Items constructing Security Assurance

Original Items	Sources	Modified Items
1. Mobile banking is of high security, which can ensure the security of account and funds.	(Luarn & Lin, 2005; Pikkarainen et al., 2004)	1. Mobile banking is of high security, which can ensure the security of account and funds.
2.The transaction process and data are transparent and traceable.		2.The transaction process and data are transparent and traceable.
3. I trust in the ability of an online bank to protect my privacy		3. I trust in the ability of a mobile banking to protect my privacy
4. I am not worried about the security of an online bank		4. I am not worried about the security of a mobile banking
5. Using an online bank is financially secure		5. I believe that using mobile banking is financially secure

3.7.2.4 Interface Design

The interface design in this study refers to the user interface design for mobile banking considers the perceived usability of mobile banking and how information is provided and displayed (Bharati & Chaudhury, 2004). The measurement

of interface design in this study is adapted from (Bharati & Chaudhury, 2004; Schierz et al., 2010). A 5-point Likert scale was used where respondents rate their opinion on mobile banking's interface design with values ranging from 1 – 'strongly disagree' to 5 – 'strongly agree'.

Table 3.8: Items constructing Interface Design

Original Items	Sources	Modified Items
1. It is easy to use mobile banking.	(Bharati & Chaudhury, 2004; Schierz et al., 2010)	1. The mobile banking interface is simple, and it is easy to be used
2. The interface design of mobile banking application is of good appearance.		2. The interface design of mobile banking application is of good appearance.
3. The navigation design is easy to find out various functions		3. The navigation design is easy to find out various functions

3.8 Questionnaire Development

This study's questionnaire is developed by using the five-point Likert Scale. A simple and straightforward questions should be implemented in order to make them easier to understand the questions (Felipe & Kumar, 2014). Besides, the questions should also be understandable by employing understandable phrases, language or slang and the questionnaire must be in a straightforward and familiar vocabulary (Krosnick & Presser, 2010). Therefore, this study employs suitable, appropriate, and easy to comprehend questions in order to aid respondents to answer the survey. For instance, this study uses the five-point Likert Scale for respondents to answer the questions where it aids in facilitating them banswer the questions without wasting their golden time to understand and answer the questions for a long period of time. The five-point Likert Scale has 5 rating points, with the lowest is 1 for 'strongly disagree' and the highest is 5 for 'strongly agree'.

Respondents only need to choose or to rate the questions from rated 1 to 5 depending on their choice, understanding and knowledge.

Pursuing this further, it is believed that the questionnaire's format must be simple and agreeable to read, that the order of the questions should make it straightforward for respondents to respond, and that the items themselves should be accurate. Based on that, the questionnaire is established in an online 'Google Form' with a suitable font and size for the sake of respondents' understanding. Additionally, this study conducted non-open-ended questions or also called as close-ended questions in the survey. Based on the statement above, it means that there will be no personal information or opinion needed or requested in answering this survey as well as it will not be biased questions since it will significantly affect the research done.

3.8.1 Content Validity

Content validity can be described as the item used to measure the variable of interest. In addition, it also can be used to determine the suitable sampling of the content field of items in a questionnaire (Yaghmaie, 2003). Therefore, it can be seen that the content validity is crucial and important item in conducting a measurement of a study. This is because a test or questionnaire is believed to be measured comprehensively and represents all facets of the construct it is intended to measure. According to Kumar (2014), researchers, readers, or experts in the field also mediated regarding content validity according to the statement or question that contains connected issues that should be evaluated. This scholar also said that a lot of researchers often report the origin of each item based on literature review. Hence, the validity of questions will be relevant, suitable for the study and understood by our respondents in answering the survey. It is also believed that this is a significant and vital concept in modern research due to its utilization to upgrade the precision of assessment and estimation of research

work (Tavakol & Dennick, 2011). Besides, according to Forza (2002), it will be hard or difficult to justify the measurement error of the relationship theory that being measured if the assessment of reliability and validity of the instrument is absent.

3.8.2 Pilot Study

A pilot test is a small study used to create larger confirmatory research (Arain et al., 2010). According to (Thabane et al., 2010), a good description of exactly what a pilot study is has been provided, indicating that such a study may serve a variety of goals. For example, testing study protocols, determining the validity of tools, estimating recruitment rates, and estimating factors such as the variance of the outcome variable to determine sample size, among others.

This study uses pilot testing before spreading the questionnaire to actual respondents. A pilot test was conducted whereby 16 respondents were involved. This is because we need to ensure that there are not any questionnaire-related faults such as undefined or unsure queries. This permits us to discover and undertake various potential obstacles during the questionnaire's organizing and adjustment before its organization.

We used Google Form to appropriate surveys for pilot test and collected as much as 16 respondents for pilot test as information. After gathering the survey, the IBM SPSS Version 26 was utilized to conduct the reliability test. Cronbach's Alpha is the most popular dependability technique for measuring internal correctness. Cronbach's Alpha is also the most popular dependability method for measuring a scale's internal correctness. Cronbach's Alpha is the average dependability coefficient calculated from standardized products under thorough analysis.

3.9 Measurement of Variables

An unidentified property that can admit one or more values and determines a particular entity is called a measurement variable. Understanding the degree of

measurement used to study variables is crucial because it affects the kind of statistical investigation that can be run and, consequently, the decisions that can be taken from the study. To determine the statistical judgement test that will be used to look at each variable on the scale, the researchers will gather and analyze information.

Besides, the four types of measurement scales are nominal, ordinal, interval, and ratio. In this survey, nominal and ordinal measurement scales are employed, with the conventional Likert scale being a 5- or 7-point ordinal scale. We organized the questionnaire into six pieces. Section A is the first section, and it contains the demographic profile of the respondent. The second section is section B, which contains the item for dependent variables. The following sections, C, D, E, and F, contain a series of questions on the independent variables.

3.9.1 Nominal Scale

A Nominal Scale is a measurement scale that exclusively uses numbers as "tags" or "labels" to identify or classify objects. These measurements are usually only related to non-numerical (quantitative) variables or when numbers have no value. Thus is the most simple and inexpensive method of measurement. Using a nominal scale, responses are simply labeled or scored. The questionnaire is prepared in part. To determine each respondent's demographic profile, ask a question using a nominal scale. Among the things found in this section are gender, age, course, university name, income, marital status, and race are all determined in a nominal scale based on a questionnaire to analyze the target respondents.

3.9.2 Ordinal Scale

Quantitative variables employ an ordinal variable. It is a measurement variable that will only accept ranks or values in a specified order. The ordinal variable is the next level of measurement after the nominal variable. This scale ranks items from least

to most fulfilling in descending order of level of satisfaction. Ordinal scales, as opposed to nominal scales, allow for comparisons between the levels of the dependent variable in two subjects.

The Likert scale was one of the most frequently used scales in this study. Strongly disagreed (1), disagree (2), slightly agree (3), agree (4), and strongly agree (5) are the five possible outcomes on the Likert scale. It is used to gauge how forcefully comments are voiced to agree or disagree. The Likert scale is a rating system, and it also was used in the questionnaire to examine the items in sections B, C, D, E, and F.

3.10 Procedures for Data Analysis

Data collection is described as the process of gathering, measuring, and analyzing correct insights for research using established approved procedures. We analyzed the data acquired through a questionnaire to see the factors that influencing loyal intention towards the utilization of mobile banking among IPTA students in Malaysia. Based on the research questions, we have built a questionnaire form.

However, the data analysis plan is a road map of how we arrange and analyze data collected from 300 random respondents among undergraduate students IPTA across Malaysia from various courses. Therefore, data was gathered utilizing a questionnaire form. The researcher interpreted the primary data using the computer software Statistical Programmer for Social Science (SPSS) version 29.0. This method saves time and makes data calculation easier, allowing for faster and more efficient quantitative analysis.

3.10.1 Descriptive statistics

The purpose of descriptive statistics is to deliver descriptive samples as well as to explain the sum of data in the analysis. As a result, descriptive statistics can also give

an analysis of replies, which will aid in achieving the study's goals. In this study, the data set consists of a allocation of values, which will be quantified in statistics or data and displayed in part A through a Pie Chart.

3.10.2 Correlation Analysis

Correlation analysis is a statistical tool for determining whether and how strong a relationship exists between two variables or datasets. In terms of market research, correlation analysis is used to examine quantitative data collected through research methods such as surveys and polls to determine whether there are any noteworthy links, patterns, or trends between the two.

According to the dependent variable information regarding the variables that influence loyalty toward the use of banking mobile phones among IPTA students in Malaysia, this study is also used to analyze the association between the variables of each data collected by respondents related to independent variables on system quality, service quality, security insurance, and interface design.

3.11 Conclusion

Finally, the quantitative analysis methodology that will be used in this study has been discussed in this chapter. A survey methodology had determined appropriate to validate this model. The basic stage in this study is to see the factors that influence loyal intention towards the utilization of mobile banking among IPTA students in Malaysia. After that, data was collected through questionnaires in Google Form and the result will be shown in Chapter 4. The total respondents on questionnaire among university students in Malaysia was 300 respondents and this data will be analyzed with SPSS.

CHAPTER 4: DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter discusses data analysis, including validity and reliability tests, hypothesis testing, normality tests, descriptive analysis, preliminary analysis, and a summary of the chapter. To investigate "A Study on Factors Influencing Loyalty Intention Towards the Utilization of Mobile Banking Among IPTA Students in Malaysia," all data analysis was utilized to assess the questions in the probing questions. 300 respondents took part in the questionnaire and the findings were collected. Promoting reading and comprehension through data analysis using the Social Science software programming statistics software package (SPSS) version 26.

4.2 Preliminary Analysis

4.2.1 Validity and Reliability Test

In this study, validity and reliability are two principal components in analysing the quality of this research and evaluations. Validity is defined as how accurately an idea is measured in a quantitative investigation. Meanwhile, the accuracy of an instrument or the extent to which a research instrument consistently produces the same results when utilized in the same context on a regular basis is described as reliability (Heale & Twycross, 2015).

Therefore, in this study or research, we used both validity and reliability to test the quality of our research either it is suitable, clear and easy to be understand by our respondents or otherwise. The questionnaire that has been distributed for pilot test shows a good result of validity and reliability. Therefore, a thorough review on the questions has been made to observe the validity and reliability of the questions that we distributed to 300 actual respondents. Cronbach's Alpha is utilized in this section to verify the reliable of the instrument. The value of Cronbach's Alpha of each construct

that reaches 0.7 is considered very good and it shows that the survey questions is reliable.

4.2.2 Result of Reliability for Pilot Test

The reliability analysis was used for the purpose of determination of the questionnaires' reliability. Besides, the Cronbach's Alpha analysis was used to indicate the data's reliability and inner consistency reliability. Therefore, the table 4.1 shows the Rule of Thumb of Cronbach's Alpha coefficient size corresponding to Hair et. al (2003).

Table 4.1: Rule of Thumb of Cronbach's Alpha Coefficient Size

Alpha Coefficient Range	Strength of Association
< 0.6	Poor
0.6 to <0.7	Moderate
0.7 to < 0.8	Good
0.8 to < 0.9	Very Good
0.9 >	Excellent

Source: Hair et.al (2003); Essential of Business Research Method.

Based on the Table 4.1 above, it illustrates the whole consistency of pilot test for the dependent variable and independent variable. This study conducts a pilot test with 16 respondents to assess the validity of the questionnaire items.

Table 4.2: Result of Cronbach's Alpha

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.947	.944	23

Based on the table 4.2, it can be seen that all variables are analysed for reliability with the value of Cronbach's Alpha coefficient is 0.947. As a result, the questionnaire is

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trustworthy and apt for use in this study.

Table 4.3: Result of Reliability Coefficient Alpha for The Independent Variables and Dependent Variable

Variables	Number of Item	Cronbach's Alpha Coefficient	Strength of Association
Loyalty Intention	6	0.817	Very Good
System Quality	4	0.743	Good
Service Quality	5	0.872	Very Good
Security Assurance	5	0.765	Good
Interface Design	3	0.726	Good
Overall Variables	23	0.785	Good

According to Table 4.3, it shows the total value of Cronbach's Alpha Coefficient for our study that include independent and dependent variables. Based on the table, it can be concluded that Cronbach's Alpha Coefficient for all variables are above 0.7 and made the average of overall variables are 0.785. Thus, the result demonstrated that all items in the study in sufficient, reliable, and appropriate.

Based on the table 4.3, there were three items or questions in measuring the interface design of mobile banking which it indicates the lowest value of Cronbach's Alpha with 0.726. It shows a good strength of association and therefore the coefficient obtained are precise. Next, the Cronbach's Alpha value followed by the variable of system quality. The system quality consists of four items, and it has a value of 0.743 which also indicates a good strength of association. Thus, the coefficient obtained for this variable is reliable.

Pursuing this further, the security assurance consists of five items or questions in measuring the security of mobile banking. The value of Cronbach's Alpha coefficient for this variable is 0.765 which is good. Thus, the coefficient achieved shows that this variable is reliable. Next, the variable of loyalty intention with six items shows the result of 0.817 for Cronbach's Alpha coefficient which is very good. Therefore, the coefficient obtained for this variable is also reliable.

Lastly, there are five items in measuring the service quality of mobile banking. This variable indicates the highest value of Cronbach's Alpha coefficient with the value of 0.872 which is very good in terms of strength of association. Therefore, the coefficient value achieved for this variable is reliable.

Based on the results above, this study can be proceeded to the next step since the Cronbach's Alpha coefficient for all variables is greater than 0.7. Furthermore, every proof of dependability presumes that the respondent correctly comprehended the questions, which confirms that the questionnaires were accepted for this study.

4.3 Demographic Profile of Respondent

This section explains the results of data analysis based on respondents' responses to a questionnaire that was distributed to 300 respondents from public university students in Malaysia which contains demographic information such as age, gender, race, and university name. The demographic respondent in this survey is shown in the table below.

Table 4.4: Overall Demographic Profile Respondents

Demographic variable	Frequency	Percentage (%)
Age		
19-21	88	29.3
22-24	187	62.3
25-27	24	8.0
27 and above	1	0.3
Gender		
Female	205	68.3
Male	95	31.7
Race		
Bumiputera Sabah	2	0.7
Chinese	21	7.0
Iban	1	0.3
Indian	6	2.0
Malay	264	88.0
Melanau	2	0.7
Semelai	1	0.3
Sikh	1	0.3
Suluk	1	0.3

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Sungel	1	0.3
University Name		
IIUM	15	5.0
UiTM	15	5.0
UKM	15	5.0
UM	15	5.0
UMK	15	5.0
UMP	15	5.0
UMS	15	5.0
UMT	15	5.0
UniMAP	15	5.0
UNIMAS	15	5.0
UniSZA	15	5.0
UPM	15	5.0
UPNM	15	5.0
UPSI	15	5.0
USIM	15	5.0
USM	15	5.0
UTeM	15	5.0
UTHM	15	5.0
UTM	15	5.0
UUM	15	5.0

The essential strategy for this investigation included a frequency analysis. Section A of the questionnaire contained questions about respondents' age, gender, race, and university name. Therefore, a table and pie chart were used to display the demographic characteristics of the respondents.

4.3.1 Age

Table 4.5: Number of Respondents by Age

Age	Frequency	Percentage (%)	Cumulative percentage (%)
19-21	88	29.3	29.3
22-24	187	62.3	91.7
25-27	24	8.0	99.7
27 and above	1	0.3	100.0
Total	300	100.0	

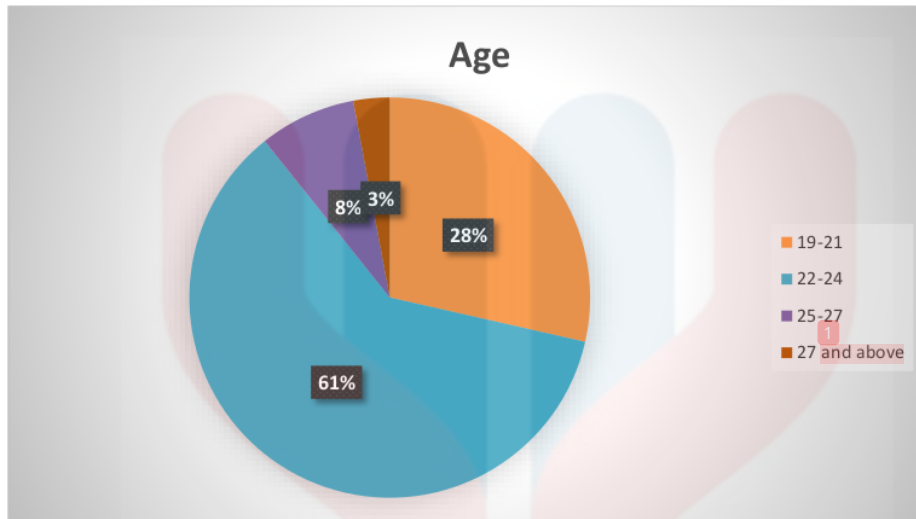


Figure 4.1: Percentage of Respondents by Age

Table 4.5 and Figure 4.1 show the number of respondents by age. Based on 300 respondents who were surveyed, respondents aged 19-21 years old represented 28% (88 respondents), 22-24 years old represented 61% (187 respondents), 25-27 years old represented 8% (24 respondents) while 27 years old above represented 3% (1 respondent). Figure 4.1 showed the highest percentage of respondents who have a range of age from 22-24 years old (61%) and lowest percentage of respondents who have a range of age from 27 and above years old (3%).

4.3.2 Gender

Table 4.6: Number of Respondents by Gender

Gender	Frequency	Percentage (%)	Cumulative percentage (%)
Female	205	68.3	68.3
Male	95	31.7	100.0
Total	300	100.0	

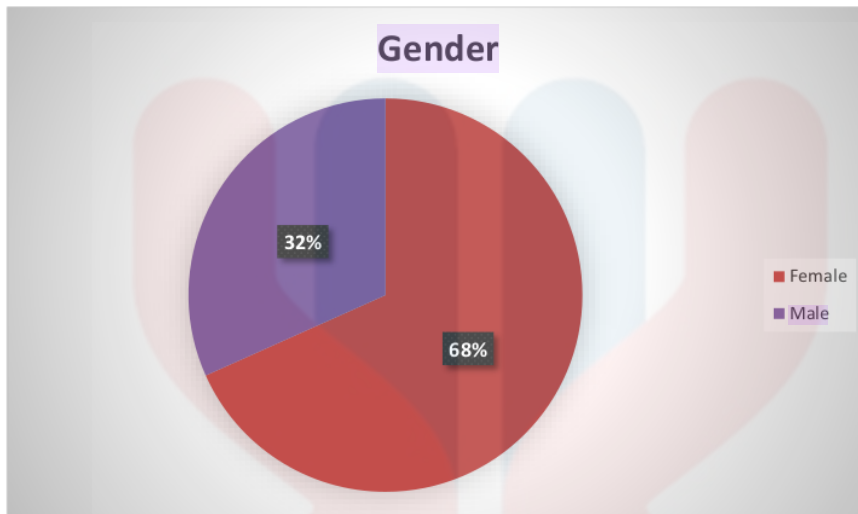


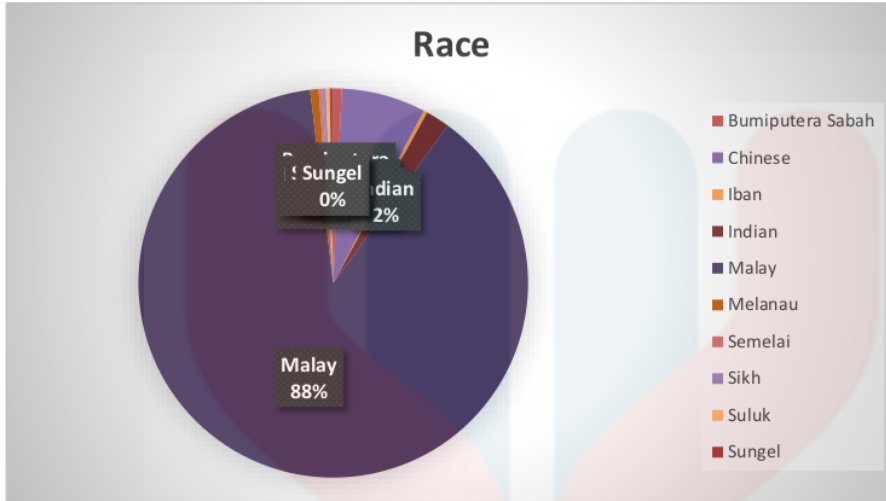
Figure 4.2: Percentage of Respondents by Gender

Table 4.6 and Figure 4.2 showed the gender of respondents. Male respondents totaled 205, while female respondents totaled 95. Thus, out of 300 respondents, 32% were male and 68% were female.

4.3.3 Race

Table 4.7: Number of Respondents by Race

Race	Frequency	Percentage (%)	Cumulative percentage (%)
Bumiputera Sabah	2	0.7	0.7
Chinese	21	7.0	7.7
Iban	1	0.3	8.0
Indian	6	2.0	10.0
Malay	264	88.0	98.0
Melanau	2	0.7	98.7
Semelai	1	0.3	99.0
Sikh	1	0.3	99.3
Suluk	1	0.3	99.7
Sungel	1	0.3	100.0
Total	300	100.0	



¹ **Figure 4.3:** Percentage of Respondents by Race

Table 4.7 and Figure 4.3 showed the total respondents by race. 300 respondents consist of Bumiputera Sabah (2 respondents), Chinese (21 respondents), Iban (1 respondents), Indian (6 respondents), Malay (264 respondents), Melanau (2 respondents), Semelai (1 respondents), Sikh (1 respondents), Suluk (1 respondents) and Sungei (1 respondents) had responded to the questionnaire. Figure 4.3 showed the highest percentage of respondents is Malay (88%) and followed by Chinese (7%), Indian (2%), Bumiputera Sabah and Melanau (7%) and the lowest percentage respondents was Iban, Semelai, Sikh, Suluk and Sungei (3%).

³ **4.3.4 University Name**

Table 4.8: Number of Respondents by University Name

University Name	Frequency	Percentage (%)	Cumulative percentage (%)
IUM	15	5.0	5.0
UiTM	15	5.0	10.0
UKM	15	5.0	15.0
UM	15	5.0	20.0
UMK	15	5.0	25.0
UMP	15	5.0	30.0

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UMS	15	5.0	35.0
UMT	15	5.0	40.0
UniMAP	15	5.0	45.0
UNIMAS	15	5.0	50.0
UniSZA	15	5.0	55.0
UPM	15	5.0	60.0
UPNM	15	5.0	65.0
UPSI	15	5.0	70.0
USIM	15	5.0	75.0
USM	15	5.0	80.0
UTeM	15	5.0	85.0
UTHM	15	5.0	90.0
UTM	15	5.0	95.5
UUM	15	5.0	100.0
Total	300	100.0	

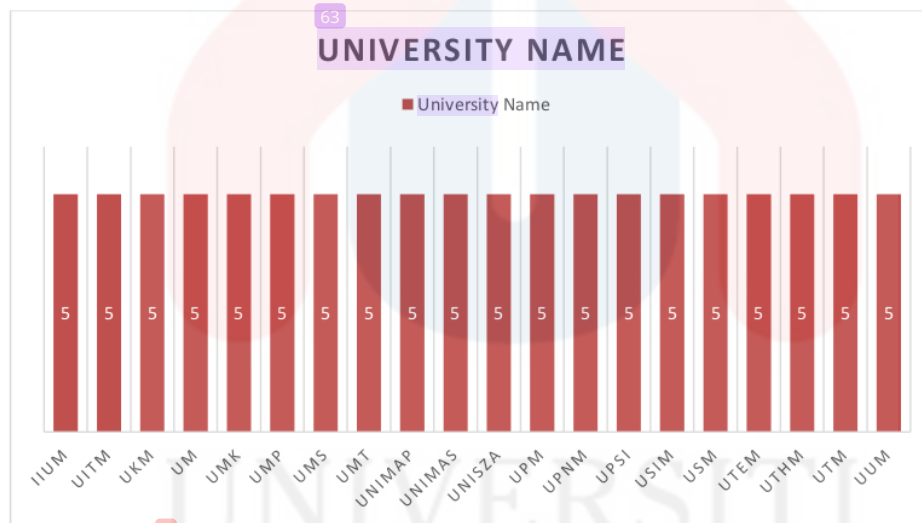


Figure 4.4: Percentage of Respondents by University Name

Table 4.8 and Figure 4.4 showed the total respondents by university name. 300 respondents, consisting of IIUM, UiTM, UKM, UM, UMK, UMP, UMS, UMT, UniMAP, UNIMAS, UniSZA are equal which needs 15 respondents per university.

4.4 Descriptive Analysis

Generally, descriptive analysis can be described as an analysis that summarize data in an organized manner. Descriptive analysis also describes the relationship between dependent variable and independent variables in a sample or population. Furthermore, descriptive statistics are important, particularly when doing research, and should always be performed before performing inferential statistical comparisons (Kaur et al., 2018).

In this study, we use mean to analyse which independent variables that has the influence on loyalty intention towards the utilization of mobile banking among IPTA students in Malaysia. The independent variables include system quality, service quality, security assurance and interface design. The mean for each variable for every question are contrasted in this section and the Likert Scale has been used in answering the survey whereby 1 as Strongly Disagree, 2 as Disagree, 3 as Slightly Agree, 4 as Agree and 5 as Strongly Agree. The result of descriptive analysis can be illustrated as follows:

4.4.1 Loyalty Intention

Table 4.9: Descriptive Statistics Loyalty Intention
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
The bank improves the service experience of the mobile banking through service innovation.	300	1	5	4.10	.684
The innovative service makes customers willing to use and recommend the mobile banking app to others.	300	1	5	4.18	.640

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2	There are good coordination between the mobile banking and offline branches.	300	1	5	3.99	.696
6	There are good cooperation between the mobile banking and offline branches.	300	1	5	4.02	.724
15	I would continue to use the mobile banking for my banking needs.	300	1	5	4.38	.662
15	I would continue to see myself using the mobile banking for handling my banking needs.	300	1	5	4.29	.683
Valid N (listwise)		300				
Average Mean					4.16	

Table 4.9 shows that question 5 had the highest mean score of 4.38, with a standard deviation of 0.662. This illustrated that respondents from IPTA students are willing to be loyal in using the mobile banking application. The respondents also tend to stay loyal in using mobile banking in order to handle their own banking needs for the present and the future, with a mean score of 4.29 and a standard deviation of 0.683. Next, respondents agreed that the innovative service by mobile banking makes customers willing to use and recommend the mobile banking app to others with a mean score of 4.18 and a standard deviation of 0.640. Respondents also agree that mobile banking has improved the service experience through service innovation with a mean score of 4.10 and a standard deviation of 0.684. Mobile banking is believed to have a good cooperation with offline branches whereby it computes a mean score of 4.02 and a standard deviation of 0.724. Thus, this will strengthen the loyalty intention of IPTA students to be loyal and continue in using mobile banking application. Finally,

respondents also think that mobile banking has a good coordination with offline branches whereby it generates a mean score of 3.99 and a standard deviation of 0.696. Therefore, those results show that respondents among IPTA students will likely to be loyal and keep on using mobile banking in the future.

4.4.2 System Quality

Table 4.10: Descriptive Statistics System Quality
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Mobile banking is of good compatibility, stable and smooth operation.	300	1	5	3.98	.729
Mobile banking response speed is fast.	300	1	5	3.82	.870
Online customer service is professional, timely and effective to solve problems.	300	1	5	3.91	.807
I am able to access the services that I want to access and feel flexible while using the mobile banking services.	300	1	5	4.07	.670
Valid N (listwise)	300				
Average Mean				3.95	

The table 4.10 shows that question 4 had the highest mean score of 4.07, with a standard deviation of 0.670. This demonstrated that mobile banking has a good service

quality since it has made respondents feel flexible in using it. The respondents also believe that mobile banking has good compatibility, stable and smooth operation whereby it generates a mean score of 3.98 and a standard deviation of 0.729. Next, mobile banking online customer service is effective and efficient with a mean score of 3.91 and a standard deviation of 0.807. Finally, respondents think that mobile banking has a good and fast response speed with a mean score of 3.82 and a standard deviation of 0.870.

4.4.3 Service Quality

Table 4.11: Descriptive Statistics Service Quality
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Mobile banking functions can fully meet the needs of daily business	300	1	5	4.12	.660
I am satisfied with investment business service offered in the mobile banking app	300	1	5	3.95	.757
I am satisfied with debit card business service offered in the mobile banking app	300	1	5	4.12	.672
I am satisfied with the diversity of business that can be settled by using mobile banking	300	1	5	4.13	.657
The service price is affordable and in line with the quality of service offered	300	1	5	4.07	.728
Valid N (listwise)	300				
Average Mean				4.08	

Table 4.11 shows that question 4 had the highest mean score of 4.13, with a standard deviation of 0.657. This demonstrated that diversified service offered by

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mobile banking increases the number of utilizations by IPTA students. Next, both question 1 and 3 recorded a mean score of 4.12 and a standard deviation of 0.660 and 0.672 respectively. This illustrates that mobile banking can fulfil the needs of its customer’s daily business such as debit card business service.

Besides, the service fee of mobile banking is reasonable and affordable for customers to pay since it is worth the service provided, with a mean score of 4.07 and a standard deviation of 0.728. Lastly, respondents think that mobile banking also offered a good investment business service since it generates a result of mean score with 3.95 and a standard deviation of 0.757. Thus, this shows that IPTA students agreed that mobile banking is also capable of aiding and providing its users or customers with investment services.

4.4.4 Security Assurance

Table 4.12: Descriptive Statistics Security Assurance
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Mobile banking is of high security, which can ensure the security of account and funds	300	1	5	3.97	.760
The transaction process and data are transparent and traceable	300	1	5	4.07	.675
I trust in the ability of a mobile banking to protect my privacy	300	1	5	3.95	.835
I am not worried about the security of a mobile banking	300	1	5	3.53	1.137

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I believe that using mobile banking is financially secure	300	1	5	3.94	.801
Valid N (listwise)	300				
Average Mean				3.90	

Table 4.12 shows that question 2 had the highest mean score of 4.07, with a standard deviation of 0.675. This demonstrated that mobile banking ensures the transaction made by its users is safe and easy to trace if any uncertainty happens. Next, the respondents believe that mobile banking provides them with a high level of protection in terms of their account and funds whereby the mean score for this question is 3.97 and a standard deviation of 0.760. Moreover, the mean score for question 3 is 3.95 and a standard deviation of 0.835. This shows that our respondents have a better trust in the protection of their privacy in the utilization of mobile banking. Most of the respondents believe that mobile banking establishment could secure their financial information whereby the outcome of a mean score for question 5 is 3.94 and a standard deviation of 0.801. Lastly, respondents believe that they will not need to worry about the safety and security of a mobile banking and ensure that mobile banking provide them with the best security assurance whereby the result of a mean is 3.53 and standard deviation of 1.137.

4.4.5 Interface Design

Table 4.13: Descriptive Statistics Interface Design

	N	Minimum	Maximum	Mean	Std. Deviation
The mobile banking interface is simple, and it is easy to be used	300	1	5	4.13	.652

The interface design of mobile banking application is of good appearance	300	1	5	4.15	.678
The navigation design is easy to find out various functions	300	1	5	4.17	.657
Valid N (listwise)	300				
Average Mean				4.15	

Table 4.13 shows that question 3 had the highest mean score of 4.17, with a standard deviation of 0.657. This demonstrated that respondents find it easy to navigate functions in mobile banking and feel the ease of use. Next, respondents think that the interface design is suitable, and appropriate to be used whereby it generates a mean score of 4.15 and a standard deviation of 0.678. Finally, respondents also believe and think that mobile banking interface is simple to understand that it led to the ease of use of mobile banking whereby it generates a mean score of 4.13 and a standard deviation of 0.652.

4.5 Normality Test

Table 4.14: Normality Test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
MeanLI	.139	300	.000	.928	300	.000
MeanSQ	.139	300	.000	.951	300	.000
MeanSRQ	.186	300	.000	.923	300	.000
MeanSA	.137	300	.000	.951	300	.000
MeanID	.233	300	.000	.865	300	.000

a. Lilliefors Significance Correction

According to the table 4.14, we recode the name for all variables into simple abbreviation. The MeanLI refers to mean for loyalty intention while MeanSQ refers to

the mean of system quality. Next, MeanSRQ refers to the mean for service quality and MeanSA refers to the mean for security assurance. Lastly, MeanID refers to the mean for interface design.

The table above shows the findings of two well-known normality tests: the Shapiro-Wilk Test and the Kolmogorov-Smirnov Test. The Shapiro-Wilk test can handle sample sizes of up to 2000, however it works best with small samples (50). To determine normality in the numerical data, we employed the Shapiro-Wilk test. The table above demonstrates that the results for the dependent and independent variables are not normal. This is because data is considered normal if the Sig. Shapiro-Wilk Test value is greater than 0.05.

According to Habibzadeh (2023), a number less than 0.05 indicates that the data deviates significantly from a normal distribution. The results demonstrate that all of the dependent and independent variables are less than 0.05. The reason why the data for these questions is out of the ordinary is that all IPTA students are using mobile banking but do not necessarily want to stay loyal in using mobile banking and certainly accept the service provided by mobile banking.

4.6 Hypotheses Testing

In this section of our research, we will conclude regarding the hypothesis between all variables that involves or used in our study. Generally, hypothesis testing is the process of assuming the strength of evidence from a sample and providing a framework for making population judgments. In other words, it is a method for determining how accurate the results of a small sample study are when extrapolated to the wider population from which the sample was drawn.

In generating the hypothesis between dependent variable and independent variables, researcher need to define either the result of the data from normality test is

normal or abnormal. If the data is normal, a researcher is needed to apply the ³⁷ Pearson Correlation Analysis to calculate the strength and connection of the variable. Meanwhile, if the data is abnormal, a researcher is needed to use the Spearman ¹⁰⁹ Correlation Analysis to verify the strength and relationship of the variables.

Since the normality test showed that the data is not normal, thus, this study use Spearman Correlation Analysis to determine the strength of the relationship for all variables. The Spearman Correlation Coefficient is used to calculate the strength of relationship between loyalty intention, system quality, service quality, security assurance and interface design. ¹ In this section, the mediator is used as a dependent variable to assess the relationship. This Spearman Correlation Coefficient can statistically represent the path and intensity of the linear link between IVs and DVs.

The general rules of thumb for determining the correlation coefficient are shown in table 4.15. If the relationship proved significant, researchers should consider if the strength of the correlation is acceptable. Spearman Correlation Coefficient analysis was important because ¹ it can quantify the strength of a linear interaction between an independent and dependent variable.

Therefore, hypothesis testing suggests that the hypothesis ⁷² will be accepted if p-value is less than 0.05, (p-value < 0.05).

¹³ **Table 4.15:** The Size of Correlation Coefficient

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

Source: (Mukaka, 2012)

4.6.1 The Relationship between Loyalty Intention and System Quality

Table 4.16: Result the Relationship between Loyalty Intention and System Quality

Correlations			MeanLI	MeanSQ
Spearman's rho	MeanLI	Correlation Coefficient	1.000	.626**
		Sig. (1-tailed)	.	.000
		N	300	300
		MeanSQ	Correlation Coefficient	.626**
		Sig. (1-tailed)	.000	.
		N	300	300

** . Correlation is significant at the 0.01 level (1-tailed).

Based on the result Table 4.16, the p-value for the relationship between loyalty intention and system quality is equal to 0.000 which is less than 0.05 and the correlation value, r is equal to 0.626. A Spearman product-moment correlation coefficient is computed to judge the relationship between loyalty intention and system quality. Based on the result, there is a significant and moderate positive correlation between the two variables, ($r = 0.626$, $n = 300$, $p = 0.000$). There was statistically significant correlation between loyalty intention and system quality. It means that a good system quality will increase loyalty intention.

4.6.2 The Relationship between Loyalty Intention and Service Quality

Table 4.17: Result the Relationship between Loyalty Intention and Service Quality

Correlations			MeanLI	MeanSRQ
Spearman's rho	MeanLI	Correlation Coefficient	1.000	.637**
		Sig. (1-tailed)	.	.000
		N	300	300
		MeanSRQ	Correlation Coefficient	.637**
		Sig. (1-tailed)	.000	.
		N	300	300

** . Correlation is significant at the 0.01 level (1-tailed).

Based on the result Table 4.17, the p-value for the relationship between loyalty intention and service quality is equal to 0.000 which is less than 0.05 and the correlation value, r is equal to 0.637. A Spearman product-moment correlation coefficient is computed to assess the relationship between loyalty intention and service quality. There is a significant and moderate positive correlation between the two variables, ($r = 0.637$, $n = 300$, $p = 0.000$). Thus, it indicates that when service quality increase, the customer's loyalty will also increase.

4.6.3 The Relationship between Loyalty Intention and Security Assurance

Table 4.18: Result the Relationship between Loyalty Intention and Security Assurance

Correlations			MeanLI	MeanSA
Spearman's rho	MeanLI	Correlation Coefficient	1.000	.477**
		Sig. (1-tailed)	.	.000
		N	300	300
MeanSA	MeanSA	Correlation Coefficient	.477**	1.000
		Sig. (1-tailed)	.000	.
		N	300	300

** . Correlation is significant at the 0.01 level (1-tailed).

Based on the result Table 4.18, the p-value for the relationship between loyalty intention and security assurance is equal to 0.000 which is less than 0.05 and the correlation value, r is equal to 0.477. A Spearman product-moment correlation coefficient is computed to assess the relationship between loyalty intention and security assurance. There is a significant positive correlation between the two variables, ($r = 0.477$, $n = 300$, $p = 0.000$). However, the strength is low. Thus, it can be illustrated that when security assurance increase, the loyalty intention of customers will also increase.

4.6.4 The Relationship between Loyalty Intention and Interface Design

Table 4.19: Result the Relationship between Loyalty Intention and Interface Design

Correlations			MeanLI	MeanID
Spearman's rho	MeanLI	Correlation Coefficient	1.000	.613**
		Sig. (1-tailed)	.	.000
		N	300	300
MeanID	MeanLI	Correlation Coefficient	.613**	1.000
		Sig. (1-tailed)	.000	.
		N	300	300

** . Correlation is significant at the 0.01 level (1-tailed).

Based on the result Table 4.19, the p-value for the relationship between loyalty intention and interface design is equal to 0.000 which is less than 0.05 and the correlation value, r is equal to 0.613. A Spearman product-moment correlation coefficient is computed to assess the relationship between loyalty intention and interface design. There is a significant and moderate positive correlation between the two variables, (r = 0.613, n = 300, p = 0.000). Therefore, it indicates that when interface design increase, the customer's loyalty will also increase.

4.7 Conclusion

After analysing the interactions between all of the variables, the researchers found that the study's two ideas were valid. For loyalty intension, the Pearson correlation coefficients between the independent variables and the dependent variable are 0.626 0.637, 0.477 and 0.613 for system quality, service quality, security assurance and interface design of mobile banking respectively. The correlation relationship between variables in this study is both positive and negative, indicating that the dependent and independent variables are related or not related and have an effect on one another. For example, all independent variables in this study have a positive association

with the dependent variable since they are strongly related. Cronbach's alpha was used to assess the questionnaire's safety and relevance to the study. The questionnaire's validity was established utilizing a small sample size in this study.

4.8 Summary of Hypothesis

Table 4.20: Summary of Hypothesis

Hypothesis	Relationship
The Relationship between Loyalty Intention and System Quality	Supported
The Relationship between Loyalty Intention and Service Quality	Supported
The Relationship between Loyalty Intention and Security Assurance	Supported
The Relationship between Loyalty Intention and Interface Design	Supported

5.1 Introduction

Following the results of Chapter 4's analysis, the outline of the descriptive analysis will be examined further in this chapter. On the other hand, in this study, a comparison of overall of the study with the objective which was set from the beginning of the study is determined. Besides, there is a more intensive explanation in important findings regarding how the independent variables influence the dependent variables. Furthermore, this chapter will explore the limitations of this study and make suggestions for further research. An overall conclusion has been specified to get the apparent picture as well as to summaries the entire research study.

5.2 Key Findings

This study was carried out to identify the factors that influence IPTA students' loyalty intention to use mobile banking in Malaysia. The independent factors are system quality, service quality, security assurance, and interface design. In this study, a Google Forms questionnaire was used to collect all of the data from the respondents, who were IPTA students, in order to obtain the essential information. The researcher was able to collect 300 respondents utilizing the distributed questionnaire, as well as an online survey tool, which was then used to analyze data. This study's research framework provided a guide for the analysis, which was carried out using the data analysis software SPSS. Variability, reliability, frequency analysis, and descriptive analysis are all measured in data analysis.

In addition, a descriptive analysis was performed to access the demographic section data and identify the respondent's approach to each question. A reliability test was done to verify the questionnaires' relevance to the study participants. The normality test is used to compare the dependent and independent variables. This study employs

descriptive analysis since it is capable of precisely capturing the properties of a huge amount of data. It is also used to compute average, percentage, and frequency. Descriptive analysis makes it possible to identify the important independent variables for the dependent variables. Also, this study has four objectives to discuss in hypothesis. First, the relationship between system quality to loyalty intention towards mobile banking. Second, the relationship between service quality to loyalty intention towards mobile banking. Third, the relationship between system quality to security assurance towards mobile banking and fourth the relationship between system quality to interface design towards mobile banking.

5.3 Discussion

5.3.1 Hypothesis 1: The Relationship between Loyalty Intention and System

Quality

According to hypothesis 1, there was a moderate relationship between loyalty intention and system quality of mobile banking that influencing customer among IPTA students in Malaysia to stay loyal on it. Based on the results, there was a moderate and positive relationship with a correlation coefficient of 0.626 and a p-value of 0.000, which was less than the highly significant amount of 0.05. As a result, H1 was supported.

According to Liu & Arnett (2000) and DeLone & McLean (2003), users can be the ones who are able to assess the system quality of mobile banking by using their perception, which has been noted as the performance quality of an application system. The high level of system quality in mobile banking will lead customers to perceived ease of use in utilizing the system or application.

5.3.2 Hypothesis 2: The Relationship between Loyalty Intention and Service Quality

Quality

According to hypothesis 2, there was a moderate relationship between loyalty intention and service quality of mobile banking that influencing customer among IPTA students in Malaysia to stay loyal on it. According to the results, there was a moderate positive correlation with a correlation coefficient of 0.637 and a p-value of 0.000, which was less than the highly significant level of 0.05. As a result, H2 was supported.

Furthermore, Cronin Jr (2000), McDougall (2000), and Petrick (2002) contend that service quality is a critical and substantial factor of customer satisfaction and loyalty intentions. A bank's mobile banking service should be of high quality, providing customers with understandable features and speedy, accurate, and secure transactions to foster loyalty.

5.3.3 Hypothesis 3: The Relationship between Loyalty Intention and Security Assurance

Assurance

According to hypothesis 3, there was a low positive relationship between loyalty intention and security assurance of mobile banking. That influencing customer among IPTA students in Malaysia to stay loyal on it. According to the results, there was a low positive correlation with a correlation coefficient of 0.477 and a p-value of 0.000, which was less than 0.05. As a result, H3 was supported.

Based on the previous study, Koenig-Lewis et al., (2010) and Lee et al., (2007) perceived security assurance in mobile banking significantly impacts service quality and customer satisfaction. It ensures customers feel secure, preventing cash flow to non-authorized or wrong accounts. This security assurance eliminates the need to check transactions or pay extra for security. This ensures customers continue to use mobile banking without doubt or worry, fostering a positive perception of its usefulness

in the future.

5.3.4 Hypothesis 4: The Relationship between Loyalty Intention and Interface

Design.

According to hypothesis 4, there was a moderate positive relationship between loyalty intention and interface design of mobile banking that influencing customer among IPTA students in Malaysia. According to the results, there was a moderate positive correlation with a correlation coefficient of 0.613 and a p-value of 0.000, which was less than the highly significant level of 0.05. As a result, H4 was supported.

According to Everard (2005), outstanding interface design quality may improve the building of trust in the quality of the mobile banking system and the security assurance of mobile banking. As a result, customers are expected to make a solid first impression because the interface is the first thing they see. A well-designed mobile banking app can attract more customers and generate positive impressions based on the original information provided.

5.4 Implication of The Study

This study has significance for banks' client acquisition and retention tactics related to mobile banking. To boost client loyalty, decision makers and financial institutions should consider the functions of interface design, system quality, security assurance, and service quality when it comes to mobile banking applications. The results advise mobile banking application developers to create customer-focused concepts for their apps while taking the apps' adaptability, safety, and agility into account. Customers may trust their mobile banking if it offers a reliable, accurate, and secure system with quick response times and effective services (such payment and transaction processing, credit card services, etc.). In the meanwhile, to improve consumers' perception of security when utilizing mobile banking apps, developers must

also incorporate multi-level security measures. Banks must furnish consumers with well-documented policies and structural guarantees to enhance confidentiality and warn against any hazards when using mobile banking services for transactions, investments, and other purposes. The banks must raise the bar on service quality to help customers around the clock, as this would boost user happiness and encourage more use of mobile banking services.

5.5 Limitations of The Study

This analysis identifies a limitation. The first limitation relates to the questionnaire's comprehension and how answering the questions affected the accuracy and dependability of the data. Some responders could find it tough to read the question and give an honest response. In addition, respondents who did not read the questions marked their responses on the form at their discretion. This questionnaire does not require a lot of funds and energy because it uses google form online, but the researcher cannot ensure the person who answered the question. There are also some respondents who refuse to open the link that has been given. This causes the process of obtaining survey data to be slow and difficult. The accuracy of information is impacted by these assumptions.

Since the researcher is a student, the second barrier is time. Students conducting research must be very good time managers to complete their assignments, quizzes, presentations, final exams, and other assignments. After then, the researchers waited a very long time for respondents to finish the survey that was sent using Google Form. Since some people find it difficult to cooperate while answering questions online, it is quite tough to finish the data swiftly.

5.6 Recommendations / Suggestion for Future Research

According to the results of the study, among the future studies suggested is to swell the sample of respondents to the general public of mobile banking users such as professionals, academics and government employees. This is because this group is the early adopter before generation Z uses this mobile banking. They are more aware of the reasons why until today customers are loyal to this mobile banking in their banking transactions. The bank should be pleasant with students and other community members about the features and services provided, as well as convince them of the benefits of mobile banking in order to encourage them to utilize it more frequently.

Next, it is also advised that the sample size contain a varied range of educational qualifications among Malaysian university students. Students seeking diplomas, degrees, master's, and doctoral degrees, for example, may have a unique perspective that influences their intention to use mobile banking with loyalty. As a result, additional research should be conducted with individuals from varied educational backgrounds to help them do better in their studies of the mobile banking system.

Last but not least, researchers can continue the study of customer service in mobile banking in more depth. Emphasis on the responsiveness of customer service staff at the bank to its customers. Researchers can focus on how quickly and effectively customer support responds to queries, issues, or concerns raised by IPTA students. The data collection includes questions or scenarios in surveys that assess the timeliness of responses from customer support. Analyze whether prompt responses positively impact user satisfaction and loyalty.

Finally, future researchers can make a study about technological literacy and acceptance of mobile banking. Among the ways is to examine the role of technology in the acceptance of mobile banking services among university students in Malaysia that

influences their loyalty in the adoption of mobile banking services. This could involve assessing their understanding of mobile banking features, security measures, and the overall functionality of the technology. So, by this, the study can examine how students' comfort with technology and their digital skills affect their willingness to use and stay loyal to mobile banking platforms.

5.7 Overall Conclusion of The Study

In today's digital age, mobile banking is significantly useful, with numerous banks granting remarkable applications. This research focuses on the factors that influence loyalty towards the use of mobile banking among IPTA with 300 students from 20 universities in Malaysia. Based upon the UTAUT and TAM theory model developed, this research aims to study the factors that influence loyalty towards the use of mobile banking with 300 students among IPTA students. To guarantee that this study's objectives are reached, this study will measure customer loyalty as the dependent variable that is influenced by customer satisfaction and the independent variables used in this study were system quality, service quality, security assurance and interface design which will have an influence on the use of mobile banking. The proposed model successfully provides several noteworthy findings, such as students' knowledge of how mobile banking can keep clients loyal to its use.

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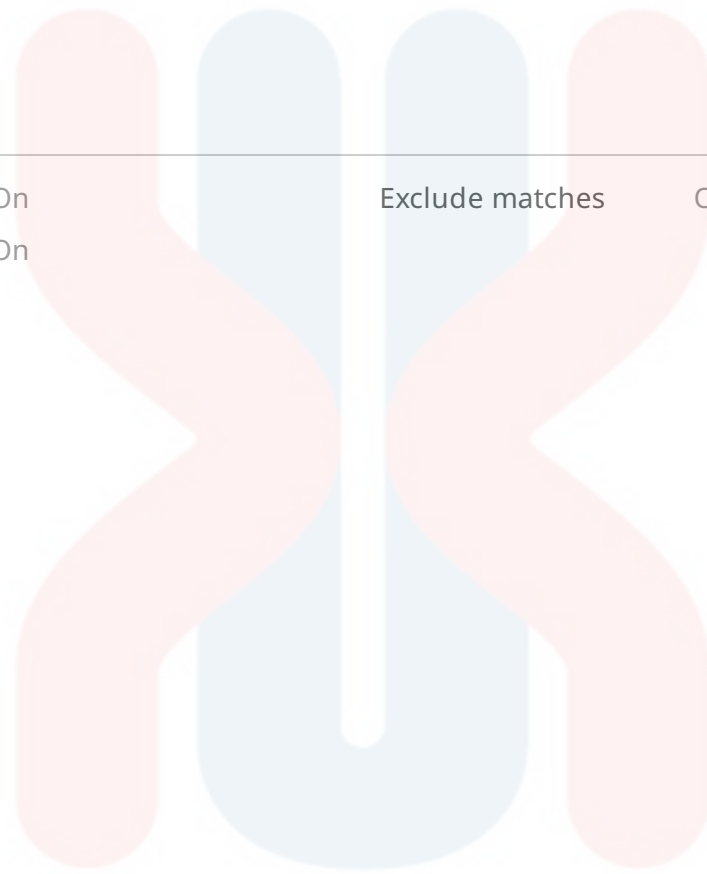
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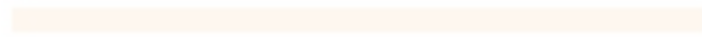
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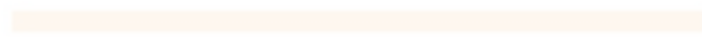
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