THE DETERMINANTS OF BEHAVIOURAL INTENTION TOWARDS USING MOBILE BANKING OF ISLAMIC BANKING INSTITUTIONS MODERATED BY DEMOGRAPHIC VARIABLES

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ABSTRACT

The purpose of this research is to examine the determinants of behavioural intention towards mobile banking adoption in Islamic banking institutions for Malaysian Muslim consumers. Malaysia is ranked first in the world in terms of Islamic banking assets based on the Global Islamic Economy Indicator Rank (2020). However, in comparison with Malaysian neighbours, mobile banking penetration rate is relatively low. In this case, to compete with the neighbouring countries, it is important for Malaysian Islamic banks to stay abreast with the latest technology. Besides the technology used in banking, factors such as customers' attitudes, subjective norms and perceptions towards the latest technology are crucial. This is because no matter how advanced a technology is, it is deemed impractical if many people are not able and interested in using it. In this quantitative study, a modified version of the Decomposed Theory of Planned Behaviour was used to explain the relationship between the determinants and customer behavioural intention to adopt mobile banking by examining the following constructs, namely attitude, perceived usefulness, perceived ease of use, lifestyle, Shariah compliance, personal innovativeness, subjective norm, media influence, internal influence, influence of religious scholars, perceived behavioural control, self-efficacy and facilitating condition. This study used an e-survey questionnaire distributed through social media platforms to collect data. The data was then analysed using structural equation modelling using SmartPLS. Based on the analysis of 479 samples, the results show that the tested independent variables are significant. Perceived behavioural control was found to be the most significant construct for behavioural intention, while lifestyle was found to be the most significant construct that affects attitude. On the other hand, innovativeness is the least significant predictor of attitude. Multi Group Analysis shows that demographic variables such as gender, income, age, region, and education level are significant moderators. The significance of Shariah-compliant aspect and the influence of religious scholars have demonstrated a strong and persistent religious (Islamic) application in the Malaysian banking system, hence questioning the theory of secularization. The high significance of perceived behavioural control is suggesting the top management in the industry to emphasize on user-friendliness of the mobile banking service.

Keyword: Mobile banking, Islamic banks, Shariah compliance, behavioural intention

ABSTRAK

Penyelidikan ini bertujuan mengkaji penentu niat tingkah laku terhadap penggunaan perbankan mudah alih di institusi perbankan Islam bagi pengguna Muslim di Malaysia. Menurut Petunjuk Ekonomi Islam Global (*Global Islamic Economy Indicator Rank*) (2020), Malaysia menduduki tempat pertama di dunia dari segi aset perbankan Islam. Namun, jika dibandingkan dengan negara-negara jiran Malaysia, kadar penembusan perbankan mudah alih adalah agak rendah. Dalam hal ini, bank-bank Islam di Malaysia perlu mengikuti arus teknologi terkini untuk bersaing dengan negara-negara jiran. Selain teknologi yang digunakan dalam perbankan, faktor-faktor seperti sikap pelanggan, norma subjektif dan persepsi terhadap teknologi terkini amat penting untuk diambil kira kerana teknologi terkini menjadi tidak praktikal jika ramai orang tidak berkemampuan dan berminat untuk menggunakannya. Penyelidikan kuantitatif ini menggunakan Teori Tingkah laku Terancang yang telah diuraikan (*Decomposed Theory of Planned Behaviour*) bagi menjelaskan hubungan antara penentu dan niat tingkah laku pelanggan dalam menggunakan perbankan mudah alih dengan mengkaji konstruk berikut iaitu sikap, tanggapan kebergunaan, tanggapan mudah guna, kepatuhan Shariah, gaya hidup, daya perubahan diri, norma subjektif, pengaruh luaran, pengaruh dalaman, pengaruh para ilmuan Islam, tanggapan kawalan tingkah laku, kecekapan diri dan keadaan memudahkan. Kajian ini menggunakan tinjauan atas talian (*e-survey*) yang diedarkan melalui platform media sosial untuk mengumpulkan data. Data kemudiannya dianalisis menggunakan pemodelan persamaan struktur menerusi SmartPLS. Berdasarkan kepada 479 sampel, dapatan analisis menunjukkan pemboleh ubah yang diuji adalah signifikan. Tanggapan kawalan tingkah laku merupakan konstruk paling signifikan dalam menentukan niat tingkah laku, manakala gaya hidup merupakan konstruk paling signifikan dalam mempengaruhi sikap. Sebaliknya, daya perubahan diri adalah yang paling kurang signifikan terhadap sikap. Analisa *Multi Group Analysis* menunjukkan pemboleh ubah demografik seperti jantina, pendapatan, umur, wilayah dan tahap pendidikan adalah moderator yang signifikan. Aspek kepatuhan Shariah yang signifikan dan pengaruh para ilmuan Islam menunjukkan pengaruh agama (Islam) yang kukuh dan berterusan dalam sistem perbankan di Malaysia, seterusnya mempersoalkan teori sekularisasi. Tanggapan kawalan tingkah laku yang sangat signifikan mencadangkan pengurusan atasan dalam industri untuk menekankan perkhidmatan perbankan mudah alih yang mesra pengguna.

Kata kunci: perbankan mudah alih, bank-bank Islam, kepatuhan Shariah, niat tingkah laku

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GLOSSARY OF TERMS

Attitude: How positive or negative an individual views a particular behaviour.

Behavioural intention: Subjective probability that he or she will engage in a given behaviour.

Gharar: Uncertainty or something whose consequences are hidden.

Maqasid: Objectives, goals or purposes.

Mobile banking: A service provided by a bank for conducting banking transactions using handheld mobile devices such as mobile phones, smartphones, tablets and phablets. The services that are included are checking account balance, fund transfers, mobile payments, Quick Response (QR) payments, payments for e-commerce and remittances

Quran: The Muslim Holy Book which represents a record of the exact words revealed by God to Prophet Muhammad and serves as the basis of every Muslim's faith and practice. It can also be written as the Koran or Qur'an.

Riba: Interest or usury.

Shariah: Islamic canonical law based on the teachings of the Quran and the traditions of the Prophet (hadith and sunnah), prescribing both religious and secular duties and sometimes retributive penalties for law breaking. It has generally been supplemented by legislation adapted to the conditions of the day, though the manner in which it should be applied in modern states is a subject of dispute between Muslim traditionalists and reformists.

Worldview: A particular philosophy of life or conception of the world.

CHAPTER ONE

1.0 INTRODUCTION

This thesis examines the behavioural intention of the customers of Islamic banking institutions towards mobile banking. Research on mobile baking is essential because Malaysia is a hub for Islamic banking yet lacking in mobile banking penetration. Mobile banking is an important aspect of Islamic banking to guarantee the Islamic banks in Malaysia have competitive edge over conventional and foreign banks. Studying the behavioural intention to adopt mobile banking will help Islamic banks to understand the determinants of the intention of mobile banking adoption. By understanding these determinants, Islamic banks in Malaysia can take appropriate steps to increase consumer's behavioural intention to adopt mobile banking thus reaping the benefits of mobile banking usage such as having efficient economic cycle, saving operational costs and implementing inclusion policies.

1.1 Background of the Study

Behavioural intention is the degree to which a person would perform certain behaviours resulting from conscious decision-making (Fishbein & Ajzen, 1975; Davis, 1989; Warsame & Ireri, 2016). Provided that there are no unforeseen events, a person is expected to act based on his or her intention (Ajzen, 1985). Ajzen (1985) also argued that action is controlled by intention, whereby behavioural intention is a significant element that determines action (Johari et al., 2018). Intention plays an important role in different cultures. For example, Jewish culture refers to intention as *shema*. A person does not receive credit for fulfilling a duty without *shema* (Eilberg-Schwartz, 2020). Meanwhile, intention is called *niyyah* in Arabic and Islamic culture emphasises the importance of *niyyah* when performing any behaviour or duty (Farouk, Md Idris & Saad, 2018). Taking into account the importance of intention in

different cultures and considering the setting of the study which is located in Malaysia, a Muslim-majority country, the present study focuses on the behavioural intention of the customers of Islamic banks towards mobile banking in Malaysia.

Mobile banking is a general term used to describe banking activities done through electronic devices such as tablet, phablet and mobile phone (Shaikh & Karjaluoto, 2014). In the 1980s, mobile banking was introduced using telephone banking where clients could perform certain transactions such as checking account balances and performing fund transfers (The Telegraph, 2015). Customers did not have to be physically at the bank to perform certain transfers and they could interact with automated voice and touch tone system. They had the choice to do voice recording and opted for banking services by pressing assigned numbers (Suganthi, 2001).

Later, there was short messaging service (SMS) banking in which SMS was sent to clients to confirm any large payment through credit cards or any withdrawals from the auto teller machines (ATM). Mobile banking is advantageous for security purpose especially to supplement computer-based internet banking whereby security codes, such as the transaction authentication code (TAC) for internet banking transactions, are sent through SMS for added security and basic convenience (Abd Rahman, Harun, & Yusof, 2013).

The evolution of mobile phone with internet technology has enabled the mobile phone to perform similar functions like the computer, thus leading to the development of mobile banking application (apps) (Morrison, 2010). Mobile banking apps allow users to access various banking products in addition to checking account balance, statement, security verification and account history. Other services include managing financial products such as superannuation, stopping cheque, account

transfer, overseas transfer, mobile phone's credit reload and mobile payment. For Islamic banks, mobile banking is one of the ways to compete with conventional banks (Amin, Abdul Hamid, Tanakinjal, & Lada, 2006).

Mobile banking allows effective interactions between a customer and a bank by means of mobile devices and personal digital assistant (Barnes & Corbitt, 2005). It is a system that fulfils banking transactions through handheld devices like mobile phone. Considering the development of mobile banking during the time of Barnes and Corbitt (2005) and Amin (2007), the definition given by them is rather limited to the earlier functions of mobile banking. Later literature defined mobile banking on the basis of the later addition of mobile banking features, namely e-commerce. Some literature defined mobile banking as an e-commerce application, in addition to the earlier functions of mobile banking such as checking balance and transferring fund (Al-jabri, 2012; Phiri & Mbengo, 2017; Baabdullah et al., 2019).

It is also important to be aware of different terms that may seem similar in definition but contain significant differences. For example, mobile banking and mobile payment sound similar but Mallat (2006) argued that these two things are essentially different. Mobile banking is a bank-based service specifically offered to bank customers while mobile payment is a payment service offered by various service providers such as bank, telecommunication provider, e-payment provider and social media to anyone. Although 99.4% of mobile payment service is dominated by banks, there are also non-bank mobile payments such as Vcash, Samsung Pay, Alipay, Visa Checkout and Touch N Go (Zhi Wei & Peng Tsu, 2018).

When compared to the current e-banking, mobile banking has extra advantages, first is ubiquity in which users can access it anytime and anywhere

(Zhou, 2012). Mobile banking is also cheaper and the cost of owning a smartphone can simply be a fraction of owning a computer. Second, a mobile phone is more convenient and practical instead of a bulkier laptop. Third, mobile banking does not require internet connection, for example Bank Islam Malaysia Berhad (BIMB) TAP Mobile Banking-I (Cheah, Teo, Sim, Oon, & Tan, 2011). This feature of mobile banking is beneficial to reach out the remote areas that do not have mobile internet connection but a stable mobile phone connection is available.

Nonetheless, mobile banking is not without limitations, for instance foreign telegraphic transfer is still not possible for mobile banking apps in Malaysian banks. Mobile applications also frequently need updates to address software glitches or malicious hidden applications, better known as bugs, and sometimes after addressing one bug, another bug surfaces (He, Tian, & Shen, 2015). Despite the limitations of mobile banking, Malaysia's Islamic financial institutions still need to embrace it because the status "Shariah-compliant entity" alone is not enough to attract customers (Zouari & Abdelhadi, 2021). Islamic banking institutions must focus on the advantages rather than the disadvantages. Malaysia is a Muslim-majority nation with Islam as the religion of federation, therefore the development of Islamic banking institutions is of utmost importance.

The idea of Islamization of institutions was first coined when Ungku Aziz in *Rencana-rencana Ekonomi dan Kemiskinan* (Articles on Economics and Poverty) delivered a working paper entitled "Pilgrim Economy Improvement Plan" which explained about Islamic principles in financial practice (Khaliq, Mustafa Omar, & Dzuljastri, 2012) and was later materialised into the incorporation of Tabung Haji in 1962 to enable the Muslims to save their money to perform pilgrimage without the presence of usury or *riba* (Khaliq, Mustafa Omar & Dzuljastri, 2012;

Borhannuddin, 2015). Decades later, Bank Islam Malaysia Berhad (BIMB) was formed in 1983 as the first Islamic, Shariah-compliant bank in Malaysia (Haque, Osman, & Ismail, 2009). In 1993, interest-free banking scheme was introduced to conventional banks enabling them to offer Islamic banking and financing facilities via Islamic windows (Ariff, 2017). In 2002, the Malaysian banking industry witnessed the formation of full-fledged Islamic subsidiaries (Mohamad, Mohamad Sori, & Mohd Rashid, 2016).

Since then, there has been a constant growth in Islamic banking sector. In terms of market share, in 2007 Malaysia's Islamic banking deposits were 7.54% and by 2020 the market share had grown tremendously to 37%. The idea of Islamisation was not limited to banking institutions. The advancement of mass media has given access to the Malaysian public the voices of the religious via mainstream and social media. In mainstream media there are Islamic channels that air Islamic contents that aims to educate, unify, and entertain through high quality programs that are in compliance with Islamic principles (Mohamed & Tengku Mohd Azzman, 2020). Television programs such as "Imam Muda" and "Tanyalah Ustaz" are prime examples of television that are not only educational and entertaining, but also a platform for religious scholars to convey their message of *daqwah*. Islamic religious scholars are people who has studied the Islamic scriptures, or part thereof, in depth (Kramer-roy, 2009).

1.2 Problem Statement

Malaysia is at the forefront of Islamic banking. Table 1.1 shows that in 2020, Malaysia owned the third largest amount of Islamic banking assets after Saudi Arabia and the largest amount of Islamic banking assets in South East Asia according

Table 1.1
Global Market Share of Islamic Banking

Country	Market Share
Iran	28.6%
Saudi Arabia	24.9%
Malaysia	11.1%
UAE	8.7%
Kuwait	6.3%
Qatar	6.1%
Turkey	2.6%
Indonesia	2%

Source: Islamic Financial Services Industry Stability Report 2020

to Islamic Financial Services Industry Report (IFSB, 2020). Dinar Standard (2020) stated that Malaysia is ranked first for Global Islamic Economy Indicator Rank (GIEI). GIEI is a comprehensive indicator in a multi-trillion dollar global halal economy which includes halal food, Islamic finance, Muslim-friendly travel, fashion, pharmaceutical, cosmetics, media and recreation (Table 1.2). Malaysia leads most of the indicators. In 2007, in terms of deposit, the market share of Islamic banking was 7.54% and progressed every year, reaching 37% in 2020 (Shen, 2017; Chew, 2020, Tjitra & Al Natoor, 2021). Table 1.2 illustrates a steady growth for Islamic banking market share in Malaysia.

Table 1.2
GIEI Scores and its Breakdowns for Top 15 Countries

Country	GIEI	Halal food	Islamic finance	Muslim travel	Muslim fashion	Pharma and cosmetics	Media and recreation
1.Malaysia	290.2	209.8	389.0	98.3	43.7	80.2	59.9
2. Saudi Arabia	155.1	51.1	234.2	36.8	22.1	33.4	34.7
3. UAE	133.0	104.4	142.5	78.3	235.6	72.1	125.3
4. Indonesia	91.2	71.5	111.6	45.3	57.9	47.5	43.6
5. Jordan	88.1	39.6	124.6	43.3	18.5	39.1	31.6
6. Bahrain	86.9	42.2	121.9	31.9	16.7	33.5	42.3
7. Kuwait	73.3	42.2	99.2	27.1	17.5	33.3	40.8
8. Pakistan	70.9	54.7	91.1	23.6	30.6	32.5	12.9
9. Iran	64.0	60.5	74.0	28.8	33.5	55.9	26.6
10. Qatar	63.1	44.3	80.1	36.7	20.3	32.1	40.2
11. Oman	60.0	47.1	73.4	33.2	28.7	33.5	35.3
12. Turkey	55.9	70.7	49.9	62.7	75.1	43.3	34.6
13. Nigeria	53.1	20.7	76.6	14.1	19.8	21.6	16.7
14. Sri Lanka	49.2	27.3	66.6	13.3	26.2	20.1	18.4
15. Singapore	47.4	125.2	16.9	42.6	30.6	62.9	46.8

Source: Dinar Standard 2020

With market share reaching 30%, Islamic banking is no longer a niche market (Damodaran, 2017) but it has become part of the mainstream banking that is available throughout the world (Saifi, 2017). Therefore, Islamic banks need to adapt to the latest technology, follow the global trend to attract customers and to remain competitive in the industry (Haider, Changchun, Akram, & Hussain, 2018). Mobile banking eliminates the time, cost, place and service quality barriers of conventional banking (Haider et al., 2018).

Table 1.3
Islamic Banking Market Share in Malaysia

Year	Market share percentage
2007	7.54%
2008	13.33%
2009	14.21%
2010	15.44%
2011	17.54%
2012	19.59%
2013	22.80%
2014	24.44%
2015	24.13%
2016	28%
2017	31.2%
2018	31%
2019	35%
2020	37%

Source: Ariff (2017), Shen (2017), MIFC (2018), Chew (2020), Tjitra and Al Natoor (2021)

In order to be at the forefront, Malaysian banks need to be aware of the latest trend in technology and innovation. The available technology is only useful when people are using it, thus in order to benefit from this, Malaysian consumers themselves must have a positive attitude in utilising the innovations because Malaysia already has the infrastructure. Nevertheless, Malaysians are still dependent on physical cash transaction rather than digital transaction (Jaafar, 2021). In 2020, 98.7% of Malaysians are smartphone users (MCMC, 2020) and despite smartphone being a preferred device for internet access, the take-up of mobile banking is rather low. It is in an imbalance in terms of figures between the penetration rate for mobile phones and the penetration of mobile banking subscriptions (BNM, 2020). Malaysia's Communication and Multimedia Commission (MCMC) reported the

penetration rate for mobile phone in 2018 was 130.2% but the mobile banking penetration rate was only 42% of Malaysia's total population (BNM, 2020).

Among the reasons of low penetration rate of mobile banking in Malaysia, particularly in the rural areas, is that there is a limited broadband accessibility which makes mobile banking slow and there is a high possibility of connection interruption which disrupts mobile banking transactions (Wong, Leong & Puah 2019). Besides, potential users are not knowledgeable and confident enough to use mobile banking when making payment (Moorthy et al., 2017). On top of that, most Malaysians in general choose to opt for traditional method over modern method, for example they prefer going for physical shopping rather than e-commerce or m-commerce and trust physical money rather than digital money via m-payment or mobile money (Nair, 2017; Jaafar, 2021). Religious tradition is also what Malaysians tend to adhere to which partly explains Malaysia's position in terms of Islamic banking relative to other countries. Other reasons include lack of awareness and knowledge and some Malaysians do not find it necessary to use mobile banking (Lai, 2014).

Table 1.4
Mobile Banking Penetration Rate Comparison between Countries 2019

Country	**Penetration Rate**
Sweden	71%
Ireland	54%
Poland	51%
Spain	51%
Netherlands	51%
UK	51%
Italy	41%
Germany	33%
US	48%
UAE	60%

Kuwait	27%
Qatar	19%
Saudi Arabia	57%
South Africa	68%
Kenya	57%
Nigeria	82%
Thailand	74%
Malaysia	42%
Singapore	64%
Indonesia	61%

Source: Iwamoto (2019), Global Web Index (2019), Benson (2019), APA Nairobi (2020)

Figure 1.1 shows that comparatively, Malaysia's nearest neighbour, Singapore, has 64% mobile banking penetration rate while Thailand has 74% and Indonesia has 61% (Global Web Index, 2019). Indonesia comprises more than 13,000 islands with ten main islands that are economically functional. Therefore, for banks to have branches to serve these islands would be costly. Its youth population is also relatively higher compared to Malaysia, Singapore and Australia (UNFPA, 2014). The latest generation or population is argued to be technologically savvy thus it is not surprising that they are the main contributing factor to the adoption of mobile banking (Ratten, 2012).

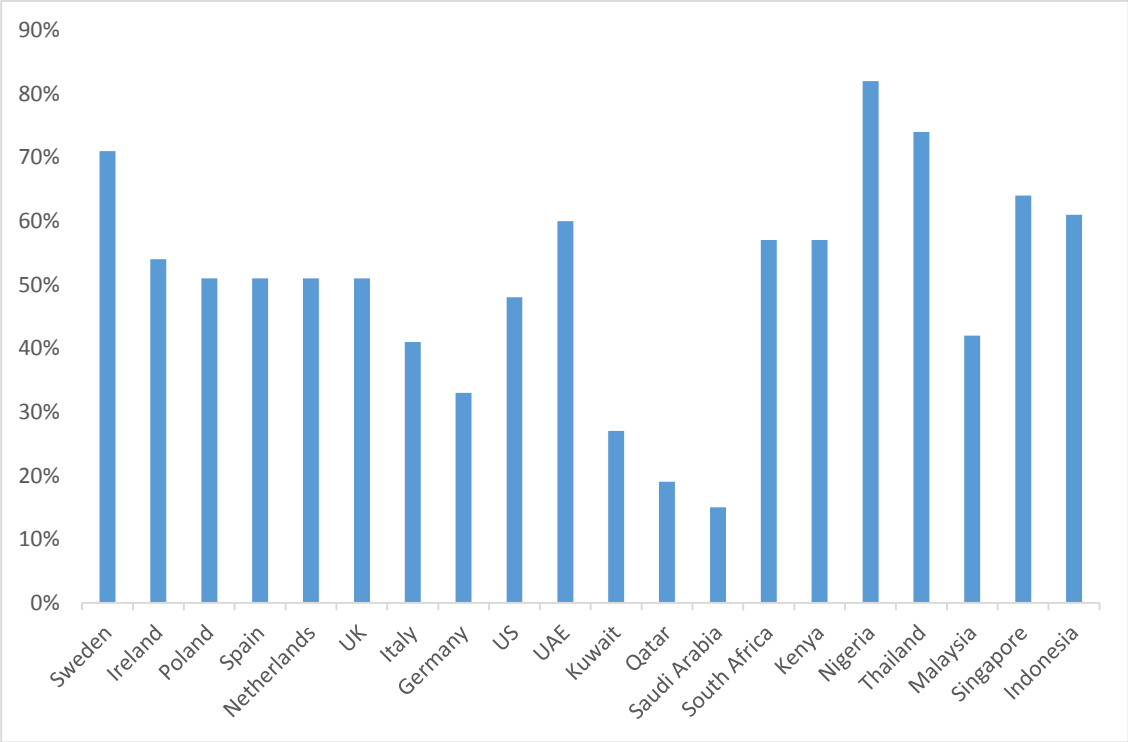


Figure 1.1
Mobile Banking Penetration Rate Comparison between Countries
Source: Iwamoto (2019), Global Web Index (2019), Benson (2019), APA Nairobi (2020)

Next, according to the Association of Southeast Asian Nation (ASEAN), mobile banking usage is high due to the high population of young people in those countries. They are more open to new things especially those related to technology and have the potential to grow, agile and less loyal to tradition (KPMG, 2015). This makes the young population prefer mobile banking rather than traditional mode of banking. Beyond ASEAN, the Middle East, Europe and the United States show different usage percentages at different contexts.

Mobile banking usage among EU countries is generally well above 30% for example, Sweden 71%, Ireland 54%, Poland 51%, Spain 51%, Netherlands 51%, UK 51%, Italy 41% and Germany 28% (Global Web Index, 2019). Sweden is a prime example of a country that is shifting away from physical cash to other alternatives, for example mobile banking. The Swedish Swish is a giant success among Europeans

having 4.1 million subscribers by 2015 (Gustavsson, 2016). The Dutch are not far behind either with their "iDEAL", with 54% usage rate as of 2016 (Bakker, 2016). *Een deal via internet* iDEAL, which is translated into "a deal through internet", is their main internet and mobile banking platform. Other than that, the Dutch also have another smartphone technology called near field communications technology (NFC). Mobile banking reduces operating costs, increases efficiency and banks can better understand their customers' spending habit (Deloitte, 2010).

Across the Atlantic, the Americans are not too far from the Europeans where 53% of Americans use mobile banking while 54% of Europeans use mobile banking (see Table 1.4) (EBF, 2019; Global Web Index, 2019). In addition, American Bankers Association (2016) suggested the rating for American mobile banking apps is high, indicating a lot of opportunities to grow. For American banks, mobile banking improves a customer's perceptions towards the banks, therefore encouraging customer loyalty cost reduction (Sumner, 2010; Gurdus, 2018).

Currently, the Middle East is still reliant on brick-and-mortar business; physical branches and call centres still dominate instead of mobile banking. In other words, its online banking has not reached maturity. Their mobile banking percentage of usage rarely exceeds one third in most countries. This also means they prioritise good interpersonal services. However, Abdulla bin Khaalaf Al Otaiba, Senior Managing Director of Global Retail and Commercial at National Bank of Abu Dhabi believed that technology has revolutionised human interaction (Rizvi, 2015). In the past, people used face-to-face interaction but nowadays people use social media and instant messaging apps through their smartphones, allowing banks in the Middle East to join this bandwagon (Rizvi, 2015). UAE stands at 60%, followed by 27% in Kuwait, 19% in Qatar and 57% in Saudi Arabia (Earnst & Young, 2016; Global Web

Index, 2019). The reasons given by Earnst and Young (2016) are lack of convenience and its simplicity.

The UAE, having the highest number of mobile banking users relative to neighbouring countries, is growing at a remarkable pace from 19% in 2014 and 34% in 2015 to 60% in 2019 (Rizvi, 2015; Global Web Index, 2019). In Saudi Arabia, one of the reasons for its low percentage is due to the late introduction of mobile phone which was in 1995 (Sohail & Al-Jabri, 2014). Nevertheless, sources from Saudi Arabia by Sohail and Al-Jabri (2014) indicated that 90% of bill payments are done through the internet, indicating that the Saudis in general can afford computers and prefer to use computers instead of mobile phone, in comparison with sub-Saharan Africans who cannot afford computers, therefore opt using affordable smartphone.

These sub-Saharan African countries also recorded a significant amount of usage relative to the Middle East, for instance South Africa 68%, Kenya 57% and Nigeria 82% (KPMG, 2015; Global Web Index, 2019; Siano, Raimi, Palazzo, & Panait, 2020). In South Africa, mobile banking is a necessary tool for inclusion policy as many people are unable to get access to banking because of the poor branch banking services (Brazzell, 2016;Avaya, 2017). In Kenya, the M-pesa is one of the most widely used mobile banking facilities. Ndung (2018) said this is because of its ability to include the unbanked population of Kenya and Tanzania and to help facilitate transactions among micro-businesses. Other reasons include the state of the infrastructure in this part of the world where the roads are unreliable and the threats of militias and underdeveloped banking industry make mobile banking even more appealing (Popper, 2015). Meanwhile, mobile banking in Nigeria has certainly provided businesses and individuals easy access to financial transactions such as saving, fund transfer, stock market and trading (Siano et al., 2020). Furthermore, for

African banks, mobile banking has significantly reduced transaction costs and increased profit (Porteous, 2006;Harelimana, 2017; Okon, 2018).

From the previous comparison of mobile banking in other countries, the low mobile banking penetration rate in Malaysia needs to be addressed especially since the country's neighbours have relatively higher mobile banking penetration, in addition to other countries like Sweden, Kenya and the United States. If Malaysia continues having low mobile banking penetration, it will miss out the ripple effects[1] caused by mobile banking (Balan & Pal, 2020). Mobile banking can create a good economic cycle and it is worth examining the elements of economic effects. It is still a necessity although it is not guaranteed to increase bank profit (Gupta, Raychaudhuri, & Haldar, 2018).

The implementation of mobile banking has first, increased income especially for rural dwellers. In Kenya, due to its hand-held mobility, it enhances financial inclusion by enabling the out-of-reach potential customers to be reachable through good mobile phone reception. Financial inclusion increases per capita income which can be up to 14% (Beck, 2015). In Malaysia, the increased usage of mobile banking has helped small- and medium-sized enterprises, which is one of Malaysia's inclusion policy (MIFC, 2020). Second, mobile banking improves the efficiency of daily lives, for example parents can quickly transfer money to their children for school fees or allowances which is a common practice in Malaysia. Likewise, children working in the urban areas can easily financially assist their parents via mobile banking transfer (Frankenberg, Lillard, & Willis, 2018).

[1] The intended and unintended effect of using mobile banking.

Third, Zhi Wei and Peng Tsu (2018) reported that electronic transactions, which include mobile banking, provide better tax returns for the government because cash transactions can be easier to manipulate for tax evasion. Mobile banking transactions, however, are all recorded, therefore the government can utilise these records for tax purposes. Fourth, mobile banking saves the costs for Malaysian banks' brick-and-mortar business operations such as employee salary, rent and other miscellaneous expenses. In African countries like Rwanda, mobile banking generates revenues through commission and bank charges for mobile banking transactions (Harelimana, 2017). Finally, financial aid can be distributed more effectively, for example, in conjunction of Sustainable Development Goals (SDG), Malaysian government adopts mobile banking for zakat distribution other than using the traditional method of cash payment (Herbert, 2011; Yahaya & Ahmad, 2018).

Based on the comparisons discussed, mobile banking has certainly brought benefits to various different segments within a society especially to the banks themselves. Banks are able to save the costs of running physical business and are able to generate more revenues because on average, a branch customer has only 1.3 product holding while a mobile banking customer has nearly double product holding which is 2.3 (Wilcox, 2016). It is also more effective and less time-consuming for the customers to perform any banking transactions anytime and anywhere especially among the rural dwellers (Ndlovu & Ndlovu, 2013). Next, the poor who are "unbanked" can also enjoy the advantages of having an account. At present, the unbanked Malaysians are about 8% of the Malaysian population, however by 2020 it is expected to reduce to 5% (Bank Negara Malaysia, 2016; Damodaran, 2017).

Mobile banking has many advantages and benefits to both parties, bank and customer, and this is why Islamic banks adopt mobile banking. Internet-based

banking is permissible in Islam (Zainul, Osman, & Mazlan, 2004; Amin, 2017). Almost all services provided by internet banking are also available in mobile banking. The Shariah-compliant elements in saving, investment and loan payment are all dealt by the bank with Islamic principles of *qard, mudarabah* and *tawarruq* respectively. However, there are some weaknesses in using mobile banking namely the screen is smaller than a proper computer. Secondly, when it comes to using mobile banking as a payment method for e-commerce, there are several issues that need to be addressed especially with regards to uncertainty or *gharar*. It refers to any unclear or uncertain transactions due to inadequate information of the subject matter in terms of the outcome of the contract and the nature of business of the transactions (Uddin, 2015). Furthermore, with limited view through the smartphone screen, the consumer's view of the products that they intend to buy becomes more unclear in terms of the actual dimension and size. Zainul et al. (2004) argued that some advertisers have the tendency to cover up, exaggerate and exploit factual information to attract customers who solely rely on information available in the internet, let alone through smartphones.

The gap between mobile phone subscription and mobile banking penetration in Malaysia also raises a few issues. Among the more popular is a social cognitive theory whereby people's behaviour is determined by their environment. Presently, based on the data and discussions about mobile banking penetration worldwide, Malaysia obviously does not follow the trend of its neighbours. However, Malaysia's mobile banking penetration figures do have some similarities with some Arab nations namely they are a Muslim-majority country and oil and gas production forms the major part of its economy. Therefore, religious element can be used better to explain

about mobile banking penetration. In fact, this matter has been insinuated by Amin and Ramayah (2010) in the context of SMS banking.

1.3 Research Gaps

Before discussing the research gap, it is important to understand the original model of the decomposed theory of planned behaviour (DTPB) depicted in Figure 1.2 and the proposed model depicted in Figure 1.3 look like. The DTPB can be traced back to older theories, namely the theory of reasoned actions (TRA), the theory of planned behaviour (TPB) and the technology acceptance model (TAM) which are the intention-based theories that examine the behavioural intentions of people (Ajzen, 2011).

As the earliest theory, the TRA assumes that human behaviour is generally sensible which means that prior to any action, people consider the available information either implicitly or explicitly and take into consideration the consequences of an action. The TRA postulates that actual behaviour or action is predicated by behavioural intentions. People's behavioural intention is a function of attitude and subjective norm. Attitude is a personal evaluation of a behaviour whether it is positive or negative while subjective norm is a personal perception of what others think about performing certain behaviours (Ajzen, 1985).

There are also many factors that can obstruct the intention-behaviour relation; *inter al* these are time, individual differences, willingness, emotions, compulsions and opportunities. Most of these factors are beyond personal control. Therefore, one more dimension is added to TRA which is perceived behavioural control, affecting both behavioural intentions and actual behaviour, leading to the theory being renamed as the theory of planned behaviour (TPB) (Ajzen, 1985, 1991).

In addition to the TPB, there is another widely used model derived from TRA which is the technology acceptance model (TAM). It is was initially designed to understand people's behaviour towards new technologies in light of the TRA and the motivation of this model was that the potential user i.e. office workers had refused to utilize technology due to perceived lack of ability and perceived lack of usefulness (Davis, Bagozzi, & Warshaw, 1989). This kind of refusal defeats the very purpose of a technological innovation itself which is to increase performance. The TAM suggests that perceived usefulness and perceived ease of use are primary beliefs concerning computer acceptance. Perceived usefulness is the subjective probability that using technology will increase performance, while the latter is the extent to which someone is able to use technology without much effort.

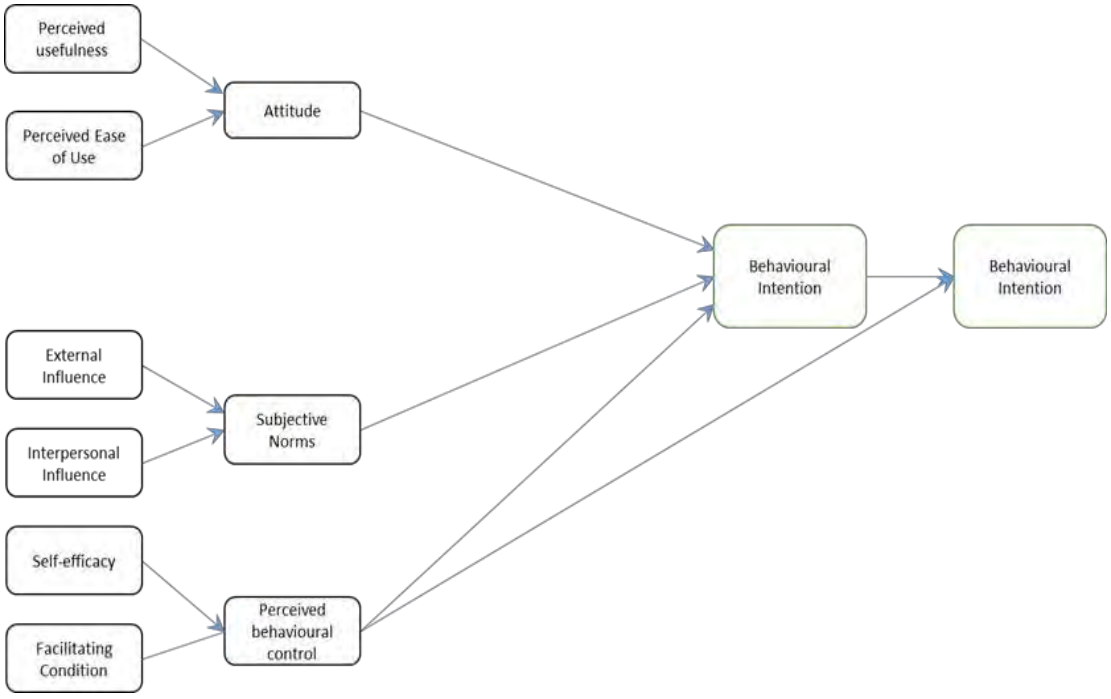


Figure 1.2
The Original Model of Decomposed Theory of Planned Behaviour
Source: Taylor and Todd (1995)

The decomposed theory of planned behaviour (DTPB) is a combination of previous models; all of which are the TRA adaptations. This combination allows researchers to have a greater understanding of human behaviour towards technology (Taylor & Todd, 1995). It also gives the benefits of TAM with the influence of others and perceived behavioural controls that have been argued to have significance towards behaviour (Ajzen, 1991, 2011). The proposed model is a modified version of the DTPB introduced by Taylor and Todd (1995).

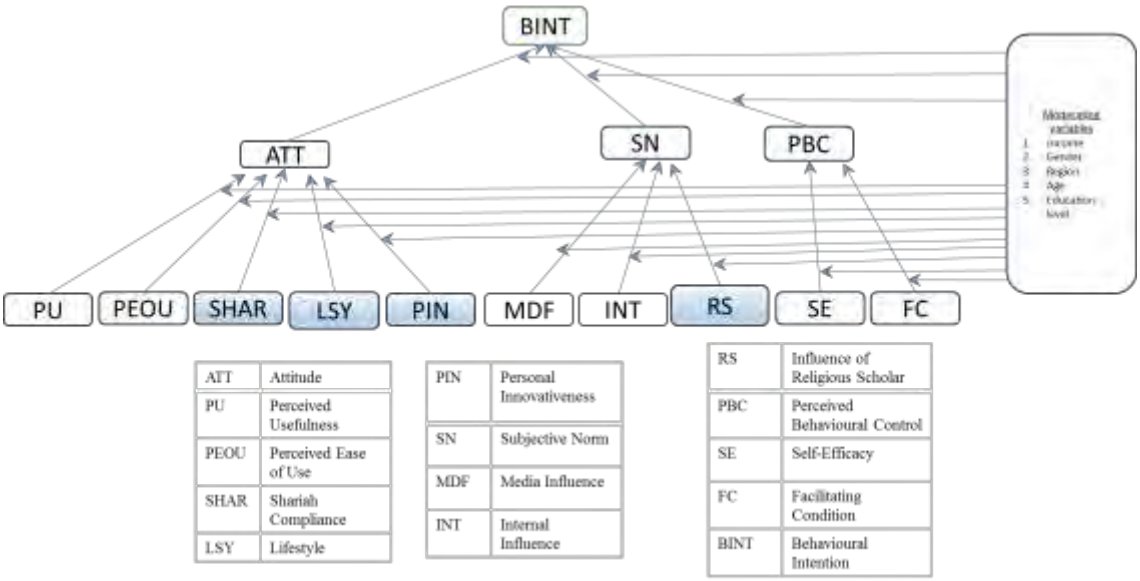


Figure 1.3
The Proposed DTPB Model for this Study

The first gap in the present study is the lack of Shariah-related construct used in DTPB model by previous studies covering the aspects of religiosity, religious obligation and Shariah compliance. Religious beliefs and practices can influence people's responses, therefore for the context of Technology Acceptance Model (TAM) which is a part of the DTPB, it can influence attitude (Butt & Aftab, 2013). Other studies, although were done in Muslim-majority countries, did not address the issue of Shariah compliance (Koksal, 2016; Jouda, Jarad, Obaid, Mdallalah, & Awaja, 2020; Mustafa & Mansour, 2020). Shariah-related variable is important in accordance to the needs stipulated in the *maqasid al-Shariah* concerning human needs in five different Islamic aspects namely religious salvation, physical life, knowledge, family and wealth. These aspects are more strict and specific compared to Maslow's (1943) hierarchy of needs. Shariah compliance is part of religious salvation that is beneficial in preserving one's wealth.

Another gap to be addressed is the influence of religious scholars. Ajzen (1985) discussed about referents in which a person would most likely perform a behaviour when important referents as perceived by the person believes the person should perform the behaviour. The referents could be somebody that can assert significance influence on a person's opinion e.g., a dignitary or a superior. For the present study, important referent is referred to religious scholars who are argued to have a strong influence on the subjective norm. Furthermore, the DTPB as proposed by Taylor and Todd (1995) provides the initial idea of the potential referent groups that might leave significant impact to one's decision-making process, which include subordinate, peer and superior. Before going any further, it is important to note that studies such as Gilani (2010) and Baazeem (2015) equate religious leaders as religious scholars. For some, religious scholars or leaders could be important referents, therefore those who are religious may take into account the influence of religious scholars and leaders when making decisions (Usman, 2015). A strong influence of religious scholars is undoubtedly substantial in making changes in people's views on public health such as organ donation and smoking behaviour (Ridho & Martha, 2020). Religious scholars are known to have a strong influence on people's opinions related to the halal industry and businesses (Khan, Azam & Arafat, 2019). Similarly for economic participation whereby Fauziah, Ramayah and Abdul Razak (2008) as well as Al Ma'soem (2019) postulated the influence of religious scholars. However, there is hardly any studies that delve into the influence of religious scholars in the context of mobile banking adoption among Islamic banks.

The next gap is personal innovativeness. Fundamentally, mobile banking is an innovation of the integration of banking services and mobile communication technology. Frimpong, Al-Shuridah, Wilson and Sarpong (2017) argued despite

mobile banking itself is an innovation, there has been a limited attention given to the role of innovativeness that may influence consumer attitude towards mobile banking; hence becoming the gap of this study that should be examined. Nevertheless, Agarwal and Prasad (1998) added personal innovativeness in the technology acceptance model (TAM) in order to explain the perception of innovation in the context of information technology.

Lifestyle has been studied in numerous contexts including medicine, psychology, sociology et cetera (Yu & Li, 2015). However, limited studies were found within the context of mobile banking, let alone mobile banking for Islamic banking institutions (Zhu, Wang, Yan & Wu, 2009; Al-Jabri, 2012; Yu & Li, 2015). Rogers (1995) argued that compatibility towards lifestyle is an important feature of an innovation and that the conformation of innovation towards users' lifestyle results in positive attitude and ultimately their intentions and behaviour (Zendehdel, Hj Paim & Osman, 2015).

In addition to the lack of shariah related constructs, there is also a lack of discussion on secularisation theory in the realm of Malaysia's banking industry. Since there are two religion-based variables i.e., shariah compliance and influence of religious scholars, discussion on secularisation can further explain the relevance of the proposed religion-based variable. Secularisation is a process of declining any religious influences, rules and practices in the society, institution and community values (Dobbelaere, 2009). Discussions on secularisation in Malaysia mostly focus on politics and law (Abdul Hamid & Ibrahim, 2017; Syed A. Rahman, 2019). Secularisation has a great influence on most European countries in many different ways. On the contrary, Malaysia is a country where religion plays an important role in all aspects of the society including banking institutions (Khiyar, 2012).

Other related studies that involve Islamic banking, such as Islamic finance, have used other measures to include the role of Shariah that started off as religious affiliations and other forms of religious commitment. For instance, Jaffar and Musa (2016) used religious obligation as a dimension, which comprises of a set of items that reflects Islamic religious obligations rather than a choice of high or low religious commitment as proposed by Sun, Goh, Fam, Xue, and Xue (2012). Jaffar and Musa (2016) refers religious obligations as Shariah compliancy confirmed that it has a significant relationship with attitude in the context of Islamic financing. Lee and Ullah (2011) and Mohd Thas Thaker, Khaliq and Mohd Thas Thaker (2016) also used Shariah-compliant Islamic banking towards the Shariah principle which, according to empirical findings, was the most important factor towards attitude.

In conclusion, research on the elements of Shariah compliance, personal innovativeness, lifestyle and influence of religious scholars in the context of mobile banking research are scarce. At best, most Shariah related variables are measured as religiosity or religious obligation, while a few look at Shariah compliance as an influence of the religious scholars. These aspects are studied in the contexts of economic participation and public health. On the other note, lifestyle is primarily studied in the contexts of medicine, psychology and sociology while personal innovativeness is mostly studied in the context of information technology. Both lifestyle and personal innovativeness are hardly present in the context of mobile banking in Islamic banking institutions. The secularisation argument is chiefly an occidental argument. Little is known about secularisation in the orient, let alone in a Muslim-majority, modern country like Malaysia.

1.4 Research Questions

Malaysia's position in Islamic banking and mobile banking highlights the need for conducting this research. Although Malaysia is considered among the leaders of Islamic banking based on the global market share, the country does lag behind in the case of mobile banking patronage. As one of the most important hubs for Islamic banking, Malaysia needs to be up-to-date with recent innovations, not just in terms of the technology itself, but people's behaviour towards it. This study seeks to examine the determining factors that encourage people to use mobile banking in Islamic banks by means of the DTPB framework.

Drawing upon the DTPB framework, the research questions begin with TPB which consists of the dependent variable behavioural intention and independent variables such as attitude, subjective norms and perceived behavioural control. The second research question consists of the variables related to TAM which are attitude, perceived usefulness and perceived ease of use. Additionally, since the setting is in Islamic banks, this study also includes Shariah compliance, perceived lifestyle and personal innovativeness. Under the determinants of subjective norm, in addition of external and internal influence, this study also proposed religious scholars and personal innovativeness in the DTPB framework. Lastly is the perceived behavioural control whereby its decomposed determinants are self-efficacy and facilitating conditions. Based on the previous discussion, the research questions are as follows:

Research Question 1: Do attitude, subjective norm and perceived behavioural control, influence the behavioural intention to adopt mobile banking via Islamic banking institutions?

Research Question 2: Do perceived usefulness, perceived ease of use, Shariah compliance, perceived lifestyle and personal innovativeness influence attitude to use mobile banking via Islamic banking institutions?

Research Question 3: Do media influence, internal influence and influence from religious scholars influence subjective norm to use mobile banking via Islamic banking institutions?

Research Question 4: Do self-efficacy and facilitating conditions the influence perceived behavioural control to use mobile banking via Islamic banking institutions?

Research Question 5: Do income, gender, age, region and education level moderate the relationship between behavioural intention, attitude, subjective norms, perceived behavioural control and its determinants?

1.5 Research Objectives

The main aim of this research is to test the DTPB model on the behavioural intention of the Malaysians' mobile banking usage in Islamic banking institutions. It intends to further develop the research on mobile banking adoption in an Islamic context by including the elements of Shariah compliance, lifestyle, personal innovativeness and influence of religious scholars in the proposed model in Malaysia. This is because Malaysia is a thriving Muslim-majority country and that strives to be a world-class hub for Islamic banking and finance. Accordingly, the objectives of this study are:

Research Objective 1: To investigate the relationships between attitudes, subjective norm, perceived behavioural control and behavioural intention to adopt mobile banking via Islamic banking institutions

Research Objective 2: To investigate the relationships between perceived usefulness, perceived ease of use, Shariah compliance, lifestyle, personal innovativeness and attitude to adopt mobile banking via Islamic banking institutions

Research Objective 3: To investigate the relationships between media influence, internal influence, influence from Shariah scholars and subjective norm to adopt mobile banking via Islamic banking institutions

Research Objective 4: To investigate the relationships between self-efficacy, facilitating conditions and perceived behavioural control to adopt mobile banking via Islamic banking institutions

Research Objective 5: To investigate whether income, gender, age, region, and education level moderate the relationship between behavioural intentions, attitude, subjective norms, perceived behavioural control to adopt mobile banking via Islamic banking institutions and its determinants

1.6 Scope

This study focuses on the population of Malaysian Muslims who own Islamic bank accounts in Malaysia in response to the importance of Islamic banking system globally over the last decades. The focus given on Malaysian Muslims as the research target is due to the asymmetry between Malaysia as a leader in Islamic banking but has one of the lower penetration rates in terms of mobile banking as explained in section 1.2. The reason for choosing Malaysian Muslims population is because there are at least two objectives of this study which specifically refer to the Muslims i.e., (i) the investigation of Shariah compliance and attitude and (ii) the influence of religious scholars and subjective norms, both of which in the context of Islamic banking institutions. Therefore, the key characteristics of the present sample

are Muslims that has an Islamic banking account. In addition, the banks in Malaysia set the minimum age of 18 years old as a mandatory requirement for an adult to open a bank account, applicable in most countries too. It means, at the age of 18, a person can make his or her own decisions as he or she is no longer dependent of the legal authority of parents or guardians.

1.7 Significance of the Research

This study seeks to enhance the body of knowledge in the field of mobile banking, Islamic banking and marketing from the perspectives of selected theories and real-life practices. The main contribution is the incorporation of religious, as in the concern of Shariah compliance, lifestyle, personal innovativeness and influence of religious scholars as the determinants in the study of people's behavioural intention towards mobile banking in Islamic banks.

This research also questions secularisation theory whereby the event of economic development is argued to reduce the influence of religion. Obvious practical contributions would be for the bank management at a strategic level can make better decisions on designing marketing strategies in developing mobile banking in the context of Islamic banking and make it more appealing to potential consumers.

1.8 Thesis Structure

This thesis comprises of five chapters together with the references and appendices. Chapter one consists of the background, the theory, both of which representing the context, to be followed with research problem, objectives, significance and the whole structure of the thesis.

Chapter two presents the theoretical models that are relevant for the context of mobile banking Islamic banking institutions. The chapter begins with the theoretical models that leads to the variables that are being examined. The variables, mainly the dependent variable is also discussed in light of Maqasid al-Shariah. Then the conceptual model is also presented, together with the hypotheses which include discussions on the moderating variables.

Chapter three is the methodology chapter that begins with the research philosophy that guides the direction of this research towards a quantitative, objective survey based research. This chapter gives details on how the sample was selected, how the data was collected and how the data is analysed. Additionally this chapter also presents how the questionnaire was designed and how it is validated

Chapter four presents the findings and analysis from the samples gathered. This chapter also presents how the data was screened so that it is fit for analysis, the descriptive statistics, the factor loadings, relationship between variables and the moderators

Chapter five discusses the findings in light of the previous studies as presented in the literature review. From the finding's discussion, this chapter also presents the theoretical and practical contributions, limitations as well future research. This chapter closes with the final conclusion.

1.9 Summary

The present chapter have presented the context of the thesis by describing the background of the current study in terms of Malaysia's position on mobile banking adoption and Malaysia's position in terms of Islamic banking that has led to the problem statement. From the problem statement, this chapter also presented the gaps,

research questions, which tallies with the research objectives. The research objectives is then followed by the scope and the significance of the research. The following chapter comprise of literature review.

CHAPTER TWO

2.0 LITERATURE REVIEW

This chapter provides a review of different concepts, measures and theories of the dependent variable which is the behavioural intention to use mobile banking in Islamic banks and a list of independent variables such as attitude, subjective norm and perceived behavioural control. Before discussing the variables, it is important to begin with the underpinning theories.

2.1 Underpinning Theory

The widely used theories in explaining attitude and behaviour in management sciences are theory of reasoned actions (TRA), theory of planned behaviour (TPB) and technology acceptance model (TAM). The base theory is actually the TRA but as this current research is on attitude and behaviour progresses, the other two theories come into being. All of these theories are also recognised as being successful in predicting and explaining behaviour various research areas such as sociology, mathematical sciences and natural sciences as long as they also deal with people's attitude and behaviour.

TRA forms a relationship between attitude, subjective norm, behavioural intention and behaviour (Ajzen & Fishbein, 1975). The basic principle of this theory is that personal behaviour is determined by a behavioural intention to perform the said behaviour. Therefore, behaviour intention is sequentially a function of attitude and subjective norm towards the behaviour (Fishbein & Ajzen, 1975). Next, a well-known extension of the TRA is the TPB that adds one variable to the original model (Ajzen, 1991). According to this theory, a person's action is determined by

behavioural intentions which are then influenced by an attitude towards the behaviour, subjective norm and additionally, perceived behaviour control.

The decomposed TRA and TPB are among the latest and most versatile models that can be applied to examine behavioural intentions. The dimension of attitude is often decomposed into perceived usefulness and perceived ease of use based on TAM. The rest of the decomposed TPB is the subjective norm with media influence and internal influence as its determinants. This perceived behavioural control has self-efficacy and facilitating conditions as its determinants.

Another theory that is relevant is secularisation theory. This theory is essentially about the decline of religion in every aspects of society in the advent of modernisation (Gorski, 2000; Shiner, 1967). What Shiner (1967) meant by this may be specific to the Western mould that began in Europe (Possamai, 2015). The Muslim societies, despite the popular belief and misconception about their freedom, can get along with modernity (Kamali, 2012). Some aspects namely Islamic banking and financial system are growing, not just in Muslim-majority countries like Malaysia but also in secular, Western countries (Khan & Bhatti, 2008). One way to explain this trend against the secularisation theory is by means of post-secular argument.

Post-secular argument of Islamic banking is about presenting a wider understanding of the rapid development of Islamic banking in secular countries, in which, in a way, paradoxical (Mohamad & Saravanamuttu, 2015). Nevertheless, it could also be argued that although these countries are secular, the majority of the population are Muslims. Malaysia for instance is neither secular nor Islamic (Syed A.

Rahman, 2019) but 60% of Malaysian population are Muslims. Therefore, the rapid development of Islamic banking is expected.

2.2 Dependent Variable

In most studies concerning the behavioural intention-based model, there are two categories of dependent variables, behavioural intention and actual behaviour. Both of these variables are closely related to each other insofar that some authors assume that intention assures actual behaviour (Wu, 2009). From the Islamic perspective, behaviours are determined by *niyyah* (intention) (Nawawi, Ibnu Daqiq, As-Sa'di, & Al-Uthaimin, 2012). Azman and Md. Habibur (2013), Mohamad Akram et al. (2013) and Farouk et al. (2018) stated that in Islam, intention is an important part of action and it must come before actual behaviour. Postulation regarding the importance of intention as a precedence of action is based on the sayings of the Prophet Muhammad PBUH, *"Actions are (judged) by motives/intentions (niyyah), so each man will have what he intended"* which comes from the commentary of Imam Nawawi's Forty Hadiths (Badi, 2016, p. 4) .

Most authors use behavioural intention on using mobile banking for their dependent variables rather than the actual usage (Armitage & Conner, 2001). This is expected because most studies that involve information systems do use behavioural intention rather than the actual behaviour itself (Lee et al., 2003). Ajzen (2011) mentioned that TPB is mainly concerned with behavioural intention. Teo, Tan, Cheah, Ooi, and Yew (2012), Sun et al. (2012), Thye Goh, Mohd Suki, and Fam (2014), Goh and Sun (2014) and Balabanoff (2014) are some of the many examples of studies concerning behaviour intentions.

Among the reasons for the use of behavioural intention are, first, the assumption that behavioural intention guarantees actual behaviour (Wu, 2009). In fact, from Islamic perspective, Azman and Md. Habibur (2013), Mohamad Akram et al. (2013) and Syamhudi (2014) stated that a behaviour is invalid if it is not preceded by intention. Second, most past research aimed at understanding human behaviour rather than predicting it (Ajzen, 1985). Third, it is sometimes difficult to measure actual behaviour (Liu & Fang, 2003). These reasons, however, have been largely criticised. Among the criticisms as highlighted by Wu (2009), is that evidences that behavioural intention guarantees actual behaviour is scarce. Secondly, the gap of time between behavioural intention and actual usage may not lead to action (Yang & Peterson, 2004). During this gap of time, there are many possibilities that may hinder possible action.

Despite all the criticisms, Armitage and Conner (2001) posited in their meta-analysis of 185 literature there is a substantial amount of literature supporting the appropriateness of the use of behavioural intention instead of actual behaviour in the TPB model. This is because the TPB predicts self-reported behaviour better than the observed behaviour. Pickett et al. (2012) implied that the model better predicts behavioural intention rather than actual behaviour. Another reason is that examining behavioural intention instead of actual behaviour may avoid problems associated with retrospective analysis (Fichman, 1992). One problem associated with retrospective analysis is the ambiguity; whether an adopter favours the use of a technology because of its perceived characteristics or as a result of the use of the technology itself.

Porteous (2007) did not clearly define mobile banking, implying that mobile banking involves simple activities with access to a range of financial service

products through mobile phones, while Donner and Tellez (2008) defined mobile banking as electronic applications that enable users to use their mobile phones to perform a range of financial transactions such as payment, fund transfer, insurance payment and other banking transactions.

In addition to all those functions, Sun et al. (2012) also included e-commerce as one of the functions that defines mobile banking. Pousttchi and Schurig (2004) defined mobile banking as a financial transaction service with electronic procedure in mobile electronic devices particularly those compatible with GSM/GPRS/3G with the exception of notebook and sub-notebook. A rather detailed and more updated definition was coined by Shaikh and Karjaluoto (2014), taking into account the dynamic market of mobile devices and its technological development. In other word, mobile banking is a service offered by a bank or a microfinance institute for conducting financial transactions using mobile devices like mobile phone, smartphone or tablet (Shaikh & Karjaluoto, 2014). Siano, Raimi, Palazzo and Panait (2020) defined mobile banking as the use of mobile devices to undertake virtual financial transactions, while Chawla and Joshi (2020) referred mobile banking as a system that allows customers to conduct financial transactions through mobile devices. Rehman and Shaik (2020) defined mobile banking as any forms of banking transaction done using mobile devices. Incorporating Islam in the present study of mobile banking, the definition of mobile banking extends the detailed definition of mobile banking by Shaikh and Karjaluoto (2014) who added Shariah principles which prohibit elements of *riba* (usury) and *gharar* (risk or speculation). For the purpose of this study, mobile banking is described as services offered by a bank for conducting Islamic banking transactions using mobile devices i.e., mobile phones, smartphones, tablets and phablets. These include basic transactions such as checking

account balance and fund transfers, mobile payments, QR payments to payments for e-commerce and foreign transfers.

Mobile banking in Islamic banking institutions can also be looked at in light of *Maqasid Al- Shariah*. *Maqasid* is an Arabic word referring to goals, objectives or purpose while Shariah means Islamic law that is based on the Quran and the traditions of the Prophet, better known as Sunnah (El-Gamal, 2006). Professor Imran Ahsan Khan Nyazee (2012) who translated the book "The Reconciliation of the Fundamentals of Islamic Law" by Al-Shatibi translated *Maqasid Al-Shariah* as the purpose of Shariah. Other scholars, such as Al-Mubarak and Osmani (2010) and Dusuki and Abdullah (2007) translated *Maqasid Al-Shariah* as the objectives of Shariah. *Maqasid All-Shariah* has also been formally defined by some Muslim scholars such as Al-Ghazali, Al-Shatibi and Ibn Ashur (Auda, 2008). Al-Ghazali defined *Maqasid Al-Shariah* as one of the Shariah's objectives which is to promote the wellbeing of the people comprising five elements i.e., faith, lives, intellect, posterity and wealth.

Meanwhile, Nyazee (2012) who studied the works of Al-Shatibi in the latest version of "The Reconciliation of the Fundamentals of Islamic Law" defined *Maqasid Al-Shariah* as freeing oneself from one's own whims so that one abides the commandments given by God out of one's own accord. The works of Ibn Ashur, which were translated by El-Mesawi (2013), defined *Maqasid Al-Shariah* in the latest version of "Treatise of *Maqasid Al-Shariah*" as the desire to establish a strong community, social system and order by achieving welfare and avoiding evil. Next, Ibn Ashur, Auda (2008) defined *Maqasid Al-Shariah* as the overall objective to safeguard social order and to maintain healthy development by promoting well-being

and virtue. A good example of this is the purpose of zakat which is to preserve and develop the wealth of a nation or a community.

Auda (2008) believes that *Maqasid Al-Shariah,* which is translated as the purpose of Islamic law, essentially brings benefits to the society in terms of faith, way of life, intellect, posterity and wealth. Al-Ghazali's and Ibn Ashur's definitions focus more on the macro-level of society while Al-Shatibi focuses more on individual struggle towards achieving the *Maqasid.*

Maqasid is classified into three levels of necessities i.e., *darurriyat, hajiyyat* and *tahsiniyat*. *Darurriyat* is an Arabic term for necessities or essentials in which people fundamentally depend on and it will be detrimental if not addressed for example religion, life, intellect, posterity and wealth. Mustafa Ahmad al-Zarqa described these five needs as *daruriyyat al-khams* (Zaid Mustafar & Borhan, 2013). Dusuki and Bouheraoua (2011) further added equality, freedom and the preservation of environment.

Next, *hajiyyat* is an Arabic word referring to need or complement. It is defined as interests that supplement the essential interests which means that being without it will not be detrimental (Nyazee, 2012). However, this may lead to hardship and difficulty for example *ijarah* concept in banking industry whereby it is permitted to lease in order to own a property (Awang & Asutay, 2017). Thus, it is unnecessary to come up with a large sum of money to own a property. *Tahsiniyat,* translated as embellishment, refers to a refinement of personal custom or conduct of life, for instance someone who has already fulfilled the zakat obligation can give non-obligatory charity known as *sadaqah* (Fahad, 2003).

The three categories are also inter-related whereby *daruriyyat* is the most fundamental, followed by *hajiyyat* and *tahsiniyat* (Nyazee, 2012). This means that deficiencies in *daruriyyat* mean deficiencies in *hajiyyat* and *tahsiniyat*. Absolute deficiencies of *hajiyyat* and *tahsiniyat* do not entail deficiencies of *daruriyyat.* Linking *daruriyyat* (necessities), *tahsiniyat* (needs) and *hajiyyat* (luxuries) to mobile banking, it is important to highlight the social benefits of mobile banking. In developing countries, especially the lower income economies, mobile banking is considered as a secondary necessity (Nugroho, Lutful , & Chowdhury, 2015) because some developing countries have poor infrastructure and unstable political situation (Madoff, 2013). When infrastructure is poor, people experience difficulties to deposit cash and perform financial transactions. Unstable political situation, on the one hand, makes it unsafe for people to carry cash around to do business.

Furthermore, in poor countries, owning computers can be expensive. All these obstacles make banks unreachable for some people, making them among the "unbanked". By by-passing the obstacles to reaching financial infrastructures and transactions, mobile banking can facilitate in reducing the number of the unbanked (Hughes & Lonie, 2007). Classifying mobile banking as a necessity, as in *daruriyyat* is inaccurate because it goes beyond the most basic necessary need in which Nugroho et al. (2015) termed it as secondary necessity. One could argue that it is more necessary to build a water tower in a poverty stricken village rather than a cell tower because a water tower fulfils one's physiological necessity rather than a cell tower that only fulfils secondary need (Maslow, 1943). Therefore, mobile banking is considered as a need rather than a necessity (Cisco, 2011).

Islamic law emphasizes the importance of any goods or services to be Shariah-compliant or non Shariah-compliant. First, the very basic function of mobile

banking is savings account with the application of principles *qard* and *wadiah yad dhamamah*. These two principles are the same, where customers deposit their money as savings and bank keeps them as trust. Under the bank's discretion, *hibah* or gift in a form of small percentage of the savings is given (BNM, 2011). In addition to savings, fund transfer as payment also involves some conditions due to the lack of face-to-face communication. Zainul et al. (2004) highlighted three conditions i.e., clarity in communications, conformity in agreement between parties involved and continuity in communication to prevent *gharar* (uncertainty) and deceit.

In developed and highly developed nations, mobile banking is also considered a need that supplements other banking facilities. Without mobile banking, it will not be detrimental for these societies because other alternatives are accessible due to presence of adequate banking infrastructure, affordability of computers and political stability. Mobile banking allows people to do faster and more efficient banking activities (Cisco, 2011; Majithia, 2016).

Malaysia is a relatively highly developing, politically stable country with adequate infrastructure. Therefore, it is safe for Malaysians to conduct business and do any banking or business transactions without mobile banking. Furthermore, in general, Malaysians can afford computers to do internet banking. However, mobile banking is a good complement that can make banking transactions for Malaysians much faster and more efficient.

Mobile banking is prevalent in developing countries due to its high population distribution, low business potential and the facilities that cater for low income people are not available, resulting to high number of the unbanked (Nugroho et al., 2015). Since Islamic banking prioritises needs rather than embellishments,

mobile banking is aligned with *maqasid al-Shariah.* It includes the unbanked who are mostly the needy in the banking system thus improving their economic status. In 2019, the unbanked comprised 8% of the country's population (Deloitte, 2020).

2.2.1 Behavioural Intention

Past studies have emphasised the merits of studying behavioural intention over actual behaviour (Armitage & Conner, 2001; Lee et al., 2003). Understanding the behavioural intention of mobile banking is crucial because it enables the think tanks of Islamic banking institutions to make better decisions to improve the mobile banking penetration, keep abreast with the latest advancement of mobile banking technology and make sure consumers perceive mobile banking to be user friendly, available and convenient. The importance of behavioural intention as a subject matter to study is also extended to the Islamic concept of *niyyah* that gives values to one's actual behaviour (Raja, 2016). The definition provided by the pioneers of intention-based theory is essentially the same, other than some semantic differences. When TRA was developed, behavioural intention was defined as subjective probability towards performing a particular behaviour (Fishbein & Ajzen, 1975). As TPB was developed, behavioural intention was defined as motivational factors that capture the magnitude of effort a person is willing to make in order to carry out a particular behaviour (Ajzen, 1991). When TAM was developed, based on the original definition by Fishbein and Ajzen (1975), behavioural intention was seen as the strength with which an individual intends to perform a specific behaviour. The key concept of behavioural intention is the degree of effort a person would use to perform certain behaviours.

Some definition of behavioural intention is really specific to the context, for instance, Zeithaml, Berry and Parasuraman (1996), in the context of service quality, defined behavioural intention as a signal that a customer is bonding with a firm or a company while some is more general, for instance, Warshaw and Davis (1985) defined behavioural intention in its dictionary form, that is *the degree to which a person has formulated conscious plans to perform or not perform some specified future behaviour*. This definition although obviously not suitable for the current study, suits the purpose Warshaw and Davis (1985) that is to disentangle the differences between behavioural intention and behavioural expectation. Another general definition of intention is Jaccard and King (1977) whereby *behavioural intention is defined as a perceived relation between oneself and some behaviour*. This definition is for the purpose of testing the relationship between behavioural intention and beliefs by means of probability theory. This definition is also used in studies concerning technology adoption such as mobile commerce (Alkhunaizan & Love, 2012)

The National Academies (2002), Mushi (2014) and Ahamed Hilmy and Gunapalan (2020) for the context of mobile banking, defined intention as a person's perceived likelihood that he or she will engage in a given behaviour. This definition is on the premis that their samples have not adopted mobile banking. The definition given by Mohd Thas Thaker, Amin, Mohd Thas Thaker and Allah Pitchay (2018) on the other hand is on the continuation of usage of mobile banking as opposed to intention to use. Similar definition has also given by Juhaida, Clemes, and Bicknell (2017) who defined behavioural intention as the intention to remain as customers of their respective banks in the long term. Yousofzai (2012) in his literature review of internet banking based their definition given by Jaccard and King (1977) defined

behavioural intention as a perceived notion between a person and certain actions. Empirical literatures that have more specific context and almost similar to the present context include Alkhunaizan and Love (2012) that examine m-commerce and Thakur and Srivastava (2014) that examines mobile payment, adopted the definition given by Fishbein and Ajzen (1975).

In Islam, intention is basically *niyyah*, which means a conscientious determination to do something that is always followed by an action (Bulutoding & Habbe, 2018). The importance of *niyyah* was emphasised by Raja (2016) whereby actions are only by intention insofar an intention of a believing Muslim is better than action because it gives value to one's action. In the context of mobile technology, behavioural intention is defined as the strength of a person's intention to perform a specified behaviour (Saifullah & Noordin, 2011).

Yousafzai (2012) applied Fishbein and Ajzen's (1975) definition of behavioural intention in the context of internet banking, while Thakur and Srivastava (2014) adopted the same definition in the context of mobile payment. Nawaz, Ahamed Hilmy and Gunapalan (2020) also applied the same definition in the context of mobile banking, but more specifically in terms of individual willingness to adopt a technology. The present study follows the pioneering work by Fishbein and Ajzen (1975) where behavioural intention is defined as a subjective probability in which an individual intends to adopt mobile banking via Islamic banking institutions.

2.3 Independent Variables

2.3.1 Attitude

Attitude is one of the most important determinants of behavioural intention or planned behaviour that ultimately leads to actual behaviour. Understanding attitude

towards mobile banking adoption is important because positive attitude can encourage or hinder technology adoption, in which for the present context, mobile banking adoption (Jencius & Paez, 2003; Islahi & Nasrin, 2019). From Islamic perspective, attitude is part of Islamic morale or *akhlaq* (Bulutoding & Habbe, 2018). Attitude is different than intention in the sense that intention is the disposition in the process of realisation while attitude is a disposition but not in the process of realisation (Rummel, 1976). Intention-based theories state a close link between attitude and intention (Ajzen, 2011). TPB states that a potential user or a user's responses toward a particular behaviour as a result of their intention can be predicted by observing the attitude (Ajzen, 1991).

A common definition of attitude in conventional literatures is the degree of positive or negative inclination towards a product. Ajzen (1989) defined attitude as favourable or unfavourable responses to any aspect of one's world. This definition is shared by many other studies in different contexts. The obvious difference in the literature in terms of definition is the wording. Spears and Singh (2004), Lee (2009), Wessels and Drennan (2010), Maduku (2013) and Sun, Law and Schuckert (2020) used the words "favourable" and "unfavourable" for the contexts of American brand advertisement, Taiwanese internet banking, Australian m-banking, South African internet banking and Chinese mobile payment respectively. In the context of Turkish internet banking and mobile stock trading in Malaysia, Celik (2008) and Chong, Ong and Tan (2021) respectively used the terms "good" or "bad". Ariffin, Abd Rahman, Muhammad and Zhang (2021) used the term positive or negative feeling referring to the usage of e-wallet in Malaysia. Next, Yemeni internet banking studies by Eagly (2007) and Zolait (2010) used the word "inclination" instead of "dyads" as being used by Ajzen (1989), Spears and Singh (2004), Lee (2009), Wessels and Drennan

(2010), Maduku (2013) and Sun, Law and Schuckert (2020). Suki and Ramayah (2010), for the context of Malaysian e-government services, used the situation of "mediating effective response between usefulness and ease of use and intention to use a target system."

This study defines attitude based on studies that follow early definition that is cited by most studies namely Ajzen (1989) which examined a person's favourable or unfavourable evaluation of mobile banking in Islamic banks. The reason for this is that Ajzen (1989) is a well-established literature that is cited in studies of mobile banking and studies that involve banking technology. Although there are some sematic differences i.e favourable vs unfavourable, good vs bad or positive vs negative, most of the definitions convey the same meaning that is the favourable and unfavourable response to any aspect of the world.

2.3.1.1 Perceived Usefulness

Perceived usefulness is one of the important components of technology acceptance model (TAM). In the context of mobile banking, perceived usefulness is essential to capture the relevance of mobile banking in any banking transactions, bill payments and shopping activities. On the other hand, decomposed theory of planned behaviour (DTPB) posits that perceived usefulness will directly affect attitude and eventually be a motivational factor for intention (Taylor & Todd, 1995). This means that in the present context, in order to have positive attitude and ultimately induce intention, perceived usefulness is a necessary variable to be examined (Ibrahim et al., 2019; Rehman and Sheikh, 2020).

Davis (1989) stated that perceived usefulness is defined as one's subjective evaluation of the extent to which using a system will enhance individual job

performance. It is different than perceived ease of use because perceived ease of use is about the user friendliness of a technology itself rather than the perceived enhancement of daily tasks or productivity when using the product. Nevertheless, it is argued that technology only becomes useful once it is easy to use Davis (1989).

The definition of perceived usefulness coined by Davis (1989) has been used by many authors in different contexts despite the changes in technological context and the ubiquitous nature of modern technology. For instance, the word for word definition of perceived usefulness by Davis (1989) has long been used in the context of (i) Internet banking in Taiwan by Wang, Wang, Lin, and Tang (2003); (ii) Internet banking in Ghana by Asare, Yun-Fei, Boadi and Aboagye (2016), Ibrahim, Hussin and Hussin (2019) and Sulaiman and Jauhari (2021); (iii) Mobile banking and m-payment in Malaysia by Wang et al. (2003), Asare et al. (2016), Ibrahim et al. (2019) and Sulaiman and Jauhari (2021); (iv) Chart-Master computer program in Taiwan by Luarn and Lin (2005).

Definition provided by Lee (2009) adapted from Taylor and Todd (1995) is more reflective of the later context of his study, which is a person's salient belief the use of technology will improve performance. Safeena, Date, Hundewale and Kammani (2013) rephrased Davis's (1989) definition by removing the word "job" and defined perceived usefulness as the degree to which a person believes that using a particular system will enhance his or her performance. Meanwhile, Wessels and Drennan (2010), in the context of mobile banking in Australia, also rephrased Davis's (1989) "subjective probability that using technology will increase the individual's performance", which captures a more general sample of bank consumers. Similarly, in the context of mobile payment by Chawla and Joshi (2020),

the definition is also broadened using Davis et al.'s (1989) in the sense that potential user's subjective likelihood e.g., mobile wallet will improve his or her actions.

Apart from studies in internet banking, mobile banking and mobile payment, the exact definition given by Davis et al. (1989) was also used in toll payment in Taiwan (Tao & Fan, 2017). Celik (2008), in the context of internet banking is one of the very few studies that gave definition of perceived usefulness which is different than Davis (1989), which defines perceived usefulness terms of extrinsic motivation in Turkey.

This study's conceptual definition of perceived usefulness follows the majority of other studies which is one's personal assessment of the extent to which using mobile banking in Islamic banks will enhance one's tasks. This is because this definition has been used universally across technologies and across countries. The reason for using Davis's (1989) is because smartphone and tablet are basically computers in a pocket form, and are a successor to the earlier version of computers. Furthermore, both computers in the 1980s and current mobile phones are similar in the sense that both of them were new in their respective time.

2.3.1.2 Perceived Ease of Use

The perception of complicated mobile banking user interface will deter potential users from adopting the technology (Rini & Khasanah, 2021). Therefore, understanding the perceived ease of use in the context of this study is important because it ensures this technology can be accepted and applied. As stated in DTPB, perceived ease of use has a direct effect towards attitude and ultimately acts as a determinant for intention. There are several studies showing the importance of perceived ease of use in order to build positive attitude i.e., Himel et al. (2021),

Rehman and Sheikh (2020) and Hong (2019). Positive attitude is a source of motivation in any performed actions, thus the variable of perceived ease of use should also be taken into consideration in this study.

Many studies defined perceived ease of use on the basis of Davis et al. (1989). As opposed to perceived usefulness, the definition of perceived ease of use is more general. This means that the definition of perceived ease of use by Davis (1989) can be adopted and adapted in a broader context in its original form. Davis (1989) defines Perceived ease of use defined as the extent to which one believes that using a particular system will be free from effort. Several studies from different contexts have adopted Davis's (1989) definition such as Wang, Wang, Lin and Tang (2003), Zolait (2010) and Asare et al. (2016) who defined perceived ease of use in the context of internet banking in three different countries namely Taiwan, Yemen and Ghana respectively. Despite the differences in terms of culture between Yemen, Taiwan and Ghana, the definition used is still the same.

Hung, Chang and Yu (2006), on the other hand, adapted the definition in the context of WAP services in Taiwan. Sabir, Shahnawaz, Zaidi, Kamil, and Akhtar (2014) defined perceived ease of use in the context of mobile commerce while Raza, Umer and Shah (2017) defined perceived ease of use for mobile banking; both of which were studies from Pakistan. Tao and Fan (2017) looked at a slightly different context, namely Taiwanese electronic toll collection services. Nevertheless, this context has to do with people's attitude towards technology which is essential in the context of this study. Studies by Rehman and Shaikh (2020) as well as Sulaiman and Jauhari (2021) are the closest to the present study because it is about mobile banking in Malaysia that defines perceived ease of use on the basis of Davis et al. (1989) pioneering definition.

The present study defines perceived ease of use on the basis of Davis et al. (1989) as the extent to which a person believes that using mobile banking in Islamic banking institutions will be relatively effortless. This variable is important as it indicates the user-friendliness of the information technology which, in this framework, mobile banking (Moon & Kim, 2001).

2.3.1.3 Shariah Compliance

Shariah compliance is relatively a new variable derived from the concept of religiosity i.e., Islam. The element of religion plays a vital role in a Muslim's life and that it is widespread throughout all aspects, e.g., the emphasising and usage of halal label in consumer products sold in the country since the Malaysian Islamic revival in the 1980s (Sulaiman, Ahmad, Mohd Mokhtar, & Mohad, 2021). Therefore, the present study proposed that in light of the DTPB, Shariah compliance has a direct effect towards attitude and can eventually become a motivational factor for a user to adapt a technology, in which for the present case, mobile banking.

Since Weber's thesis on religion and people's economic attitude, the role of religion in influencing people's economic decisions has been intensely discussed within and beyond occidental traditions. Weber (1905) argued that religious doctrine results in a good economic attitude based on the Protestant revolution which triggered a new mentality towards economies that paved the way towards modern capitalism. Before the onset of the Protestant Ethic, work and capital accumulation was seen as less of a priority for eventual salvation (Weber, 1905).

Work and capital accumulation is also part of Islamic salvation (Turner, 2010; Kaminski, 2016). This is unsurprising since the birth of Islam was in the middle of two of the five tenets of Islam which are the drivers of a good economic

attitude. First, the zakat is a compulsory 2.5% tax on Muslims after reaching a certain amount of wealth. This encourages Muslim leaders to promote economic prosperity because the more prosperous the economy is, the more zakat can be collected thus alleviating the poor and creating more zakat payers. Second, the fulfilment of hajj encourages the accumulation of capital (Mulyadi, 2006).

However, Islam does impose guidelines on the source of wealth in which it has to be permissible in Islam. It also needs to be free from usury and any source that is deemed forbidden such as gambling and speculation. Furthermore, to encourage a good Islamic economic attitude, Islam teaches compassion from creditors towards debtors who are having difficulty in settling their debts. Islamic economic attitude include transactions that are free from usury, high risk or speculation all of which have been articulated into a modern operationalization of Islamic banking (El-Gamal, 1992).

Before discussing about Shariah compliance, it is important to have a brief overview of the definitions of religion. Riesebrodt and Asad (1994) believed that religion is bound to context and it evolves according to time. In a translated version of Durkheim's (1912) "The Elementary Forms of Religious life" by Karen (1995, p. 47) in primitive societies for instance, religion is a "unified system of beliefs and practices relative to sacred things". This is because Durkheim (1912) was studying a Totemic society in Australia. The activities of Totemic aboriginal societies always involve congregational forms, hence the term "unified". In an industrialized society, based on the translated version of "Marx's Critique of Hegel's Philosophy of Right" by O'Malley (1970), Marx (1843) saw religion as the opiate of the people. Opiate refers to a means to cope with hardships. Marx's opinion on religion stemmed from

his criticism of the capitalist system during the industrial revolution where some parts of society at that time were economically alienated (Boer, 2011).

Over time, there have been many other definitions of religion especially after the Second World War, especially in the 1960s when the Western society began to prosper and religion began to appear in different forms (Platvoet, 1990; Jenkins, 2011). Among these other forms are social institution (Platvoet, 1990) and a system of personal belief (Talhami, 2004) to the extent that the definition of religion has drifted away from the traditional definition (McDaniel & Burnett, 1990) and in the sense that it has no stable organisation, consecrated doctrine, disciplining mechanism and membership conditions (Luckmann, 1990). These definitions, however, are more Western-centric and the Western world has gone through a rigorous secularisation process (Ziad Esa, Ahmad Fauzi, & Folmer, 2014). These definitions are also more for the utilization of religion for self-fulfilment (Allport & Ross, 1967) which is the search for solace or social rewards rather than being submissive to the teachings of God.

In the Muslim world, religion is about submitting oneself to the Almighty. Islam in Arabic means total submission or totally surrender to the almighty God (Hedayat-Diba & Zari, 1994; Kocturk, 2002). Contrary to the more liberal definition of religion by Luckmann (1990) Islam, like any traditional organised religion, has a stable organisation, sacrosanct doctrine, discipline mechanism and membership conditions. However, based on the meaning of submission in Islam, the Muslim religion also serves the same functions and meanings as Marx and Durkheim's definition; it is not central but it does provide solace (Ryan & Vacchelli, 2013) and a social capital that brings people together (Kochuyt, 2009).

Religiosity, on the other hand, refers to the importance of religion in coping with life (McAdoo, 1995) or, in the light of Durkheim's (1912) definition of religion, communal activities that are deemed sacred. This is a continuation of the Western-centric definition of religion which is just one of the elements of Muslim religiosity. While Islamic religiosity does have the ability to help believers to cope with life and to get people to congregate, the meaning of religiosity in Islam extends to how much a person is religious by following the rituals and living the life as advocated by the religious scholars based on their interpretation of religion (Ganga & Kutty, 2013). One of the earliest definitions of religiosity in academia is from a Christian point of view, namely Church attendance (Azzi, Corry and Ronald, 1975).

There are many working definitions of religiosity which also dependent on the context. Souiden and Rani (2015), in the context of Islamic banks, defined religion as a fear of divine punishment, religious involvement and religious beliefs, while Jaffar and Musa (2016) in the same context defined religion as religious obligations. Butt et al. (2011) defined religion as a level of agreement in Islamic principles. Krauss et al. (2005) has multi-dimensional definitions assessed from two main perspectives, Islamic worldview and religious personality.

In relation to Butt et al.'s (2001) working definition of religiosity, nowadays there are more banking or finance-specific determinants of Islamic financial products. Religiosity is in terms of agreement towards Islamic principles which is the basis of financial product, for instance the level of agreement that the product is in accordance with the Islamic rules pertaining *riba* or *halal*. Jamshidi and Hussin (2016) used the term perceived religiosity in the context of Islamic card usage for e-commerce in Malaysia. Perceived religiosity as referred to by Jamshidi and Hussin (2016) is in terms of the compliance towards Shariah principles. Other studies did

not even use the term religiosity for instance Lee and Ullah (2011), Ali, Hassan, Juhdi and Razali (2018) and Mulia, Usman and Purwanto (2020) in the context of Islamic banking customers in Pakistan, Islamic bank employees in Malaysia and e-banking in Indonesia respectively. Thaker, Khaliq and Thaker (2016) in the context of Malaysian Islamic bank customers, used the term Shariah requirement. On the other hand, Shome, Jabeen and Rajaguru (2018), in the context of United Arab Emirates, used the term consumer expectation with regards to banks adhering the Islamic principles. Nevertheless, although it is semantically different, the idea is the same, in which Shariah compliance or perceived religiosity is basically referring to the status of a financial product whether it complies with Shariah rulings that is free from interest or *riba* (usuary), *gharar* and fraud. As a conceptual definition, Shariah compliance refers to the degree of which mobile banking via Islamic banking institutions adheres to Shariah principles in a way that it is free from interest, *gharar* or fraud excluding other elements of ibadah like five-time daily prayers, fasting or zakat.

2.3.1.4 Perceived Lifestyle

Perceived lifestyle is important because in the age of wireless mobile technology, almost everything is centred towards mobile devices. Newspaper used to be in the form of tangible product i.e., physical papers that people flip through and read. Phone numbers used to be memorised and jotted down in a spiral notebook. Human interaction used to be face to face. Similarly banking used to be only face to face where customers have to get up from the comfort of their sofa, walk, drive, park and line up for their turn to fulfil their transactions with their bank representative or an ATM machine. All these routine tasks are part of people's lifestyle that can be

replaced by using mobile device. In the past, lifestyle has always been a part of religion to the point where secularisation process takes place and religion has been totally separated from lifestyle (Ziad Esa et al., 2014). Lifestyle is largely used as an antecedence for attitude and ultimately a motivational factor that affects intention (Chawla & Joshi, 2017). For the present mobile banking study, lifestyle is important because there are evidences that users or potential users look for compatibility of their lifestyle in terms of convenience and mobility (Laukkanen, 2012)

Lin and Shih (2012), Yu and Li (2015) and Myburgh, Kruger and Saayman (2019) credited Lazer (1963) for introducing the concept of lifestyle in research. William Lazer (1963) defined lifestyle as a typical mode of living that is developed from the dynamics of living in a society. This definition is later adapted and refined by later scholar whilst retaining the essence of the definition. The term lifestyle is referred to one's way of living in a study on purchase decision (Lin & Shih, 2012) or in other words in health research by Derman, Patel and Nossel (2008), one's personal customs or habits. Mohamed Naim, Hamid, and Haji Wahab (2019) adapted Lazer's (1963) definition which is multi-disciplinary in nature, in which lifestyle, in their study, was defined as a characteristic or distinctive mode of living. In the context of smart mobile devices, Chouk and Mani (2019) on the other hand did not follow the definition by Lazer (1965) but instead defined lifestyle as individual factors that allow differentiation in a manner of being and living.

Sun, Lyu and Dai (2019), unlike Muburgh et al. (2019), in the field of health science defined lifestyle as a person's individual pattern of behaviour in the process of socialization. While, other authors defined lifestyle in general, Teo and Pok (2003) and Laukkanen (2012) have offer more specific definition of lifestyle. Teo and Pok's (2003) definition of lifestyle revolves around the internet and busy lifestyle while

Laukkanen's (2012) definition emphasises on mobility. All of these definitions reflect a similar theme that is the distinctive ways on how people live. These ways may change or be more efficient with the introduction of a new technology, leading to the conceptual definition of perceived lifestyle as a person's way of living.

2.3.1.5 Personal Innovativeness

Personal innovativeness is important because it affects whether consumers choose to adapt a new technology and if so, how fast will they be able to adapt (Agarwal & Prasad, 1998). Mobile banking is a relatively new technology compared to internet banking therefore personal innovativeness is argued to be helpful in understanding people's willingness to adopt a new technology (Lassar, Manolis, & Lassar, 2005). People who are innovative have higher willingness to adopt new technologies (Agarwal & Prasad, 1998). Personal innovativeness is proposed to affect attitude and ultimately act as a determinant of adoption intention. In the present context, as mobile banking is a relatively new technology, it is essential to discover user's willingness to try out this new technology using personal innovativeness as variable. In the past, innovativeness and attitude had been examined and it was found a person with relatively higher innovation has greater positive attitude towards new technology (Amoroso & Lim, 2015).

Semantically, personal is defined as belonging to or affecting a particular individual rather than someone else. There is not much argument with regards to the meaning and context of the term personal in the realm of technological banking research; at least for the context of this research. Innovativeness, on the other hand, has been a subject of scrutiny by scholars. In its simplest definition, innovativeness is defined as the extent to which a person is relatively earlier in adopting new ideas as

compared to other individuals (Rogers, 1995). This simple definition is criticised to be time-dependent (McDonald & Alpert, 2007).

The diffusion of innovation theory explains how temporally, an innovation is communicated and spread over a population (Rogers, 1995). The populations that are targeted generally have varying degrees of innovation as a personal trait (Midgley & Dowling, 1978, 1993). The higher the personal trait as an innovator signifies the better diffusion or willingness to adapt to a new technology. Innovation as a personal trait is called innate innovativeness (Goldsmith & Hofacker, 1991) or in other words innovative predisposition (Midgley & Dowling, 1993). Midgley and Dowling (1993) further explained that these innovators are independent in their judgement.

However, there is also a portion of the population willing to adopt new technologies not because of their personal trait, but because of the effectiveness of communication through their surroundings i.e., mass media or their colleagues, families and friends. Midgley and Dowling (1978) coined this kind of innovation as actualised innovativeness. In summary, there are two major ways in which researchers conceptualise innovativeness. The first being the time-dependent definition by Rogers (1995) and the second being the trait-dependent definition that distinguishes between actualised innovativeness and innate innovativeness (Midgley & Dowling, 1978, 1993; Im, Bayus, & Mason, 2003).

The tendency to adopt a new technology differs from one person to another. People who are innovative have relatively higher willingness to adopt to new technologies (Agarwal & Prasad, 1998). This definition of personal innovativeness has been adapted to studies related to mobile banking in Korea whereby it is referred to the extent to which a user is willing to bear the risk of using mobile banking

(Hong, 2019). In the context of mobile banking in Taiwan and Vietnam, personal innovativeness is adopted from the definition given by Agarwal and Prasad (1998) (Ho, Wu, Lee, & Pham, 2020).

Personal innovativeness, or also known as technology readiness, is the inherent willingness to try out and embrace new technology to fulfil one's goals (Rao & Troshani, 2007). It is linked to innovation diffusion theory that is a process in which innovation is communicated through certain channels over time among members of a social system (Rogers, 1995). Innovation diffusion theory classifies five different levels of personal innovativeness from the highest, which are the innovators and the lowest, which are known as laggards. There are a few studies that examine the relationship between personal innovativeness and attitude towards new technologies, for instance, in a sample of rural communities in Zimbabwe, personal innovativeness has a significant effect towards attitude towards mobile banking (Chitungo & Munongo, 2013), showing that they are intrigued and eager about new technologies and willing to learn.

Meanwhile, in the context of internet banking for a sample that comprising American students in the United States, there is an inverse relationship between consumer innovativeness and adoption (Lassar et al., 2005). Another explanation provided by Sarel and Marmorstein (2003) is that the innovation is not exciting enough for the Americans as compared to the Zimbabwean sample. Hanafizadeh, Behboudi, Abedini Koshksaray, and Jalilvand Shirkhani Tabar (2014) explained that diffusion path is different for less developed countries and developed countries is different whereby people from less developed countries are more open for new technology assimilation. The excitement of technology as explained by Sarel and Marmorstein (2007) and Hanafizadeh et al. (2014) is just one perspective to look at.

Although the excitement of technology does play a role, Ahmad and Al-Roubaie (2012) argued that Western-backed authoritarian, post-colonial nations constrained individual rights and freedom which can impede individual innovation capabilities.

This research follows the aforementioned works of Agarwal and Prasad (1998) and Rao and Troshani (2007) in which personal innovativeness is essentially conceptualised as one's willingness to try out any new information systems.

2.3.2 Subjective Norm

Subjective norm is also an important determinant of intention. It is basically a second-hand experience, which cost less, convenient and effective means of forming behavioural intentions (Bhattacherjee, 2000). Understanding subjective norm is important for this study because it reflects if the intention of a potential customer is influenced by a second-hand experience, be it through external or internal sources regardless of the customer's belief structure (Yee & Seong, 2019). According to the TPB, a person's intention can be predicted by looking at a person's subjective norm (Ajzen, 1991). In the present setting, which is in Malaysia, a multi-cultural collective society adds to the existing literature that mostly study technology for occidental context. It is understood that in a collective society like Malaysia, opinions from others matters as compared to societies in the western world (Hofstede Insights, 2021). In this sense, previous studies had demonstrated that subjective norms significantly affect behavioural intention (Amin et al, 2011; Teo et al. 2012).

The common definition used among studies of behavioural intention-based model is by Fishbein and Ajzen (1975) where a person's perception is that most people who are important believe that people should perform certain behaviour. An updated version of this definition is the perception that most people who are

important think that one should or should not perform the behaviour and one's motivation to comply with the specific referents (Ajzen & Fishbein, 1980). It is essentially social influence and social pressure where a person would perform a certain behaviour despite not being in favour of performing the behaviour (Venkatesh & Davis, 2000). For instance, the influence of close relatives or people of authority can play an important role in an individual's decision to perform (Kalafatis, Pollard, East, & Tsogas, 1999).

Many studies have used the definition by Fishbein and Ajzen (1975) such as Lee (2009) in the context of internet banking in Taiwan and Hong (2019) in the context of mobile banking in Korea. Ajzen (2002), which later adopted by Tao and Fan (2017) in the context of electronic toll collection in Taiwan, defined subjective norm variables as perceived social pressure. Some literature even decompose subjective norm' variables as peer influence and superior influence (Taylor & Todd, 1995), family members (Al-Majali & Nik Mat, 2010), neighbours and spouses (Shimp & Kavas, 1984) or even mass media (Ayinde & Echchabi, 2012). This decomposition is important so that researchers can identify the differences in the subjective norms on the specific referent groups.This study cites Fishbein and Ajzen (1975) by following the Korean example set by Hung (2019) by defining subjective norm in the context of mobile banking in Islamic banks, serving as a social pressure to persuade people to perform Islamic banking transaction via smartphone.

2.3.2.1 Media Influence

Media influence plays an important role in technology adoption. For the purpose of this study, media influence is essential to understand how potential customers will react when facing media influence. The focus of media influence in this study is the

mass media and social media, whereby both are argued to influence adoption intention (Ratten, 2013). Both mass media and social media are important tools for the government and organisations to disseminate information to the public; therefore, making it necessary for this study to examine this variable (Tsao et al., 2021). Based on the DTPB model, media influence is argued to have a direct relationship with subjective norms and eventually affects intention (Bhattacherjee, 2000). As the media can influence the mass, it is also possible that the media and social media alike can influence people to adopt mobile banking via Islamic banking institutions.

This variable is relatable to subjective norm, the previous section has briefly explained interpersonal and media influences that are commonly used as determinants for subjective norm (Bhattacherjee, 2000; Hsu & Chiu, 2004). According to Bhattacherjee (2000) on his study on e-commerce, on the basis of innovation diffusion theory (IDT) media influence is referred to as mass media reports, expert opinions and other non-personal information that are involved in making an acceptance decision. This definition by the current standard needs to cover the latest form of media such as social media and communication devices such as smartphones and tablets. Nevertheless, the definition has been used by many studies concerning different technologies such as electronic services by Hsu and Chiu (2004), WAP services by Hung et al. (2003) and internet banking by Zolait (2010). Zolait (2010) simply defined media influence as mass media. The definition of media influence is more than mass media. Media influence currently covers all types of digital media. For this study, media influence is defined as mass media reports and social media that are presented in television, computer, smartphone, tablets and any kind of devices that can receive internet connection and can display

internet user interface that is considered by potential adopters in making the decision to adopt mobile banking to fulfil Islamic banking transactions.

2.3.2.2 Internal Influence

Internal influence is especially important for this study because the cultural context is in collectivist Malaysia (Teo, Tan, Ooi, Hew & Yew, 2015). Consumers in collective societies such as Malaysia, with obvious characteristics of collectivism, are argued to be affected by the views and opinions from people around them (Midilli & Tolunay, 2021). Understanding internal influence in the context of mobile banking for Islamic banking institutions will help banking strategists to think of ways to increase the interest among Muslim consumers to adopt mobile banking. The DTPB posits that internal influence will affect subjective norms and eventually affect intention (Bhattacherjee, 2000). In the present context of mobile banking whose sample is from Malaysia, it is expected that the present sample will be influenced by their acquaintances in terms of subjective norms. Previous literature i.e., Ting, Yacob, Liew and Lau (2016) provided evidence that internal influence has significant, positive effect towards subjective norms.

Internal influence, based on the IDT, is defined as influence by word of mouth from family members, friends, colleagues, superiors and other earlier adopters who are known to potential adopters or adopters (Rogers, 1995). Rogers (1995) further illustrated many examples from primitive technology to modern technology, making his definition of internal influence suitable to be used to describe other forms of technology. For instance, the widely cited Bhattacherjee (2000) in his study on e-commerce defined internal influence based on Rogers (1995). Others with similar definition include Hsu and Chiu (2004), Hung et al (2003) and Zolait (2010). The

context of usage includes e-commerce (Bhattacherjee, 2000), e-filing (Hung et al., 2003; Hsu & Chiu, 2004) and internet banking services (Zolait, 2010). The definition is straightforward; therefore, this study is also adapting the definition proposed by Rogers (1995). Internal influence for this study is defined as word of mouth from family members, friends, colleagues, superiors and other prior adopters who have used mobile banking to fulfil their Islamic banking transactions.

2.3.2.3 Influence from Religious Scholars

Malaysia has distinct Asian values such as filial piety, face saving, loyalty, respect for the elderlies, respect for people of authority and religion (Sumaco, Imrie, & Hussain, 2014). Based on Hofstede Insights (2021), Malaysia's power distance index is among the highest which means Malaysians respect hierarchical order and authority. This high-power distance index is deemed as a portrayal of community having a high sense of respect towards religious authorities and scholars. This justifies the importance of understanding the degree of influence these religious scholars can have on Islamic banking customers. In light of the DTPB, the influence from religious scholars is proposed to be a determinant of subjective norms and ultimately affects behavioural intention.

The definition of this variable is an adaptation of the variable interpersonal and media influence adapted from Bhattacherjee (2000). Instead of influence from family members, friends, colleagues and other prior adopters, for this particular determinant, it is defined as influence of religious scholars that are a person is familiar with. People with considerable knowledge on religion tend to have strong influence towards people's behaviour. In a study on health behaviour among Black

African Christians, Heward-Mills et al. (2018) used the term faith leaders as people has considerable knowledge hence authority in religion.

Yong, Hamann, Borland, Fong and Omar (2009) and Leyser and Romi (2008) used the term religious leaders instead faith leaders for their study on smoking behaviour and handicapped students in universities respectively. An important point to highlight is that in Islam, there is no priestly class (Gilani, 2010). Previous studies that were mentioned were from a Judeo-Christian context. Therefore, using the word religious leader or faith leader might imply that Islam also have a priestly class. Gilani (2010) and Baazeem (2015) equate religious scholars as religious leaders in a community including those famously known such as a *Mufti* while Kramer-roy (2009) uses the term Islamic scholars in which they define as a person who has extensively studies Islamic scriptures. For this study religious scholars are referred to along the lines of Kramer-roy (2009), which are Muslims that has a deep understanding of Muslim scriptures trough formal training via Islamic schools, *madrasahs* and universities.

2.3.3 Perceived Behavioural Control

Perceived behavioural control is important for this study because it extends the applicability of the TRA i.e., it provides more information about the potential requirements and constraints as perceived by consumers, especially when it comes to mobile banking; a relatively new technology (Daxini, 2019). With this information, Islamic banks are able to have a better picture of designing a mobile banking interface that overcomes the constraints, hence encourage adoption among their customers. For instance, app or user interface designers can design a simple user interface if the app and user interface is perceived to be complicated. The TPB posits

that potential users or users' responses towards a particular behaviour as a result of their intention can be predicted by observing the perceived behavioural control (Ajzen, 1991). This means that for the present context of mobile banking, having the perception of adequate facilities and sufficient knowledge to operate mobile banking will have effects towards intention. Meanwhile, empirical evidence by Hong (2020) and Ho et al. (2020) provided positive relationship between perceived behavioural control and intention.

Perceived behavioural control is a variable that takes into account non-volitional behaviours that influence intention (Ajzen, 1985). On a basis of a synthesis of various authors in different context, Ajzen (1991) defined perceived behavioural control as a reflection of individual internal and external constraints. This definition has also been adopted by Hung et al (2003) for the use of wireless application protocol (WAP) in Taiwan. Taylor and Todd (1995), in the context of IT usage of computer resource centre for business school students, came up with a more comprehensive definition of perceived behavioural control. This is a reflection of beliefs with regards to the resources and opportunities needed to perform the behaviour. Tan and Teo (2000) in their study in internet banking in Singapore referred perceived behavioural control as the perception of having the available resources and opportunities to adopt a new innovation. Tan and Teo's (2000) definition is indeed a huge leap from conventional banking to internet banking whilst the current study is mobile banking, which is a mobile version of internet banking.

Next, for the case of mobile banking apps in Johannesburg, perceived behavioural control is referred to as individual beliefs on the opportunities that exist will either facilitate or hinder a user to use mobile banking apps, which is very similar to the present study (Balabanoff, 2014). For the context of mobile banking in

Taiwan and Vietnam, Ho, Wu, Lee, and Pham (2020) defined perceived behavioural control simply as factors that may obstruct a particular behaviour. There are two widely used determinants, first is by Ajzen (1985) consisting of self-efficacy, facilitating conditions and technological facilitating conditions. Second is by Fishbein and Ajzen (2011) whose determinants of perceived behavioural controls include perceived capacity (the degree to which someone is able to perform the behaviour) and perceived autonomy over the control of behaviour. This study is using the latter dimensions by Ajzen (1985) due to its common use in computer technology studies which will be elaborated further in sections 2.2.3.1 and 2.2.3.2.

Based on the definition given by Taylor and Todd (1995), in light of Balabanoff (2014), for the present context, which is about mobile banking service offered by Islamic banks, perceived behavioural control is defined as one's perceived ability and the constraints on adopting mobile banking via Islamic banking institutions.

2.3.3.1 Self-efficacy

Understanding self-efficacy is important because researchers and bank strategists can have insights of the aptitude in terms of mobile banking adoption as perceived by the consumers of Islamic banking institutions. People with high self-efficacy will tend to persist in performing a task i.e., use mobile banking despite encountering difficulties (Jean-b, 2019). With this information, bank strategists can advise the good and effective methods for bank consumers to gain confidence to use mobile banking facilities. Next, the DTPB model posits that self-efficacy has a direct relationship with perceived behavioural control and eventually affects intention (Bhattacherjee, 2000). In this study, as mobile banking is a relatively new technology, it is essential

to understand how consumers perceive themselves i.e., if they are able to operate mobile banking. Evidence provided by Hong (2019) and Ho et al. (2020) posited that self-efficacy does have effects towards perceived behavioural control.

One of the earliest definitions of self-efficacy is by Bandura (1977) which suggested that people's self-assessment to organise and to fulfil courses of actions requires a desirable type of performance. It is important to distinguish the subtle difference between self-efficacy and perceived ease of use. One simple way to differentiate them is that self-efficacy is about one-self while perceived ease of use is about the technology itself.

Park and Huang's (2017) in the context of hotel booking through smartphones among travellers in the United Kingdom, the adapted definition of self-efficacy is from Compeau and Higgins (1995) in the context of computer skills which refers to people's self-confidence for the fulfilment of one's task. This shows the applicability of this definition despite the advancement of technology. The applicability of Bandura's (1977) definition also applies in terms of online shopping, which is one of the functions of mobile banking, self-efficacy refers to individual judgement that a person can perform a particular behaviour (Shi Wen, Mohd Satar, Ishak, & Ating, 2020). In light of Compeau and Higgins (1995), Ho, Wu, Lee, and Pham (2020) in their work on mobile banking in Taiwan and Vietnam and Ajzen (2002) in his conceptual paper on perceived behavioural control defined self-efficacy in a slightly different way, which is the confidence in a person's ability to perform certain behaviours. This definition focuses more on the internal notion of an individual. The more confident an individual is perceived to be in order to use mobile banking in Islamic banks, the higher the perceived behavioural control.

Gist and Mitchell (1992) have a more complex definition of self-efficacy, which is also based on Bandura's (1977) definition. Self-efficacy is a comprehensive summary of one's perceived capability to perform a task in which its judgement is changes over time to fit changes in circumstances. This complex definition is also shared by Zolait (2010) in which it is a person's estimate capacity to perform a task. For the purpose this study, the earliest definition of self-efficacy by Bandura (1977) is adapted, that is one's perception and confidence on the ability to self-operate mobile banking via Islamic banking institutions.

2.3.3.2 Facilitating Conditions

Understanding facilitating condition in the context of mobile banking among Islamic banking consumers in Malaysia is important because it gives insights towards the perceived limitations, facilities and infrastructure in adopting mobile banking (Venkatesh, Morris, Davis & Davis, 2003; Rahman, Ismail & Bahri, 2020). Realizing the importance of having access to mobile communication at all the time during this modern day, the Malaysian government had launched a national program to help Malaysians get easier and cheaper access to mobile communication devices especially via their smartphones (Global Systems for Mobile Communications, 2017). The DTPB postulates that facilitating condition will affect perceived behavioural control and eventually affect intention. Past studies such as Hung et al. (2006) and Tao and Fan (2017) have provided evidences on the significant affect of facilitating conditions towards perceived behavioural control.

The earliest definition of facilitating conditions started off with the context of potential users of computer resources centre. It is defined as environmental factors that allow the performance of certain behaviours (Taylor & Todd, 1995). Later,

Bhattacherjee (2000) defined it as belief about the availability of resources to perform that behaviour. Unlike self-efficacy which focuses on internal notions of an individual, facilitating conditions focuses more on external notions of an individual. Hung et al. (2006) in the context of e-government services and internet banking by Zolait (2010) defined facilitating conditions as external resources and constraints. Both e-government services and internet banking was a significant transition from the conventional face to face transaction. On the other hand, Tao and Fan (2017) in the case of electronic toll collection defined facilitating conditions as external resources limitation of capital and technique because toll collection for both traditional and electronic methods require users to be at the toll both whereas e-government and internet banking give the convenience for users to be at home whilst doing their transactions.

In a more recent definition by Palau-Saumell, Forgas-Coll, Sanchez-Garcia, and Robres (2019) for the context of mobile apps for restaurants, taking into account the complexity that comes with the technology, facilitating conditions is defined as consumer perception of the resources and supports available to perform certain behaviours. Ho et al. (2020), for the context of mobile banking in Taiwan and Vietnam, despite the complexity of mobile banking, the definition is rather straight forward facilitating condition is referred to as the availability of resources to engage in certain behaviours. This research adapts the later definitions proposed by Taylor and Todd (1995) Bhattacherjee (2000), Zolait (2010) and Palau-Saumell et al. (2019). In short, facilitating condition is defined as the resources, supports and constraints available to perform Islamic banking transactions via mobile banking in Islamic banks.

2.4 Moderating Variables

Moderating variable is a variable that modifies the strengths or relationships between variables. The adoption of technology differs depending on socio-economic characteristics of the sample such as age, gender, income, education level and region (Kasilingam & Krishna, 2021). Understanding the effects of moderators towards the relationship between variables is important so that researchers can understand the generalisability between different groups.

2.4.1 Income

This variable is substantial in the current study as income may either encourage or discourage mobile banking adoption. The perceived high cost, technological anxiety and online transaction risks are always associated with lower income group while the opposites are associated with higher income group (Hernandez, Jimenez, & Jose Martin, 2011). The definition of income given by Chawla and Joshi (2018) is widely cited in technology-related literature including this study. In addition, recently, Park, Hong and Le (2021) also used Chawla and Joshi's (2018) definition in the context of autonomous vehicle. In the present context, income is defined as money earned by individuals or firms in return for providing goods and services. This definition is similar to that of dictionary form i.e., money received, especially on a regular basis for work or through investment (Oxford University Press, 2010).

2.4.2 Gender

Gender is perceived as a significant moderator due to different psychological needs and behaviour between males and females. Gender gap in pay has always been a constant issue and income difference plays a role in technological ownership and

usage, which is closely related to the usage of mobile banking (OECD, 2018). Furthermore, from the perspective of technology, male is argued to be more innovative, more inclined to adopt technology and have less technology anxiety compared to female (Chawla & Joshi, 2018). However, some argued that women are the emerging techies and are instrumental in growth across e-commerce, social networking and even gaming (Kang, 2017).

2.4.3 Region

Understanding regional differences helps to explain various different characteristics and demography among the Malaysian population. Different regions have different stages of development (Deloitte, 2020). For instance, the Central region, consisting of Selangor, Kuala Lumpur, Negeri Sembilan and Melaka is highly affluent with good infrastructure than the East and North regions. This means there are less barriers for access to technology (Chin, 2015; Karimi, Yusop & Siong Hook, 2010). Next, the Northern region consists of Perlis, Kedah, Pulau Pinang and Perak in which most parts here are relatively lesser developed than the Central region with the exception of Pulau Pinang and some parts of Perak. On the other hand, the East Coast region which consists of Kelantan, Terengganu and Pahang are mostly under developed while the Southern region comprising the well-developed state of Johor. Finally, Borneo is where Sabah and Sarawak are located with most parts there are the least developed in Malaysia.

2.4.4 Age

Most studies on technology adoption demonstrate that younger users behave differently than older users, therefore making age as a significant variable in the present study (Chawla & Joshi, 2018). Morris and Venkatesh (2000), Demirci and Ersoy (2008) and Lee et al. (2010) argued on the basis of technological anxiety, which differs between across different age groups, shows that older generations are argued to have more technological anxiety. However, technological anxiety is unnecessarily the case when it comes to different ages. There are different levels of technology exposure; the older a person gets, the lesser the exposure to technology (Porter and Donthu, 2006).

2.4.5 Education Level

Education level is the degree of the title, knowledge and skills acquired through formal education and set by a recognized body (Chawla & Joshi, 2018). It is crucial to understand the impact of this variable in the context of mobile banking usage among the customers of Islamic banking because the decision to adopt a technology depends on the degree of knowledge that a person has. People with higher education level are early adopters of technology due to lower barrier of technological usage, more exposure to technology and lower technological anxiety (Rogers, 1995; Porter & Donthu, 2006; Weijters, Rangarajan, Falk & Schillewaert, 2007)

In conclusion, the moderators chosen in this study help researcher gains a better understanding of the various characteristics within the collected sample. Malaysian policy makers and bank strategists can therefore use the findings to improve the Islamic banking operations particularly in the adoption of mobile banking and cater

for different demographic characteristics of the present sample which include age, income, gender, education level and regional differences (MacKinnon, 2011).

2.5 Research Framework

Figure 2.5 shows the research framework and research constructs. A framework proposed by Taylor and Todd (1995) is adapted and modified. Conceptually, the DTPB framework fits this study because the variables in the framework, to a certain extent, help to explain what are needed to improve consumers' behavioural intention towards mobile banking, thus improving the penetration rate of mobile banking in Malaysia. Examining behavioural intention and its determinants also enlighten the stakeholders regarding what should be the centre of focus to improve behavioural intention e.g., attitude, subjective norms and perceived behavioural control.

The modification is tailored to fit the present study which emphasis on mobile banking in Islamic banking institutions. The proposed framework includes the original DTPB variables that incorporate variables in the TAM. The proposed framework asserts that Shariah compliance, lifestyle and personal innovativeness can have influence towards attitude and ultimately intention. Moreover, the influence of religious scholar can potentially have effects towards subjective norm and ultimately affecting the intention.

Next, the influence of religious scholars and Shariah compliance are two variables that explain secularisation theory. They indicate that religion is still a relevant aspect in the society, which is antithesis to the traditional secularisation theory. Secularisation means the declining influence of religion in every aspect of society (Ziad Esa et al., 2014). Actual behaviour is omitted from the original model because of the reasons stated in Section 2.1 whereby it is assumed that intention

guarantees behaviour (Wu, 2009). This is parallel with Islamic perspective whereby behaviour is considered invalid if it was not preceded by intention (Azman & Md. Habibur, 2013; Mohamad Akram et al., 2013; Syamhudi, 2014). The second reason is the present research is aimed at understanding behavioural intention rather than predicting it, while the third reason is the difficulty to measure actual behaviour (Ajzen, 1985; Liu & Fang, 2003).

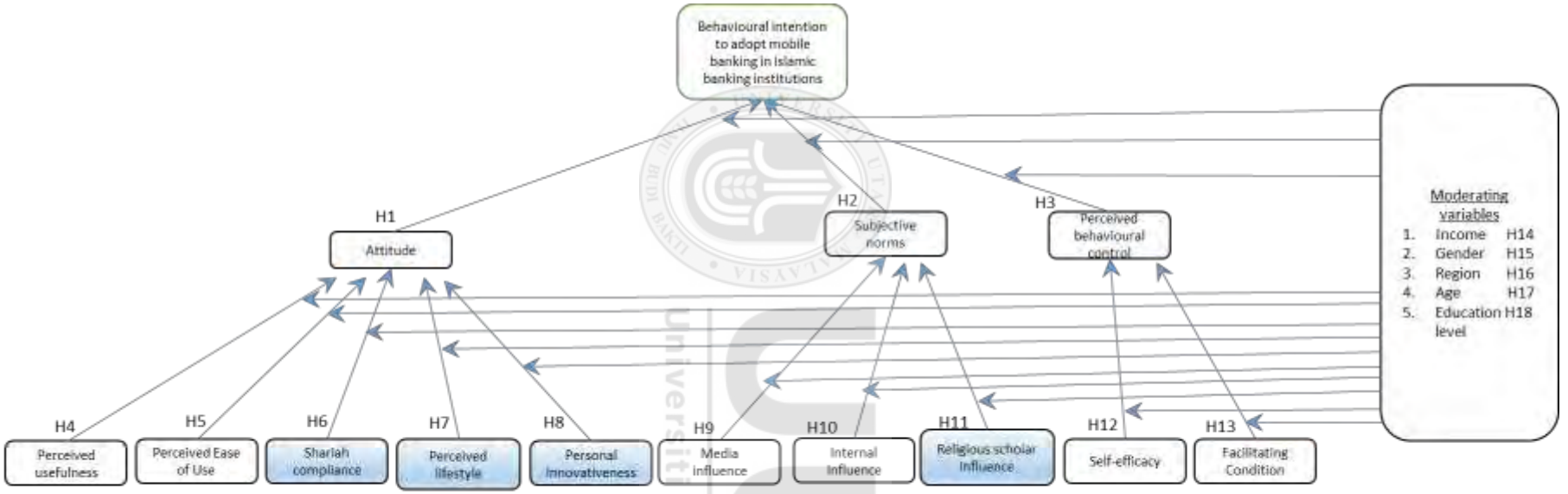


Figure 2.1
The Proposed Model with Hypotheses

2.6 Hypothesis Development

This section consists of a brief synthesis of the literature that explains the relationship between variables and the development of hypotheses. It will start with the determinants of intention, which are attitude, subjective norm and perceived behavioural control. Next, the discussion will be on the decomposed attitude, subjective norm and perceived behavioural control.

2.6.1 Attitude with Behavioural Intention

Many authors agree on the importance of attitude towards behavioural intention. Looking in Asia pacific, mobile banking from Australasia, Taiwan and Vietnam, Wessels and Drennen (2010) and Ho et al. (2020) postulated that attitude does have a positive relationship with behavioural intention of using m-banking; the term used for mobile banking. Australia, a developed economy surrounded by developing economies such as Taiwan and Vietnam must have some similarities with its emerging Asia Pacific countries in terms of mobile banking. In other contexts, namely in the Middle East, such as Lebanon, Feghali, Zbib and Hallah (2011) as well as United Arab Emirates by Kaakeh Hassan and Almazor (2019) studied the effects of attitude towards behavioural intention on online electronic advisors and Islamic banking respectively.

Also in the Middle East, Zolait (2010) in the context of internet banking in Yemen also suggested a strong positive relationship between attitude and behavioural intention. This is because internet banking is beneficial in the recovering process of war-torn countries which are lacking in physical banking infrastructure (Khater, Almansour & Mahmoud, 2013). On the contrary, Malaysia, a stable South East Asian country, is also demonstrating the same result in terms of consumer

attitude and behavioural intention towards internet banking. According to Rehman and Shaikh (2020), in the context of mobile banking among the generation Y in Malaysia, found that positive attitude increases the intention to adopt mobile banking. The study also closely resembled the current study the context of Malaysia and mobile banking. It seems that the original proposition by Fishbein and Ajzen (1975) is universally supported in that people's behaviour is based on their attitude towards that behaviour.

H1: Consumers' attitude positively influences behavioural intention to adopt mobile banking in Islamic banking institutions.

2.6.2 Subjective Norm with Behavioural Intention

Previous literature empirically demonstrated the positive significant impact of subjective norm towards behavioural intentions (Gopi & Ramayah, 2007; Amin, Abdul-Rahim, and Dzuljastri 2009; Hanudin Amin, Rahim Abdul Rahman, Laison Sondoh, & Magdalene Chooi Hwa, 2011; Aji, Berakon, & Riza, 2021). While there are literature that empirically provide positive relationship between subjective norm and behavioural intention (Amin et al. 2011), there are also literature that show insignificant relationship between subjective norm and behavioural intention for instance Truong (2009), Ali, Zani, and Kasim (2014) as well as Ho et al. (2020).

For the Malaysian context, according to Fauziah et al. (2008), Ramayah, Rouibah, Gopi, and Rangel (2009), Amin et al. (2011), and Teo et al. (2012) subjective norm usually have a positive, significant relationship with behavioural intention. One reason given by Ramayah et al. (2009) is that Malaysians tend to conform to social norms and that the bonds between friends and families are close among Malaysians which is contradict to the Europeans scenario (Truong 2009).

Fauziah et al. (2008) attributed the voices of Ulama (panel of chief Muslim priest) or Shariah board members, family members and peers as an explanation to the positive coefficient between these two variables. For Indonesian context, subjective norms also has a positive significant relationship towards intention towards using e-money, which means that Malaysia's closest neighbour also conform to social norm that is Indonesian are likely to be influenced by their peers in terms of their willingness to use e-money (Aji et al. 2021).

H2: Consumers' subjective norm positively influences behavioural intention to adopt mobile banking in Islamic banking institutions.

2.6.3 Perceived Behavioural Control and Behavioural Intention

One of the most accepted definitions of perceived behavioural control is from Amin, Abdul-Rahman, and Abdul-Razak (2013) for the context of Islamic mortgage, who highlighted the ease or difficulty of performing a behaviour. In terms of its relationship to behavioural intention, it has a significant positive relationship which means that if a customer perceived that there are enough resources and support, there will be a higher adoption intention. Another study that addresses this variable of Ajzen's (1985) sub-dimension in a Muslim context is Husin and Rahman (2013). They listed relevant literature highlighting the positive significant relationship between perceived behavioural control and behavioural intention (Liao, Shao, Wang, & Chen, 1999; Armitage, 2005).

The positive relationships (Husin and Rahman 2013) were merely empirical matter and there was no impactful explanation behind it other than the original narrative by Ajzen (1991). Empirical evidence provided by Le, Nguyen, Nguyen, Nguyen and Le (2020) provided a closer example for mobile banking that is online

shopping that demonstrates a positive relationship between perceived behavioural control and behavioural intention. This shows that there are rooms for improvement in terms of Vietnamese IT infrastructure and initiatives from the government to encourage the usage of cashless transactions. Hong (2020) and Ho et al. (2020) demonstrated a good example by reporting a positive relationship between perceived behavioural control and behavioural intentions. Ho et al. (2020) mentioned that users who perceive mobile banking will run smoothly will be more likely to have the intention to use mobile banking. Based on this argument, the next hypothesis is as follows.

H3: Consumers' perceived behavioural control positively influences behavioural intention to adopt mobile banking in Islamic banking institutions

2.6.4 The Decomposed Determinants of Intention

This section explains the hypothesised relationship between each of the decomposed determinants and the determinants of behavioural intention as suggested by Taylor and Todd (1995). First, the explanation starts from the determinants of attitude which is perceived usefulness and its hypothesised relationship along with attitude. Second, the perceived ease of use and its hypothesised relationship with attitude. Third, the subjective norm and its determinants which are media influences, internal influences and influences from religious scholars. Finally, the perceived behavioural control and its determinants i.e., self-efficacy and facilitating conditions.

2.6.4.1 Perceived Usefulness and Attitude

The positive relationship between perceived usefulness and attitude is universal across the globe, from the Far East to Europe and the United States. Wang et al.

(2003) in a study of internet banking in Taiwan posited that perceived usefulness does have a significant influence towards behavioural intention. Gu, Lee and Suh (200) as well as Ho et al. (2020) in their studies in Korea postulate that perceived usefulness have a significant influence towards behavioural intention to use mobile banking. Gu, Lee and Suh (2009) explained that perceived usefulness is the most important determinant. Hong (2019) whose context is also in Korea, mobile banking found perceived usefulness is positively related to behavioural intention. Both Taiwan and Korea are major mobile phone producers, therefore it is unsurprising that perceived usefulness has a significant positive relationship with attitudes.

Meanwhile, in Europe, specifically for the context of Finland, once a major mobile phone producer, based on the empirical findings discovered by Pikkarainen, Pikkarainen, Karjaluoto, and Pahnila (2004), perceived usefulness is confirmed as one of the most important factors of online banking services. The results for Eastern Europe were similar although Hungary is not a mobile phone producer. Babic-Hodovic and Arslanagic-Kalajdzic (2019) also revealed positive relationship between attitude and mobile banking.

Using the sample of salesmen In India, in terms of the relationship between perceived usefulness and attitude in the context of sales technology, Upadhyay, Khandelwal, Nandan, and Mishra (2017) postulated that there is a positive relationship. This means that if adopting the sales technology will enhance productivity, it will motivate salesmen to use it. The same outcome also applies for millennials in the United States, the perceived enhancement of job performance is believed to create a positive attitude towards the sales technology especially in the context of mobile app usage among millennials (Leon 2018). Leon also highlighted the positive relationship between perceived usefulness and attitude. This shows that

in the context of mobile apps usage, the perception of usefulness does encourage a positive attitude towards mobile apps.

Similarly for the context of quick response (QR) payment in Malaysia whereby it is one of the functions of mobile banking. The positive relationship between perceived usefulness and attitude indicate that Malaysian consumers tend to opt for this technologies if they found it useful and beneficial for them (Ibrahim et al., 2019). Rehman and Sheikh (2020) focusing on mobile banking among the generation Y in Malaysia suggested a positive relationship between perceived usefulness and attitude. Another mobile banking study in Malaysia among university personnel's also postulated positive relationship for perceived usefulness and attitude (Sulaiman & Jauhari, 2021). In Malaysia, the positive relationship between perceived usefulness and attitude is applicable for Malaysian consumers in general, particularly the generation Y and the highly educated academic personnel. Based on the forgoing literatures, especially when there is almost similar study with similar geographical context, the hypothesis is as follows:

H4: Consumers' perceived usefulness positively influences attitude to adopt mobile banking in Islamic banking institutions.

2.6.4.2 Perceived Ease of Use with Attitude

Empirical findings over the past decade have provided evidence on the effect of perceived ease of use on behavioural intentions (Davis et al. 1989; Wang et al. 2003).Davis et al. (1989) for instance provided evidence of a positive significant relationship between the perceived ease of use in computer technology in the parts of United States and Canada while Wang et al (2003) despite its different setting, which is in Taiwan also provided the same evidence. A positive relationship is also evident

in the context of internet banking in Turkey (Celik, 2008). Based on these studies, it is therefore suggested that perceived ease of use is one of the direct determinants of attitude towards using internet banking.

Next, positive relationship between perceived ease of use and attitude is also observed for newer technologies in later studies. For instance, QR, which is one of the features of mobile banking, examined by Ibrahim et al. (2019), revealed a positive significant relationship between perceived ease of use and attitude. A positive relationship between perceived ease of use is also observed by Himel et al. (2021) in the context of mobile financial services apps in Bangladesh. This means customers will have a positive attitude towards mobile financial services apps when it is straightforward and understandable. Meanwhile, Rehman and Shaikh (2020) and Hong (2019) proposed customers are willing to adopt mobile banking if they think using mobile banking is hassle free. The hypothesis in this study is as follows:

H5: Consumers' perceived ease of use positively influences attitude to adopt mobile banking in Islamic banking institutions.

2.6.4.3 Shariah Compliance with Attitude

McDaniel and Burnett (1990) believed that religious beliefs strongly affect attitude. Max Weber (1905) posited when he suggested that Protestant ethics play a significant role in shaping the industrial revolution and the inception of European capitalism. For Muslim majority societies, these also include capital accumulation, the intention to fulfil the hajj and the strategic motivation of the zakat fulfilment; all of which can influence attitude and ultimately behaviour (Mulyadi, 2006).

Recent literature has also provided evidence for this relationship. Religiosity is argued to be strongly related to attitude (Abou-Youssef, Kortam, Abou-Aish, & El-Bassiouny, 2015; Souiden & Rani, 2015; Jaffar & Musa, 2016). However, it is important to note that Abou-Youssef (2015) and Souiden and Rani (2015) defined religiosity in terms of doctrine and ritualistic practices. Very few studies focused on Islamic banking and finance's specific variables. An exploratory study in Egypt carried out by Abou-Youssef et al. (2015) suggested religiosity as intrinsic, extrinsic and doctrinarian which lead to positive correlation on attitude towards Islamic banks. Souiden and Rani (2015) in their study on behavioural intention to purchase Islamic finance classified three types of religiosities i.e., religious beliefs, religious involvement and fear of divine punishment.

However, only two types of religiosities have a significant positive relationship with attitude, which are religious belief and divine punishment. Among the studies focusing on Islamic banking and finance specific variable is Jaffar and Musa (2016) that used the term religious obligation, which is perceived adherence to the Shariah principles. A confirmatory study conducted in Malaysia by Jaffar and Musa (2016) using religious obligations as the indicator of religiosity suggested there is a positive relationship between religiosity and attitude towards Islamic financing.

Kaakeh, Hassan and Almazor (2019) also studied religious obligation yet specifically on non-Shariah compliant in which they reported negative relationship with mobile banking attitude. Prior to that, Kaakeh et al. (2009) reported negative relationship between non-Shariah compliant and negatively worded instruments which was similar to positive influence towards Shariah compliant. Although negatively worded instruments were used to reduce acquiescence bias, there are many other biases that may arise, such as lesser internal consistency, disruption of

dimensionality and intercorrelation (Wong, Rindfleisch, & Burroughs, 2003; Salazar, 2015). Meanwhile, other studies like Saqib, Farooq and Zafar (2016) and Shome et al. (2018) focused on customer satisfaction and Islamic banking instead of attitude. This is worth mentioning because these studies examined Shariah compliance. Saqib et al. (2016) further postulated that there is a positive relationship between Shariah compliance and customer satisfaction. In the context of Islamic credit card usage of e-commerce in Malaysia, there is a positive influence of perceived religiosity in terms of Shariah compliance towards attitude. Hence the next hypothesis is:

H6: Consumers' perceived Shariah compliance positively influences attitude to adopt mobile banking in Islamic banking institutions.

2.6.4.4 Perceived Lifestyle with Attitude

When it comes to mobile there are at least two arguments with regards to lifestyle and attitude towards technology in banking. The first argument is that perceived lifestyle in terms of internet usage, a person whose life revolve along the internet will have more probability of adopting mobile banking. There are a few studies that support this argument namely Yu and Li (2015), Chawla and Joshi (2017), Pancho and Afonso (2018) as well as Chakiso (2019).

Chawla and Joshi (2017) suggested based on a sample of engineering graduates in India, there is a positive relationship between lifestyle and attitude towards internet banking which shows that internet savvy lifestyle would entail positive attitude towards internet banking. Yu and Li (2015) for the context of mobile banking in Taiwan have divided internet lifestyles into five different types based on the different user technology classifications.

The classification of lifestyle reminisces Roger's (1995) adopter categories of persons in a social system based on innovativeness. The categories are digital laggards, traditional banking likers, digital followers, digital carers and digital seekers constructed based on seven component e-lifestyle scale by Yu (2011) along with demographic profiles such as gender, education level, age and income. Yu (2015) argued that digital followers, digital carers and digital seekers are likely to adopt mobile banking. Similar with Yu and Li (2015) in the context of Jordan, Al Khasawneh and Irshaidat (2017) postulated that consumers who see that mobile banking is compatible with their lifestyle are likely to have favourable attitude towards mobile banking. The same outcome also applies for students from University of Ankara on mobile banking Turkey, in which computability in lifestyle leads to positive attitude (Chakiso, 2019).

Next, in the context of mobile payment for travel industry in Portugal, empirical evidence by Pancho and Afonso (2018) suggested that there is a positive relationship between perceived lifestyle compatibility and reuse intention. Pancho and Afonso (2018) explained that there is a higher reuse intention rate when mobile payment is perceived to be compatible with user's lifestyle. This argument is with regards to mobility whereby if a person is on the move most of the time, it is most likely that the person will adopt mobile banking (Teo & Pok, 2003).

H7: Consumers' perceived lifestyle positively influences attitude to adopt mobile banking in Islamic banking institutions.

2.6.4.5 Personal Innovativeness and Attitude

In the light of diffusion of innovation theory, personal innovativeness is argued to affect attitude. Agarwal and Prasad (1998) stated that people with high innovation

have higher probability to adopt new technology as affirmed by Turan, Tunç, and Zehir (2015) when they suggested that innovative people are more enthusiastic to learn and adopt new technology to complete their tasks.

The relationship between personal innovativeness and attitude can also be understood by looking at different societies. For societies that are less developed, technology can come as intriguing and exciting while in a developed society, technology can come as saturated and no longer interesting (Hanafizadeh et al., 2014). Examples provided by Chitungo and Munongo (2013) and Sarel and Marmorstein (2003) have illustrated technology acceptance in different societies. The Zimbabwean example by Chitungo and Munongo (2013) suggested that personal innovativeness has a positive relationship with mobile banking, showing that samples from less developed nations are intrigued with mobile banking and willing to adopt it.

Ho et al. (2019) in a comparative study of two countries, Vietnam, a less developed country and Taiwan, a more developed country, posited a positive relationship between innovativeness and intention for sample in Vietnam but insignificant relationship for sample in Taiwan. This indicates that for the Vietnamese, higher degree of innovativeness among consumers would entail more likelihood to adopt mobile banking. This also explains that in a relatively less developed society, it is more difficult for the sample to accept such technology. World Bank (2021) categorized Malaysia as an upper middle-income country. It is hypothesised that personal innovativeness would have a positive relationship with attitude:

H8: Consumer's personal innovativeness positively influence attitude to adopt mobile banking in Islamic banking institutions

2.6.4.6 Media influence and Subjective Norm

Media influence is non-personal information which mainly refers external influence that can influence potential adopters. Hung et al. (2006) in the context of e-government service in Taiwan, separated their samples into adopters and non-adopters of e-government filing system. It turned out to be that positive relationship between media influence and subjective norm only exist among the adopters group. In the context of e-government services, Zahid and Haji Din (2019) in a study among faculty members in universities in Pakistan postulated that external influence, as is what they termed as mass media influence has positive significant relationship with subjective norm.

However Fauziah et al. (2008) do not refer external influence as media influence. Instead, Fauziah et al. (2008) implied that external influence in terms of the opinions from Shariah board matters to people's subjective norm. It turns out that the relationship is positive and the strongest among other determinants. Zolait and Sulaiman (2009) suggested in the context of internet banking in Yemen, there is a positive relationship between media norms and subjective norm.

It seems that most, if not all studies pertaining external influence are referring to mass media influences and that it has positive significant relationship with subjective norm. In the present study, media influence may influence subjective norm hence the next hypothesis is as follows:

H9: Consumers media influence positively influences the subjective norm to adopt mobile banking in Islamic banking institutions

2.6.4.7 Internal influence and Subjective Norm

Most of the previous studies that examined the relationship between internal influence and subjective norm reported positive relationship. Empirical evidence from Bhattacherjee (2000) among American e-brokerage users demonstrated positive significant relationships among internal influences towards a subjective norm in a study of e-commerce services. Similar findings have also been reported by Hung et al. (2003; 2006) in Taiwan as well as Kazemi, Nilipour, Kamiry and Hoseini (2013) in Iran where there is also positive relationship between peer influence and subjective norm.

Another study is by Zolait and Sulaiman (2009) where there is a positive relationship between personal norms and subjective norm. Most of these studies were in the context of a relatively collectivist society which is influenced by other people when it comes to making decisions (Midilli & Tolunay, 2021). Therefore, recommendations from family, friends and colleagues can lead to significant effect. For instance, Hung et al. (2003; 2006) reported in the context of e-government services in Taiwan while Zolait and Sulaiman (2009) reported in the context of internet banking in Yemen and Kazemi et al. (2013) in the context of Mobile banking in Iran. All studies reported the significance of internal influence.

For the context of mobile payment in Greece, Giovanis, Tsoukatos and Vrontis (2020), perceived opinions from personal acquaintance seem to give positive affects towards subjective norm although Greece is in Europe. Nevertheless, Greece is one of Europe's most collective cultures (Kalogeraki, 2009). In the Malaysian

context, Ting, Yacob, Liew and Lau (2016) suggested positive relationship between internal influence and subjective norm for mobile payment system. It is understood that Malaysians are collectivist in culture (Ramayah et al., 2009). Therefore, the next hypothesis is as follows:

H10: Consumers' internal influence positively influences the subjective norm to adopt mobile banking in Islamic banking institutions.

2.6.4.8 Influence of Religious Scholars and Subjective Norm

Since the treaty of Westphalia (1648), the role of religious authority has been progressively diminished from every aspect of European society (Shiner, 1967). However, the impact of this treaty may affect differently for non-European societies. In Turkey, religious scholars whose often times have authoritative role in the society may cause impact towards people's decision-making process, especially in collective societies (Khan, Hameed, Khan, Khan, & Khan, 2021). The influence of religious scholars have been known to influence people's economic participation in Indonesia, a relatively collectivist society (Al Ma'soem, 2019). Therefore, the influence of religious scholars can give good insight towards consumers' decision-making process (Baazeem, 2015). Fauziah et al. (2008) mentioned the role ulama and Shariah board members as one of the explanations towards the results of subjective norm being a better determinant towards the acceptance of Islamic home financing. This however was just an explanation towards a particular result rather than an actual empirical result. Therefore, due to the lack of empirical study about the influence of religious scholars towards subjective norm, the hypothesis is as follows:

H11: Consumers' influence from religious scholars positively influences the subjective norm to adopt mobile banking in Islamic banking institutions.

2.6.4.9 Self-efficacy and Perceived Behavioural Control

There are several studies that support the positive relationship between self-efficacy and perceived behavioural control, namely Taylor and Todd (1995), Hung et al. (2006), Hsu et al. (2006), Tao and Fan (2017), Tavallaee, Shokouhyar, and Samadi (2017) and Hong (2019). In particular, Hsu (2006) in the context of m-coupons. M-coupons is a very specific coupon that is transmitted via mobile phones, in Hsu's (2006) case, through SMS suggested that the increase of self-efficacy increases the perceived behavioural control. This calls for the need to further educate consumers on m-coupons as it impacts their perceived behavioural control. Mobile banking, on the other hand, comprises many functions, from account balance checking and QR payment to remittance. Nevertheless, Hsu's (2006) is worth mentioning as it is also possible to incorporate m-coupons in the Malaysian mobile banking system.

A sample that consists of students in Iran in the context of mobile learning also showed a convincing, positive relationship between self-efficacy and perceived behavioural control (Tavellaee et al., 2017). This means that the Iranian students would response well if more effective training is given to them so that they are more confident in their capabilities in utilising mobile learning.

Hong (2019) and Ho et al. (2020) for the context of mobile banking in Korea, Taiwan and Vietnam whereby the empirical results suggest positive relationship between self-efficacy and perceived behavioural control, in which are more similar with the present study. The next hypothesis is as follows:

H12: Consumers' self-efficacy positively influences perceived behavioural control to adopt mobile banking in Islamic banking institutions.

2.6.4.10 Facilitating Conditions and Perceived Behavioural Control

Hung et al (2006) and Tao and Fan (2017) found a strong, positive relationship between facilitating conditions and perceived behavioural control. Zolait (2010), however, only found a marginal positive relationship between facilitating conditions and perceived behavioural control in the context of internet banking in Yemen. The reason for the marginal relationship is that the Yemenis trust their close acquaintances rather than the facilities available to use internet banking itself. In contrast, Tao and Fan (2017), in the case of e-toll collection in Taiwan, posited that the influence of family and media influence does not matter, but instead the users' perception towards the facilities can determine, without the influence of others, whether they intend to carry out with the behaviour.

Similarly, in the context of e-government services in Taiwan, the increase in facilitating conditions increases the perceived behavioural control, but this increase only applies for the existing users rather than the non-users of e-government facilities (Hung et al., 2006). The increased plausibility of Tao and Fan's (2017) argument, compared to Zolait's (2010), was that the impression towards the facilities really matters in shaping perceived behavioural control because improvement in the facilitating conditions only have impacts on the existing users. In the context of mobile banking in Vietnam and Taiwan, facilitating conditions also have a positive affect towards perceived behavioural control, which means that being alert of the possible barriers and improvement of troubleshooting would improve the perceived behavioural control (Ho et al. 2020). Hence the next hypothesis is as follows:

H13: Consumers' facilitating condition positively influences perceived behavioural control to adopt mobile banking in Islamic banking institutions

2.6.5 Moderating Variables

Demographic variables such as income, gender, region, age and education level are argued to provide better explanations for technological adoption (Venkatesh et al., 2003). Therefore, the present study examines these moderators in addition to the variables in the DTPB and the proposed variables.

2.6.5.1 Income

Income determines consumers' spending ability whereby people with higher income have better access to technology (Shiveen & Rahela, 2017). People with higher income are able to pay premium for technology (Hast, Alimohammadisagvand & Syri, 2015), however the context examined by Hast et al. (2015) is on renewable energy. In the context of this study, people are able to pay for faster mobile internet connection and smartphones with faster processing power and this will affect their attitude and behaviour towards technology (Hast et al., 2015). Since people are able to pay premium to get the best from technology, Ansari and Farooqi (2017), in the context of India found that people with high income are more willing to adopt mobile payment. In terms of mobile payment in Malaysia, the people with low income find mobile payment useful as compared to people with high income (Hee, Ying, Kowang & Ping, 2020). Hence, the following hypothesis is proposed:

H14: Income moderates the relationships in hypotheses 1-13

2.6.5.2 Gender

Several studies have identified significant differences between male and female attitude and behaviour towards technological adoption (Venkatesh, Morris & Ackerman, 2000). In the context of ICT in Belgium, male is argued to have more

positive attitude towards new technology (Broos, 2005). As for Midwestern America and Singapore, males are also found to be the dominant users of technology, particularly e-commerce (Rodger & Harris, 2003; Hui & Wan, 2007). According to Wong, Leong and Puah (2019), in the context of mobile internet in Malaysia, females are most likely to adopt technology when there is social influence. Similarly in the context of Qatar, according to Abeer, Habib and Khalid (2015), social influence in mobile payment intention is more prominent among females rather than males. Hew, Lee, Ooi and Wei (2015) examined gender difference in terms of mobile apps in Malaysia, but it turned out that it was insignificant. Nevertheless, the following hypothesis is proposed based on the findings of most literature related to mobile banking in Malaysia.

H15: Gender moderates the relationships in hypotheses 1-13

2.6.5.3 Region

Regional differences have been an essential factor that moderates technological adoption. Some studies divide regions as directions, such as north vs south while some divide regions as urban vs rural or core vs periphery and some classify regions into different tiers. The agglomeration effect theory states that the core areas will be the centre of infrastructural growth, which means better technological adoption as compared to peripheral areas (Tengku Feissal, 2005). For example, Southern Italy and Italian island are the least developed region and have the least amount of users of electronic means of payment (Ardizzi, Bonifacio, Demma & Painelli, 2020). In the case of Taiwan, people who reside in the urban areas are more prone towards using e-payment system rather than their rural counterparts (Hsieh, Yang, Yang & Yang, 2013). In India, the rate of mobile banking adoption is higher in the metropolitan

areas compared to tier-2 and tier-3 areas (Kumar & Debnath, 2018). The present study has identified Central Malaysia as the core region while East and North regions become the peripheral regions.

H16: Region moderates the relationships in hypotheses 1-13

2.6.5.4 Age

In the context of mobile payment in Qatar, younger customers have stronger impact in terms of social influence on intentions (Abeer et al., 2015). Sedhu, Megat Abdul Rahim, Yusuf and Zubir (2020) argued that in terms of the purchase of halal food in Kampar, the younger generations are easily influenced by their acquaintances. In the context of mobile banking, younger consumers have high familiarity in technology which is in favour of variables that are relevant to the ease of use and efficacy (Merhi, Hone, Tarhini & Ameen, 2021). Older consumers, on the other hand, are more resistant to change i.e., having negative attitude to a relatively new technology which is mobile banking (Laukkanen, Sinkkonen, Kivijarvi & Laukkanen, 2007). Sulaiman, Jaafar and Mohezar (2007) were more specific in their findings by stating that consumers between the ages of 21 and 30 are mostly the adopters of mobile banking in the context of Malaysia.

H17: Age moderates the relationships in hypotheses 1-13

2.6.5.5 Education Level

Higher education level is associated with better understanding of technology, hence individuals with higher education level have more probability of adopting technology (Hee at al., 2020). A study by Suthatorn (2019) in Thailand found the sample with higher education level has more probability of adopting mobile commerce. Similarly,

through a study of online music in Malaysia by Suki (2011), it was found that the highly educated are strongly affected by perceived ease of use. However, in a study of mobile banking in Saudi Arabia, low education group sample has relatively stronger moderating effects towards perceived ease of use in comparison to the high education group sample. The low educated sample consists of young university students who find traditional banking system inconvenient while mobile banking system as more ubiquitous (Alkhaldi & Kharma, 2019). As demonstrated in Section 1.2, the Middle East region is still dominated by traditional mode of banking relative to other regions of the world.

H18: Education level moderates the relationships in hypotheses 1-13

2.7 Summary

This chapter have reviewed different theories and concepts of the dependent and independent variables that is relevant for the present study. In terms of the underpinning theory that leads to the proposed model of the present study, this literature review have traced the origins of the proposed model, which is the TRA right up to the DTPB model and its application to different technologies in different geographical context, taking into account different cultures, which are relevant to the present study. In addition of the intention-based theories, secularisation theory was also discussed from its inception to its current state and in relation to the Malaysian context, in which religion is still relevant in Malaysian sphere of financial industry. The variables discussed were based on the DTPB model with the addition of proposed variables, in light of the secularisation theory

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

This study investigates the determinants of behavioural intention to use mobile banking through Islamic banks among Malaysian Muslim consumers. In order to explain this, the decomposed theory of planned behaviour (DTPB) provides a framework to test the hypotheses based on the determinants of behavioural intention. In addition to the DTPB variables, the aspects of Shariah compliance and influence of religious scholars may also influence the attitude, and ultimately the behavioural intention of using mobile banking in Islamic banks. This chapter describes the research and sampling design, operationalization and measurement of variables, questionnaire design, data collection strategy, data screening and data analysis. The pilot test and pre-testing process performed before the primary data collection will also be presented.

3.1 Research Design

A research design oversees the whole formation and organisation of the research activities. It determines the different types of data gathered and interpreted in order to answer research questions. In order to recognise which methodological approach suits this research, it is important to understand the ontological and the epistemological aspects (Saunders, Lewis, Thornhill, & Bistrow, 2015).

In a nutshell, ontology is a study dealing with “being”. There are two confronting stances i.e., objectivism and subjectivism (Saunders, Lewis, Thornhill & Bistrow, 2015). Saunders et al. (2015) stated objectivism asserts that social entities exist in a reality external to, and independent of, social actors concerning their

existence. Subjectivism, on the one hand, asserts that social reality is made from the perceptions and consequent actions of people. This study believes the ontological stance is objectivism in which social reality is external to the mind of people. The first reason for this stance is it enables researchers to study a social phenomenon and interpret the meaning in a way that is independent from the will of social actors. For the present research, mobile banking is perceived as social reality with social actors such as banks, service provides and users. Second, this position is linked to positivist epistemology which will be explained in later paragraphs.

Epistemology is an aspect of philosophy that has to do with enquiring about the knowledge of social reality through research methods and validation of hypotheses (Grix, 2002). Among the common approaches are the hermeneutical approach and positivist approach. For the hermeneutical approach, the purpose is towards exploring and understanding the said phenomenon rather than describing and estimating it. A typical hermeneutical approach to research involves unstructured data that is gathered through fieldwork studies and case research methods. Since the study of mobile banking is relatively new as compared to banking or internet banking, the hermeneutical approach might seem appropriate. However, the theories on which this study of mobile banking is based has already been long established. It is known that mobile banking is recently developed as an extension of internet banking, which has received a considerable amount of attention in academia. Therefore, a purely hermeneutical as in exploratory research might not be suitable for the context of this research since only a small exploratory part of the study involves while designing the questionnaire.

In a nutshell, positivistic approach is used when a researcher describes and estimates the phenomenon in a question (Ponterotto, 2005). This kind of research

usually requires formulation of the theories involved, gathering data through surveys with a large sample size and analysing quantitative data by means of statistical methods. Theories that are involved in this study are the theory of planned behaviour and diffusion of innovation. Questionnaires were designed, distributed and collected via online survey and structural equations modelling (SEM) was used for analysis.

One suitable research design that is based on a positivist approach is a descriptive research. Descriptive research is deemed suitable for the context of this research because this research is looking at intentions towards using mobile banking in Islamic banks, implying the description of characteristics and behavioural patterns of Islamic banking customers. There are two types of descriptive studies i.e., longitudinal and cross-sectional (Rindfleisch, Malter, Ganesan, & Moorman 2008). This research applied quantitative cross-sectional study involving a sample of the population proposed.

3.2 Operationalization and Measurement of Variables

Earlier measurements of variables are criticised because of its low reliability due to its single-item scales (Churchill, 1979). This can be seen in early religiosity variables that is too simplistic. For instance, church attendance or church contribution is one of the many single item measurements which prevents a deeper understanding of individual differences in religiosities in a complex society in modern times (Yeniaras & Akarsu, 2016).

To have a better understanding of the variables, the use of a multi-item scale would be more appropriate. The variables in the proposed model are measured based on participants' self-perception. With exceptions of the demographic variables, all other variables are measured using a five-point Likert type scale (strongly disagree,

disagree, neutral, agree, and strongly agree). In each statement, respondents were asked the extent to which they agree or disagree. All the measurement items and variables are either adapted or adopted from previous studies in the fields of banking technology, mobile technology, and Islamic banking amongst others. In order to ensure that all items really capture the conceptual definition of constructs proposed, it is important that uni-dimensionality test is done (Ziegler & Hagemann, 2015). The remaining part of this section will explain the measurement of each of the variables along with the related previous literatures.

3.2.1 Attitude

The operational definition of attitude is the adopter's feelings about the adoption of mobile banking in Islamic banks. Measuring attitude is important to understand to what extent the potential adapters favour mobile banking (Shih & Fang 2004). The items involved include potential adapters' level of happiness, interest, at ease and enjoyment if they adopt mobile banking. This can be seen in Table 3.1.

Table 3.1
The Questions That are Used as Instruments for Attitude

Statement	Source
I would feel happy if I use mobile banking in Islamic banking institutions (IBI).	Chen (2013)
Using mobile banking via IBI would be interesting	Chen (2013)
I would feel at ease when I am using mobile banking via IBI	Chen (2013)
I would enjoy doing online transactions using mobile banking via IBI	Chen (2013)

3.2.1.1 Perceived Usefulness

In measuring perceived usefulness, this research adapted Davis's (1989) items in Table 3.2 which include the extent to which the use of mobile banking is perceived to be decreasing the time required for respondents' bank activities. Furthermore, items such as the extent to which mobile banking will increase productivity and effectiveness in work or study of respondents, were also included. Thus, perceived usefulness can be operationally defined as the degree to which using mobile banking via Islamic banking institutions can save time, improve performance, and increase in effectiveness in performing consumer's daily tasks.

Table 3.2
The Questions that are used as Instruments for Perceived Usefulness

Statement	Source
I think that if I use mobile banking, it reduces the time required for my Islamic banking transactions.	Davis et al. (1989)
I think that if I use mobile banking, it improves my performance in my Islamic banking transactions.	Davis et al. (1989)
Using mobile banking would improve my daily productivity	Davis et al. (1989)
Using mobile banking would enhance my effectiveness in my Islamic banking transactions.	Davis et al. (1989)

3.2.1.2 Perceived Ease of Use

The definition goes the degree to which the use of mobile banking via Islamic banking institutions is easy and does not require too much effort to learn. Operational definition is needed when measuring this variable with the items outlined by Luarn and Lin (2005) (Table 3.3). Among the items are about the extent to which mobile banking is easy to use and does not require a lot of knowledge and technical skills.

Table 3.3
The Questions that are used as Instruments for Perceived Ease of Use

Statement	Source
I think that learning to operate mobile banking for Islamic banking transactions is easy for me.	Luarn and Lin (2005)
I think that it would be easy to adopt mobile banking to accomplish Islamic banking transactions.	Luarn and Lin (2005)
I think that the use of mobile banking via Islamic banking institutions (IBI) does not require a lot of knowledge.	Luarn and Lin (2005)
I think that mobile banking menu via IBI would be easy to navigate.	Chawla and Joshi (2018)
I think that using mobile banking via IBI do not require a lot of technical skill	Chawla and Joshi (2018)
I think that it would be easy to see on my mobile phone's screen	Chawla and Joshi (2018)

3.2.1.3 Shariah Compliance

For this research, items that measures Shariah compliance as suggested by Ali et al. (2018) is used (Table 3.4). It is operationalized as the perception of extent to which consumers believe that mobile banking via Islamic banking complies with the Shariah as in free from interest, does not contain gharar and does not contain fraud. Among the relevant items are items related to *riba* and *gharar* which are essential in studying mobile banking. This variable is measures based on the degree of agreeableness when it comes to statements that suggest the prohibition of *riba* or uncertainty in mobile banking transactions.

Table 3.4
The Questions that are used as Instruments for Shariah Compliance

Statement	Source
I think that mobile banking in Islamic banking institutions operate according to the Shariah law.	Ali et al. (2018)
I think that mobile banking in Islamic banking institutions are based on Islamic philosophy.	Thaker et al. (2016)
I think that mobile banking in Islamic banking institutions does not contain interest in all forms of transactions.	Ali et al. (2018)
I think that mobile banking in Islamic banking institutions does not contain interest in online shopping transactions.	Ali et al. (2018)
I think that mobile banking in Islamic banking institutions does not contain uncertainty (gharar) in all forms of transactions.	Thaker et al. (2016)
I think that mobile banking in Islamic banking institutions does not contain uncertainty (gharar) in online shopping transactions.	Thaker et al. (2016)
I think that mobile banking in Islamic banking institutions does not contain fraud in online shopping transactions.	Ali et al. (2018)

3.2.1.4 Perceived Lifestyle

The definition of perceived lifestyle is the extent to which mobile banking via Islamic banks fit one's lifestyle specifically in terms of the management of their daily tasks, finances, and profession. Items provided by Chawla and Joshi (2018) in Table 3.5 have demonstrated robust results in measuring perceived lifestyle.

Table 3.5
The Questions that are used as Instruments for Lifestyle

Statement	Source
Mobile banking via Islamic banking institution (IBI) would be compatible with my lifestyle.	Chawla and Joshi (2018)
Adopting mobile banking in IBI would fit well with the way I like to manage my finances.	Chawla and Joshi (2018)
Adopting mobile banking to conduct Islamic banking transactions would fit well into my working style.	Chawla and Joshi (2018)
I think that mobile banking via IBI would fit in well with my self-image.	Chawla and Joshi (2018)
I would find mobile banking services in IBI are compatible with my occupation.	Chawla and Joshi (2018)

3.2.1.5 Personal Innovativeness

The operational definition of personal innovativeness is a degree of eagerness of being the earliest to adopt new technology. This research adopted the items used by Agarwal and Prasad (1998) to measure personal innovativeness. This variable measures the extent to which people are accepting towards new technology (Table 3.6).

Table 3.6
The Questions that are used as Instruments for Personal Innovativeness

Statement	Source
If I heard about a new technology, I will look for ways to experiment with it	Agarwal and Prasad (1998)
Among my peers I am always the first to try out new information technologies	Agarwal and Prasad (1998)
In general, I am not hesitant to try out new information technologies	Agarwal and Prasad (1998)
I like to experiment with new information technologies	Agarwal and Prasad (1998)

3.2.2 Subjective Norm

This variable is operationalized in terms of the degree to which consumer's social pressures influence, the desirableness of using mobile banking technology for Islamic banking transactions. These include close acquaintances such as family members, colleagues and friends and people who are not acquainted with, which can be seen in a form of questions stated in Table 3.7.

Table 3.7
The Questions that are used as Instruments for Subjective Norm

Statement	Source
People who are close to me recommend the use of mobile banking via Islamic banking institutions (IBI).	Mathieson (1991)
People who influence my behaviour views mobile banking via IBI as beneficial.	Mathieson (1991)
People whose opinions I value, thinks that mobile banking via IBI is a good idea.	Mathieson (1991)
It is trendy if I adopt mobile banking via IBI	Teo et al. (2012)

3.2.2.1 Media influence

The operational definition of media influence is the degree to which the mass media have influence towards consumers to steer into a positive attitude in making their decision to adopt mobile banking. The questions in Table 3.8 measures the extent to which media reports influence adopters to use mobile banking in Islamic banks.

Table 3.8
The Questions that are used as Instruments for Media influence

Statement	Source
According to the news reports that I came across, using mobile banking via Islamic banking institution (IBI) is a good way of doing banking.	Bhattacherjee (2000)
Advertisements on mass media suggest that people should use mobile banking via IBI.	Bhattacherjee (2000)
I read/saw news reports that using mobile banking was a good way of doing banking	Bhattacherjee (2000)
The popular press depicted a positive sentiment for using mobile banking	Bhattacherjee (2000)
Mass media reports influenced me to try out mobile banking	Bhattacherjee (2000)

3.2.2.2 Internal influence

The operational definition of internal influence is the extent to which prior users who have been acquainted with the consumers such as peers, colleagues and friends think that using mobile banking via Islamic banking institutions is a good idea. Internal influence measures the degree to which family members, friends, colleagues or superiors and other earlier adopters influence potential adopters to use mobile banking in Islamic banks as illustrated in Table 3.9.

Table 3.9
The Questions that are used as Instruments for Internal influence

Statement	Source
My friends think that I should use mobile banking via Islamic banking institutions (IBI) for banking transactions.	Bhattacherjee (2000)
People I know think that using mobile banking via IBI is a good idea.	Bhattacherjee (2000)
People I know influence me to try out	Bhattacherjee (2000)

mobile banking for my banking activities via IBI.	
Bank staffs of Islamic banks suggest that I should utilize mobile banking.	Bhattacherjee (2000)

3.2.2.3 Influence of Religious Scholars

The measurement of influence of religious scholars in Table 3.10 is about the same as the measurements of external and internal influence that is adapted from Bhattacherjee (2000) except for a few tweaks to suit this research. It is measured by the extent to which, instead family members, friends, or colleagues as suggested by Bhattacherjee (2000), this study specified local religious scholars, such as an Ustaz or an Imam or a religious personality in television influence potential adopters to use Mobile banking via Islamic banking. In measuring this construct, the influence from religious scholars is operationally defined as the extent to which respondents believe that religious scholars would want them to adopt mobile banking via Islamic banking institution, be it through personal acquaintance and mass media.

Table 3.10
The Questions that are used as Instruments for Influence of Religious Scholars

Statement	Source
Muslim scholars that I know personally think that I should use mobile banking via Islamic banking institutions (IBI) for banking transactions.	Bhattacherjee (2000)
Muslim scholars that I know personally think that using mobile banking via IBI was a good idea.	Bhattacherjee (2000)
Muslim religious scholars that I know personally influence me to try out mobile banking for my banking activities via IBI.	Bhattacherjee (2000)
One of Muslim religious scholars that I know personally suggests that I should utilize mobile banking.	Bhattacherjee (2000)
Religious lectures through mass media	Bhattacherjee (2000)

suggest that people should use mobile banking via IBI.	
Religious lectures in all media channels influenced me to try out mobile banking via IBI.	Bhattacherjee (2000)
Muslim scholars that I know through the mass media thought that I should use mobile banking via Islamic banking institutions (IBI) for banking transactions.	Bhattacherjee (2000)
Muslim scholars that I know through the mass media thought that using mobile banking via IBI was a good idea.	Bhattacherjee (2000)

3.2.3 Perceived Behavioural Control

The operational definition of perceived behavioural control is the degree to which consumers themselves think that they are able to and have sufficient resources to operate mobile banking via Islamic banking institutions. Perceived behavioural control is measured by the belief that a person is able in terms of knowhow and resources to adopt mobile banking in Islamic banking institutions (Table 3.11). Among the instruments used are questions on the ability and availability of the resources for respondents to use mobile banking, which are adapted from Taylor and Todd (1995).

Table 3.11
The Questions that are used as Instruments for Perceived Behavioural Control

Statement	Source
If I want to, I could use mobile banking via Islamic banking institutions (IBI).	Taylor and Todd (1995)
It would be possible for me to use mobile banking via IBI.	Taylor and Todd (1995)
I am able to use mobile banking sufficiently well for my banking transactions via IBI.	Taylor and Todd (1995)
If I use mobile banking via IBI, it will be entirely within my control.	Taylor and Todd (1995)

3.2.3.1 Self-efficacy

The operational definition of self-efficacy is the assessment of consumer's level of comfort, ability, and independence to operate mobile banking provided by Islamic banking institutions. For the purpose of mobile banking study, measuring self-efficacy is in terms of self-assessment on the possibility of using mobile banking successfully, using items that relate to the comfort and ability to adopt mobile banking in Islamic banks. The items can be seen in Table 3.12 which are questions that are adapted from Taylor and Todd (1995).

Table 3.12
The Questions that are used as Instruments for Self-Efficacy

Statement	Source
I think that I could complete a transaction using mobile banking via Islamic banking institutions (IBI) even if there was no one around to tell me what to do.	Taylor and Todd (1995)
I think that I could complete a transaction using mobile banking via IBI if I could call someone for help if I got stuck.	Taylor and Todd (1995)
I think that I could complete an Islamic banking transaction using mobile banking if I had a lot of time to complete a job I started.	Taylor and Todd (1995)
I think that via mobile banking, I could complete Islamic banking transaction if I had just the built-in help facility for assistance.	Taylor and Todd (1995)
I think that I could complete a transaction using Mobile banking via IBI even though I had never used such system before.	Taylor and Todd (1995)

3.2.3.2 Facilitating Condition

This variable is operationalized by facilitating conditions being measured in terms of the extent to which the availability or inability of resources would affect the decision

of adopting mobile banking services in Islamic banks. The items that are in Table 3.13 are used to measure facilitating conditions which are adapted from Taylor and Todd (1995). The measures are in terms of the resources required, the access of hardware and the constrains.

Table 3.13
The Questions used as Instruments for Facilitating Conditions

Statement	Source
I believe that I have the necessary smartphone to use mobile banking via Islamic banking institutions (IBI).	Taylor and Todd (1995)
I believe that I have the necessary knowledge to use mobile banking via IBI.	Taylor and Todd (1995)
I feel that I am constrained by the lack of resources if I intend to adopt mobile banking via IBI.	Taylor and Todd (1995)
I feel comfortable using mobile banking via IBI.	Taylor and Todd (1995)
I believe that mobile banking via IBI is compatible with other technologies that I use.	Taylor and Todd (1995)

3.2.4 Behavioural Intention

Behavioural intention operational definition is an individual's willingness to adopt mobile banking services via Islamic banking institutions. To measure this variable, the items in Table 3.14 are adapted from two main sources that are Venkatesh et al. (2008) and Chawla and Joshi (2019). The items include statements that predicts, plan and whether it is worthwhile for the respondents to use mobile banking

Table 3.14
The Questions used as Instruments for Behavioural Intention

Statement	Source
I intend to utillise mobile banking via Islamic banking institutions (IBI) in the near future.	Venkatesh et al (2008)

I predict I would use mobile banking via IBI in the next months.	Venkatesh et al (2008)
I plan to adopt mobile banking via IBI in the next months.	Venkatesh et al (2008)
I believe that it is worthwhile for me to adopt mobile banking via IBI.	Chawla and Joshi (2019)
Mobile banking via IBI is crucial to fulfil my banking needs.	Chawla and Joshi (2019)

3.3 Sampling Design

This study chose convenience sampling for the reasons stated in the previous section i.e., the inability to obtain data due to the prohibition stated in the Malaysian Financial Services Act (Bank Negara Malaysia, 2013). Convenience sampling is one of the varieties of non-probability sampling that involves freedom to choose anyone who is willing to take part in a study (Cooper & Schindler, 2014). The questionnaire in a Google form link is distributed through social media such as Facebook and Instagram. Respondents' voluntary share the questionnaire link through their own social media accounts i.e., Facebook, Instagram and WhatsApp accounts, which could also considered as snowball.

Because of the strict banking regulations in Malaysia, probability sampling is ruled out because it is impossible to obtain the sampling frame. According to the secrecy provision under Section 133 of the Financial Services act (2013)[2], this provision explicitly prohibits bank personnel to reveal any information of any bank customers. Reynold, Simintiras, and Diamantopoulos (2003) suggested that non-probability sampling is viable when retrieving data for the sampling frame is not possible. This research needs a list of Islamic banking customers' accounts, which was impossible to obtain. Therefore, non-probability is acceptable.

[2] http://www.bnm.gov.my/documents/act/en_fsa.pdf

It is also important to emphasise that neither the statistical generalisation nor the behaviour of the population is the goal. Instead, one of the goals of this study is to test the DTPB to study the determinants of behavioural intentions of mobile banking usage in Islamic banks, which also makes non-probability sampling acceptable (Leary, 2001). There are three main reasons for approaching the target samples through social media, which are convenience and inclusion. Accessing the questionnaire requires respondents to just click a link to answer the questions at their own pace. Almost everybody has one kind of social media that are interconnected with other social media through various platforms be it in computers, tablets, and mobile phones. Lastly, direct distribution is almost impossible due to the Movement Control Order (MCO) and the public fear of face-to-face interaction of questionnaire distribution.

3.3.1 Sample Size

Determining a sample size is a complex issue because it is related to the magnitude of the relationship between variables, the statistical power and significance level (Forza, 2002). Prior to determining the sample size, it is important to note that the population for this study is Muslim customers who are the holders of Islamic banking account. Both large and small sample sizes have advantages. A large sample size, for instance, would entail less sampling variability and reduced Heywood cases[3] (Muthén & Muthén, 2008). A small sample size, on the other hand, would alleviate problems with heterogeneity and problems associated with chi-square (Muthén & Muthén, 2008).

[3] It is an indication that there is a violation of a common factor model

One of the earliest ways to determine the minimum sample size is by multiplying the number of variables by ten (Roscoe, 1975), which makes the minimum number of sample 130. Everitt (1975) and Kline (2011) on the other hand suggested item to a range of response ratios, for instance three to twenty responses per item. Another way to determine the minimum number of sample size is by means of G*power software (Erdfelder, Buchner, & Lang 2009) where sample size is calculated as a function of user-assigned values for the to-be discovered population effect size ($f2$), necessary significance level (α), the anticipated statistical power (1 - β), with total number of predictors in the research model. Some types of analyses seem to have a rule of thumb for the number of minimum sample size. Tabachnick and Fidell (2007), for instance, suggested that a sample size of 300 should be comforting for a factor analysis. For SEM, according to Kline (2011) a typical minimum sample size is 200. Krejcie and Morgan (1970) suggested that if the population size is more than 1 million, then the sample size is 384.

Drawing upon the suggested sample sizes studies done by Roscoe (1975), Tabachnick and Fidell (2007) and Kline (2011), there are several methods that are suggested, some by: calculations and rule of thumb. In view of G*power estimates based on 13 independent variables, it is suggested that the number of sample size to be 189, which is higher than what Roscoe (1975) suggested but lower than Tabachnick and Fidell (2007) and Kline (2011). In Figure 3.1, the critical F value is the difference between the β and α.

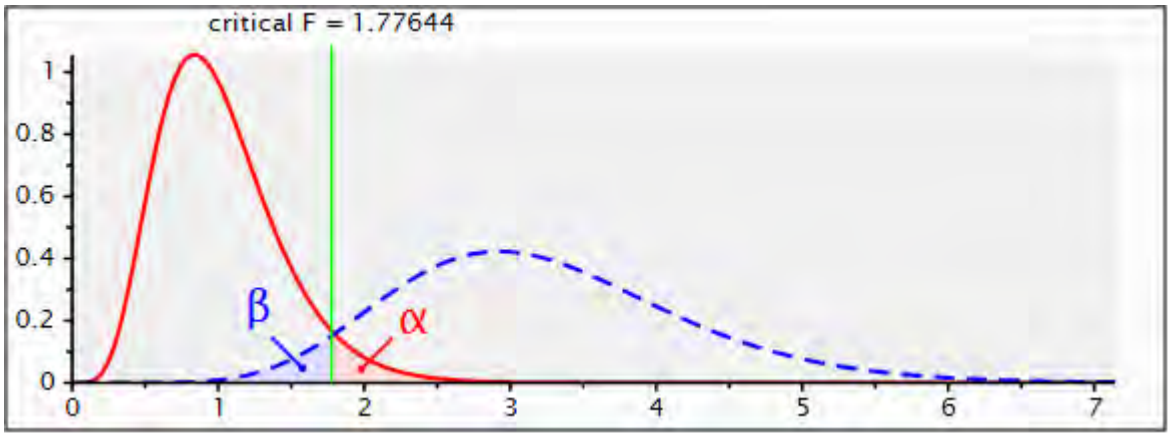


Figure 3.1
*Central and Non-Central Distributions for G*power*
Source: G*power 3.1.9.2

3.4 Questionnaire Design

After gathering the question from the literatures for the respective variables, a questionnaire is drafted in English and professionally translated in Bahasa Malaysia by two translators. For the purpose of this study, a structured questionnaire is used, which means that standard form of questions is applied to all respondents. The questions consist of fixed alternative questions with five possible answers, better known as Likert scale. In a nutshell, Likert scale is a scale which allows respondents to express how much they agree or disagree with a statement.

The physical questionnaire that has been created is redesigned into an electronic form using Google forms, which is free of charge. The front page of the questionnaire states the purpose of the study, the background of the researchers and a disclaimer that guarantees anonymity for the respondents. At any point of the questionnaire development, there is a link that can be shared on different platforms. The link can be posted in any social media platforms i.e., Facebook, Instagram and WhatsApp in which potential respondents can either click on it or copy the link and

reach it on their search engine. According to Kayam and Hirsch (2012) Facebook seems to have the best coverage in terms of questionnaire distribution.

For the first part of the questionnaire, there are some basic demographic questions such as gender, marital status, age, education level, working status, and income level. These questions are for the purpose of understanding the demographic profile of the respondents. The second part consists of questions related to attitude, perceived usefulness and perceived ease of use. Then the question with regards to Shariah compliance, lifestyle and innovativeness are asked. The rest of the variables and items such as subjective norm, media influence, internal influence, influence of religious scholars, perceived behavioural control, self-efficacy, facilitating condition and intention are asked.

The questionnaire was first constructed in English language but since the study was done in Malaysia among Malaysians, this questionnaire was translated into Malay language by two Malay language experts. The two translated Malay versions of the questionnaire are compared for consistency.

3.5 Pre-test

Pre-test is essentially testing a questionnaire on a small sample of respondents to identify and eliminate potential problems. The purpose of conducting pre-test is to evaluate the content and face validity. A total of thirty questionnaires were distributed by hand to respondents. Respondents of a pre-test were encouraged to provide feedbacks on any questions they find ambiguous or difficult to answer. It took them 10-15 minutes to answer all the questions. Based on the feedbacks received from the pilot test, the proposed questionnaire can be refined in terms of the

common errors found in it as the question wording, order, redundancy, missing questions, confusing questions and poor scale items (Leary, 2001; Creswell, 2013).

Most respondents need clarification of the term *gharar*, which is an Arabic word, in which notes were inserted in the questionnaire to clarify the meaning of *gharar*. Professor T. Ramayah of Universiti Sains Malaysia suggested some word changes to make the questions suitable with the dependent variable that is intention, for instance, the phrase "mobile banking via Islamic banking institutions is compatible with my lifestyle", the word "would be" was added, replacing "is". Therefore, the current phrase being used is "mobile banking via Islamic banking institution would be compatible with my lifestyle". Faiz Hamsidi, a Fund Manager at Libra Invest Berhad highlighted the statement "mobile banking via IBI doesn't contain interest and *gharar* in online shopping transactions", which needs clarification, thus a clarification was added concerning *gharar*. Meanwhile, Dr Raja Rizal Iskandar Raja Hisham identified a double-barrelled statement, "I had the resources, knowledge, and ability to use mobile banking in Islamic banks" which was amended to "I have the resources to use mobile banking via IBI". Associate Professor Dr Rosemaliza Abd Rashid helped in the clarification of the word *gharar*.

3.6 Pilot Test

At this stage, the questionnaire was in its final form and its reliability was tested. Cronbach's alpha test was used to analyse the extent to which instrument items are homogenous and reflect the same primary construct (Cronbach, 1951). Next, SPSS was used to analyse the data obtained from 30 respondents during the test. The results in Table 3.15 show that the instrument was at least acceptable. Meanwhile,

preliminary data analysis was done using SEM. The results from the analysis could also be used to see if major deviations from the hypotheses exist.

Table 3.15
Cronbach's Alpha for Pilot Test

Variables	Cronbach's Alpha
Attitude	0.976
Perceived Usefulness	0.799
Perceived Ease of Use	0.789
Shariah Compliance	0.849
Lifestyle	0.927
Personal Innovativeness	0.909
Subjective Norm	0.927
Media influence	0.938
Internal influence	0.932
Influence Religious Scholars	0.936
Perceived Behavioural Control	0.940
Self-efficacy	0.819
Facilitating Conditions	0.735
Behavioural Intention	0.766

3.7 Data Collection Strategy

In order to reach potential respondents, Malaysian celebrities and social media influencers who have more than half a million followers were contacted. A video was created to attract and explain about the questionnaire and the research. In the present study, a total of eight celebrities were contacted but only four celebrities responded and posted the video and link to the questionnaire. Furthermore, four viral accounts also responded and posted the video and link to the questionnaire. The reason for using these avenues were to utilise their influence through social media account to reach out for more respondents. These celebrities and viral social media accounts were contacted via mobile phones, WhatsApp messaging and direct messaging via Facebook or Instagram. Moreover, there were also respondents that

voluntarily helped to spread the questionnaire through their own Facebook, Instagram and WhatsApp group. The link to the questionnaire was posted on April 2020 on the platforms mentioned without specific days or times because the celebrities and influencers involved were contacted at different times, therefore the link was posted on their social media accounts at different times during the month.

3.8 Data Screening Process

Data screening process is argued to help increase reliability (Churchill, 1979). It involves a set of statistical tests whether the required assumptions to perform advanced statistical analysis, particularly Structural Equations Modelling SEM are met (McDonald & Ho, 2002). Among the relevant statistical tests are missing data, outliers, and normality check. Next is the descriptive step including frequencies, means, variances and standard deviations.

3.9 Data Analysis Procedures

Two statistical packages used extensively in this study are statistical package for social science (SPSS) and the SmartPLS. The SPSS was mainly used in the earlier stage of data analysis for data screening, while the Partial Least Squares by means of SmartPLS is used for hypothesis testing.

3.9.1 Descriptive Statistics

As suggested by Hair et al. (2006), it is imperative to examine the data that is going to be analysed. By having this initial examination of data, researchers can identify discrepancies in the data that include missing data, inattentive responses, outliers and any abnormalities. Additionally, the SPSS was also used to run an

analysis for the demographic characteristics and the descriptive statistics in terms of means, standard deviations, constructing tables, charts and graphs.

3.9.2 Common Method Variance

Common method variance (CMV) or common method bias (CMB) is a bias that occurs when variations are in responses to the instrument rather than the actual answers given by the respondents (Podsakoff, Mackenzie, Lee & Podsakoff, 2003). Consequently, this affects the relationship between constructs to become inflated or deflated, leading to type 1 and type 2 errors (Podsakoff et al., 2003). Nevertheless, authors such as Fuller, Simmering, Atinc, Atinc and Babin (2015) argued that should CMV exist, it may or may not pose significant biasing level of inflation or deflation of results.

3.9.3 Hypothesis Testing

SEM was used once issues regarding the earlier stage of data analysis were addressed. SEM allowed researchers to empirically test their theories. SEM is a general term that include covariance based (CB) PLS SEM. PLS-SEM is uses a regression based Ordinary Lease Squares (OLS) to explain the variance of latent constructs by maximising the R2 values and minimising the error terms of the endogenous constructs (Hair, Black, Babin, & Anderson, 2014). It is similar to the combination of factor analysis and regression analysis (Reisinger & Turner, 1999). In its most general form, SEM consists of two parts, i.e., the measurement model and the structural equations model. The measurement model is part of the model that examines the relationship between latent variable and its measures. This is important for sociological research when dealing with latent constructs such as intention,

attitude, and perception, which cannot be measured directly. The structural equations model specifies the causal relationship between latent variables.

Confirmatory factor analysis (CFA) is an important step in investigating the relationship between the latent variables and its indicators and testing the validity and reliability of the indicators (Jöreskog & Sörbom, 2005). However, before the CFA, it is important to consider the instrument that is used. This research used a five-point Likert scale that consists of strongly disagree, disagree, neutral, agree and strongly disagree.

3.9.4 The Partial Least Squares (PLS) Path Modelling Method

To date, there are two distinguishing techniques of SEM, they are the covariance based and the variance based technique (Hair Jr., Matthews, Matthews, & Sarstedt, 2017). Covariance based technique (CB-SEM) typically uses software such as AMOS by means of SPSS, M-Plus and LISREL with its own LISREL software that follows a maximum likelihood (ML) estimation. The variance-based technique on the hand uses ordinary least squares (OLS) estimation using the SmartPLS software.

The methodology chosen for this research was the PLS path modelling method. The reason for choosing this methodology is due to its confirmed effective method commonly used in studies concerning, information system, online commerce and mobile banking (Chaouali & El Hedhli, 2019). This methodology is often the method of choice because it is non-parametric, which means it can handle non-normal data which is common among data survey and small sample size (Tenenhaus, Vinzi, Chatelin, & Lauro, 2005; Hair, Ringle, & Sarstedt, 2014).

In addition, this study used latent variables and it is considered as unobservable nature which cannot be measured directly. However, it can be estimated by using a manifest variable, which is observable and empirically measurable. The model that is proposed consists of the aforementioned latent and observable variables that are constructed based on theory of planned behaviour.

In total, for the purpose of this study, a total of 14 latent variables were analysed. The variables are attitude (ATT), perceived usefulness (PU), perceived ease of use (PEOU), Shariah compliance (SHAR), lifestyle (LSY), personal innovativeness (PIN), subjective norm (SN), internal influence (INT), media influence (MDF), religious scholars influence (RS), perceived behavioural control (PBC), self-efficacy (SE) and facilitating condition (FC). Most of these constructs are adopted from the decomposed theory of planned behaviour (DTPB).

In PLS-SEM, there are structural and measurement models. For the structural model, Hair, Sarstedt, Hopkins and Kuppelweiser (2014) suggested that the first step in conducting PLS-SEM is creating a path model that connects the constructs and variables based of theory and logic, which is, in this present study, the DTPB. This path model will look something like Figure 1.3. Hair et al. (2014) also emphasised the importance distinguishing the location of the constructs and the relationships between them. After the structural model is designed, the next step is to proceed with the measurement model. A few things must be decided related to the measurement model i.e., (i) whether the scale is single or multiple and (ii) whether the item is specified as formative or reflective. This study used multi-item reflective items.

3.9.5 Reflective Versus Formative Models

An important matter that needs to be addressed is the two broad types of causality direction between latent constructs and its items (Kline, 2011; Mackenzie, Podsakoff, & Podsakoff, 2011; Hair et al., 2014). The first type of causality direction is from the latent variable to the item, which is based on the idea that the latent variable causes the items. The second type of causality is from the item to the latent variable, which is based on the idea that items cause the latent variable. Each type of causality has their own method of evaluation of reliability and validity. Reflective measurement model evaluation includes internal consistency evaluation, convergent validity, and discriminant validity. On the other hand, formative measurement model is evaluated by means of convergent validity, collinearity, and the significance of the outer weight.

The difference between reflective and formative also happens between measurement level and structural level. At a measurement level, the indicators can be specified as reflective or formative towards its latent construct. Similarly at a structural level, the relationship between constructs can also be a reflective and a formative one (Baxter, 2009). This research adapted the DTPB by Taylor and Todd (1995). Most literatures that adapt DTPB, at a measurement level uses reflective measurement for the original DTPB variables. Howell, Breivik, and Wilcox (2007), Bollen (2002) and Diamantopoulos (1999) suggested that the most common measurement indicators in the field of social sciences is reflective measurement.

In a study done by Kianpour et al. (2017) measured all their latent variable using reflective measurements, which include the original variables from TPB. However, there are some exceptions. For instance, for Kurtsal and Viaggi (2020),

most of their variables are formative. Lu, Cui, Tong, and Wang (2020) specifically specified the variable social influence, amongst others as formative. It all depends on research context. For the context of Lu et al. (2020) the context is to examine the effects of social influence towards pre and post adoption phase of healthcare. They tried to distinguish between different types of social influences i.e., department peers, management supervisors and hospital peers etc. Jarvis, MacKenzie and Podsakoff (2003) and Freeze and Raschke (2007) have provided a guideline on the decision rules for determining whether a construct is reflective or formative.

At a measurement level, this research followed the conventional wisdom of measurement that is reflective measurements, which are used at a measurement level. For instance, the items for perceived usefulness are reflective items adapted from Davis et al. (1989). Similarly for self-efficacy whereby its items are also reflective, derived from Taylor and Todd (1995). However, based on a theorised relationship between constructs, on a structural level, the relationship between constructs will be formative. For example, the relationship between perceived ease of use and attitude is formative (Taylor & Todd, 1995).

3.10 Summary

In summary, this chapter began with discussion of relevant philosophies that leads to objectivism as an ontological positivist paradigm that facilitates the development of the rest of the thesis. The operationalization and measurement of items were mainly adapted from well-known literature of intention-based theories mainly in the context of banking technology. The sampling design was developed taking into consideration the regulation of Malaysian banks that are strict in terms of customer's confidentiality and the Malaysian movement control order. Many steps and

procedures were taken to ensure that the questionnaire is suitable for online distribution, which is made through social media with the help of influencers. Prior to using PLS for hypothesis testing, the present study also ensures that the data is suitable for analysis.

CHAPTER FOUR

4.0 DATA ANALYSIS AND RESULTS

4.1 Introduction

This chapter presents the results based on the methodology outlined in chapter three. The findings presented here are based on 479 samples. The data is analysed using Excel, SPSS and Smart PLS. Data screening are done by Excel and SPSS while for the analysis, Smart PLS is used. The next section discusses the response rate, followed by the third section, which reviews data screening and preliminary analysis. The following section discusses the measurement model which include indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. The fifth section discusses the results of the structural model.

4.2 Questionnaire Response

The survey, which is prepared in a form of structured questionnaire, was conducted online, enabling the researcher to distribute far and wide throughout Malaysia, from the northern tip of Perlis to the far east of Sabah. Response rate is usually referred to as the total number of completed and returned survey (Frohlich, 2002).

As affirmed by Kayam and Hirsch (2012), one could anticipate that the response rate of the online distributed surveys can be low. The questionnaires were made reachable via social media platforms where there were 600 responses with 479 usable ones collected within two months period. The two months began on 17th April 2020 until 20th June 2020.

4.3 Data Screening

Data screening is essential for multivariate analysis because it helps researchers to detect any deviations from assumptions or any anomalies in the dataset (Hair, Black, Babin, & Anderson, 2014; Arif, Afshan, & Sharif, 2016;). Prior to data screening, 600 responses were retrieved from Google forms in a form of Excel. There was no data entry involved since the questionnaires were distributed online, however there was the use of data coding process.

4.3.1 Missing Data

Missing data is a common occurrence in data analysis process that happens when respondents fail to answer all questionnaire answers (Tabachnick & Fidell, 2007). The online questionnaires for this research were set using Google forms and it required respondents to answer all questions. It was set in a way that one could not proceed to the subsequent sections without completing the preceding question. If a respondent did not want to complete a single answer, the respondent was free to end the questionnaire.

4.3.2 Inattentive Response

Inattentive response is a common occurrence when questionnaires are distributed through online channels. The absence of face to face interaction between a researcher and respondents, would lead to insufficient control for instance, in social dynamics that could reduce respondents' engagement towards answering a survey attentively, for example, an easy way of scoring all questions is with the same answer (Alvarez, Atkeson, Levin, & Li, 2019; Berry, Rana, Lockwood, Fletcher, & Pratt, 2019). According to Berry et al. (2019) these kinds of responses would attenuate

correlations, reduce internal consistencies, and eventually cause erroneous factor analysis results. A simple way to identify and remove inattentive response is to calculate the Individual Response Variability Index (IRV) (Dunn, Heggestad, Shanock, Theilgard, & Dunn, 2018). The IRV is basically the standard deviation of responses across all the psychometric items representing different constructs. High standard deviation is an indicator that respondents are answering the survey questions based on their individual standing of the construct, for instance, a respondent can strongly agree with some items while for others, a respondent can indicate as disagree. Low IRV, in some cases 0 IRV or standard deviation across all items is an indication of inattentive response (Dunn et al., 2018). Researchers such as DeSimone and Harms (2017) as well as Dunn et al., (2018) suggested that a researcher could consider flagging or omitting 20 cases that are the lowest or approximately the 10% lowest. Nevertheless Dunn et al, (2018) mentioned that the numbers are arbitrary. This study has omitted 30 cases due to 0 and very low standard deviations.

4.3.3 Outliers

An outlier is simply defined as an extreme value that is distinctly different from the rest of the dataset (Hair, Black, Babin, & Anderson, 2014; Kovach & Ke, 2016). In the context of sociological and management research, researchers usually pay attention to two types of outliers, namely univariate outlier and multivariate outlier. A univariate outlier is a value that is extreme on a single variable while a multivariate outliers are values that are extreme in multiple variables.

For this research, the univariate outlier is calculated on the basis of standardize values of Z-score (Kline, 2011). Following Hair et al. (2014), because

600 is a relatively large response rate, the minimum threshold of -4 and a maximum of 4 are used. Based on the standardised values of the Z-score that were obtained, there was no values that surpass the minimum of -4 nor the maximum of 4, which means that there was no significant univariate outlier.

For the multivariate outlier, the Mahalanobis distance test was used. The robustness of the Mahalanobis distance test was demonstrated by Jiang and Zhang (2018) in the field of spatial sciences. This test aims to detect unusual combination of cases that is not detected in univariate detection process. The Mahalanobis distance test is done by using the "linear regression" function in SPSS as a method to get the Mahalanobis values that is saved as a new variable. The variable is then compared with a chi-squared distribution with a formula of 1- CDF.CHISQ(MAH_1,44). The results of this formula would generate a new variable that is labelled PROBABILITY_MD. This newly generated variable is then compared against 0.001 which is a threshold value suggested by Tabachnick and Fidell (2007).

Apart from the statistical test, there are several things to measure before keeping or omitting the cases that are identified as outliers. Hair et al. (2014) emphasised that researchers also need to use instinct to weigh out practicality and substance. The first consideration is, to what extent the omission and inclusion of the outlier variables would affect the SEM results (Hair et al., 2014). Second, in some cases, omitting too much of outliers might lose observation, thus losing the model power (Gao, Mokhtarian, & Johnston, 2008). For this study, 91 samples were removed.

4.3.4 Normality Test

Although PLS-SEM does not require the data to be normally distributed, Hair, Sarstedt, Pieper and Ringle (2012) suggested that researchers should carry on with normality test because it is argued that extremely skewed or kurtotic data could potentially magnify bootstrapped error estimates (Chernick, 2008). The consequence of this is that it could undervalue the statistical significance of the coefficients (Ringle, Sarstedt, & Straub, 2012).

Skewness and kurtosis are the two standards for measuring the shape of distribution. Skewness is referred to the balance of distribution whether it is skewed to the left or right. Kurtosis refers to the peak or flatness. 0 value means that distribution is normal. However, there are acceptable ranges. The cut off points that are often used for both are not more than 2 and not less than -2 (Hair, Black, Babin, & Anderson 2010). For this study, both the Skewness and Kurtosis for all variables in Table 4.1 are within the cut off points, which means that the data normality is achieved and acceptable for SEM-PLS analysis.

Table 4.1
Normality Table

Items	Skewness	Kurtosis
ATT1	-1.067	1.482
ATT2	-.963	1.450
ATT3	-.888	1.181
ATT4	-.991	1.310
PU1	-.942	.660
PU2	-.889	.905
PU3	-.849	1.021
PU4	-.889	1.328
PEOU1	-.951	1.208
PEOU2	-1.008	1.627
PEOU3	-.270	-.386
PEOU4	-.569	.365
PEOU6	-.428	-.104
PEOU7	-.868	.892
SHAR1	-.595	.860
SHAR2	-.558	.768
SHAR3	-.329	-.027
SHAR4	-.294	-.058
SHAR5	-.257	.047

SHAR6	-.278	.052
SHAR7	-.287	-.181
LSY1	-.727	.669
LSY2	-.851	1.103
LSY3	-.745	.960
LSY4	-.629	.505
LSY5	-.602	.493
PIN1	-.516	.462
PIN2	-.044	-.078
PIN3	-.376	.126
PIN4	-.297	-.011
SN1	-.136	-.299
SN2	-.316	.089
SN3	-.416	.408
SN4	-.199	-.045
MDF1	-.576	.712
MDF2	-.524	.405
MDF3	-.356	.329
MDF4	-.355	.074
MDF5	-.369	.322
INT1	-.255	-.055
INT2	-.495	.524
INT3	-.321	.012
INT4	-.291	-.192
RS1	-.225	-.107
RS2	-.320	.011
RS3	-.255	-.120
RS4	.004	-.025
RS5	-.051	.060
RS6	-.039	.068
RS7	-.093	-.006
RS8	-.126	-.070
PBC1	-.699	1.017
PBC2	-.730	1.115
PBC3	-.753	1.137
PBC4	-.725	1.058
PBC5	-.683	1.022
SE1	-.567	.228
SE2	-.469	.139
SE3	-.492	.253
SE4	-.491	.371
SE5	-.488	.256
FC1	-.770	.960
FC2	-.739	.869
FC5	-.709	.936
BINT1	-.644	.495
BINT2	-.480	.051
BINT3	-.471	.052
BINT4	-.594	.585
BINT5	-.649	.539
FC3R	.133	-.510

4.3.5 Internal Consistency

Internal consistency is assessed by means of Cronbach alpha to evaluate how consistent the 14 constructs are. The criterion that is acceptable for the items of the variables to be internally consistent is that the value should exceed 0.70 (see Table 4.2), which means that the items are measuring the same underlying attribute

(Churchill, 1979). For this study, the criterion for all items have met the acceptable criterion with their corresponding attributes, which shows that the respondents have answered consistently (Nunnally & Bernstein, 1994).

Table 4.2
Table for Internal Consistency based on Cronbach Alpha

Constructs	Cronbach alpha
Attitude (ATT)	0.967
Perceived usefulness (PU)	0.92
Perceived ease of use (PEOU)	0.932
Shariah compliance (SHAR)	0.941
Lifestyle (LFY)	0.969
Personal innovativeness (PIN)	0.931
Subjective norm (SN)	0.918
Media influence (MDF)	0.941
Internal influence (INT)	0.942
Religious scholar influence (RS)	0.962
Perceived behavioural control (PBC)	0.961
Self-efficacy (SE)	0.946
Facilitating conditions (FC)	0.932
Behavioural intentions (BINT)	0.97

4.3.6 Demographic Characteristics of the Sample

There are several demographical categories that this study pays attention to, namely gender, mobile banking use, age, education level, education stream, state of origin and income level. As seen on Table 4.3, the ratio between males and females are quite balanced when 49% of samples are males while 51% are females. 50.5% of samples are from less developed states[4] while the remaining 49.5% are from

[4] The less developed states consists of the state of Perlis, Kedah, Kelantan, Pahang, Terengganu, Sabah and Sarawak while more developed states consist of Johor, Melaka, Negeri Sembilan, Perak,

developed states. The majority are in the age range of 35-44 (27%), while the second age group is between the ages of 25-34 at 26% of the total samples. The third age group which is between the ages of 16-24 is close to the second group, with a figure of 25%. Samples that consist of the least percentage are from the age range of 45 years old and above with only 22% of the total samples. For levels of education, samples with an undergraduate degree qualification dominates the total sample with 44%. Second, samples without any degree qualification, are 37% of the total sample. The remaining 20% are samples with a post-graduate degree qualification.

Table 4.3
Demographic Characteristics of the Sample

Variable	Grouping	Frequency	Percentage
Gender	Male	234	49%
	Female	245	51%
Education Stream	Islamic	125	26%
	Others	354	74%
Income Strata	B40 & Below	374	78%
	M40 & Above	105	22%
State	Less developed	242	50.5%
	Developed	237	49.5%
Highest Education Level	Without a Bachelor's Degree	175	37%
	With a Bachelor's Degree	209	44%
	Post-Graduate Degree	95	20%
Age	16-24	120	25%
	25-34	124	26%
	35-44	130	27%
	45 and above	105	22%

Pulau Pinang, Selangor and Federal Territory of Kuala Lumpur. This classification is based on 9th and 11th Malaysia Plan Report as well as Third Outline of Perspective Plan Malaysia (Yusof & Kalirajan, 2020)

4.3.7 Descriptive Statistics on Respondents' Intention to Use Mobile Banking via Islamic Banking Institutions

Descriptive statistics is very important as it simplifies the data so that it is easily understood (Engotoit, Kituyi, & Moya, 2016). This study was conducted using mean, standard deviation and the percentage of each of the scale in the Likert-type scale. The Likert-type scale is based on a scale that fits their beliefs: 1= strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5 strongly agree. The report of each of the aforementioned categories is reported below:

4.3.7.1 Attitude

Based on Table 4.4, the majority of respondents seem to agree and strongly agree to the statement "I would feel happy if I use mobile banking in Islamic banking institutions (IBI) (ATT1)". This is evident when about 39.2% and 38.2% of respondent appear to have agreed and strongly agreed to the statement. Other items show a slightly different results whereby 42.4-44.1% responded agree and 32.4-35.5% responded with strongly agree.

Table 4.4
List of Items and their Descriptive Statistics for Attitude

Code	Item	Mean	Std. Dev	1	2	3	4	5
ATT1	I would feel happy if I use mobile banking in Islamic banking institutions (IBI).	4.10	.905	2.5%	0.6%	19.4%	39.2%	38.2%
ATT2	Using mobile banking via IBI would be interesting.	4.03	.877	2.3%	0.8%	20.5%	44.1%	32.4%
ATT3	I would feel at ease	4.03	.877	2%	0.8%	21.7%	42.4%	32.9%

	when I am using mobile banking via IBI.							
ATT4	I would enjoy doing online transactions using mobile banking via IBI banking institutions.	4.07	.887	2%	1.5%	19%	42%	35.5%

4.3.7.2 Perceived Usefulness

Most items in Table 4.5 that reflect perceived usefulness seem to have positive and similar trend of responses. The "agree" responses are from the majority that are between 37.6%-45.5% across all items. Between 31.1-35.3% of the respondents strongly agree to across all items, 20-22.3% respondents neither agree nor disagree with the statements while only a small minority of respondents disagree or strongly disagree to the statements concerning perceived usefulness.

Table 4.5
List of Items and their Descriptive Statistics for Perceived Usefulness

Code	Item	Mean	Std. Dev.	1	2	3	4	5
PU1	I think that if I use mobile banking, it reduces the time required for my Islamic banking transactions.	3.98	.992	2.9%	4.2%	20%	37.6%	35.3%
PU2	I think that if I use mobile banking, it improves my performance in my Islamic banking transactions.	3.97	.930	2.5%	2.7%	21.7%	41.8%	31.3%
PU3	Using mobile banking would improve my daily productivity.	4.00	.887	2%	1.5%	22.3%	42.6%	31.5%
PU4	Using mobile banking would	4.03	.853	1.9%	1%	20.5%	45.5%	31.1%

	enhance my effectiveness in my Islamic banking transactions.							

4.3.7.3 Perceived Ease of Use

The majority of respondents have agreed on the convenience of mobile banking via Islamic banking institutions, nonetheless this shows contrast to the perceived value. The high level of agreement on the convenience of mobile baking via Islamic banking institutions is not that similar to perceived usefulness. In Table 4.6, some items give different trends in answers. The item "I think that it would be easy to adopt mobile banking to accomplish Islamic banking transactions" (PEOU2) has the biggest percentage of "agree" which consists of 49.5%. Other than that, the item "I think that the use of mobile banking via Islamic banking institutions (IBI) does not require a lot of knowledge." (PEOU3) has only 34% respondents who have agreed with the statement while only 14.6% have responded "strongly agree" with the statement.

Table 4.6
List of Items and their Descriptive Statistics for Perceived Ease of Use

Code	Item	Mean	Std. Dev.	1	2	3	4	5
PEOU1	I think that learning to operate mobile banking for Islamic banking transactions is easy for me.	3.95	.917	2.7%	2.5%	20.7%	45%	29%
PEOU2	I think that it would be easy to adopt mobile banking to accomplish Islamic banking transactions.	4.00	.862	2%	2.2%	17.5%	49.5%	28.6%

PEOU3	I think that the use of mobile banking via Islamic banking institutions (IBI) does not require a lot of knowledge.	3.43	1.008	3.3%	13.8	34.2%	34%	14.6%
PEOU4	I think that mobile banking menu via IBI would be easy to navigate.	3.71	.903	2%	5.8%	29%	44.7	18.4%
PEOU6	I think that using mobile banking via IBI do not require a lot of technical skill.	3.59	.972	2.7%	9.2%	31.9%	38.4%	17.7%
PEOU7	I think that it would be easy to see on my mobile phone's screen.	3.89	.924	2.1	4.1%	21.1%	46.1%	26%

4.3.7.4 Shariah Compliance

In general, the response pertaining the items of Shariah compliance are mixed. There are responses that lean towards "agree" and there are responses that are "neutral". Nearly half of the respondents (45.7%) "agree" to the statement of "I think that mobile banking in Islamic banking institutions (IBI) operate according to the Shariah law" (SHAR1) (Table 4.7). 39.7% of respondents have answered "neutral" to the question "I think that mobile banking via IBI does not contain uncertainty *(gharar)* in all forms of transactions" (SHAR5), while 38.8% have answered "neutral" to the question "I think that mobile banking via IBI does not contain uncertainty *(gharar)* in online shopping transactions" (SHAR6). Both SHAR5 and SHAR6 have close figures because both questions are pertaining to *gharar.*

Table 4.7
List of Items and their Descriptive Statistics for Shariah Compliance

Code	Item	Mean	Std. Dev.	1	2	3	4	5
SHAR1	I think that mobile banking in Islamic banking institutions (IBI) operate according to the Shariah law.	3.85	.842	1.9%	1.3%	29%	45.7%	22.1%
SHAR2	I think that mobile banking via IBI is based on Islamic philosophy.	3.82	.846	1.9%	1.7%	30.2%	45.3%	20.9%
SHAR3	I think that mobile banking via IBI does not contain interest in all forms of transactions	3.64	.938	2.3%	5.8%	37%	35.3%	19.6%
SHAR4	I think that mobile banking via IBI does not contain interest in online shopping transactions	3.66	.917	1.9%	5.6%	37%	36.1%	19.4%
SHAR5	I think that mobile banking via IBI does not contain uncertainty *(gharar)* in all forms of transactions.	3.61	.907	2%	5.2%	39.7%	35.3%	17.7%
SHAR6	I think that mobile banking via IBI does not contain uncertainty *(gharar)* in online shopping transactions.	3.61	.908	2%	5.6%	38.8%	36.1%	17.3%
SHAR7	I think that mobile banking via IBI does not contain fraud in online shopping	3.58	.975	2.7%	7.5%	38%	32.2%	19.6%

transactions.

4.3.7.5 Lifestyle

With regards to lifestyle, Table 4.8 illustrates the responses that suggest uniformity across all items and to mention a few, the item "Adopting mobile banking to conduct Islamic banking transactions would fit well into my working style" (LSY3) has the highest percentage of 48.9% respondents answered "agree". Other item such as "Mobile banking via Islamic banking institution (IBI) would be compatible with my lifestyle" (LSY1) has 43.6% of samples that agreed. The response "strongly disagree" only consists of 1.3% to 1.5% across all items.

Table 4.8
List of Items and their Descriptive Statistics for Lifestyle

Code	Item	Mean	Std. Dev.	1	2	3	4	5
LSY1	Mobile banking via Islamic banking institution (IBI) would be compatible with my lifestyle.	3.99	.867	1.5%	2.4%	22.5%	43.6%	30%
LSY2	Adopting mobile banking in IBI would fit well with the way I like to manage my finances.	3.99	.848	1.5%	2.9%	18.7%	48.6%	28.2%
LSY3	Adopting mobile banking to conduct Islamic banking transactions would fit well into my working style.	3.98	.826	1.3%	2.3%	20.7%	48.9%	26.9%
LSY4	I think that mobile banking via IBI would fit in well with my self-image.	3.89	.869	1.5%	3.3%	25.1%	45.1%	25%
LSY5	I would find mobile	3.93	.849	1.3%	2.5%	24.8%	45%	26.3%

	banking services in IBI are compatible with my occupation.							

4.3.7.6 Personal Innovativeness

Responses to the statements that reflect personal innovativeness are also seen as uniformed, except for the item "I am always the first to try out new information technologies among my peers" (PIN2) with 45.7% of respondents have answered "neutral" (Table 4.9). This indicates that 45.7% of respondents are indifferent about being the first to try new information technology. For the same item, 8.8% of respondents "disagree" with the statement, while 29.4% agreed with the statement. Other items have been responded with 37-44.7% "agree" as well as 3.5-8.8% answered "disagree" to the other items.

Table 4.9
List of Items and their Descriptive Statistics for Innovativeness

Code	Item	Mean	Std. Dev.	1	2	3	4	5
PIN1	If I hear about a new technology, I look for ways to experiment with it.	3.78	.864	1.7%	3.5%	30%	44.7%	20%
PIN2	I am always the first to try out new information technologies among my peers.	3.44	.911	2%	8.8%	45.7%	29.4%	14%
PIN3	In general, I am not hesitant to try out new information technologies.	3.72	.875	1.5%	4.6%	33.2%	41.5%	19.2%
PIN4	I like to experiment with new information technologies.	3.71	.898	1.7%	4.2%	36.5%	37%	20.7%

4.3.7.7 Subjective norm

For subjective norm, items of SN1 and SN4 have the highest percentage of respondents to perceive as "neutral". For instance, in the item "People who are close to me recommend the use of mobile banking via Islamic banking institutions (IBI) (SN1)" in Table 4.10 has 38.6% of samples answering "neutral", which is just slightly more than the samples who have chosen "agree", at a figure of 35.9%. This means that 35.9% of respondents neither agree nor disagree with the statement. Another item is "It is trendy if I adopt mobile banking via (IBI)" (SN4) whereby 39.2% of samples answered "neutral", slightly more than samples that have answered "agree", in particular 37.6%. This also indicate that 39.2% samples are indifferent with the statement. The remaining of two items, SN2 and SN3, have shown the highest percentage of agreement amongst the respondents at 43% and 46.3% respectively as compared to samples that picked "neutral" that is 35.5% and 31.9% respectively.

Table 4.10
List of Items and their Descriptive Statistics for Subjective Norm

Code	Item	Mean	Std. Dev.	1	2	3	4	5
SN1	People who are close to me recommend the use of mobile banking via Islamic banking institutions (IBI).	3.51	.901	1.3%	10.4%	38.6%	35.9%	13.8%
SN2	People who influence my behaviour views mobile banking via IBI as beneficial.	3.60	.850	1.3%	7.1%	35.5%	43%	13.2%
SN3	People whose opinions I value, thinks that mobile	3.73	.825	1.3%	3.8%	31.9%	46.3%	16.7%

	banking via IBI is a good idea.							
SN4	It is trendy if I adopt mobile banking via (IBI)	3.57	.877	1.5%	7.1%	39.2%	37.6%	14.6%

4.3.7.8 Media influence

Responses to the statements that reflects media influence are quite similar to the responses for variables such as perceived usefulness, lifestyle and subjective norm (Table 4.11). Most of the respondents agree and strongly agree to all the statements that reflect media influence. For instance, 48.9% of respondents "agree" to the statement "According to the news reports that I came across, using mobile banking via Islamic banking institution (IBI) is a good way of doing banking" (ENF1). Meanwhile, only 3.3% of respondents disagree while only 1.5% strongly disagree with the statement

Table 4.11
List of Items and their Descriptive Statistics for Media influence

Code	Item	Mean	Std. Dev.	1	2	3	4	5
ENF1	According to the news reports that I came across, using mobile banking via Islamic banking institution (IBI) is a good way of doing banking.	3.80	.830	1.5%	3.3%	27.8%	48.9%	18.6%
ENF2	Advertisements on mass media suggest that people should use mobile banking via IBI.	3.69	.889	2%	5.2%	31.3%	44%	17.3%
ENF3	Advertisements on mass media about mobile banking via IBI are very interesting.	3.61	.861	1.9%	5.2%	37.4%	41.3%	14.2%
ENF4	All social media channels depicted a positive sentiment for using mobile banking via IBI.	3.64	.876	1.5%	6.7%	34%	42.2%	15.7%

ENF5	All media channels influence me to try out mobile banking via IBI.	3.57	.870	2%	6.1%	37.8%	40.9%	13.2%

4.3.7.9 Internal influence

The level of agreement in terms of percentage for internal influence is insignificantly distant between items. Table 4.12 shows that 38% of respondents agree to the question "My friends think that I should use mobile banking via Islamic banking institutions (IBI) for banking transactions" (INT1) while for the question "Bank staffs of Islamic banks suggest that I should utilize mobile banking" (INT4), 37.8% of respondents agree to it, which is only 0.2% difference. The question "People I know think that using mobile banking via IBI is a good idea." (INT2) has a notable difference between samples that agree which is at 45.3%, a 6.1% difference than item "People I know influence me to try out mobile banking for my banking activities via IBI" (INT3) that has 39.2% of respondents who agree with the statement.

Table 4.12
List of Items and their Descriptive Statistics for Internal influence

Code	Item	Mean	Std. Dev	1	2	3	4	5
INT1	My friends think that I should use mobile banking via Islamic banking institutions (IBI) for banking transactions.	3.57	.896	1.6%	7.7%	37.6%	38%	15%
INT2	People I know think that using mobile banking via IBI is a good idea.	3.68	.856	1.9%	4.6%	32.8%	45.3%	15.4%
INT3	People I know influence me to try out mobile banking	3.58	.902	1.9%	7.7%	36.1%	39.2%	15%

	for my banking activities via IBI.							
INT4	Bank staffs of Islamic banks suggest that I should utilize mobile banking.	3.60	.925	1.7%	8.6%	34.9%	37.8%	17.1%

4.3.7.10 Religious Scholar Influence

Majority respondents for this construct have answered "neutral" to the items for this variable rather than "agree", with one exception, that is "Muslim scholars that I know personally think that using mobile banking via IBI was a good idea" (RS2). For the item "Religious lectures through mass media suggest that people should use mobile banking via IBI" (RS5), only 28% of respondents "agree" to the statement while 47.6% of respondents answered "neutral" to the statement (Table 4.13). For item "Muslim scholars that I know through the mass media think that using mobile banking via IBI was a good idea" (RS8), 31.9% "agree" and 43.2% "neutral" to the statement. Overall, neutral response in most cases means that most respondents are indifferent to most of the questions posed for this variable (Nowlis, Kahn, Dhar, Luce, & Novemsky, 2000).

Table 4.13
List of Items and their Descriptive Statistics for Religious Scholars Influence

Code	Item	Mean	Std. Dev.	1	2	3	4	5
RS1	Muslim scholars that I know personally think that I should use mobile banking via Islamic banking institutions (IBI) for banking transactions.	3.62	.918	1.9%	5.8%	39.2%	34.2%	18.8%

RS2	Muslim scholars that I know personally think that using mobile banking via IBI was a good idea.	3.66	.909	1.9%	5.4%	36.3%	37.4%	19%
RS3	Muslim religious scholars that I know personally influence me to try out mobile banking for my banking activities via IBI.	3.61	.933	2%	6.6%	38.4%	34.2%	18.6%
RS4	One of Muslim religious scholars that I know personally suggests that I should utilize mobile banking.	3.31	.929	2.9%	11.9%	48%	25.5%	11.7%
RS5	Religious lectures through mass media suggest that people should use mobile banking via IBI.	3.35	.908	2.7%	10.4%	47.6%	28%	11.3%
RS6	Religious lectures in all media channels influenced me to try out mobile banking via IBI.	3.34	.908	2.7%	10.4%	48%	27.6%	11.3%
RS7	Muslim scholars that I know through the mass media thought that I should use mobile banking via Islamic banking institutions (IBI) for banking transactions.	3.47	.900	2%	7.9%	44.9%	31.3%	13.8%
RS8	Muslim scholars that I know through the mass	3.49	.912	2%	7.9%	43.2%	31.9%	15.7%

	media thought that using mobile banking via IBI was a good idea.

4.3.7.11 Perceived Behavioural Control

For perceived behaviour control, the study has observed a high level of agreement with most statements that reflect the variable (Table 4.14). For instance, 51.4% of respondents answered agree to the statement "I have the resources to use mobile banking via IBI" (PBC5) and the percentage of agreement across other items do not differ much. Another example is illustrated as 49.7% have agreed to the item "If I want to, I could use mobile banking via Islamic banking institutions (IBI)" (PBC1) which is similar to other two items for this variable. The percentages of the ones who "strongly disagree" are quite constant throughout other statements that ranges between 1.3-1.5% of respondents.

Table 4.14
List of Items and their Descriptive Statistics for Perceived Behavioural Control

Code	Item	Mean	Std. Dev	1	2	3	4	5
PBC1	If I want to, I could use mobile banking via Islamic banking institutions (IBI).	3.96	.808	1.3%	1.7%	21.9%	49.7%	25.5%
PBC2	It would be possible for me to use mobile banking via IBI.	3.96	.806	1.3%	1.9%	21.8%	50.7%	25%
PBC3	I am able to use mobile banking sufficiently well for my banking transactions via IBI.	3.96	.821	1.5%	1.7%	21.8%	49.3%	25.9%
PBC4	If I use mobile banking via IBI, it will be entirely within my control.	3.94	.824	1.5%	1.9%	22.5%	49.3%	24.8%

PBC5	I have the resources to use mobile banking via IBI.	3.91	.806	1.3%	2.3%	22.8%	51.4%	22.3%

4.3.7.12 Self-efficacy

The answers from statements pertaining self-efficacy have a constant trend which are almost similar to previous variables such as perceived usefulness, subjective norm and media influences. Respondents in Table 4.15 mostly answered "agree" and "strongly agree" to most statements pertaining to self-efficacy, consisting of more than 50% of total responses. For example, 43.6% of respondents chose "agree" while 19.2% of respondents "strongly agree" to the statement "I think that I could complete a transaction using mobile banking via IBI even though I had never used such system before" (SE5). Other statements also have almost similar percentage to those who selected "agree" ranging from 42.6% to 44.5%.

Table 4.15
List of Items and their Descriptive Statistics for Self-Efficacy

Code	Item	Mean	Std. Dev	1	2	3	4	5
SE1	I think that I could complete a transaction using mobile banking via Islamic banking institutions (IBI) even if there was no one around to tell me what to do.	3.83	.896	1.5%	5%	26.3%	43.6%	23.6%
SE2	I think that I could complete a transaction using mobile banking via IBI if I could call someone for help if I got stuck.	3.77	.889	1.5%	5%	29.6%	42.6%	21.3%
SE3	I think that I could complete an Islamic	3.76	.876	1.5%	5%	29.2%	44.5%	19.8%

	banking transaction using mobile banking if I had a lot of time to complete a job I started.							
SE4	I think that via mobile banking, I could complete Islamic banking transaction if I had just the built-in help facility for assistance.	3.76	.871	1.7%	4%	31.7%	43.8%	19.8%
SE5	I think that I could complete a transaction using Mobile banking via IBI even though I had never used such system before.	3.73	.886	1.7%	5.2%	30.3%	43.6%	19.2%

4.3.7.13 Facilitating Conditions

Referring to the items that reflect facilitating conditions, almost all the items has generally positive response except for item "I feel that I am constrained by the lack of resources if I intend to adopt mobile banking via IBI" (FC3). Since FC3 is a reverse coded, even after the recoding, the percentage of respondent who agreed or disagreed to the question is different than other items. Other items are quite similar in responses, if there are differences, they are just slightly by 1% to 4% differences. For instance, 47.6% respondents picked "agree" to the statement "I believe that I have the necessary smartphone to use mobile banking via Islamic banking institutions (IBI)"(FC1) while 49.5% had "agree" to the statement "I believe that I have the necessary knowledge to use mobile banking via IBI"(FC2). The percentages of samples who strongly disagree with both statements are only 1.3% and 1.5% respectively (Table 4.16).

Table 4.16
List of Items and their Descriptive Statistics for Facilitating Conditions

Code	Item	Mean	Std. Dev.	1	2	3	4	5
FC1	I believe that I have the necessary smartphone to use mobile banking via Islamic banking institutions (IBI).	4.01	.830	1.3%	2%	20%	47.6%	29%
FC2	I believe that I have the necessary knowledge to use mobile banking via IBI.	3.90	.849	1.5%	3.5%	21.9%	49.5%	23.6%
FC3	I feel that I am constrained by the lack of resources if I intend to adopt mobile banking via IBI.	2.71	1.032	4.2%	17.5%	36.1%	29.4%	12.7%
FC5	I believe that mobile banking via IBI is compatible with other technologies that I use.	3.95	.833	1.5%	1.9%	23%	47.8%	25.9%

4.3.7.14 Behavioural Intention

Finally, for a dependent variable in Table 4.17, the percentage of answers is somewhat similar to the answers given to most original variables of the DTPB like attitude, perceived usefulness, subjective norm, media influences and perceived behavioural control. The item "I believe that it is worthwhile for me to adopt mobile banking via IBI" (BINT4) has 46.1% of respondents choosing "agree" to the

statement while only 2% and 1.3% disagreed and strongly disagreed respectively. Another example which is almost similar in percentage is the item "Mobile banking via IBI is crucial to fulfil my banking needs" (BINT5) whereby 45.3% of samples agree with this statement while 3.3% disagrees and 1.5% strongly disagrees.

Table 4.17
List of Items and their Descriptive Statistics for Behavioural Intention

Code	Item	Mean	Std. Dev.	1	2	3	4	5
BINT1	I intend to utillise mobile banking via Islamic banking institutions (IBI) in the near future.	3.94	.859	1.3%	2.9%	23.6	44.9%	27.3%
BINT2	I predict I would use mobile banking via IBI in the next months.	3.88	.872	1%	3.8%	27.3%	42.1%	25.7%
BINT3	I plan to adopt mobile banking via IBI in the next months.	3.85	.873	1%	4.4%	27.6%	43%	24%
BINT4	I believe that it is worthwhile for me to adopt mobile banking via IBI.	3.92	.835	1.3%	2%	25%	46.1%	24.5%
BINT5	Mobile banking via IBI is crucial to fulfil my banking needs.	3.90	.869	1.5%	3.3%	24.4%	45.3%	25.5%

4.3.8 Common Method Variance

One of the common ways to detect CMV is by using Harman's Single Factor Test (Podsakoff et al., 2003). This test however has its drawbacks, which is among others, it is not sensitive. It relies only on one figure that is the percentage of a single factor variance. Another method is called *ex ante* method, a method that starts during the design of the instrument, whereby there are several questions in the questionnaire

that serves as marker variables or social desirability scale variables are included in the instruments (Chin, Thatcher, Wright, & Steel, 2013). This method however would increase the number of questions in the questionnaires and that might overwhelm and tire the respondents in which could compromise the data quality (Jenn, 2006).

This study is using ex-post unmeasured marker variable method in which the scores from the first variables derived from varimax factor analysis. The unmeasured marker variable is then run with endogenous variable in the model. Thereafter, the R2 is then compared with and without the unmeasured marker and if the difference does not exceed 10%, that means the CMV would not have a significant effect towards the analysis. Table 4.18 below illustrates the common method bias that seems does not have any significant effect towards analysis.

Table 4.18
Unmeasured Marked Variable Test of CMV

Variables	R2 without unmeasured marked variable	R2 with unmeasured marked variable	Percentage of change
BINT	0.639	0.588	7.9%
ATT	0.635	0.614	3.3%
SN	0.696	0.648	6.9%
PBC	0.678	0.672	1%

4.4 Structural Equations Modelling

Now that the dataset has been screened for missing data, outliers, and normality, this subsection proceeds with Partial Least Squares-Structural Equations Modelling

(PLS-SEM). There are typically two steps involved; the first step is the measurement model and the second step is evaluation of the structural model.

4.4.1 Confirmatory Factor Analysis

The purpose of confirmatory factor analysis (CFA) is to "confirm" how good the measurement model is. Among the tests involved are dimensionality, validity, reliability and to confirm whether the underlying factors belong to a construct, researcher looked at the value of the factor loadings. Factor loadings more than 0.5 are significant and acceptable while factor loadings more than 0.7 is considered very significant which indicates uni-dimensionality (Costello & Osborne, 2005). As displayed in Figure 4.1 and Table 4.19, only FC 3 has negative loadings which is below 0.5 while for other items, the loadings are above 0.7. Due to the negative and low loading of FC3, this item is dropped from analysis.

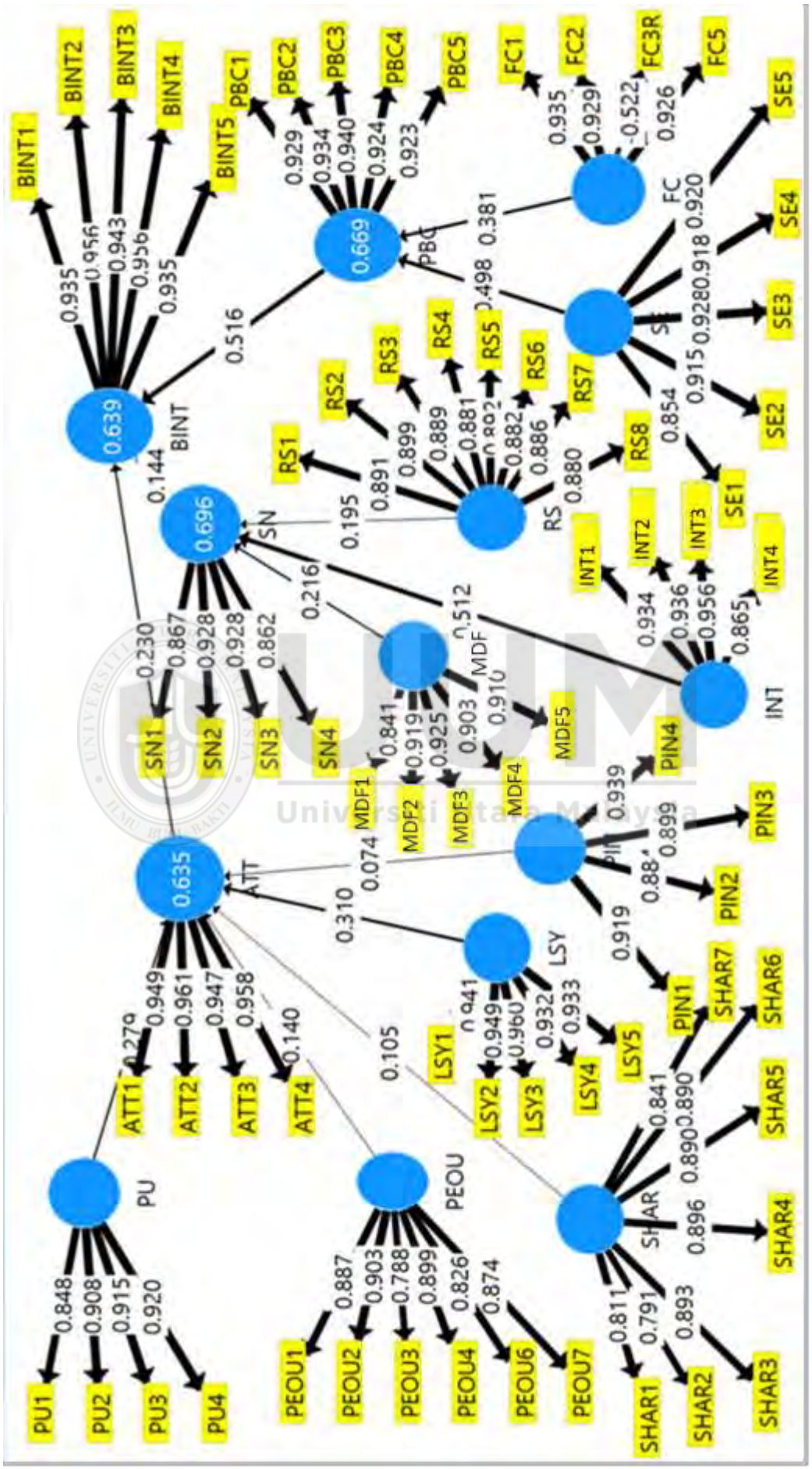


Figure 4.1
The Results of the CFA

Table 4.19
Factor loading

Item	Question	Construct	Factor Loading
ATT1	I would feel happy if I use mobile banking in Islamic banking institutions (IBI).	Attitude	0.949
ATT2	Using mobile banking via IBI would be interesting.		0.961
ATT3	I would feel at ease when I am using mobile banking via IBI.		0.911
ATT4	I would enjoy doing online transactions using mobile banking via IBI banking institutions.		0.958
PU1	I think that if I use mobile banking, it reduces the time required for my Islamic banking transactions.	Perceived usefulness	0.848
PU2	I think that if I use mobile banking, it improves my performance in my Islamic banking transactions.		0.908
PU3	Using mobile banking would improve my daily productivity.		0.915
PU4	Using mobile banking would enhance my effectiveness in my Islamic banking transactions.		0.92
PEOU1	I think that learning to operate mobile banking for Islamic banking transactions is easy for me.	Perceived ease of use	0.887
PEOU2	I think that it would be easy to adopt mobile banking to accomplish Islamic banking transactions.		0.903
PEOU3	I think that the use of mobile banking via Islamic banking institutions (IBI) does not require a lot of knowledge.		0.788
PEOU4	I think that mobile banking menu via IBI would be easy to navigate.		0.899
PEOU6	I think that using mobile banking via IBI do not require a lot of technical skill		0.826
PEOU7	I think that it would be easy to see on my mobile phone's screen		0.874
SHAR1	I think that mobile banking in Islamic banking institutions (IBI) operate according to the Shariah law.	Shariah compliance	0.811
SHAR2	I think that mobile banking via IBI is based on Islamic philosophy.		0.791
SHAR3	I think that mobile banking via IBI does not contain interest in all forms of transactions		0.893
SHAR4	I think that mobile banking via IBI does not		0.896

	contain interest in online shopping transactions		
SHAR5	I think that mobile banking via IBI does not contain uncertainty *(gharar)* in all forms of transactions.		0.89
SHAR6	I think that mobile banking via IBI does not contain uncertainty *(gharar)* in online shopping transactions.		0.89
SHAR7	I think that mobile banking via IBI does not contain fraud in online shopping transactions.		0.841
LSY1	Mobile banking via Islamic banking institution (IBI) would be compatible with my lifestyle.	Lifestyle	0.941
LSY2	Adopting mobile banking in IBI would fit well with the way I like to manage my finances.		0.949
LSY3	Adopting mobile banking to conduct Islamic banking transactions would fit well into my working style.		0.96
LSY4	I think that mobile banking via IBI would fit in well with my self-image.		0.932
LSY5	I would find mobile banking services in IBI are compatible with my occupation.		0.933
PIN1	If I hear about a new technology, I look for ways to experiment with it.	Personal innovativeness	0.919
PIN2	I am always the first to try out new information technologies among my peers		0.884
PIN3	In general, I am not hesitant to try out new information technologies.		0.899
PIN4	I like to experiment with new information technologies.		0.939
SN1	People who are close to me recommend the use of mobile banking via Islamic banking institutions (IBI).	Subjective norm	0.867
SN2	People who influence my behaviour views mobile banking via IBI as beneficial.		0.928
SN3	People whose opinions I value, thinks that mobile banking via IBI is a good idea.		0.928
SN4	It is trendy if I adopt mobile banking via (IBI)		0.862
MDF1	According to the news reports that I came across, using mobile banking via Islamic banking institution (IBI) is a good way of doing banking.	Media influence	0.841
MDF2	Advertisements on mass media suggest that people should use mobile banking via IBI.		0.919
MDF3	Advertisements on mass media about mobile banking via IBI are very interesting.		0.925
MDF4	All social media channels depicted a positive		0.903

	sentiment for using mobile banking via IBI.		
MDF5	All media channels influence me to try out mobile banking via IBI.		0.91
INT1	My friends think that I should use mobile banking via Islamic banking institutions (IBI) for banking transactions.	Internal influence	0.934
INT2	People I know think that using mobile banking via IBI is a good idea.		0.936
INT3	People I know influence me to try out mobile banking for my banking activities via IBI.		0.956
INT4	Bank staffs of Islamic banks suggest that I should utilize mobile banking.		0.865
RS1	Muslim scholars that I know personally think that I should use mobile banking via Islamic banking institutions (IBI) for banking transactions.	Religious scholar influence	0.891
RS2	Muslim scholars that I know personally think that using mobile banking via IBI was a good idea.		0.899
RS3	Muslim religious scholars that I know personally influence me to try out mobile banking for my banking activities via IBI.		0.889
RS4	One of Muslim religious scholars that I know personally suggests that I should utilize mobile banking.		0.881
RS5	Religious lectures through mass media suggest that people should use mobile banking via IBI.		0.892
RS6	Religious lectures in all media channels influenced me to try out mobile banking via IBI.		0.882
RS7	Muslim scholars that I know through the mass media thought that I should use mobile banking via Islamic banking institutions (IBI) for banking transactions.		0.886
RS8	Muslim scholars that I know through the mass media thought that using mobile banking via IBI was a good idea.		0.88
PBC1	If I want to, I could use mobile banking via Islamic banking institutions (IBI).	Perceived behavioural control	0.929
PBC2	It would be possible for me to use mobile banking via IBI.		0.934
PBC3	I am able to use mobile banking sufficiently well for my banking transactions via IBI.		0.94
PBC4	If I use mobile banking via IBI, it will be entirely within my control.		0.924
PBC5	I have the resources to use mobile banking via IBI.		0.923

SE1	I think that I could complete a transaction using mobile banking via Islamic banking institutions (IBI) even if there was no one around to tell me what to do.	Self-efficacy	0.854
SE2	I think that I could complete a transaction using mobile banking via IBI if I could call someone for help if I got stuck.		0.915
SE3	I think that I could complete an Islamic banking transaction using mobile banking if I had a lot of time to complete a job I started.		0.928
SE4	I think that via mobile banking, I could complete Islamic banking transaction if I had just the built-in help facility for assistance.		0.918
SE5	I think that I could complete a transaction using Mobile banking via IBI even though I had never used such system before.		0.92
FC1	I believe that I have the necessary smartphone to use mobile banking via Islamic banking institutions (IBI).	Facilitating conditions	0.935
FC2	I believe that I have the necessary knowledge to use mobile banking via IBI.		0.929
FC3	I feel that I am constrained by the lack of resources if I intend to adopt mobile banking via IBI.		-0.522
FC5	I believe that mobile banking via IBI is compatible with other technologies that I use.		0.926
BINT1	I intend to utilise mobile banking via Islamic banking institutions (IBI) in the near future.	Behavioural intention	0.935
BINT2	I predict I would use mobile banking via IBI in the next months.		0.956
BINT3	I plan to adopt mobile banking via IBI in the next months.		0.943
BINT4	I believe that it is worthwhile for me to adopt mobile banking via IBI.		0.956
BINT5	Mobile banking via IBI is crucial to fulfil my banking needs.		0.935

Figure 4.2 shows the results of confirmatory factor analysis after the insignificant item is dropped. It seems that after the items is dropped, all other items loadings are showing significant figures. The same figure can be seen in Table 4.20

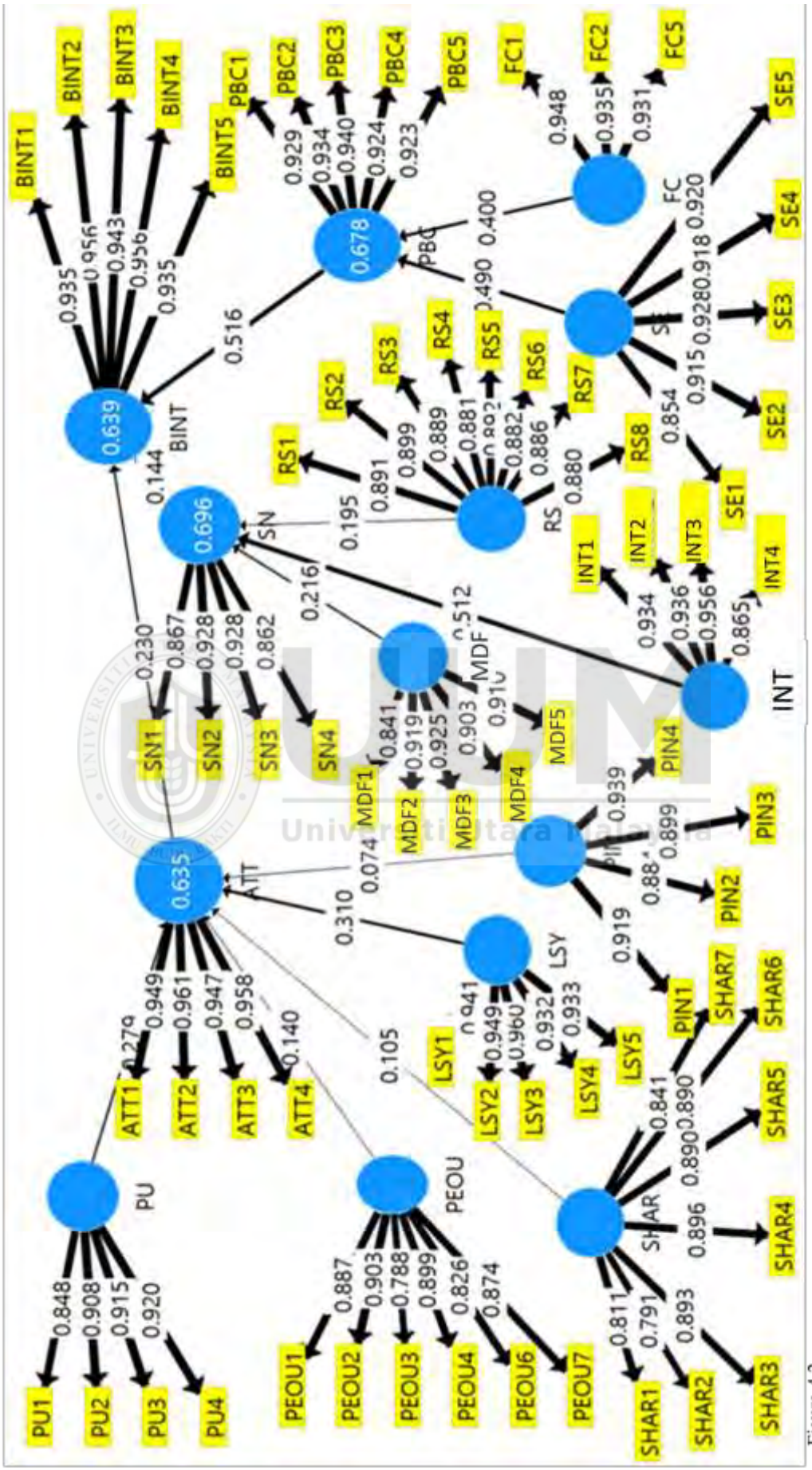


Figure 4.2
The Results of the CFA After Removing Insignificant Loading

Table 4.20
Factor loadings after item drop

Item	Question	Construct	Factor Loading
ATT1	I would feel happy if I use mobile banking in Islamic banking institutions (IBI).	Attitude	0.949
ATT2	Using mobile banking via IBI would be interesting.		0.961
ATT3	I would feel at ease when I am using mobile banking via IBI.		0.947
ATT4	I would enjoy doing online transactions using mobile banking via IBI banking institutions.		0.958
PU1	I think that if I use mobile banking, it reduces the time required for my Islamic banking transactions.	Perceived usefulness	0.848
PU2	I think that if I use mobile banking, it improves my performance in my Islamic banking transactions.		0.908
PU3	Using mobile banking would improve my daily productivity.		0.915
PU4	Using mobile banking would enhance my effectiveness in my Islamic banking transactions.		0.92
PEOU1	I think that learning to operate mobile banking for Islamic banking transactions is easy for me.	Perceived ease of use	0.887
PEOU2	I think that it would be easy to adopt mobile banking to accomplish Islamic banking transactions.		0.903
PEOU3	I think that the use of mobile banking via Islamic banking institutions (IBI) does not require a lot of knowledge.		0.788
PEOU4	I think that mobile banking menu via IBI would be easy to navigate.		0.899
PEOU6	I think that using mobile banking via IBI do not require a lot of technical skill		0.826
PEOU7	I think that it would be easy to see on my mobile phone's screen		0.874
SHAR1	I think that mobile banking in Islamic banking institutions (IBI) operate according to the Shariah law.	Shariah compliance	0.811
SHAR2	I think that mobile banking via IBI is based on Islamic philosophy.		0.791
SHAR3	I think that mobile banking via IBI does not contain interest in all forms of transactions		0.893
SHAR4	I think that mobile banking via IBI does not		0.896

	contain interest in online shopping transactions		
SHAR5	I think that mobile banking via IBI does not contain uncertainty *(gharar)* in all forms of transactions.		0.89
SHAR6	I think that mobile banking via IBI does not contain uncertainty *(gharar)* in online shopping transactions.		0.89
SHAR7	I think that mobile banking via IBI does not contain fraud in online shopping transactions.		0.841
LSY1	Mobile banking via Islamic banking institution (IBI) would be compatible with my lifestyle.	Lifestyle	0.941
LSY2	Adopting mobile banking in IBI would fit well with the way I like to manage my finances.		0.949
LSY3	Adopting mobile banking to conduct Islamic banking transactions would fit well into my working style.		0.96
LSY4	I think that mobile banking via IBI would fit in well with my self-image.		0.932
LSY5	I would find mobile banking services in IBI are compatible with my occupation.		0.933
PIN1	If I hear about a new technology, I look for ways to experiment with it.	Personal innovativeness	0.919
PIN2	I am always the first to try out new information technologies among my peers		0.884
PIN3	In general, I am not hesitant to try out new information technologies.		0.899
PIN4	I like to experiment with new information technologies.		0.939
SN1	People who are close to me recommend the use of mobile banking via Islamic banking institutions (IBI).	Subjective norm	0.867
SN2	People who influence my behaviour views mobile banking via IBI as beneficial.		0.928
SN3	People whose opinions I value, thinks that mobile banking via IBI is a good idea.		0.928
SN4	It is trendy if I adopt mobile banking via (IBI)		0.862
MDF1	According to the news reports that I came across, using mobile banking via Islamic banking institution (IBI) is a good way of doing banking.	Media influence	0.841
MDF2	Advertisements on mass media suggest that people should use mobile banking via IBI.		0.919
MDF3	Advertisements on mass media about mobile banking via IBI are very interesting.		0.925
MDF4	All social media channels depicted a positive		0.903

	sentiment for using mobile banking via IBI.		
MDF5	All media channels influence me to try out mobile banking via IBI.		0.91
INT1	My friends think that I should use mobile banking via Islamic banking institutions (IBI) for banking transactions.	Internal influence	0.934
INT2	People I know think that using mobile banking via IBI is a good idea.		0.936
INT3	People I know influence me to try out mobile banking for my banking activities via IBI.		0.956
INT4	Bank staffs of Islamic banks suggest that I should utilize mobile banking.		0.865
RS1	Muslim scholars that I know personally think that I should use mobile banking via Islamic banking institutions (IBI) for banking transactions.	Religious scholar influence	0.891
RS2	Muslim scholars that I know personally think that using mobile banking via IBI was a good idea.		0.899
RS3	Muslim religious scholars that I know personally influence me to try out mobile banking for my banking activities via IBI.		0.889
RS4	One of Muslim religious scholars that I know personally suggests that I should utilize mobile banking.		0.881
RS5	Religious lectures through mass media suggest that people should use mobile banking via IBI.		0.892
RS6	Religious lectures in all media channels influenced me to try out mobile banking via IBI.		0.882
RS7	Muslim scholars that I know through the mass media thought that I should use mobile banking via Islamic banking institutions (IBI) for banking transactions.		0.886
RS8	Muslim scholars that I know through the mass media thought that using mobile banking via IBI was a good idea.		0.88
PBC1	If I want to, I could use mobile banking via Islamic banking institutions (IBI).	Perceived behavioural control	0.929
PBC2	It would be possible for me to use mobile banking via IBI.		0.934
PBC3	I am able to use mobile banking sufficiently well for my banking transactions via IBI.		0.94
PBC4	If I use mobile banking via IBI, it will be entirely within my control.		0.924
PBC5	I have the resources to use mobile banking via IBI.		0.923

SE1	I think that I could complete a transaction using mobile banking via Islamic banking institutions (IBI) even if there was no one around to tell me what to do.	Self-efficacy	0.854
SE2	I think that I could complete a transaction using mobile banking via IBI if I could call someone for help if I got stuck.		0.915
SE3	I think that I could complete an Islamic banking transaction using mobile banking if I had a lot of time to complete a job I started.		0.928
SE4	I think that via mobile banking, I could complete Islamic banking transaction if I had just the built-in help facility for assistance.		0.918
SE5	I think that I could complete a transaction using Mobile banking via IBI even though I had never used such system before.		0.92
FC1	I believe that I have the necessary smartphone to use mobile banking via Islamic banking institutions (IBI).	Facilitating conditions	0.948
FC2	I believe that I have the necessary knowledge to use mobile banking via IBI.		0.935
FC5	I believe that mobile banking via IBI is compatible with other technologies that I use.		0.931
BINT1	I intend to utilise mobile banking via Islamic banking institutions (IBI) in the near future.	Behavioural intention	0.935
BINT2	I predict I would use mobile banking via IBI in the next months.		0.956
BINT3	I plan to adopt mobile banking via IBI in the next months.		0.943
BINT4	I believe that it is worthwhile for me to adopt mobile banking via IBI.		0.956
BINT5	Mobile banking via IBI is crucial to fulfil my banking needs.		0.935

4.4.1.1 Construct Validity

Construct validity is a measure that determines whether each item is addressing the conceptual definition of main construct. It is important because there are many items in each construct. For this research, the construct validity is determined by content, convergent and discriminant validity. Content validity is the extent to which the

content of a questionnaire covers for the topic that is intended. An easy way to ensure the content validity is achieved is by adapting to the questionnaires that have been used and validated by past researchers (Kankanhalli, Teo, Tan, & Wei, 2003). To achieve the content validity, experts that consist of professionals and academicians were consulted for their expert opinions. They are, Encik Azizan Ahmad, an independent non-executive director of Bank Islam Malaysia Berhad and Puan Haryani Harith, an executive at Bank Rakyat. Additionally, some advice is gathered from academicians namely Prof T. Ramayah of Universiti Sains Malaysia, Associate Prof Dr Azizul Yadi Yaakop of Universiti Malaysia Terengganu, Associate Prof Dr Bakar, Associate Prof Dr Rosemaliza Abd Rashid and Dr Raja Rizal Iskandar Raja Hisham to fulfil the criteria of face validity and construct validity.

4.4.1.2 Convergent Validity

Convergent validity is established when variables or items for a construct that are theoretically formulated to be correlated with each other are indeed correlated with each other (Hair et al., 2014). Contrary to convergent validity, discriminant validity is when variables or items for a construct are theoretically formulated to differ and in fact not correlated with each other (Wang, Fan, Zhao, Yang, & Fu, 2014). There are several tests to test convergent validity and these tests have value thresholds as reference. Average variance extracted (AVE) is a test that measures the variance captured by the indicators relative to measurement error (Segars, 1997). The threshold must be greater than 0.5. Another test is Cronbach alpha, that measures how closely related a set of items as a group whereby its threshold value is 0.7. Some may argue that the Cronbach alpha's has its limitations (Agbo, 2014; Hair, Hult,

Ringle, & Sarstedt, 2016). Therefore, composite reliability is used to estimate the internal consistency with a threshold of 0.7. Referring to Table 4.21, the results of the AVE, Cronbach alpha and composite reliability confirms that the constructs in the present study have convergent validity in which all of them conforming to their respective thresholds.

Table 4.21
Convergent Validity

Constructs	AVE	Composite Reliability	Cronbach alpha
Attitude (ATT)	0.91	0.976	0.967
Perceived usefulness (PU)	0.807	0.944	0.92
Perceived ease of use (PEOU)	0.746	0.946	0.932
Shariah compliance (SHAR)	0.739	0.952	0.941
Lifestyle (LFY)	0.889	0.976	0.969
Personal innovativeness (PIN)	0.829	0.951	0.931
Subjective norm (SN)	0.804	0.943	0.918
Media influence (MDF)	0.81	0.955	0.941
Internal influence (INT)	0.853	0.959	0.942
Religious scholar influence (RS)	0.788	0.967	0.962
Perceived behavioural control (PBC)	0.865	0.97	0.961
Self-efficacy (SE)	0.824	0.959	0.946
Facilitating conditions (FC)	0.88	0.957	0.932
Behavioural intentions (BINT)	0.893	0.977	0.97

4.4.1.3 Discriminant Validity

In a nutshell, discriminant validity is a measure that determines whether the construct shares more variances with its own items rather than with other latent variables (Fornell & Bookstein, 1982; Chin, 1998a). Table 4.22 is constructed based on Fornell-Larcker criterion. The bolded diagonals in the table are the square root of the

AVE of each of the latent variables. One way to identify discriminant validity is by looking at the highlighted diagonal figures which are the highest in any column or row. Based on the figures shown in the bolded diagonals in Table 4.22, all the figures are the highest figure in their respective rows, which means that the discriminant validity have been achieved.

Table 4.22
Fornell-Larcker Criterion (Discriminant Validity)

	ATT	BINT	MDF	FC	INT	LSY	PBC	PEOU	PIN	PU	RS	SE	SHAR	SN
ATT	**0.954**													
BINT	0.670	**0.945**												
MDF	0.566	0.614	**0.900**											
FC	0.628	0.763	0.581	**0.847**										
INT	0.557	0.585	0.726	0.559	**0.923**									
LSY	0.745	0.758	0.656	0.702	0.618	**0.943**								
PBC	0.689	0.768	0.649	0.742	0.608	0.748	**0.93**							
PEOU	0.690	0.677	0.59	0.649	0.574	0.757	0.687	**0.864**						
PIN	0.595	0.615	0.613	0.638	0.584	0.662	0.623	0.609	**0.911**					
PU	0.730	0.676	0.581	0.677	0.563	0.779	0.700	0.741	0.63	**0.898**				
RS	0.527	0.561	0.600	0.505	0.694	0.559	0.608	0.512	0.546	0.480	**0.888**			
SE	0.611	0.712	0.592	0.724	0.555	0.665	0.774	0.630	0.646	0.621	0.540	**0.907**		
SHAR	0.572	0.590	0.539	0.591	0.501	0.600	0.619	0.609	0.521	0.563	0.552	0.579	**0.86**	
SN	0.593	0.619	0.704	0.579	0.804	0.642	0.658	0.613	0.615	0.596	0.679	0.613	0.565	**0.897**

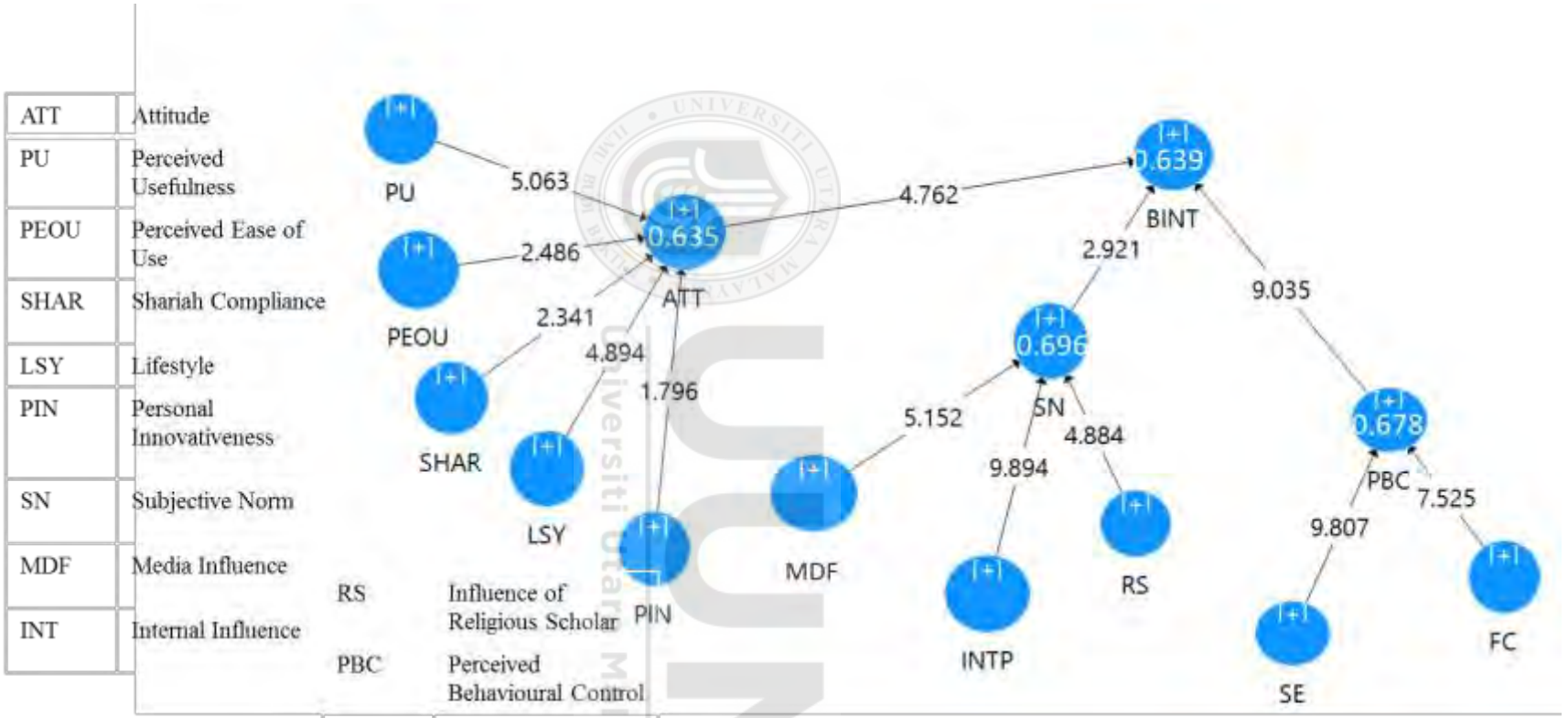
4.4.2 Structural Model

Assessing the structural model requires the most essential and widely used measure which is the coefficient of determination (R2) (Urbach & Ahlemann, 2010). The R2 is the amount of variance in the endogenous constructs explained by the exogenous construct that are linked to it (Hair et al., 2016). Like any other measures, the R^2 also has its threshold values that ranges from 0 to 1. As a guide for researchers, Chin (1998b) have suggested a general rule of values around 0.67 is substantial, 0.333 as average and 0.19 as weak. Hair et al. (2016) have also provided a general rule which specifies that the values 0.75 as substantial, 0.5 as moderate and 0.25 as weak. The results of the standard PLS procedure which calculates the path modelling for the

structural model is illustrated in Figure 4.3. As illustrated in the Figure 4.3, there are numerical figures that can be seen in several circles.

Table 4.23 explains the figures of coefficient of determination that is obtained from the path analysis. The R^2 as shown in Table 4.23 exceeded 60% in all relevant latent variables which is considered acceptable in the context of sociological research (Moksony & Heged, 1990). The best way to understand the table is by referring to the figure above. For instance, the latent variable attitude is explained in Table 4.23 that 63.5% of the variance in ATT have been explained by the variable PU, PEOU, SHAR, LFY and PIN which coincides with Figure 4.3

In short, the R^2 figure for ATT and BINT is between Chin's (1998b) classification of substantial and average values while SN and PBC exceeds the value that Chin (1998b) considered as substantial. Hair et al. (2016) on the other hand would classify these values as moderate.



ATT	Attitude
PU	Perceived Usefulness
PEOU	Perceived Ease of Use
SHAR	Shariah Compliance
LSY	Lifestyle
PIN	Personal Innovativeness
SN	Subjective Norm
MDF	Media Influence
INT	Internal Influence
RS	Influence of Religious Scholar
PBC	Perceived Behavioural Control
SE	Self-Efficacy
FC	Facilitating Condition
BINT	Behavioural Intention

Figure 4.3
The Structural Model

Table 4.23
Explanation of the Coefficient of Determination

Latent variable	Explanation of target endogenous variable variance
Attitude	63.5% of the variance in attitude (ATT) has been explained by the variables PU, PEOU, SHAR, LFY, and PIN
Subjective norm	69.6% of the variance in subjective norm (SN) has been explained by the variables MDF, INT, and RS
Perceived behavioural control	67.8% of the variance in perceived behavioural control (PBC) has been explained by the variables SE and FC
Behavioural intention	63.9% of the variance in behavioural intention (BINT) has been explained by the variables ATT, SN, and PBC

4.4.3 Path Coefficients

The full PLS-SEM model, which can also be seen in Figure 4.2 consists of an inner model and outer model. Also known as inner path coefficients or structural model, the figures in Table 4.24 briefly explains whether the path is significant or not while Figure 4.3 illustrates the table in a form of SmarPLS output. The figures are obtained by performing path analysis calculation, which is the same path analysis calculation used to obtain the R^2 for the latent variables.

The outer model, also known as the measurement model, the part of the model that examines the relationship between the latent variables can also been seen graphically in Figure 4.2. The detained figures of the factor loadings can also be seen in Table 4.24 in which all the factor loadings exceeds the 0.7 threshold.

Table 4.24
Inner Model Path Coefficient

Latent variable	Hypotheses	Relationships	Path coefficients
Attitude (ATT)	H4	PU →ATT	0.279
	H5	PEOU → ATT	0.140
	H6	SHAR → ATT	0.105
	H7	LSY → ATT	0.310
	H8	PIN → ATT	0.074
Subjective norm (SN)	H9	MDF → SN	0.216
	H10	INT → SN	0.512
	H11	RC → SN	0.195
Perceived behavioural control (PBC)	H12	SE → PBC	0.490
	H13	FC → PBC	0.400
Behavioural intentions (BINT)	H1	ATT → BINT	0.230
	H2	SN → BINT	0.144
	H3	PBC → BINT	0.516

Table 4.25
Outer Model Path Coefficient

Item	Question	Construct	Factor Loading
ATT1	I would feel happy if I use mobile banking in Islamic banking institutions (IBI).	Attitude	0.949
ATT2	Using mobile banking via IBI would be interesting.		0.961
ATT3	I would feel at ease when I am using mobile banking via IBI.		0.947
ATT4	I would enjoy doing online transactions using mobile banking via IBI banking institutions.		0.958
PU1	I think that if I use mobile banking, it reduces the time required for my Islamic banking transactions.	Perceived usefulness	0.848
PU2	I think that if I use mobile banking, it improves my performance in my Islamic banking transactions.		0.908
PU3	Using mobile banking would improve my daily productivity.		0.915
PU4	Using mobile banking would enhance my effectiveness in my Islamic banking transactions.		0.92

PEOU1	I think that learning to operate mobile banking for Islamic banking transactions is easy for me.	Perceived ease of use	0.887
PEOU2	I think that it would be easy to adopt mobile banking to accomplish Islamic banking transactions.		0.903
PEOU3	I think that the use of mobile banking via Islamic banking institutions (IBI) does not require a lot of knowledge.		0.788
PEOU4	I think that mobile banking menu via IBI would be easy to navigate.		0.899
PEOU6	I think that using mobile banking via IBI do not require a lot of technical skill		0.826
PEOU7	I think that it would be easy to see on my mobile phone's screen		0.874
SHAR1	I think that mobile banking in Islamic banking institutions (IBI) operate according to the Shariah law.	Shariah compliance	0.811
SHAR2	I think that mobile banking via IBI is based on Islamic philosophy.		0.791
SHAR3	I think that mobile banking via IBI does not contain interest in all forms of transactions		0.893
SHAR4	I think that mobile banking via IBI does not contain interest in online shopping transactions		0.896
SHAR5	I think that mobile banking via IBI does not contain uncertainty *(gharar)* in all forms of transactions.		0.89
SHAR6	I think that mobile banking via IBI does not contain uncertainty *(gharar)* in online shopping transactions.		0.89
SHAR7	I think that mobile banking via IBI does not contain fraud in online shopping transactions.		0.841
LSY1	Mobile banking via Islamic banking institution (IBI) would be compatible with my lifestyle.	Lifestyle	0.941
LSY2	Adopting mobile banking in IBI would fit well with the way I like to manage my finances.		0.949
LSY3	Adopting mobile banking to conduct Islamic banking transactions would fit well into my working style.		0.96
LSY4	I think that mobile banking via IBI would fit in well with my self-image.		0.932
LSY5	I would find mobile banking services in IBI are compatible with my occupation.		0.933
PIN1	If I hear about a new technology, I look for ways to experiment with it.	Personal innovativeness	0.919
PIN2	I am always the first to try out new information		0.884

	technologies among my peers		
PIN3	In general, I am not hesitant to try out new information technologies.		0.899
PIN4	I like to experiment with new information technologies.		0.939
SN1	People who are close to me recommend the use of mobile banking via Islamic banking institutions (IBI).	Subjective norm	0.866
SN2	People who influence my behaviour views mobile banking via IBI as beneficial.		0.928
SN3	People whose opinions I value, thinks that mobile banking via IBI is a good idea.		0.928
SN4	It is trendy if I adopt mobile banking via (IBI)		0.863
MDF1	According to the news reports that I came across, using mobile banking via Islamic banking institution (IBI) is a good way of doing banking.	Media influence	0.841
MDF2	Advertisements on mass media suggest that people should use mobile banking via IBI.		0.919
MDF3	Advertisements on mass media about mobile banking via IBI are very interesting.		0.925
MDF4	All social media channels depicted a positive sentiment for using mobile banking via IBI.		0.903
MDF5	All media channels influence me to try out mobile banking via IBI.		0.91
INT1	My friends think that I should use mobile banking via Islamic banking institutions (IBI) for banking transactions.	Internal influence	0.934
INT2	People I know think that using mobile banking via IBI is a good idea.		0.936
INT3	People I know influence me to try out mobile banking for my banking activities via IBI.		0.956
INT4	Bank staffs of Islamic banks suggest that I should utilize mobile banking.		0.865
RS1	Muslim scholars that I know personally think that I should use mobile banking via Islamic banking institutions (IBI) for banking transactions.	Religious scholar influence	0.891
RS2	Muslim scholars that I know personally think that using mobile banking via IBI was a good idea.		0.899
RS3	Muslim religious scholars that I know personally influence me to try out mobile banking for my banking activities via IBI.		0.889
RS4	One of Muslim religious scholars that I know		0.881

	personally suggests that I should utilize mobile banking.		
RS5	Religious lectures through mass media suggest that people should use mobile banking via IBI.		0.892
RS6	Religious lectures in all media channels influenced me to try out mobile banking via IBI.		0.882
RS7	Muslim scholars that I know through the mass media thought that I should use mobile banking via Islamic banking institutions (IBI) for banking transactions.		0.886
RS8	Muslim scholars that I know through the mass media thought that using mobile banking via IBI was a good idea.		0.88
PBC1	If I want to, I could use mobile banking via Islamic banking institutions (IBI).	Perceived behavioural control	0.929
PBC2	It would be possible for me to use mobile banking via IBI.		0.934
PBC3	I am able to use mobile banking sufficiently well for my banking transactions via IBI.		0.94
PBC4	If I use mobile banking via IBI, it will be entirely within my control.		0.924
PBC5	I have the resources to use mobile banking via IBI.		0.923
SE1	I think that I could complete a transaction using mobile banking via Islamic banking institutions (IBI) even if there was no one around to tell me what to do.	Self-efficacy	0.854
SE2	I think that I could complete a transaction using mobile banking via IBI if I could call someone for help if I got stuck.		0.915
SE3	I think that I could complete an Islamic banking transaction using mobile banking if I had a lot of time to complete a job I started.		0.928
SE4	I think that via mobile banking, I could complete Islamic banking transaction if I had just the built-in help facility for assistance.		0.918
SE5	I think that I could complete a transaction using Mobile banking via IBI even though I had never used such system before.		0.92
FC1	I believe that I have the necessary smartphone to use mobile banking via Islamic banking institutions (IBI).	Facilitating conditions	0.948
FC2	I believe that I have the necessary knowledge to use mobile banking via IBI.		0.935
FC5	I believe that mobile banking via IBI is compatible with other technologies that I use.		0.931

BINT1	I intend to utilise mobile banking via Islamic banking institutions (IBI) in the near future.	Behavioural intention	0.935
BINT2	I predict I would use mobile banking via IBI in the next months.		0.956
BINT3	I plan to adopt mobile banking via IBI in the next months.		0.943
BINT4	I believe that it is worthwhile for me to adopt mobile banking via IBI.		0.956
BINT5	Mobile banking via IBI is crucial to fulfil my banking needs.		0.935

4.4.4 Results of Hypotheses Testing

Bootstrapping is an important procedure that is done by utilizing one of the functions of the SmartPLS software for hypothesis testing. This procedure enables researchers to test their research hypotheses by referring to the t-statistics produced. This study uses one-tailed test with 5% significance level which makes path coefficients significant when the t-statistics is larger than 1.65. Table 4.26 presents the path coefficients, together with their t-values along with the results of hypotheses.

- H1: Consumers' attitude positively influences behavioural intentions

Based on the bootstrapping results, the t-value between attitude and behavioural intention is 4.762, surpasses the 1.65 threshold. Therefore, it indicates a significant relationship between attitude and behavioural intentions. This means that H1 is accepted, in which consumers' attitude positively influences behavioural intentions,

- H2: Consumers' subjective norm positively influences behavioural intention

The results provided by the SmartPLS software reveals that there is a significant positive relationship between consumers' subjective norm and behavioural intentions towards mobile banking usage among customers of Islamic banking institutions. The

t-value for this relationship is 2.921, obviously larger than 1.65 which means that the hypothesis is supported.

- H3: Consumers' perceived behavioural control positively influences behavioural intention

According to the PLS-SEM result in Table 4.26, the t-value for H3 is 9.035. This implies that the value satisfies the minimum threshold of 1.65 of the one-tail significance which suggest that hypothesis 3 is supported.

- H4: Consumers' perceived usefulness positively influences attitude

Based on PLS-SEM, perceived usefulness siginifically affect attitude. This hypothesis is accepted because the t-value obtained through the bootstrapping function is 5.063, surpassing the 1.65 value (Table 4.26).

- H5: Consumers' perceived ease of use positively influences attitude

According to the result output obtained from the bootstrapping function of SmartPLS, it shows a significant relationship between perceived ease of use and attitude. This is evident when the t-value have surpassed the minimum threshold of 1.65 with the value of 2.486.

- H6: Consumers' perceived Shariah compliance positively influences attitude

Based on the figures from Table 4.26, there is a significant relationship between Shariah compliance. This is evident when the t-value is 2.341 which is over 1.65. Based on this figure, it is conclusive that hypothesis 6 is supported.

- H7: Consumers' lifestyle positively influences attitude

The figures provided by Table 4.24 and Table 4.26 demonstrated significance and therefore hypothesis 7 is supported. The t-value as displayed in Table 4.26 for the relationship between consumer lifestyle and attitude is 4.894 which is way higher than 1.65 minimum threshold.

- H8: Consumers' personal innovativeness positively influence attitude

The results of the PLS-SEM reveal that the relationship between consumers' personal innovativeness and attitude is significant. The t-value confirmed the significant relationship with 1.796 which is above 1.65. Based on this evidence, it is conclusive that the hypothesis 8 is supported.

- H9: Consumers' media influence positively influences subjective norm

The SEM results on the relationship between consumers' media influence and subjective norm indicate a significant relationship between these two variables. The hypothesis is accepted because the t-value as displayed in Table 4.26 is 5.152 which is above the threshold of 1.65.

- H10: Consumers' internal influence positively influences subjective norm

The results demonstrated in Table 4.26 illustrates a significantly positive relationship between consumers' internal influence and subjective norm. This hypothesis is accepted as the t-value for this relationship is 9.894 which comfortably fulfils the 1.65 threshold of the one tailed tests.

- H11: Influence of Consumers' religious scholars positively influences subjective norm

The result of the PLS-SEM analysis indicates a significant relationship between influence of religious scholars and subjective norm. This hypothesis is accepted due to the t-value of 4.884 is significance as it is more than the critical value of 1.65.

- H12: Consumers' self-efficacy positively influences perceived behavioural control

PLS bootstrapping results has implied a positive significant relationship between self-efficacy and perceived behavioural control. This hypothesis is supported due to the t-value 9.807, which is above the acceptable threshold of 1.65.

- H13: Consumers' facilitating conditions positively influences perceived behavioural control

Empirical evidence gained from the structural analysis confirms the hypothesis on the importance of variations for each determinant in perceived behavioural control. In Table 4.24, the variable that holds the highest importance is self-efficacy, to be followed by facilitating conditions. Other than the t-values and the path coefficient, the Variance Inflation Factor (VIF) values as depicted in Table 4.26 is an index that measures how much the variance of a regression coefficient increase because of collinearity (Urbach & Ahlemann, 2010). According to Urbach and Ahlemann (2010) the maximum threshold is 5. According to Table 4.26, none of the variables have VIF more than 5, which means that the influence of collinearity in the regression coefficient is not significant.

Table 4.26
PLS-SEM Results of the Structural Model (Bootstrapping)

Hypotheses	Beta	T value	VIF
H1 Consumers' attitude positively influences behavioural intentions	0.23	4.762	2.037
H2 Consumers' subjective norm positively influences behavioural intention	0.144	2.921	1.887
H3 Consumers' perceived behavioural control positively influences behavioural intention	0.516	9.035	2.33
H4 Consumers' perceived usefulness positively influences attitude	0.279	5.063	3.057
H5 Consumers' perceived ease of use positively influences attitude	0.140	2.486	2.926
H6 Consumers' perceived Shariah compliance positively influences attitude	0.105	2.341	1.761
H7 Consumers' lifestyle positively influences attitude	0.310	4.894	3.428
H8 Consumers' personal innovativeness positively influence attitude	0.074	1.796	1.969
H9 Consumers' media influence positively influences subjective norm	0.216	5.152	2.199
H10 Consumers' internal influence positively influences subjective norm	0.512	9.894	2.718
H11 Influence from consumers' religious scholar positively influences subjective norm	0.195	4.884	2.004
H12 Consumers' self-efficacy positively influences perceived	0.490	9.807	2.028

behavioural control			
H13 Consumers' facilitating conditions positively influences perceived behavioural control	0.400	7.525	2.028

4.4.5 The Effect Size

In continuation of the Path analysis and the R^2, a further evaluation towards the hypotheses can be done by testing the model for direct effects, known as effect size (F^2). In a nutshell, effect size is the amount of variance each exogenous variable contributes to the endogenous variable (Cohen, 1992). This can be done by adding and removing a construct one by one in the model and calculating the change in R^2 as reported in Table 4.27. The effect can be calculated using this formula by Cohen (1992):

$F^2 = (R^2\text{included} - R^2\text{excluded}) / (1 - R^2\text{included})$

Generally, the effect sizes around the figure of 0.02 to 0.15 is considered as small, 0.15 to 0.35 is considered as medium and 0.35 and above is considered as large (Cohen, 1988).

Table 4.27 shows that the effect size for PU and LSY towards ATT are rather small. This means that although they are significant in terms of t-values and path coefficient, it only gives a small but meaningful explanation of the variance for ATT. Similarly for the effect size of SN towards BINT, there is small effect size but still a meaningful explanation of SN towards BINT. For variable PBC and BINT, there are large effect size that means that PBC, to a large extent, gives a meaningful explanation towards BINT, which coincides with the large t-value between these two

variables. For PEOU, there is no significant effect size implies that PEOU does not give a meaningful explanation towards ATT. While in this case, PIN also does not give a meaningful explanation towards attitude but for this relationship, it was already established from the figures of its t-value and the path coefficient that is not significant.

Table 4.27
Effect Size

Exogenous	Endogenous	R^2 Included	R^2 Excluded	F^2 Effect size	Size
PU	ATT	0.635	0.61	0.0684931	Small
PEOU	ATT	0.635	0.629	0.0164383	None
SHAR	ATT	0.635	0.629	0.0164383	None
LSY	ATT	0.635	0.607	0.0767123	Small
PIN	ATT	0.635	0.632	0.0082191	None
MDF	SN	0.696	0.675	0.0690789	Small
INT	SN	0.696	0.6	0.3157894	Small
RS	SN	0.696	0.677	0.0625	Small
SE	PBC	0.679	0.560	0.3707165	Large
FC	PBC	0.679	0.6	0.2461059	Medium
ATT	BINT	0.639	0.613	0.0720221	Small
SN	BINT	0.639	0.628	0.0304709	Small
PBC	BINT	0.639	0.525	0.3157894	Large

4.4.6 The Prediction Relevance

In addition to the effect size, there is also the prediction relevance which indicates the model's ability to predict measurement items of any endogenous variables in the

model (Henseler, Ringle, & Sinkovics, 2009). It can be measured by a procedure called “blindfolding”, in which some of the cases in the dataset are blindfolded, for instance every 7 cases or any number cases that can be set in the SmartPLS software. The blindfolded model is then compared with the actual model (Tenenhaus et al., 2005). The formula to obtain the Q^2 is almost the same as the effect size formula except instead of using R^2, this Q^2 uses:

$q^2 = (Q^2\text{included} - Q^2\text{excluded}) / (1 - Q^2\text{included})$

Like effect size, prediction relevance also has rules of thumb to classify the strength of prediction relevance. The cut-off of the level of strengths are the same with effect size whereby 0.02 to 0.15 is considered as weak effect, 0.15 to 0.35 is considered as moderate effect and above 0.35 is considered as large predictive effect (Urbach & Ahlemann, 2010).

Table 4.28 indicates no predictive effect for PEOU and SHAR towards ATT although both variables are significant in terms of path coefficient, t-values and p-values. However, as expected for the relationship between PIN and ATT, there is no predictive effect since they are low in significance. SN to BINT on the other hand have significant but low t-values and path coefficient values indicating weak predictive effect between this relationship.

Table 4.28
The Prediction Relevance (Q^2)

Exogenous	Endogenous	Q^2 Included	Q^2 Excluded	Q^2 Blindfolding	Prediction
PU	ATT	0.574	0.551	0.05399061	Weak
PEOU	ATT	0.574	0.569	0.011737089	None
SHAR	ATT	0.574	0.570	0.009389671	None
LSY	ATT	0.574	0.549	0.058685446	Weak
PIN	ATT	0.574	0.572	0.004694836	None
MDF	SN	0.557	0.540	0.038374718	Weak
INT	SN	0.557	0.479	0.176072235	Moderate
RS	SN	0.557	0.543	0.031602709	Weak
SE	PBC	0.584	0.482	0.245192308	Moderate
FC	PBC	0.584	0.516	0.163461538	Moderate
ATT	BINT	0.569	0.546	0.053364269	Weak
SN	BINT	0.569	0.56	0.020881671	Weak
PBC	BINT	0.569	0.467	0.236658933	Moderate

4.4.7 Multi-group Analysis

Along with the original constructs of the DTPB introduced by Taylor and Todd (1995) and the constructs suggested by this current research, there are several demographic variables that are worth examining. Typically, researchers determine significant demographical and observed differences such as age, gender and income (Matthews, 2017). For this study, in addition to the aforementioned variables, religious education background is essential to be examined. The reason is that Malaysia education system has an Islamic religious stream. The difference in results between samples that have been through religious stream of education and samples that are not been exposed to religious stream education might be significant. By examining these differences, researchers would be able to reveal differences of subsamples within the total population that would not have been revealed when examined as a whole (Matthews, 2017). Henseler, Ringle, and Sarstedt (2016) argued

that interpreting results from a single population can be misleading. Therefore, examining the observed differences could help reduce the misinterpretation of results.

In order to find the effects of religious stream education, samples with religious stream education background are separated from the mainstream education stream thus, therefore two different datasets are created. By looking at the data, only about a quarter (25.8%) of the sample which is 124 samples are educated in the religious (Islamic) stream. However, from the multi group analysis, there is no significant difference.

4.4.7.1 Income

H14: Income moderates the relationships in Hypotheses 1-13

Income groups can affect people's behaviour in terms of mobile banking (Abdinoor & Mbamba, 2017). The most recent and common classification of income for Malaysians are the B40, which are people in the bottom 40% of the income bracket, the M40, which refers to the middle 40% of the income bracket and the high 20% of the income bracket, which is labelled T20. In simplifying the analysis process, only samples that are within the B40 range and above B40 are taken. There are 375 samples within the B40 income group that consists of 78% of the total sample, while the remaining 104 samples that equal to 22% are the ones with income above B40. Using PLS-MGA has helped to identify the path for H2, a relationship between subjective norm and behavioural intentions. It is more significant for samples with the income bracket of B40 and below but less significant for the B40 above. This implies that behavioural intentions samples whose income brackets are B40 and

below are more influenced by subjective norm. Table 4.29 below shows the results for the MGA for income.

Table 4.29
PLS-MGA Results for Income

Hypotheses	H	t-value overall	t-value B40 and below	t-value B40 above	Moderation effect
Consumers' attitude positively influences behavioural intentions	H1	4.762	1.837	4.611	No
Consumers' subjective norm positively influences behavioural intention	H2	2.921	2.562	1.736	Yes
Consumers' perceived behavioural control positively influences behavioural intention	H3	9.035	3.362	9.281	No
Consumers' perceived usefulness positively influences attitude	H4	5.063	2.116	4.102	No
Consumers' perceived ease of use positively influences attitude	H5	2.486	0.873	2.197	No
Consumers' perceived Shariah compliance positively influences attitude	H6	2.341	0.967	1.888	No
Consumers' lifestyle positively influences attitude	H7	4.894	3.808	3.86	No
Consumers' personal innovativeness positively influence attitude	H8	1.796	0.7	2.279	No
Consumers' media influence positively influences subjective norm	H9	5.152	0.868	5.578	No
Consumers' internal influence positively influences subjective norm	H10	9.894	5.24	8.719	No
Consumers' religious scholars influence positively influences subjective norm	H11	4.884	2.551	3.626	No
Consumers' self-efficacy positively influences perceived behavioural control	H12	9.807	3.656	9.053	No
Consumers' facilitating conditions positively influences perceived behavioural control	H13	7.525	4.406	5.996	No

4.4.7.2 Gender

H15: Gender moderates the relationships in Hypotheses 1-13

Gender differences can also influence mobile banking adoption. In general, men are believed to have more tendency to adopt mobile banking (Wan, Luk, & Chow, 2005). Women on the other hand, are more inclined to use technology if they perceive that a technology is easy to use (Venkatesh & Morris, 2000; Park, Kim, & Kim, 2013). For this study, 243 of the sample are females which makes 50.1% of the total samples while males are 236 samples. Taking into consideration, the distribution between male and females is almost equal so, the t-values and p-values are accepted for gender differences in H1(ATT-BINT) and H7(SHAR-ATT). For H1, both genders have significant t-values although females appear to have better significance. For H7, only females have significant t-value while males are insignificant (Table 4.30).

Table 4.30
PLS-MGA Results for Male and Female

Hypotheses	H	t-value overall	t-value female	t-value male	Moderation effect
Consumers' attitude positively influences behavioural intentions	H1	4.762	4.061	2.625	Yes
Consumers' subjective norm positively influences behavioural intention	H2	2.921	1.793	1.853	No
Consumers' perceived behavioural control positively influences behavioural intention	H3	9.035	4.816	8.111	No
Consumers' perceived usefulness positively influences attitude	H4	5.063	3.126	3.82	No
Consumers' perceived ease of use	H5	2.486	2.014	1.616	No

positively influences attitude					
Consumers' perceived Shariah compliance positively influences attitude	H6	2.341	3.686	0.61	Yes
Consumers' lifestyle positively influences attitude	H7	4.894	4.46	2.815	No
Consumers' personal innovativeness positively influence attitude	H8	1.796	1.532	1.404	No
Consumers' media influence positively influences subjective norm	H9	5.152	3.997	3.323	No
Consumers' internal influence positively influences subjective norm	H10	9.894	8.058	6.752	No
Consumers' religious scholars influence positively influences subjective norm	H11	4.884	2.801	3.992	No
Consumers' self-efficacy positively influences perceived behavioural control	H12	9.807	7.48	6.356	No
Consumers' facilitating conditions positively influences perceived behavioural control	H13	7.525	3.798	7.988	No

4.4.7.3 Region

H16: Region moderates the relationships in Hypotheses 1-13

Differences in region in terms of economic development can also potentially show differences between people's perception, attitude, and norms. People from more developed regions might exhibit different attitude compared to people from less developed regions. For this study, the samples collected are divided into two: samples from developed states and less developed states. Samples that are from developed states in Malaysia are from Kuala Lumpur, Perak, Pulau Pinang, Negeri Sembilan, Melaka and Johor. On the other hand, samples from less developed states in Malaysia are from Kedah, Kelantan, Terengganu, Perlis, Sabah, and Sarawak. A

total of 242 (50.5%) samples are from less developed states in Malaysia while the remaining 237 (49.5%) are from more developed states. A PLS-MGA analysis has been conducted to see any significant differences between the less developed states and more developed states and it turned out that there is no significant difference between less developed and more developed states across every hypothesised relationship.

Geographical differences can also play a role in intentions, attitude, norms, and perceptions. Samples from the North of Malaysia, which consists of 196 samples or 41% of the total samples are believed to have different attitude and perceptions compared to samples from Eastern Malaysia. The Northern state of Malaysia consists of Kedah, Perlis, Pulau Pinang and Perak. The central states of Malaysia on the other hand, which consists of 23% or 111 samples, comprises of Selangor, Negeri Sembilan, Melaka, Putrajaya, and Kuala Lumpur. In the East Coast, which consists of 22% of the sample or 104 samples are from the states of Kelantan, Terengganu, and Pahang. The PLS-MGA analysis have been done to see whether there are any significant differences between the regions.

As shown in Table 4.31, there are significant differences between Central, Northern and Eastern regions of Malaysia. In particular, for the relationship that is stated in H3 (PBC-BINT), there is a significant difference between the Northern states and the Eastern states of Malaysia. Moreover, the t-values for H3 are significant for the samples from Central, Eastern and the North. Another significant relationship is for lifestyle and attitude in which there are significant differences between the Central, Northern and Eastern states of Malaysia. The central states in Malaysia have the highest t-value (5.737) as compared to the Northern states (2.47) and the Eastern states (1.951).

Table 4.31
PLS-MGA Results for Different Regions

Hypotheses	H	t-value overall	t-value Central	t-value Eastern	t-value North	Mod CvE	Mod CvN	Mod EvN
Consumers' attitude positively influences behavioural intentions	H1	4.762	1.704	1.085	3.59	No	No	No
Consumers' subjective norm positively influences behavioural intention	H2	2.921	1.679	0.75	1.793	No	No	No
Consumers' perceived behavioural control positively influences behavioural intention	H3	9.035	3.614	7.882	5.353	No	No	Yes
Consumers' perceived usefulness positively influences attitude	H4	5.063	1.848	2.938	3.452	No	No	No
Consumers' perceived ease of use positively influences attitude	H5	2.486	0.475	0.504	3.176	No	No	No
Consumers' perceived Shariah compliance positively influences attitude	H6	2.341	1.239	0.305	3.542	No	No	No
Consumers' lifestyle positively influences attitude	H7	4.894	5.737	1.951	2.47	Yes	Yes	No
Consumers' personal innovativeness positively influence attitude	H8	1.796	0.393	0.899	1.836	No	No	No
Consumers' media influence positively influences subjective norm	H9	5.152	2.745	0.933	3.413	No	No	No
Consumers' internal influence positively influences subjective norm	H10	9.894	3.299	6.488	5.593	No	No	No
Consumers' religious scholars influence positively influences subjective norm	H11	4.884	3.174	1.669	3.172	No	No	No
Consumers' self-efficacy positively influences perceived behavioural control	H12	9.807	2.94	4.17	5.906	No	No	No
Consumers' facilitating conditions positively influences perceived behavioural control	H13	7.525	4.086	3.546	5.614	No	No	No

4.4.7.4 Age

H17: Age moderates the relationships in Hypotheses 1-13

Age differences can also contribute to the relationship between variables. It is claimed that older generations tend to have technological anxiety as compared to younger generation (Lee, Cho, Xu, & Fairhurst, 2010). There are four categories of age, one of them is for 16-24 years old, which consists of 119 samples or 24.8% of the total samples. The next group is 25-34 years old which consists of 26% or 126 samples. Another 129 samples are from 35-44 years old that consists of 27% of the total sample. Lastly, 105 samples are from those who are above 45 years old, which consists of 22% of the total samples.

Using PLS-MGA function enables the researcher to identify some of the hypothesised relationships are affected by age (Table 4.32). Amongst others H3 which is the relationship between perceived behavioural control and behavioural intentions. One of the most significant differences in age brackets are the t-values for 16-24 years old and 25-34 years old are 12.668 and 2.676 respectively, with p-value lower than 0.05. Other significant difference in age brackets are the 16-24 years old and the 35-44 years old whereby the t-value for the latter bracket is 4.248. Age bracket between 16-24 years old and people who are above 45 years old (4.368) also exhibited significant difference when the p-value is below 0.05.

Another relationship that is significant between age groups is the relationship proposed in H12 (INT-SN). Based on the PLS-MGA analysis, there are significant differences between the age groups of 25-34 and 35-44 as well as 25-34 and 45 above whereby the p-values for the differences are below 0.05. As for the t-values, the age group 25-34 has the highest t-value with 8.651 while the t-value for 35-44 is

3.602 and for the 45 and above is 3.659. Lastly for the age differences, the hypothesised relationship for H15 (SE-PBC) has significant differences for some age groups. The significant difference between groups, amongst others, is 16-24, which is significantly different than 35-44 with t-values exceeding 1.65 that is 7.286 and 2.971 respectively and p-value lower than 0.05. Another significant difference is between the age groups of 16-24 and 45 above where the latter group has 4.918 t-value.

Table 4.32
PLS-MGA Results for Different Age Groups

Hypotheses	H	t-value overall	t-value 16-24	t-value 25-34	t-value 35-44	t-value 45 and above	Mod 16-24 vs 25-34	Mod 16-24 vs 35-44	Mod 16-24vs 45 above	Mod 25-34 vs 35-44	Mod 25-34 vs 45 and above	Mod 35-44 vs 45 and above
Consumers' attitude positively influences behavioural intentions	H1	4.762	0.027	4.243	2.989	2.065	No	No	No	No	No	No
Consumers' subjective norm positively influences behavioural intention	H2	2.921	0.344	2.505	1.974	1.796	No	No	No	No	No	No
Consumers' perceived behavioural control positively influences behavioural intention	H3	9.035	12.668	2.676	4.248	4.368	Yes	Yes	Yes	No	No	No
Consumers' perceived usefulness positively influences attitude	H4	5.063	1.032	1.832	3.302	3.746	No	No	No	No	No	No
Consumers' perceived ease of use positively influences attitude	H5	2.486	2.513	1.545	1.42	0.252	No	No	No	No	No	No
Consumers' perceived Shariah compliance positively influences attitude	H6	2.341	1.191	2.795	2.236	1.495	No	No	No	No	No	No
Consumers' lifestyle positively influences attitude	H7	4.894	3.374	2.119	2.367	2.394	No	No	No	No	No	No
Consumers' personal innovativeness positively influence attitude	H8	1.796	1.547	0.638	1.829	0.44	No	No	No	No	No	No
Consumers' media influence positively influences subjective norm	H9	5.152	2.914	2.631	2.083	2.502	No	No	No	No	No	No
Consumers' internal influence positively influences subjective norm	H 10	9.894	4.762	8.651	3.602	3.659	No	No	No	Yes	Yes	No
Consumers' religious scholars influence positively influences subjective norm	H 11	4.884	1.763	0.255	4.875	3.649	No	No	No	No	No	No
Consumers' self-efficacy positively influences perceived behavioural control	H 12	9.807	7.286	6.104	2.971	4.918	No	Yes	Yes	No	No	No

Consumers' facilitating conditions positively influences perceived behavioural control	H 13	7.525	3.177	2.704	3.954	4.891	No	No	No	No	No	No

4.4.7.5 Education

H18: Education level moderates the relationships in Hypotheses 1-13

Education level can also influence people's perception, attitude, and intentions towards technology, in this case, mobile banking. If the increase in age increases anxiety in technology, the increase of education level works the opposite way (Lee et al., 2010). For analysis through PLS-SEM, education levels are grouped into few categories; 175 respondents without undergraduate degree which makes 37% of the total sample, 209 of respondents hold undergraduate degree, which equals to 44% of the sample and 95 respondents with a postgraduate degree which comprises of 20% of the total sample.

In this study, it is suggested that education level does have significant influence towards some of the hypothesised relationships (Table 4.33). For instance, H7 (SHAR-ATT) there is a significant difference between the group with and without degree with p-value below 0.05. The t-value is only significant for the group with degree (3.398) while the group without degree is insignificant (1.524)

H12 (INT-SN) is also moderated with education background. Based on the p-value derived from the PLS-MGA analysis, there is a significant difference between the ones without degree and the ones with post-degree qualification whereby the t-values are both significant, that is 5.258 and 4.235 respectively. Finally, for education levels group analysis, there are significant differences between groups for H16 (FC-PBC). The ones without degree and with degree have t-values of 4.315 and 6.17 respectively. The significant difference for the one without degree and with a

postgraduate degree is also significant with the latter t-value of 2.265. Both differences have p-values lower than 0.05.

Table 4.33
PLS-SEM Results for Different Educational Backgrounds

Hypotheses	H	T-value overall	T-value Without degree	T-value with degree	T-value with post degree	Mod Post degree vs. with degree	Mod Post degree vs without degree	Mod With degree vs without degree
Consumers' attitude positively influences behavioural intentions	H1	4.762	2.371	4.82	1.662	No	No	No
Consumers' subjective norm positively influences behavioural intention	H2	2.921	2.511	1.735	1.639	No	No	No
Consumers' perceived behavioural control positively influences behavioural intention	H3	9.035	2.954	6.66	6.191	No	No	No
Consumers' perceived usefulness positively influences attitude	H4	5.063	2.403	3.217	3.801	No	No	No
Consumers' perceived ease of use positively influences attitude	H5	2.486	1.332	2.072	1.312	No	No	No
Consumers' perceived Shariah compliance positively influences attitude	H6	2.341	1.524	3.398	0.364	No	No	Yes
Consumers' lifestyle positively influences attitude	H7	4.894	3.167	3.11	2.499	No	No	No
Consumers' personal innovativeness positively influence attitude	H8	1.796	1.535	2.105	2.765	No	No	No
Consumers' media influence positively influences subjective norm	H9	5.152	0.43	5.708	3.037	No	No	No
Consumers' internal influence positively influences subjective norm	H10	9.894	5.258	8.509	4.235	No	Yes	No
Consumers' religious scholars influence positively influences subjective norm	H11	4.884	2.27	2.54	2.468	No	No	No
Consumers' self-efficacy positively influences perceived behavioural control	H12	9.807	3.94	4.786	9.124	No	No	No
Consumers' facilitating conditions positively influences perceived behavioural control	H13	7.525	4.315	6.17	2.265	No	Yes	Yes

4.5 Summary

The following data analysis is based on the measures to address the lack of mobile banking subscription in Malaysian banking institutions despite Malaysia being a hub for Islamic banking. SPSS was used to screen the data, identify inattentive responses, outliers, normality and internal consistency. Inspired by the DTPB model, this data analysis, which uses PLS-SEM have identified important variables that influence the intention towards mobile banking adoption. Additionally the PLS-MGA function was also used to identify significant moderators in which several subsamples were identified.

CHAPTER FIVE

DISCUSSION AND CONCLUSIONS

5.1 Introduction

This chapter begins with the introduction, discussion of the findings, analysis of research, conclusion, and implications of the results. This research attempts to examine factors influencing behavioural intentions to use mobile banking among customers of Islamic banking institutions along with moderators. The Decomposed Theory of Planned Behaviour DTPB is used as a guidance to examine the basic determinants of behavioural intentions. Of all the factors that might affect behavioural intentions, the focus of this research is on Shariah compliance, lifestyle, personal innovativeness, and influence of religious scholar in people's behavioural intentions towards mobile banking. Other variables include attitude, perceived usefulness, and perceived ease of use, subjective norm, media influences, internal influences, perceived behavioural control, self-efficacy and facilitating conditions. A questionnaire is then developed to empirically examine the theoretically hypothesised paths.

This research utilises the internet, specifically google forms that is distributed through social media platforms such as Facebook, Instagram, and WhatsApp as a platform of gathering data resulted in 600 participants. Using social media as means of distributing electronic questionnaires also involve convenient and snowball sampling methods. This research employed statistical analysis software like Microsoft Excel, SPSS and SmartPLS for analysis.

5.2 Discussion of the Results

In total, there are 18 hypotheses to test in assessing the determinants of behavioural intention towards using mobile banking among customers in Islamic banking institutions. Figure 4.3 shows that all the hypotheses was accepted based on the one tailed test t-value, which exceeds 1.65.

The results of the path analysis show that, perceived behavioural control has the largest effect towards behavioural intention. This can be seen in Figure 4.3 referring to the arrow that points from PBC to BINT, has the highest figure, indicating the magnitude of the relationship. This means that the behavioural intention would improve when there is improvement in the degree to which the present sample believes he or she can perform mobile banking transactions. Multi-group analysis shows that there are significant differences in terms of age when it comes to perceived behavioural control and behavioural intentions. In particular, the effect of perceived behavioural control towards behavioural intentions in mobile banking is the most effective among the 16 to 24 years old as compared to samples age 25-34 years old, 34-45 years old and samples of 45 years old and above.

Self-efficacy (SE) is a factor that has given a larger influence towards perceived behavioural control which explains the low coefficient and the affected size of perceived ease of use. Additionally, this research also detected some significant differences between age groups. The age group of 16 to 24 years old are significantly different than samples 35 to 44 years old and those of 45 years old and above. This means that, in terms of self-efficacy, the 16 to 24 years old are more likely to have high perception of comfort level when they have confidence to use mobile banking transactions as compared to the 35-44 years old and 45 years old and above indicating age gap.

Another finding is that the attitude (ATT) is affected largely by lifestyle (LSY). This means that if the sample thought that mobile banking fit their lifestyle, be it in terms of their career and daily living, they would have positive attitudes towards mobile banking usage. Furthermore, if they (the samples) perceived the mobile banking is useful, they would have the inclination of having positive attitude towards its usage.

Contrarily, empirical results from this study reveals that personal innovativeness (PIN) have no significant relationship towards attitude (ATT) even when considering other demographic variables that may moderate the relationship. As referred to the argument of Sarel and Marmorstein (2003), the insignificance of personal innovativeness may indicate that the samples from this study are not excited about new technologies. This shows that although Malaysia is not as developed country as Europe of United States, the insignificance of personal innovativeness towards attitude might also indicate that the present samples are also not excited about new technologies.

Although subjective norm (SN) is a significant determinant of behavioural intention, it is the least influential predictor, which exerts the influence of attitude and perceived behavioural control. Nevertheless, multi-group analysis indicated that the significant relationship between subjective norm and behavioural control is more prevalent among those with B40 income and below and it is less prevalent among the above B40. The reason is, as stated by Hallemann (2016), is that people who have more income are less influenced towards the opinion of others because they tend to spend less time socializing.

Internal influence has a significantly positive relationship and the most important determinant of subjective norm. Difference in age bracket seems to show significant variations in the relationship between internal influence and subjective norm. If the samples are in the age bracket of 25-34, their internal influence has a significantly positive relationship and greater influence on their subjective norm compared to the ones who are at 35-44 and the ones who are at 45 and above. This suggests that societal pressure applies more on samples 25-34 rather than samples of other age brackets. But the irony is, the societal pressure does not seem to faze the 16-24 years old. One justification, perhaps at the age bracket of 16-24, the attention is primarily on educational development rather than financial and life commitments. While at 25-34 years old, the priorities change with bills to pay, long term investments and more disposable income for shopping which usually done online and a social lifestyle for instance, to keep up with colleagues of the same profession and for reputation.

Other determinants of subjective norm include media influence do have a significant positive relationship. It means that the samples examined would be influenced by media channels or social media with no internal influence might involve. Although significant, the least influence on subjective norm is the influence of religious scholars. One of the reasons is that mobile banking is indeed a secular invention although it applies to an Islamic institution. It seems that consumers are still influenced by the feasibility of using mobile banking, its user friendliness and usefulness. They seem comfortable using the technology for its convenience rather than the Shariah compliance issue or any spiritual side of it.

5.3 Discussion of the Findings

There is a total of five research questions that need to be answered. With reference to the empirical results in the previous chapter, the answers are presented below.

5.3.1 Research Question 1:

Do attitude, subjective norm and perceived behavioural control, determinants of behavioural intention when adopting mobile banking via Islamic banking institutions?

This study has empirically examined attitude, subjective norm, and perceived behavioural control so, they are indeed the determinants of behavioural intention to adopt mobile banking. This can be further explained by means of three hypotheses H1, H2 and H3

5.3.1.1 Hypothesis 1

Consumers' attitude positively influences behavioural intentions

Empirical results from the assessment of this hypothesis H1 confirms the findings by Rehman and Shaikh (2020) that provided evidence in the context of mobile banking among Malaysian generation Y found that attitude has a positive relationship with intention. Previous studies claimed that attitude is a key factor for consumer intention while for the present study, attitude is not a key factor. A possible reason for this is that the present study's samples are not limited to generation Y. Generation Y is more technology savvy compared to other earlier generations (Marmaya, Zakaria & Mohd Desa, 2019). The present study also has similar findings with a study by Wessels and Drennan (2010) whereby attitude does have a positive relationship with behavioural intention.

Another study on mobile banking technology was a study in Korea revealed that attitude was positively related to behavioural intentions, which implied that favourable attitude would increase the intent to adopt mobile banking (Hong, 2019). Similar results also apply to mobile banking in both Taiwan and Vietnam with Vietnam having a higher coefficient as compared to Taiwan indicate that instilling positive attitude for the Vietnamese would increase the probability of intent to use mobile banking (Ho et al., 2020).

In a slightly different technological context, a similar finding can be found in a study by Zolait (2010) in the context of internet banking. Although internet banking is a predecessor to mobile banking, most of the Muslim majority countries share the same nature with the present study as the study setting that is Yemen.

In other technological context namely online adviser for university students, Feghali, Zbib and Hallah (2011) also found positive relationship between attitude and behavioural intention. Nevertheless, despite the difference in technology, this study can be referred since the context is in Lebanon, which is similar to the present context, a Muslim majority country.

Furthermore, since the Lebanese context by Feghali, Zbib and Hallah (2011), Yemeni context by Zolait (2010) and Malaysian context by Rehman and Shaikh (2020) focused on Muslim majority countries, the similarity of findings with the present study warrants attention especially when the present study is for Islamic banking institutions which mostly involved Muslim customers.

5.3.1.2 Hypothesis 2

Consumers' subjective norm positively influences behavioural intention

For the second hypothesis H2, the significant relationship between subjective norm and behavioural intentions is consistent with the findings of Amin, Hamid, Lada, and Anis (2008). This means that subjective norm is a determinant of behavioural intention. However, the smaller coefficient (β), compared to other determinants, means that subjective norm is a determinant for behavioural intention but not a primary motivational force. This also indicates when it comes to mobile banking, despite Hofstede's collective findings on Malaysian society, there are other determinants that are relatively more important, for instance, attitude and perceived behavioural control. Nevertheless, this positive relationship implies the more social pressure, the wider use of mobile banking will be. The study by Amin et al. (2008) is about the same context as the present study except that the sample is focusing on BIMB bank customers while the sample for the present study is open to customers of any Islamic commercial banks in Malaysia thus more coverage of samples. The present study is also consistent with Teo, et al. (2012) that examined mobile banking intentions on a sample from Universiti Tunku Abdul Rahman (UTAR), whereby it is reported that social pressure also affected Malaysian students intentions on mobile banking. Empirical results for this research is also almost similar with an Indonesian sample by Aji et al. (2021) for the context of e-money.

The result obtained from this research however is not consistent for studies of different context. For instance, in the context of Islamic unit trust, Ali et al. (2014) postulated that social pressure did not influence one's intention. One of the reasons for the insignificance was that the sample involved were mainly among the staffs of

UiTM Kedah, therefore they might already have sufficient knowledge from their high level of education and experience. Unlike the present research, samples are from the public that have various education levels and experience. Subjective norm can also be insignificant if the nature of technology does not need interactions from other users i.e., online videos and television. Mobile banking on the other hand needs other users to fully utilise its functionality. Furthermore, although Hong (2019) and Ho et al. (2020) technological context is mobile banking, the results obtained are not consistent with the present study because the sample analysis favours the advantages and cost rather than opinions from other people.

5.3.1.3 Hypothesis 3

Consumers' perceived behavioural control positively influences behavioural intentions.

The outcome of H3 suggests that perceived behavioural control positively affects the intention of Malaysian Muslims to adopt mobile banking in Islamic banking institutions. In relation to the research question, it is important to note that perceived behavioural control does have relationship with behavioural intention towards mobile banking. Furthermore, this variable also has the highest path coefficient value, which means that this perceived behavioural control is the most significant determinant of behavioural intention. This also means that the current samples are rational in their decision making rather than depending on the opinion on others which is important for Islamic financial institutions to decide which area to focus to increase the intention of adoption.

The present results also means that the perception of enough support and resources is the what the samples are most concerned, which is consistent with the

outcome suggested by Amin et al. (2013) in the context of Islamic mortgage behaviour. The research by Amin et al. (2013) however is not a technology related but is relatable to the present study because of its affiliation of Islamic banking institution. In relation to technology, the results of the present study also confirms with a study on online shopping by Le, Nguyen,Nguyen,Nguyen and Le (2020) whereby it is argued that the more information of the products are perceived to be available for the consumers (information about the price, the quality of the product and methods of delivery) the more they intend to use their online shopping facility. This could also be the case for the present study whereby m-commerce is a part of mobile banking. The present sample would have more inclination to shop online and pay via mobile banking if they could find information about the products they are buying easily.

For mobile banking, Hong (2019) and Ho et al. (2020) suggested that the rise of perceived behavioural control would increase the intent to use mobile banking. This means that if consumers perceived that they will be using mobile banking smoothly, they will have more intent to adopt mobile banking (Hong, 2019). In relation to the present study, some mobile banking apps have glitches and frequent unscheduled maintenance (Tan, 2020). Enhancing the smoothness of mobile banking operation for the users will increase the intention of the present samples to use mobile banking.

5.3.2 Research Question 2

Do perceived usefulness, perceived ease of use, Shariah compliance, perceived lifestyle and personal innovativeness determinants of attitude to use mobile banking via Islamic banking institutions?

In answering this research question, the present study has examined H4, H5, H6, H7 and H8. These hypotheses explain the relationship between variables such as perceived usefulness, perceived ease of use, Shariah compliance, lifestyle, and personal innovativeness towards attitude.

5.3.2.1 Hypothesis 4

Consumers' perceived usefulness positively influences attitude

Perceived usefulness is one of the pioneer variables of the TAM, which later integrated into the DTPB, so it is not surprising when it is found significant and positively influences attitude. In order to answer the research question, it was found that perceived usefulness does positively affect attitude. This means that perceived usefulness plays an important role in consumer's attitude towards mobile banking and eventually affects behavioural intention. The result obtained for the current study corroborated with the result revealed by Leon (2018) for the context of mobile app in the United States among millennials, which is quite relatable to the present study since mobile app could be a form of mobile banking. Although the present study does not target millennial per se, the sample of this study do consist of millennials and the present finding is still essential because Islamic banks in Malaysia do not under estimate people's perceived usefulness towards mobile banking when planning their promotional activities. The same observation also applies for Rehman and Shaikh (2020) in the case of Malaysian generation Y. The author postulated that perceived usefulness is fundamental in forming favourable attitude towards mobile banking. The same explanation can also be applied for the present study whereby the high importance of perceived usefulness is also reflected among samples that were collected among wider Malaysian population and not just the millennials.

Similar relationship between perceived usefulness and attitude is observed when it comes to mobile Quick Response (QR) payments in Malaysia (Ibrahim et al., 2019). This similarity is expected because mobile QR payments is a part of mobile banking. Hence, users are willing to use the QR payment with provision that they believed, QR payment system is beneficial for them. As for the present study, mobile banking carries a broader term, which includes other services such as payment transfers, account statements and QR payment is one of the features of mobile banking. Nevertheless in light of the finding Ibrahim et al. (2019), the present result also shows that the present samples believe that mobile banking via Islamic banking benefits them.

Empirical results obtained from the present study is consistent with Gu et al. (2009), Hong (2019) and Ho et al. (2020) that demonstrated positive relationship between perceived usefulness and attitude. The sample for Gu et al. (2009) is quite specific, with customers from Woori Bank South Korea while Hong's (2019) samples are Korean users of Mobile banking. Another study is on Taiwan and Vietnam whereby perceived usefulness is positive for both countries (Ho et al. 2020). This shows that usefulness is significant across different nations in Asia at various levels of development. Korea for instance, is one of the most advanced in terms of mobile phone technology while Vietnam although not as advanced, still shows significance in terms of perceived usefulness towards attitude. The present sample on the other hand are customers from multiple banks that offer Islamic banking services in Malaysia. It is claimed that users are willing to use mobile banking with the condition that mobile banking helps them to fulfil their tasks.

The positive relationship between perceived usefulness and attitude is also consistent with the result obtained by Upadhyay et al. (2017). However, this

literature is only relatable to the concept of the positive relationship between perceived usefulness and attitude. Other than that, in terms of sample and location examined by Upadhyay et al. (2017) is hardly relatable to the current context because their sample are among salespersons in India and their context of technology are sales technology.

The positive relationship between perceived usefulness and attitude demonstrated in this study are aligned into other Malaysian studies. Rehman and Shaikh (2020) as well as Sulaiman and Jauhari (2021) have provided a Malaysian mobile banking examples although they did not specify for the context of Islamic banking institutions. Nevertheless these studies are useful references for the present context.

Studies that involve major countries in Asia as well as across Atlantic such as Leon (2018) have provided a mobile app example for the United States. Korean mobile banking examples of Gu et al. (2009) and Hong (2020) as well as Indian's technology sales by Upadhyay et al. (2017) demonstrated the universality of the relationship between perceived usefulness and attitude towards technology.

5.3.2.2 Hypothesis 5

Consumers' perceived ease of use positively influences attitude

Perceived ease of use is important because in order for the consumers to have a positive attitude towards a technology, it must be hassle free and easy to use (Davis, 1993). Empirical evidence from this study confirms this when there is a positive significant relationship between perceived ease of use and attitude. This implies that consumers will have positive attitudes towards mobile banking when

consumers perceive that using mobile banking will be hassle free. In order to answer the research question, it was found that perceived ease of use is a determinant of attitude with significant positive effect. This finding validates the fact that mobile banking via Islamic banks is easily accepted due to its effects on users by making users feel comfortable and easy when adopting the technology (Fitriati, Tubastuvi & Anggoro, 2020). This result confirms with one of the highly cited authors such as Davis (1989) on the study of computer technology in which user-friendliness is an important determinant of willingness in adapting to a technology. However, according to Davis (1989), user-friendliness is useless if users do not find a technology useful since their coefficient for usefulness is much higher than ease of use. The present results also show that mobile banking is useful. Furthermore, it is worthy to note that empirical results for the current study also demonstrate that the perceived usefulness has higher coefficient than the perceived ease of use.

Looking at quick response (QR) technology, results revealed by Ibrahim et al. (2019) also has struck some similarities with the present mobile banking study. In fact, since QR technology is also embedded in mobile banking technology, it is argued that Malaysians would have the intent to use mobile banking when they perceive that mobile banking is not too challenging to use. Empirical results provided by the present study is also similar with a study of mobile banking in Korea with the perception of the easier the operation, the more positive the attitude (Hong, 2019). However, the same technology but in the context of Taiwan and Vietnam the perceived ease of use did not affect user attitude (Ho et al. 2020).

The present study is also a reminiscence of a study by Rehman and Shaikh (2020) that examined mobile banking usage among the generation Y. Empirical evidence provided by Rehman and Shaikh (2020) confirms the relationship between

perceived ease of use and attitude that is also evident in the present study. However, the present study is not limited to generation Y as examined by Rehman and Shaikh (2020). Rehman and Shaikh (2020) argue that their empirical results shows that the Malaysian generation Y have the tendency to be concerned about the easiness of using mobile banking. As for Sulaiman and Jauhari (2021) on a sample of Universiti Utara Malaysia staff, perceived ease of use also significantly influence attitude. The same argument can be made for the present study whereby the samples gathered are focusing on the practical use of the mobile banking services provided by Islamic banking institutions

5.3.2.3 Hypothesis 6

Consumers' perceived Shariah compliance positively influences attitude

The eighth hypothesis focuses on the influence of Shariah compliance towards attitude was accepted. On other words, Shariah compliance positively affect attitude towards mobile banking via Islamic banking institutions. This result is substantial for the originality of this thesis because it is a newly introduced variable. Previous studies predominantly studied other determinants e.g., perceived usefulness, ease of use, security and trust, among others. The significant positive affect of Shariah compliance sheds a new light towards the factors that will contribute to positive attitude towards mobile banking via Islamic banks. This finding confirmed the results provided by literatures with regard to some aspects of religiosity namely the aspect of Shariah-compliancy (Jaffar & Musa, 2016). Jaffar and Musa (2016) postulate that their samples have viewed Shariah-compliancy as compulsory before taking up any financial products. However, for the samples of the present study, although Shariah-compliance is a significant determinant of attitude towards mobile

banking, it doesn't necessarily constitute compulsory due to the weak coefficient. Instead, the present sample would be more affected in terms of lifestyle which has the highest coefficient.

The results from the present study is not consistent with a study on Islamic credit card that is used to fulfil e-commerce transactions in Malaysia (Jamshidi & Hussin, 2016). The reason for the inconsistency in the results is that the beta coefficient for the present study with regards to Shariah compliance and attitude is one of the weakest among other determinants while for Jamshidi and Hussin (2016) obtained stronger beta coefficient. What Jamshidi and Hussin (2016) termed as perceived religiosity, is essentially what the present study termed as Shariah compliance. In fact, the same instrument was used to measure their perceived religiosity. One explanation for the difference in the strength of beta coefficient is that the samples by Jamshidi and Hussin (2016) are targeted to the credit card users to study e-commerce while for the present study, it is not limited to credit card users to study mobile banking. Another possible reason is that Jamshidi and Hussin (2016) did face-to-face data surveying while the present study uses electronic questionnaire through social media.

The present study also confirms with a study that measures non-Shariah compliance (Kaakeh et al., 2019). Unlike the present study, the questions used to measure Shariah compliance used negative connotations. However, the outcome is the same, that is, the sample for Kaakeh et al. (2019) and the present study both suggest that Shariah compliance is a positive significant determinant of attitude. The subtle difference is in terms of context whereby the present study focuses on mobile banking in Islamic banking institutions in Malaysia while Kaakeh et al. (2019) has focused on Islamic banking in United Arab Emirates.

5.3.2.4 Hypothesis 7

Consumers' perceived lifestyle positively influence attitude

The seventh hypothesis is with respect to the relationship between lifestyle and attitude. To answer the research question, perceived lifestyle is a determinant of attitude towards mobile banking via Islamic banking institutions. Perceived lifestyle is found to have a positive affect towards attitude mobile banking which means the present sample will have positive attitudes when mobile banking suits their lifestyle. Furthermore, based on the PLS-SEM path analysis, lifestyle has the highest coefficient in its relationship towards attitude. This means that relative to other variables, such as perceived usefulness, perceived ease of use, Shariah compliance and personal innovativeness, lifestyle is the most impactful determinant towards consumers' positive attitude towards mobile banking. This finding largely helps Islamic banks to narrow down and focus on the design of mobile banking facilities that suit their customers' lifestyle. The present result is consistent with the finding revealed by Gumussoy, Kaya and Ozlu (2018) in the context of Turkey. Gumussoy et al. (2018) who argued that compatibility in terms of lifestyle is important for consumers to have a favourable attitude towards mobile banking and ultimately have the willingness to use mobile banking service. The findings by Chakiso (2019), also in the context of Turkey confirmed the results of the present study.

However, Chakiso (2019) did not explain in detail the reason behind the positive relationship between lifestyle and attitude. Nevertheless, despite the lack in the details of the relationship, some of the references from Chakiso (2019), could conclude that lifestyle congruencies can be an important predictor of attitude. These findings in Turkey are crucial and could be considered as the present study's point of

reference since it has several similarities i.e., the fact that the samples were gathered online from a majority Muslim country and the use of mobile banking as their context of technology. Furthermore, Malaysia and Turkey have several similarities in terms of development index, for instance, Human Development Index (HDI) whereby Malaysia's HDI is 0.810 and Turkey is 0.810 (UNDP, 2020).

The positive relationship between lifestyle and attitude towards mobile banking is also aligned with a study in India, as being the second largest population in the world by Chawla and Joshi (2017). Similar arguments have been presented by Chawla and Joshi with regards to this relationship that, the Indian samples are likely to have a favourable attitude towards mobile banking when it suits their style of living.

The confirmation of results of the present study also extends to the far west of Europe. The findings of Pancho and Afonso (2018) in the context of mobile payment in Portugal have also affirmed that there is a positive relationship between lifestyle and intention. Although the geographical context is from a country of a different continent, the technological context is almost the same, whereby mobile payment is a part of mobile banking. However, the result confirmation is a good indicator that the present result is heading into the right direction.

Next, although there is a significant difference in terms of development indices between Malaysia and Jordan i.e., gross national income (GNI) per capita for Malaysia is 27,534 USD and for Jordan is 9,858 USD, the finding of this research is aligned with the finding by Al Khasawneh and Irshaidat (2017) in Jordan in which both samples show positive attitude towards mobile banking. Mobile banking is relevant with the lifestyle of the people in both countries. This finding is essential

since Jordan is a predominantly Muslim country and the focus of the present study is Islamic banking institutions, which mainly target Muslims.

5.3.2.5 Hypothesis 8

Consumer innovativeness positively influence attitude

The outcome of the eighth hypothesis explains the relationship between innovativeness and attitude towards mobile banking. In answering the research question, innovativeness is a determinant for attitude towards mobile banking via Islamic banking institutions. For comparison with other hypotheses, innovativeness has the least significantly positive relationship with attitude in terms of its path coefficient. Although innovativeness has the weakest coefficient, this finding is nevertheless important because it sheds a light on the determinant that should be focused the least. With this finding, Islamic banking institutions can focus on factors that are more important such as lifestyle, usefulness, ease of use and Shariah compliance aspect of mobile banking. The present result confirms the result of previous studies by Agarwal and Prasad (1998) as well as Chitungo and Munongo (2013) for the context of information technology in the United States and mobile banking in Zimbabwe respectively.

One possible reason for the low significance can be explained by Lu et al. (2005) cited by Sabbir and Jahan (2018) whereby people in their respective context tend to make decision based on reasonableness rather than curiosity or inherent innovativeness. This lack of curiosity can also be observed in Sarel and Marmorstein (2003) in their study in the United States and Hung et al. (2016) whereby they argued

that people who are already familiar with the technology no longer have the curiosity, hence, for the present study, curiosity and innovativeness are the least significant in comparison to lifestyle, perceived ease of use and perceived usefulness, which could be considered as acts of reasonableness.

The present result can also be compared to the results obtained by Agarwal and Prasad (1998) whereby innovativeness is the key determinant for attitude. This means people with high innovation tendencies entail significant positive attitude towards mobile banking while for this present study, high innovation only result in very slightly positive attitude instead of a key determinant. Similar to the findings by Chitungo and Munongo (2013), curiosity of the present sample entails positive attitude towards mobile banking, nevertheless the lest significant coefficient is leaning towards reasonableness as suggested by Lu et al. (2005) and Sabbir and Jahan (2018).

A study by Lassar, Manolis and Lassar (2005) also offers an interesting observation when compared to the present result whereby for the samples in the United States, there is an inverse relationship between personal innovativeness and attitude towards online banking. This shows that in developed nations where technologies are readily available, people are selective in their consumption of technology. For a developing country such as Malaysia, there is a minute curiosity, due to low significance for mobile banking technology.

5.3.3 Research Question 3

Do media influences, internal influences, and influences from religious scholars' determinants of subjective norm to use mobile banking via Islamic banking institutios?

This study has selected three important factors: media influences, internal influences, and influence of religious scholars. Three hypotheses have been formed based on the aforementioned three factors.

5.3.3.1 Hypothesis 9

Consumers' media influence positively influences the subjective norm

The outcome of the ninth hypothesis explains the relationship between media influence and subjective norms. Media influence is one of the determinants of subjective norms used to answer the research question. Along with the findings in Zolait and Sulaiman (2009) and Zahid and Haji Din (2019), media influence has positive effects towards subjective norms. This finding is vital because Islamic banks can narrow down the influence of media in making decision on how to promote mobile banking via Islamic banks. However, media influence is not as important as interpersonal influence since Malaysia is a relatively collective society.

The present study reaffirms the findings by Zolait and Sulaiman (2009) whereby media influence is an important channel that influence subjective norm among Yemenis for internet banking. This also means that news reports and mass media have a significant impact towards Yemeni's subjective norm. Although the context of Zolait and Sulaiman (2009) is in Yemen, the present Malaysian context is almost similar as both Malaysia and Yemen are Muslim majority countries. In addition to media reports, the present study incorporates social media and it is found to have positive influence on Malaysian's subjective norm.

It is worth mentioning another study by Zahid and Haji Din (2019) whose results confirm with the present study, since it was done among faculty members of

Universities in Punjab on E-Government services. The authors argued that celebrities' influence on mass media through advertisement are appealing and affecting emotions on public that can have a positive impact towards people's subjective norm. Although their context is on e-government services, the same conclusion can also be applied for mobile banking in Malaysia. Similarly Hung et al. (2006) in the context of e-government services in Taiwan also offers the explanation that confirms news reports and mass media influence towards Taiwanese subjective norm.

Most of the studies mentioned are from the context of Muslim majority countries i.e Zolait and Sulaiman (2009) as well as Zahid and Haji Din (2019). Therefore, they are important references for Malaysia's Islamic banking institutions whose majority of its consumers are Muslims.

5.3.3.2 Hypothesis 10

Consumers' internal influence positively influences the subjective norm

Hypothesis 10 tested the relationship between internal influences and subjective norm. To answer the research question, interpersonal influence is a determinant of perceived behavioural control. Based on the empirical results, interpersonal influence positively affects subjective norm and it is the most significant and has the highest path coefficient on its relationship on subjective norm compared to other determinants like influences from media and religious scholars. This finding is important because it shows that relative to media and influence from religious scholars, the current sample are more towards conformity and therefore Islamic banks can focus on conformity towards marketing mobile banking.

Empirical results from the current study is aligned with previous studies such as Bhattacherjee (2000) and Zolait (2010) for their studies on e-commerce in the United States and internet banking in Yemen respectively. Bhattacherjee (2000) argued that interpersonal relations with prior adopters can have more influence due to their prior experience rather than a mere endorsement from the mass media. Zolait (2010) on the other hand has a simpler explanation whereby personal interaction is argued to greatly affect individual subjective norm.

This study also confirmed the results obtained by Hung et al. (2006) and Suki and Ramayah (2010) in which they explained that opinions of peers or friends clearly influence Taiwanese and Malaysian subjective norm towards their respective e-government services. These findings is consistent with Malaysia's collectivist culture as suggested by Hofstede Insights (2021). However, Hung et al. (2016) argued that too much internal influence may cause resistance, which explains their positive relationship between interpersonal relationship and negative relationship between subjective norm and behavioural intentions.

The most recent literature by Giovanis, Tsoukatos and Vrontis (2020) for the case of proximity m-payment services also corroborated the findings of the present study. They argued that consumers subjective norm is found to increase along with the increase of perceived endorsement by innovators and early adopters based on their prior experiences using the proximity m-payment system. For the present study, one of the features of mobile banking is proximity payment in which is comparable with Giovanis et al. (2020) despite being in a different country, which is Greece. Nevertheless the finding by Giovanis et al. (2020) is important for the present study in the context of Islamic banking institutions in order to compete with other banks.

However, for another form of proximity payment, which is Distance Based Toll Collection service done by Tao and Fan (2017), there is no significant effect of internal influence towards subjective norm because the technology is already pre-installed rather than having to download an app or access on a payment getaway that this present study is examining.

5.3.3.3 Hypothesis 11

Consumers' Influence of religious scholars positively influences the subjective norm

The 11th hypothesis tests the relationship between the influence of religious scholars and subjective norm. Based on the research question, influence of religious scholar is a determinant of subjective norm. Evidence provided by the current study suggests that the influence of religious scholars has positive relationship towards subjective norm. This finding matters because to the best of other studies, it was found that very few of them, if any, that had looked into this. Previous studies mostly focused on the external, internal, media and interpersonal influences. This finding sheds new light on the influence of religious aspects on subjective norms and ultimately the intention towards adopting mobile banking.

Empirical evidence that the present study has provided confirmed the arguments proposed by Rasheed and Padela (2013) as well as Ridho and Martha (2020) in which religious scholars are known to influence people's views, at least in the medical field such as organ donation and smoking behaviour respectively.

The results from the present research also corroborated the explanation proposed by Khan, Azam and Arafat (2019) in a study of food industries. Based on Khan's et al. (2019), it was suggested that positive relationship between religiosity

and attitude towards halal food industries shows that influence from religious scholars pressure people to make decisions as demonstrated empirically in this study of mobile banking. Similarly for a Malaysian study on taboo behaviour such as smoking and popular music, which Muhamad (2008) argued that the significant relationship between subjective norm and behavioural intentions were also associated with fatwa rulings by Islamic religious scholars.

In finance and economics, the present results also validate the discussions provided by Fauziah et al. (2008) and Al Ma'soem (2019) on Islamic home financing and behaviour on economic participation. Therefore, for the present case, if religious leaders can influence people in financial decisions and economic participation, it is also possible that religious leaders can influence people on subjective norm, as demonstrated in current study that is mobile banking in Islamic banking institutions. Nevertheless, despite the number of studies that suggested influence of religious scholars on subjective norm, the quantitative empirical evidence for their claims and suggestions are scarce. This explains the lowest figure in terms of path analysis and significance of influence of religious scholars towards subjective norm. At best, Ridho and Martha (2020) have provided a qualitative support of the influence of religious scholars on organ donations.

5.3.4 Research Question 4

Are self-efficacy and facilitating conditions determinants of perceived behavioural control to use mobile baking via Islamic banking institutions?

To answer this research question, the present study suggests two important factors that are self-efficacy and facilitating conditions. Both factors are explained in H15 and H16.

5.3.4.1 Hypothesis 12

Consumers' self-efficacy positively influences perceived behavioural control

Hypothesis 12 tested the relationship between self-efficacy and perceived behavioural control. In answering the research question, self-efficacy was one of the determinants of perceived behavioural control. Empirical evidence provided from this study suggested that self-efficacy is positively related to perceived behavioural control and more important than facilitating conditions. This means that if consumers perceive that they will have the proficiency to adopt mobile banking, then they tend to have good perception of their behavioural control towards mobile banking. This result matters so that the banks can focus on educating their customers by focusing on helpdesk features or advertisements that emphasise on improving the proficiency of adopting mobile banking. Results obtained from testing the twelfth hypothesis corroborated with findings of Ho et al. (2020) which suggest positive relationships between self-efficacy and perceived behavioural control. The context of Ho et al. (2020) study is almost similar to the present study that is mobile banking for Vietnam and Taiwan. Although the results for both countries have positive relationships between self-efficacy and perceived behavioural control, the present result closely resembles Vietnam in terms of the strength of the standardised estimation. This might be due to the fact that Vietnam and Malaysia are in the South East Asia region whilst Taiwan is in East Asia. Ho et al. (2020) explained that focusing on training would be able to increase the perceived behavioural control and the behavioural intention towards mobile banking adoption.

Empirical results obtained from the present study also confirm with a pioneering study by Taylor and Todd (1995). On a sample of Canadian students in a

computer resources centre, Taylor and Todd (1995) suggested that self-efficacy has a positive relationship with perceived behavioural control. However, it is important to note that the study by Taylor and Todd (1995) is a dated study and the technology studied was a physical technology which is physical computer rather than an electronic application or a getaway website of the current study.

The present study's results also confirm with Hung et al. (2006) on e-government services in Taiwan. It explores on the impact of getting the samples to confidently use the e-government facilities in their own capabilities which has significantly affected the perceived ability to use the facilities. However, it is important to note that there is no competition in e-government facilities considering the fact that it is not a profit-making body as compared to banks. Unlike banks in Malaysia, there are competition against other Malaysian banks as well as foreign banks. Nevertheless, the study by Hung et al. (2006) is worth mentioning to have insights in relations to people's self-efficacy towards a relatively new technology.

Comparable data have also been found for Hsu et al. (2006) as well as Tao and Fan (2017) that affirm the findings for the present study in which the perceived good self-ability to use e-coupon and distance-based electronic toll collection system respectively, could increase a person's perceived behavioural control. The same empirical results can also be found in a Korean study on hotel booking via smartphone which explains that one's confidence in their self-capability in completing a task with a desired outcome may influence one's perception in one's own estimation of one's perceived behavioural control (Park & Huang, 2017). This shows that the significant relationship between self-efficacy and perceived behavioural control can be generalised across different settings.

A very relatable study done by Shi Wen, Mohd Satar, Ishak, and Ating (2020) on online shopping in Malaysia which has also supported the findings of the present study. Shi Wen et al. (2020) argued that consumer with high self-efficacy would perceive online shopping to be user friendly hence putting less effort and spending minimal time to learn how to shop online. The argument by Shi Wen et al. (2020) could also be applied to the current mobile banking study whereby Islamic banking consumers who have high self-efficacy face very little or no problem in learning to use mobile banking, hence increasing their perceived behavioural control. Another relatable study of mobile banking in India by Dwivedi and Ahmad Mir (2019) also has the same suggestion when it comes to self-ability of their samples and their perceived behavioural control which strengthen the findings of the current study.

Based on the arguments provided by previous studies, it is obvious that most of the studies mentioned self-efficacy as an extremely important determinant for perceived behavioural in various contexts namely mobile banking. These results are parallel with the present study for the context of Islamic banking institutions, in the sense that instilling confidence in people's capabilities to operate would have a significant effect towards perceived behavioural control and ultimately their behavioural intentions to adopt the technology.

5.3.4.2 Hypothesis 13

Consumers' facilitating condition positively influences perceived behavioural control

The 13th hypothesis examined the relationship between facilitating condition and perceived behavioural control. To answer the research question, facilitating condition was a determinant of perceived behavioural control. Empirical results from

this study postulate that facilitating conditions positively affect perceived behavioural control. This means that if consumers believe that they have sufficient facilities to perform mobile banking, then they will have good perception of behavioural control. This finding is important because the improvement of consumers' perception on infrastructure and facilities would increase the perceived behaviour control. Therefore banking institutions can strategically invest so that consumers are confident that the infrastructure and facilities to conduct mobile banking transaction is sufficient and reliable. The present result on the positive relationship between facilitating conditions and perceived behavioural control affirms the findings by Khatimah and Halim (2016) and Ho et al. (2020). Ho et al. (2020) postulated that mobile banking in Taiwan and Vietnam need smooth operation for their mobile banking facilities, without frequent disruptions, which are the criteria that the present study also need. Khatimah and Halim (2016) argued that for the context of e-money in Indonesia, facilitating conditions do impact individuals' perception of how easy or difficult it is to perform a transaction. Based on Fastmetrics (2020), Indonesia is ranked as one of the lowest in terms of internet connection that is 127 among 192 countries. Malaysia on the other hand is ranked at 61 and still there is a positive relationship between facilitating conditions and perceived behavioural control.

It is also worth mentioning the present results that support the results of a pioneering study by Taylor and Todd (1995) on a sample of university students on the usage of computer resource centre. Taylor and Todd (1995) explained that the improvement of facilitating conditions in terms of computer architecture and chargeback schemes would increase student's perceived behavioural control. A more recent Malaysian issue is internet connectivity whereby Malaysian internet

connectivity is slower than its closest neighbours such as Thailand and Singapore (Fastmetrics, 2020). Therefore, improvement in the internet speed might just increase the perceived behavioural control hence increase in behavioural intention.

Another study that is worth to note is Bhattacherjee (2000) because it is highly cited. Bhattacherjee's (2000) in his study on e-commerce also affirmed the present study. He explains that the significant coefficient of facilitating conditions is because e-commerce is widely available because of internet and computers nowadays are inexpensive. Mobile banking for the present study is even more widely available since it can fit the pocket and the cost of owning a mobile device with internet connection is just a fraction of the price of a computer which explains Malaysia's mobile phone penetration rate of 130.2% (MCMC, 2020).

The outcome of the current study however does not support the outcome from internet banking study in Yemen by Zolait (2010). In some cultures, ubiquity and cost might not be a concern. Instead, affirmation from other users might be an utmost concern. Zolait (2010) explained that resource facilities are a lesser concern if compared with user experiences from other users. User experience from others seem to be the utmost important criteria for Yemen considering its collective culture (Obeidat, Shannak, Masa'deh, & Al-Jarrah, 2012). For the current samples, which consist of Malaysians, is the self-efficacy.

Additionally, there are also studies of other technologies such as e-government services by Hung et al. (2006) and distance-based electronic toll collection services by Tao and Fan (2017). E-government services studied by Hung et al. (2006) do not need a significant infrastructure because it is software based, which explains low path coefficient towards perceived behavioural control as

compared to self-efficacy. Again, this is relatable to the present study whereby mobile banking is also software based. Therefore, improvement of the facilitating conditions would not give as much of an impact as an improvement of self-efficacy. On the other hand, for Tao and Fan (2017), since it is a physical technology, the impact of facilitating conditions is bigger as compared to self-efficacy. Nevertheless, Tao and Fan (2017) argued that the flexibility in toll payment rate will improve users facilitating conditions while subsequently enhance the perceived behavioural control.

5.3.5 Research Question 5

Do income, gender, age, region, and education level moderate the relationship between behavioural intention, attitude, subjective norms, perceived behavioural control and its determinants?

5.3.5.1 Hypothesis 14

Income moderates the relationships in Hypotheses 1-13

The result MGA analysis shows that the moderation effect of income is only significant for the relationship between subjective norms and behavioural intentions. The t-values for the samples who are B40 and below is higher than the t-values for the samples who are B40 and above. This shows that the B40 and below are more likely to have the intention to use mobile banking when there are approvals and support from others. In a country with high power distance such as Malaysia, higher income is associated with higher status in which people with higher status are less likely to be influenced by others. Moreover, according to Hallemann (2016), people who have more income tend to spend less time socializing, which means that they are less influenced towards the opinion of others.

5.3.5.2 Hypothesis 15

Gender moderates the relationships in Hypothesis 1-13

With respect to the relationship between attitude and behavioural intentions, in multi-group analysis, females are more likely to have the intention to adapt rather than the males when there are positive attitudes. This is contrary to some literatures, such as Lu, Yu, and Liu (2006) that suggested males were more likely to have the intention to use mobile banking. One of the reasons was, in the context of China, females were uncomfortable to new technologies rather than males that seemed more comfortable and confident in using new technologies (Lu et al., 2006). Malaysia, as a hub for Islamic banking offers a healthy environment for women to engage in business using ICT, which includes mobile banking (Hasnan, 2019). Several initiatives that were centred towards enhancing women's ICT skills to help them earn a living by doing e-commerce for instance "1nita" project (Hashim, Amir, & Razak, 2011).

Multi-group analysis has also provided insights in terms of gender in form of high coefficient among females, as compared to males, regarding positive relationship between Shariah compliance and attitude. This implies that Shariah compliance is essential for the female samples hence the favourable attitude towards mobile banking in Islamic banking institutions, which also confirms that in some societies women are likely to follow rules rather than men (Piatak & Mohr, 2019).

There are other reasons that may influence females to have positive attitude and ultimately the intention towards using mobile banking namely online shopping. One of the reason is disposable income whereby empirical finding by Sener and Reeder (2012) for an American sample suggests that women are more likely to shop online rather than men due to their high disposable income that is earned form their

career which limits their time for physical window shopping. Malaysian women are also likely to adopt mobile banking because although they have their own careers, they are also bound by the traditional roles of women of managing household duties (Marican, Borhanuddin, & Abdullah, 2009; Jabbar, 2019). This makes banking activities, which include physical window shopping even more limited. According to Malaysian Communications Multimedia Commission MCMC (2018) Malaysian women are more likely to engage in e-commerce activities and the present study have further demonstrated that women are most likely to adopt mobile banking when they have positive attitude.

5.3.5.3 Hypothesis 16

Region moderates the relationships in Hypothesis 1-13

There are also significant differences between the Central, Northern and the Eastern regions of Malaysia for the relationship between perceived behavioural control and behavioural intention. Based on the t-values, the Eastern states have the highest significance, which means that samples from these states would have the best response if there are improvements in the perceived behavioural control because these state are the least developed states in the Malaysian Peninsular by measure of Human Development Index (HDI) (Global Data Lab, 2019). The Northern states of Malaysia have better HDI as compared to the Eastern states which also coincides with the t-values while the Central states have the best HDI which explains the low t-values which means that samples from central states are the least to response to improvements to the perceived behavioural control.

Based on the MGA analysis, if the samples are from the central region of Malaysia, they are more likely to have positive attitude provided that mobile banking

suits their lifestyle compared to samples either from the North or Eastern region of Malaysia. As compared to other regions, the central region is the most developed region (Tey, Lai, Ng, Goh, & Osman, 2019). It is argued that Central region of Malaysia has higher proportions of professionals and administrators with higher income and education level. Higher proportion of the highly educated and higher income entail higher technological advancement (Perera-tallo, 2017).

5.3.5.4 Hypothesis 17

Age moderates the relationships in Hypothesis 1-13

By means of PLS-MGA function in SmartPLS, there are differences in ages when it comes to the relationship between perceived behavioural control and behavioural intentions. Most of the differences are seen in the comparison between the age of 16-24 against other ages that are 25-34, 35-44 and 45 above. Based on the t-values, the 16-24 has the highest figure when compared to other ages while the 45 above comes second, the 35-44 comes third and the 25-34 comes fourth. The reason is probably because of the stages in life whereby 16-24 is a stage where people are in the tertiary level education or some have just started working, therefore more time is available for smartphone usage for instance, mobile gaming (Hirshmann, 2021). For the 45 above, they are not as tech savvy as the 35-44, therefore the higher perceived behavioural control would give a greater impact to them rather the 35-44 and the 25-34 year olds.

According to Rakuten Insight, 73% of Malaysian respondents between the age of 16-24 have played online game (Hirschmann, 2021). Some of the gaming require payments and that is when mobile banking is needed. Along with the t-values which increases with age brackets (except for 16-24), it is possible that their

disposable income also increases with age, the increase in the spending of income due to seniority has enabled them to have the perceived efficacy for online shopping hence making payments through their mobile banking services (Worasatepongsa & Deesukanan, 2022).

Multi-group analysis also suggests that there are significant differences in age for the relationship between internal influence and subjective norm. Samples aged between 25-34 years old have the highest t-value indicating that this age group has the highest increase of subjective norm when there is an increase of internal influence as compared to samples whose age are between 35-44 and 45 above. The reason is because samples whose age are between 25-34 years old are at the rising stage of their career. Therefore, they are open for any perceived impressions given by their colleagues and superiors.

Additionally, there are also significant differences in age groups in terms of the relationship between self-efficacy and perceived behavioural control. If the samples are between the ages of 16-24, the increase of self-efficacy will also improve perceived behavioural control much better than samples between the ages of 35-44 and 45 above. The high t-values of the ones who are between the ages of 16 and 24 strengthen the argument that younger generations are less anxious towards technology (Lee et al., 2010). Samples of 45 above have higher t-values compared to samples of 35-44, which is contrary to the findings of Lee et al. (2010). The only explanation for this is that some of the 45 above are at the retirement age, giving them more time on their smartphones to surf the internet.

5.3.5.5 Hypothesis 18

Education level moderates the relationships in Hypothesis 1-13

Education level also has significant moderating affect towards some relationships. The present result suggests that samples with degree qualification are more likely to have favourable attitude towards mobile banking provided that the mobile banking follows the rulings of Shariah. This result shows that the highly educated are more conscious of the rulings of Shariah compared to the ones without a degree qualification.

Another finding using multi-group analysis is that there are significance difference in education level namely between samples that are without degree and samples with post degree qualification. It seems that the ones without degree qualification responds better to suggestions by their close acquaintances while samples that have degree qualification are more rational hence less influenced by close acquaintances. This suggests that for the current sample and context Bhattacherjee's (2000) thesis on rational samples only applies to sample with higher qualifications.

In terms of the relationship between facilitating conditions and perceived behavioural control, the present MGA also found that for the ones with a post-graduate degree, and at a lesser t-value than non-degree holders, their facilitating conditions have a more significant relationship with perceived behavioural control as compared to the ones without degree qualification. This suggests that an improvement of facilitating conditions would mainly affect degree holders, followed by non-degree holder and lastly post-degree holder. The reason for this is because probably the post-degree holders are less likely to be affected if there should be any improvement in mobile banking facilities due to many possible causes such as, they already have better facilities hence having their facilities improved would not give

much impact. For the ones with degree are the most affected because they have yet to have sufficient facilities, as compared the ones with post degree qualification.

5.4 Theoretical Contribution

There are several theoretical contributions in this thesis. Among others, this thesis has contributed to Technology Acceptance Model (TAM) and Decomposed Theory of Planned Behaviour (DTPB). More specifically, this study has concluded that Shariah compliance can potentially be included in one of the decomposed elements of attitude in addition to usefulness and ease of use. Furthermore, influence of religious scholars can be included in one of the decomposed elements of subjective norm. The reason for the inclusion is linked to the post-secular argument to the Secularisation theory, whereby religion persists in the modern world despite modernisation.

Second, this thesis has also made a theoretical contribution to Secularisation theory. Secularisation theory fits the proposed framework due to the Shariah compliance variable that was introduced. Shariah compliance is essentially a religious based variable, in which the items were designed based on Islamic rulings of commercial transaction. The significance of Shariah compliance have demonstrated the persistence of religion in the Malaysian banking system, which gives a meaning to the post-secular argument (Mohamad & Saravanamuttu, 2015). Although Shariah compliance is significant, it is not as important as other factors that this study has examined namely lifestyle, usefulness, and ease of use. Nevertheless Secularisation theory has helped in explaining the significance of Shariah compliance in the proposed model.

The third contribution is that the influence of religious scholar is a significant determinant of subjective norm, which adds value to the subjective norm in the DTPB model. All this while, it has been well established that internal influence and media influence are determinants of subjective norm. Empirical results provided by this study have suggested that influence from religious scholars is significant. This is contrary to the works of Chaves (1994) who suggested that secularisation is a decline in religious authority. Instead, the present result on the relationship between influence of religious scholars and subjective norm fits the post-secular argument whereby the influence of religious scholars is still significant even though not as important as interpersonal and media influences.

The fourth theoretical contribution is that the result of the structural model confirms hierarchical conceptualisation of intention when all the 13 determinants have a good model in line with the Malaysian Islamic banking institutions represented in the sample. For the determinants of the behavioural intention, perceived behavioural control is the most significant determinant, which suggests that there is perception of lack of skill or lack of resources, in terms of internet connection. As for the perceived behavioural control, the most important determinant is the self-efficacy which suggests that the perceived lack of skill is slightly more than the perceived lack of resources.

For attitude, which is the second most important variable for behavioural intention, the most important determinant is lifestyle, which suggests that consumers of Islamic banking institutions will have positive attitude towards mobile banking if it fits their lifestyle. Lastly is the subjective norm, in which internal influence is the most important influence, implying that if compared with media and religious

scholars, perceived opinion from personal contacts will mostly influence this samples' subjective norm.

Finally, this study also contributes to the body of knowledge of mobile banking studies in the context of Malaysian Islamic banking institutions. Previous studies in Malaysia such as Sun et al. (2012) only included religious affiliation and commitment and not specific to Shariah compliance. Other research such as Kazemi et al. (2013) studied mobile banking based on the DTPB model but in the context of Isfahan, Iran.

5.5 Practical Contribution

One of the main practical contributions is that the results provided by the current study may assist top management, at a strategic level and policy makers from the Malaysian central bank on the future of mobile banking. In particular, based on the PLS-SEM path modelling results, perceived behavioural control has the highest coefficient, therefore the policy makers from the central banks can advise the management to emphasise on user-friendliness of the mobile banking service, probably in terms of the mobile banking app and the payment getaway.

Furthermore, based on the empirical results obtained, facilitating conditions also shows high coefficient in terms of PLS-SEM path modelling results. Therefore, it is practical when policy makers and Islamic bankers work together towards less disruption in the apps or payment getaways, thus providing a comfortable and smooth mobile banking experience for online users. However, the low coefficient of subjective norms shows that software engineers could focus on the design and highlight better interface that is user-friendly and free from interruptions and bugs rather than focusing into strategies that involve interpersonal connection such as

referral programs and word of mouth marketing. The reason for this implication is that for service technology such as mobile banking, users are expected to make a rational choice rather than relying on other's word of mouth to make decision (Bhattacherjee, 2000).

Another practical contribution based on the empirical results obtained is in the sense that the banks could focus more on researching consumer lifestyle for instance, working lifestyle, financial lifestyle, and self-image to encourage positive attitude. Furthermore, banks can also focus on the needs and preferences of women because based on the group analysis, women with positive attitude towards mobile banking will be more likely to have the tendency to adapt. Nevertheless, other focuses are also significant to study, namely perceived usefulness which come second in order of priority, followed by perceived ease of use and Shariah compliance, respectively. In multi-group analysis of the hypothesised path, it is prevalent that female users with positive attitude towards mobile banking in the sample are more likely tend to adapt to mobile banking better, rather than the males.

5.6 Limitations

One of the main limitations is that the data obtained are through social media due to the Covid 19 pandemic restrictions. Therefore, the responses are most likely representing younger people who are active in social media. Another disadvantage of gathering data through social media is that some organisations tend to block the access of social media, therefore there might be less representatives for samples that are in the government services. Nevertheless, they can still get access via 4g data services.

Another limitation is that the data obtained is cross-sectional data, therefore, there is no temporal element in analysis. Furthermore, cross-sectional studies could not establish causality (Sedgwick, 2014). For instance, in this study, the significance of the relationship between Shariah compliance and attitude towards mobile banking does not means that Shariah compliance can completely bring positive attitude towards mobile banking. It generally implies that Shariah compliance is associated with positive attitude towards mobile banking. Convenience sampling, which is a sampling method that this study utilises has its limitations. The main one is the fact that the findings cannot be generalised, indicates that the result is only applicable to this specific sample (Kayam & Hirsch, 2012; Etikan, Musa, & Alkassim, 2017).

5.7 Future Research

Future researcher can opt for face-to-face data gathering so that the sample also includes people who are not active in social media. Mobile banking with Islamic banking institutions is not exclusive for Muslims only. With face-to-face sampling, the research can also consider a more diverse sample which include people from other ethnicities and other religions. The reason for this is that non-Muslims may be attracted to the utilitarian features of Mobile banking.

Future study could also include a-priori measures to detect and minimize common method variance. Measures latent markers can be included in designing questionnaire priori approach in controlling for common method bias (Chin et al., 2013). One of the advantages of using this approach is that the researchers can accurately estimate the loadings of the items. Other than that, researchers can accurately estimate the structural paths.

Another promising research is the idea of Shariah-neutral products, which is a banking or financial product that does not violate the Shariah rules but at the same time does not have a validation from the Shariah committee (Alam, Gupta, & Zameni, 2019). As an example, some electronic transactions via apps or mobile banking are deemed as Shariah-neutral since there is no direct prohibitions by any Shariah scholars in such transactions, therefore, the public will hold the transaction as acceptable (Islamic Bankers, 2019).

5.8 Conclusion

Malaysia, by Global Islamic Economy indicator, is an industry leader and key player in Islamic banking. Therefore, Islamic banking institutions need to keep abreast with the latest technology in order to achieve competitive edge. However, up-to-date technology is meaningless when very few people adopt or adapt it in reality. This is the main reason why the current research is important, in which it investigated people's intention towards using mobile banking in Islamic banking institutions. In order to achieve the research objectives, decomposed theory of planned behaviour (DTPB) was adapted with added variables i.e., Shariah compliance and influence of religious scholars in addition to the original variables of DTPB. From the PLS-SEM, the findings provide insightful information for policy makers, marketing executives and bank strategists. The adapted version of DTPB with the proposed variables have generated significant results. Additionally, by means of PLS-MGA, this research used different moderating variables i.e., income, gender, region, age and education level that enrich the literature of mobile banking and its behavioural intention by means of DTPB.

The outcome of this research can assist policy makers from the Central Bank of Malaysia, bank strategists and marketing managers from Islamic banks in designing effective policies and strategies. Based on the present results, focus can be given on understanding consumers' lifestyle and perceived behaviour control. Furthermore, policy makers, bank strategists and marketing managers can also give emphasis on the aspect of Shariah compliance and work together with Islamic religious scholars while taking into account consumers' demography to improve their attitude and subjective norms.

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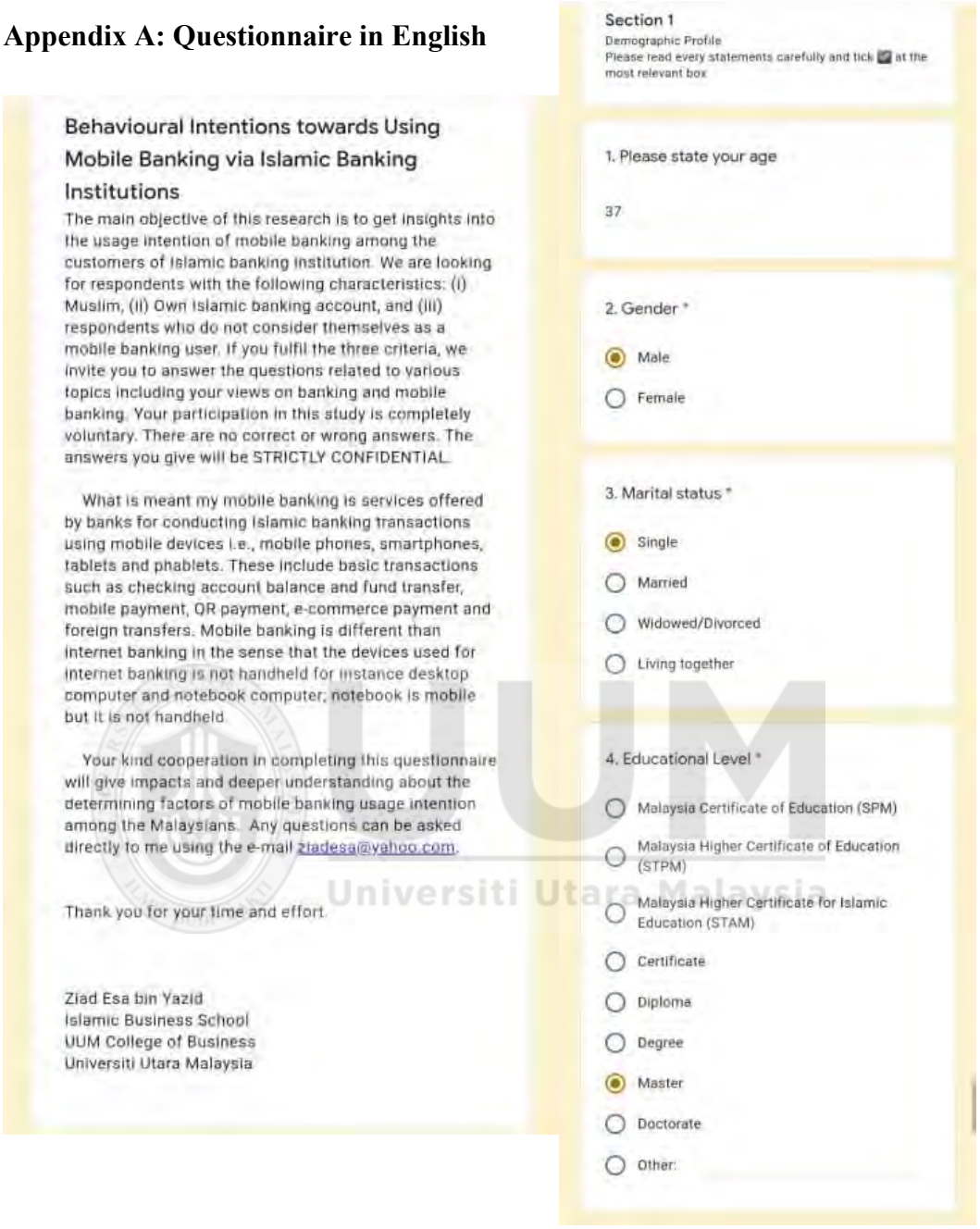
APPENDICES

Appendix A: Questionnaire in English



Behavioural Intentions towards Using Mobile Banking via Islamic Banking Institutions

The main objective of this research is to get insights into the usage intention of mobile banking among the customers of Islamic banking institution. We are looking for respondents with the following characteristics: (i) Muslim, (ii) Own Islamic banking account, and (iii) respondents who do not consider themselves as a mobile banking user. If you fulfil the three criteria, we invite you to answer the questions related to various topics including your views on banking and mobile banking. Your participation in this study is completely voluntary. There are no correct or wrong answers. The answers you give will be STRICTLY CONFIDENTIAL.

What is meant my mobile banking is services offered by banks for conducting Islamic banking transactions using mobile devices i.e., mobile phones, smartphones, tablets and phablets. These include basic transactions such as checking account balance and fund transfer, mobile payment, QR payment, e-commerce payment and foreign transfers. Mobile banking is different than internet banking in the sense that the devices used for internet banking is not handheld for instance desktop computer and notebook computer, notebook is mobile but it is not handheld.

Your kind cooperation in completing this questionnaire will give impacts and deeper understanding about the determining factors of mobile banking usage intention among the Malaysians. Any questions can be asked directly to me using the e-mail ziadesa@yahoo.com.

Thank you for your time and effort.

Ziad Esa bin Yazid
Islamic Business School
UUM College of Business
Universiti Utara Malaysia

Section 1
Demographic Profile
Please read every statements carefully and tick ☑ at the most relevant box

1. Please state your age

37

2. Gender *

- (●) Male
- ( ) Female

3. Marital status *

- (●) Single
- ( ) Married
- ( ) Widowed/Divorced
- ( ) Living together

4. Educational Level *

- ( ) Malaysia Certificate of Education (SPM)
- ( ) Malaysia Higher Certificate of Education (STPM)
- ( ) Malaysia Higher Certificate for Islamic Education (STAM)
- ( ) Certificate
- ( ) Diploma
- ( ) Degree
- (●) Master
- ( ) Doctorate
- ( ) Other:

5. Malaysia Certificate of Education Stream *

- ○ Islamic stream
- ◉ Pure science stream
- ○ Engineering stream
- ○ Accounting stream
- ○ Art stream
- ○ Social Sciences stream
- ○ Vocational stream
- ○ Other:

6.Which of these subjects have you taken when you were in school ? (you can tick more than one) *

- ☑ Pendidikan Islam
- ☐ Pendidikan Moral
- ☐ I've taken subjects that teach about Islam
- ☐ I've never taken these subjects before

7. Have you taken one of these subjects for your SPM? i) Al-Quran & Al-Sunnah Education ii) Syariah Islamiah Education iii)Usul al-Din, Al-Syariah dan Al-Lughah al-'Arabiah al-Mu'asirah iv) Tauhid wa Fekah *

- ○ Yes
- ◉ No

8. Field of work *

- ○ Religious (Islamic) Teacher
- ○ Islamic Banker
- ◉ Teacher
- ○ Public Servant
- ○ Private Employee
- ○ Self-employed
- ○ Other:

9. State of origin *

- ○ Johor
- ◉ Kedah
- ○ Kelantan
- ○ Kuala Lumpur
- ○ Labuan
- ○ Melaka
- ○ Negeri Sembilan
- ○ Pahang
- ○ Perak
- ○ Perlis
- ○ Pulau Pinang
- ○ Putrajaya
- ○ Sabah
- ○ Sarawak
- ○ Selangor
- ○ Terengganu

10. Monthly Income *

- ○ RM999 and below
- ○ RM1000-RM1499
- ○ RM1500-RM2999
- ○ RM3000-RM4091
- ○ RM4092-RM5182
- ○ RM5183-RM6274
- ○ RM6275-RM8018
- ○ RM8019-RM9761
- ○ RM9762-RM11504
- ○ RM11505-RM13147
- ◉ RM13148-RM24999
- ○ RM25000 and higher

11. From which banks do you have Islamic banking savings account with? (you may choose more than one) *

- [ ] Affin Islamic Bank Berhad
- [ ] Al-Rajhi Bank
- [ ] Alliance Islamic Bank Berhad
- [ ] AmBank Islamic Berhad
- [ ] Bank Islam Malaysia Berhad
- [ ] Bank Muamalat Malaysia Berhad
- [ ] Bank Rakyat
- [x] CIMB Islamic Bank Berhad
- [ ] HSBC Amanah Malaysia Berhad
- [ ] Hong Leong Islamic Bank Berhad
- [ ] Kuwait Finance House
- [ ] MBSB Bank Berhad
- [ ] Maybank Islamic Berhad
- [ ] OCBC Al-Amin Berhad Berhad
- [ ] Public Islamic Bank Berhad
- [ ] RHB Islamic Bank Berhad
- [ ] Standard Charted Saadiq Berhad
- [ ] I don't have any Islamic banking savings account
- [ ] Other:

Section 2

Instruction

Please read each statement carefully and indicate your choice by circling the appropriate number (on the 5-point scale provided), that is, the number that best describes how you feel about the statements.

Attitude

Mobile banking= Any banking transaction via mobile phones, smartphones, tablets and phablets

	Strongly disagree	Disagree	Neutral	Agree
I would feel happy if I use mobile banking in Islamic banking institutions (IBI).	○	○	○	○
Using mobile banking via IBI would be interesting.	○	○	○	○
I would feel at ease when I am using mobile banking via IBI.	○	○	○	○
I would enjoy doing online transactions using mobile banking via IBI banking institutions.	○	○	○	○

Perceived Usefulness

I think that if I... *

	Strongly disagree	disagree	neutral	agre
...use mobile banking, it reduces the time required for my Islamic banking transactions.	○	○	○	○
...use mobile banking, it improves my performance in my Islamic banking transactions.	○	○	○	○

Using mobile banking would... *

	Strongly disagree	disagree	neutral	agr
...improve my daily productivity.	○	○	○	○
...enhance my effectiveness in my Islamic banking transactions.	○	○	○	○

Perceived Ease of Use

I think that... *

	Strongly disagree	Disagree	Neutral	Agre
...learning to operate mobile banking for Islamic banking transactions is easy for me.	○	○	○	○
...it would be easy to adopt mobile banking to accomplish Islamic banking transactions.	○	○	○	○
...the use of mobile banking via Islamic banking institutions (IBI) does not require a lot of knowledge.	○	○	○	○
...mobile banking menu via IBI would be easy to navigate.	○	○	○	○
...using mobile banking via IBI do not require a lot of technical skill	○	○	○	○
...it would be easy to see on my mobile phone's screen	○	○	○	○

Shariah Compliance

*Gharar = Unclear transaction i.e in an online shopping transaction, the product displayed is confusing

I think that mobile banking in Islamic banking institutions... *

	Strongly Disagree	Disagree	Neutral	Agree
...operate according to the Shariah law.	○	○	○	○
...are based on Islamic philosophy	○	○	○	○

I think that mobile banking in Islamic banking institutions does not contain... *

	Strongly Disagree	Disagree	Neutral	Agr
...interest in all forms of transactions.	○	○	○	○
...interest in online shopping transactions.	○	○	○	○
...uncertainty (gharar) in all forms of transactions.	○	○	○	○
...uncertainty (gharar) in online shopping transactions.	○	○	○	○
...fraud in online shopping transactions.	○	○	○	○

Lifestyle

*

	Strongly disagree	Disagree	Neutral	Agre
Mobile banking via Islamic banking institution (IBI) would be compatible with my lifestyle.	○	○	○	○
Adopting mobile banking in IBI would fit well with the way I like to manage my finances.	○	○	○	○
Adopting mobile banking to conduct Islamic banking transactions would fit well into my working style.	○	○	○	○
I think that mobile banking via IBI would fit in well with my self-image.	○	○	○	○
I would find mobile banking services in IBI are compatible with my occupation.	○	○	○	○

Personal Innovativeness

*

	Strongly disagree	Disagree	Neutral	Agr
If I hear about a new technology, I look for ways to experiment with it.	○	○	○	○
I am always the first to try out new information technologies among my peers	○	○	○	○
In general, I am not hesitant to try out new information technologies.	○	○	○	○
I like to experiment with new information technologies.	○	○	○	○

Subjective Norms

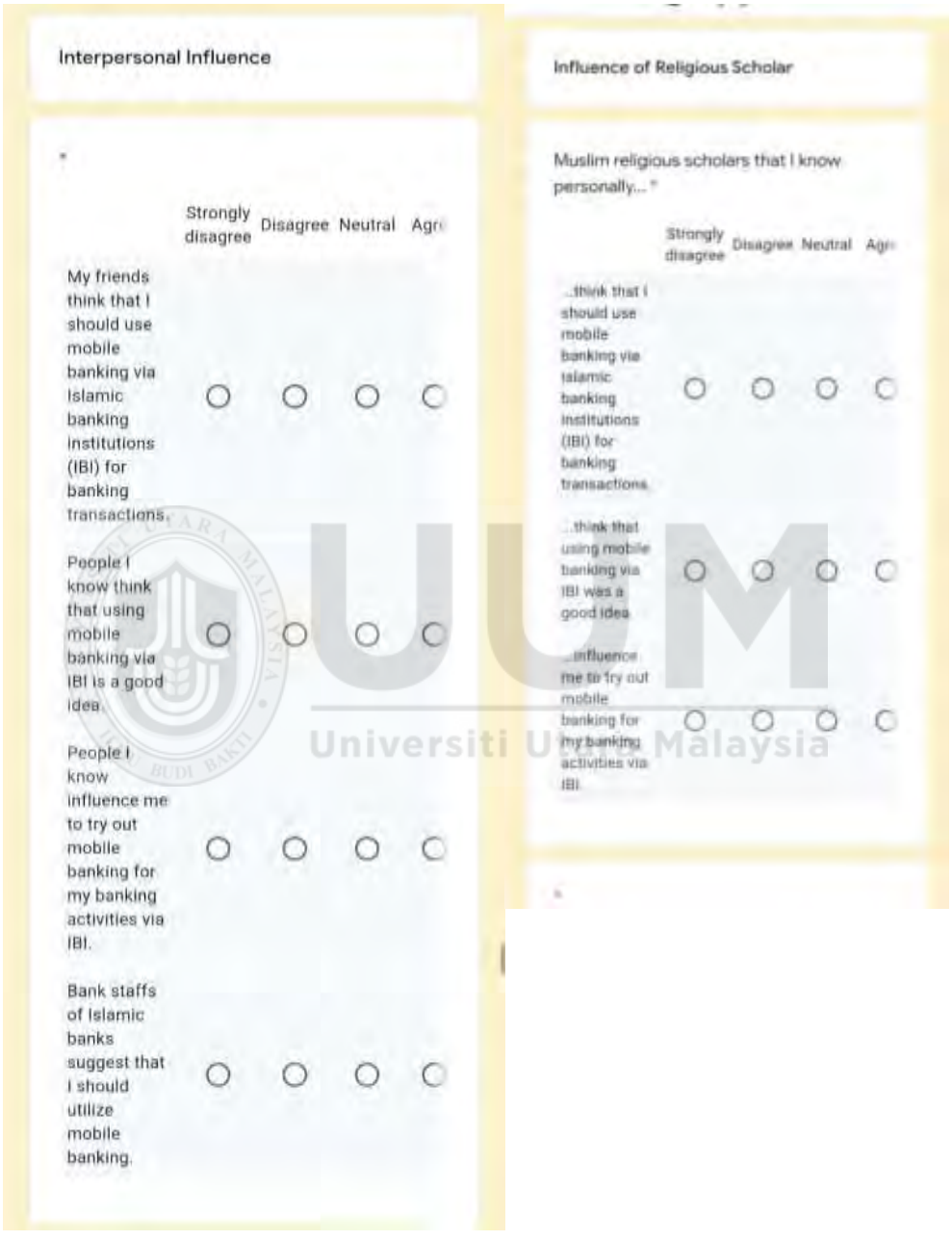
*

	Strongly disagree	Disagree	Neutral	Agre
People who are close to me recommend the use of mobile banking via islamic banking institutions (IBI).	○	○	○	○
People who influence my behaviour views mobile banking via IBI as beneficial.	○	○	○	○
People whose opinions I value, thinks that mobile banking via IBI is a good idea.	○	○	○	○
It is trendy if I adopt mobile banking via (IBI)	○	○	○	○

External Influence

*

	Strongly disagree	Disagree	Neutral	A
According to the news reports that I came across, using mobile banking via Islamic banking institution (IBI) is a good way of doing banking.	○	○	○	
Advertisements on mass media suggest that people should use mobile banking via IBI.	○	○	○	
Advertisements on mass media about mobile banking via IBI are very interesting	○	○	○	
All social media channels depicted a positive sentiment for using mobile banking via IBI.	○	○	○	
All media channels influence me to try out mobile banking via IBI.	○	○	○	



Interpersonal Influence

*

	Strongly disagree	Disagree	Neutral	Agr
My friends think that I should use mobile banking via Islamic banking institutions (IBI) for banking transactions.	○	○	○	○
People I know think that using mobile banking via IBI is a good idea.	○	○	○	○
People I know influence me to try out mobile banking for my banking activities via IBI.	○	○	○	○
Bank staffs of Islamic banks suggest that I should utilize mobile banking.	○	○	○	○

Influence of Religious Scholar

Muslim religious scholars that I know personally... *

	Strongly disagree	Disagree	Neutral	Agr
...think that I should use mobile banking via islamic banking institutions (IBI) for banking transactions.	○	○	○	○
...think that using mobile banking via IBI was a good idea.	○	○	○	○
...influence me to try out mobile banking for my banking activities via IBI.	○	○	○	○

*

	Strongly disagree	Disagree	Neutral	Agree
One of Muslim religious scholars that I know personally suggests that I should utilize mobile banking.	○	○	○	○
Religious lectures through mass media suggest that people should use mobile banking via IBI.	○	○	○	○
Religious lectures in all media channels influenced me to try out mobile banking via IBI.	○	○	○	○

Muslim scholars that I know through the mass media thought that... *

	Strongly disagree	Disagree	Neutral	Agr=
...I should use mobile banking via islamic banking institutions (iBI) for banking transactions.	○	○	○	○
...using mobile banking via IBI was a good idea.	○	○	○	○

Perceived Behavioural Control

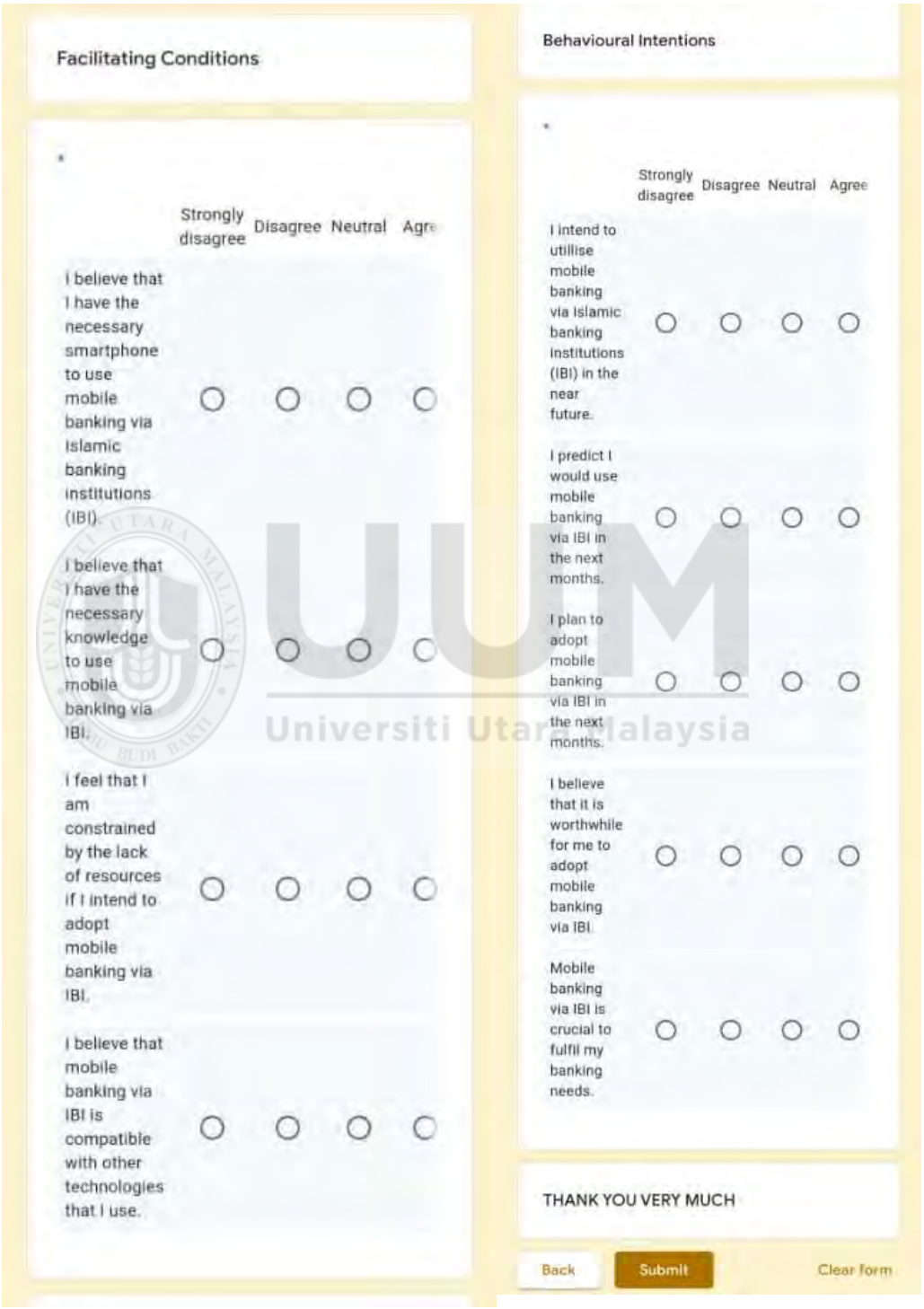
*

	Strongly disagree	Disagree	Neutral	Agree
If I want to, I could use mobile banking via Islamic banking institutions (IBI).	○	○	○	○
It would be possible for me to use mobile banking via IBI.	○	○	○	○
I am able to use mobile banking sufficiently well for my banking transactions via IBI.	○	○	○	○
If I use mobile banking via IBI, it will be entirely within my control.	○	○	○	○
I have the resources to use mobile banking via IBI.	○	○	○	○

Self-efficacy

I think that... *

	Strongly disagree	Disagree	Neutral	Agree
...I could complete a transaction using mobile banking via Islamic banking institutions (IBI) even if there was no one around to tell me what to do.	○	○	○	○
...I could complete a transaction using mobile banking via IBI if I could call someone for help if I got stuck.	○	○	○	○
...I could complete an Islamic banking transaction using mobile banking if I had a lot of time to complete a job I started.	○	○	○	○
...via mobile banking, I could complete Islamic banking transaction if I had just the built-in help facility for assistance.	○	○	○	○
...I could complete a transaction using Mobile banking via IBI even though I had never used such system before.	○	○	○	○



Facilitating Conditions

*

	Strongly disagree	Disagree	Neutral	Agree
I believe that I have the necessary smartphone to use mobile banking via Islamic banking institutions (IBI).	○	○	○	○
I believe that I have the necessary knowledge to use mobile banking via IBI.	○	○	○	○
I feel that I am constrained by the lack of resources if I intend to adopt mobile banking via IBI.	○	○	○	○
I believe that mobile banking via IBI is compatible with other technologies that I use.	○	○	○	○

Behavioural Intentions

*

	Strongly disagree	Disagree	Neutral	Agree
I intend to utillise mobile banking via Islamic banking institutions (IBI) in the near future.	○	○	○	○
I predict I would use mobile banking via IBI in the next months.	○	○	○	○
I plan to adopt mobile banking via IBI in the next months.	○	○	○	○
I believe that it is worthwhile for me to adopt mobile banking via IBI.	○	○	○	○
Mobile banking via IBI is crucial to fulfil my banking needs.	○	○	○	○

THANK YOU VERY MUCH

Back Submit Clear form

Appendix B: Questionnaire in Bahasa Malaysia

Pusat Pengajian Perniagaan Islam
ISLAMIC BUSINESS SCHOOL
كلية إدارة الأعمال الإسلامية
Universiti Utara Malaysia

Niat Tingkah Laku ke arah Penggunaan Perbankan Mudah Alih melalui Institusi Perbankan Islam

Objektif utama kajian ini adalah untuk mendapatkan pemahaman mengenai niat penggunaan perbankan mudah alih dalam kalangan pelanggan institusi perbankan Islam. Kami mencari responden dengan ciri-ciri berikut: (i) beragama Islam (ii) memiliki akaun perbankan Islam dan (iii) responden yang menggangap diri mereka sebagai bukan pengguna perbankan mudah alih. Jika anda memenuhi ketiga-tiga ciri-ciri tersebut, kami menjemput anda untuk menjawab soalan-soalan berkaitan pelbagai topik termasuklah pandangan anda tentang perbankan dan perbankan mudah alih. Tiada jawapan yang betul atau salah. Jawapan yang anda berikan adalah SULIT.

Apa yang dimaksudkan oleh perbankan mudah alih ialah perkhidmatan yang ditawarkan oleh bank bagi melakukan transaksi perbankan Islam menggunakan peranti mudah alih iaitu telefon bimbit, telefon pintar, tablet dan phablet. Ini termasuk transaksi asas seperti memeriksa baki akaun dan pindahan dana, pembayaran mudah alih, pembayaran QR, pembayaran e-dagang dan pindahan dana luar negara. Perbankan mudah alih berbeza daripada perbankan internet dari sudut peranti yang digunakan untuk perbankan internet tidak boleh digenggam contohnya komputer meja (desktop) dan komputer riba (notebook); komputer riba adalah mudah alih tetapi tidak boleh digenggam.

Kerjasama anda melengkapkan soal selidik ini akan memberikan impak dan kefahaman yang mendalam tentang faktor penentu niat penggunaan perbankan mudah alih dalam kalangan rakyat Malaysia. Sebarang pertanyaan boleh terus diajukan kepada saya menggunakan e-mel ziadesa@yahoo.com.
Terima kasih di atas masa dan maklum balas anda.

Ziad Esa Yazid
Pusat Pengajian Perniagaan Islam
UUM College of Business
Universiti Utara Malaysia

Bahagian 1
Profil Demografi
Sila baca setiap pernyataan dengan teliti dan tandakan ☑ pada kotak yang paling relevan

1. Nyatakan umur anda *

23

2. Jantina *

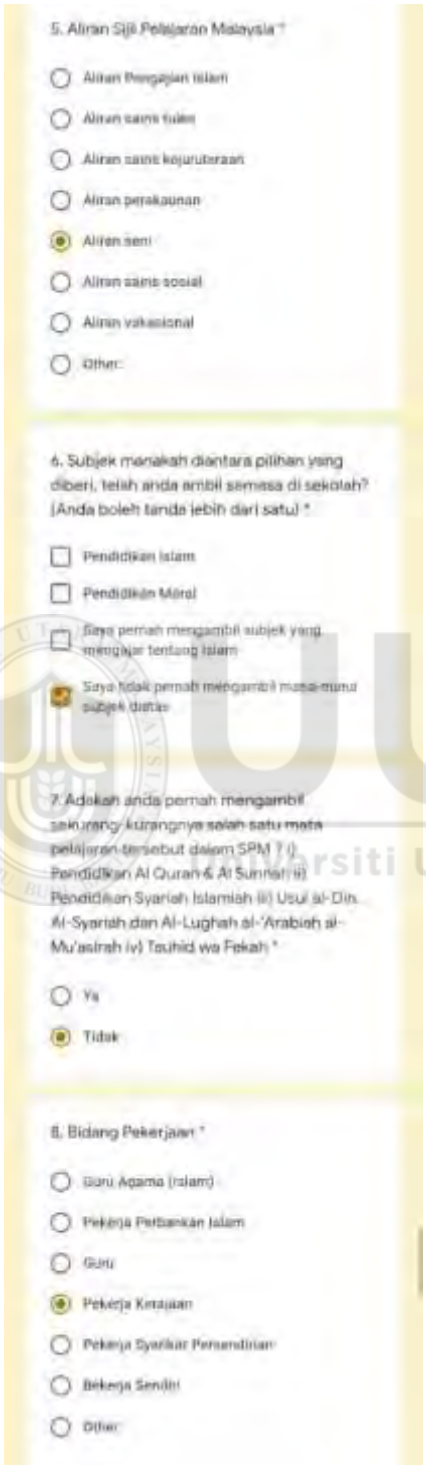
- (●) Lelaki
- ( ) Perempuan

3. Status perkahwinan *

- ( ) Bujang
- (●) Berkahwin
- ( ) Balu/bercerai
- ( ) Tinggal bersama

4. Tahap pendidikan *

- ( ) Sijil Pelajaran Malaysia
- ( ) Sijil Tinggi Pelajaran Malaysia
- ( ) Sijil Tinggi Agama Malaysia
- ( ) Sijil
- ( ) Diploma
- ( ) Ijazah Sarjana Muda
- (●) Ijazah Sarjana
- ( ) Ijazah Kedoktoran
- ( ) Other:



8. Bidang Pekerjaan *
Guru Agama (Islam)
Pekerja Perbankan Islam
Guru
Pekerja Kerajaan
Pekerja Syarikat Persendirian
Bekerja Sendiri
Other:


10. Pendapatan bulanan *

- ○ RM999 dan kebawah
- ○ RM1000-RM1499
- ○ RM1500-RM2999
- ○ RM3000-RM4091
- ○ RM4092-RM5182
- ○ RM5183-RM6274
- ○ RM6275-RM8018
- ◉ RM8019-RM9761
- ○ RM9762-RM11504
- ○ RM11505-RM13147
- ○ RM13148-RM24999
- ○ RM25000 dan keatas

11. Di bank manakah anda memiliki akaun simpanan Islamik?(anda boleh tanda lebih daripada satu) *

- ☐ Affin Islamic Bank Berhad
- ☐ Al-Rajhi Bank
- ☐ Alliance Islamic Bank Berhad
- ☐ AmBank Islamic Berhad
- ☐ Bank Islam Malaysia Berhad
- ☐ Bank Muamalat Malaysia Berhad
- ☐ Bank Rakyat
- ☐ CIMB Islamic Bank Berhad
- ☐ HSBC Amanah Malaysia Berhad
- ☐ Hong Leong Islamic Bank Berhad
- ☐ Kuwait Finance House
- ☐ MBSB Bank Berhad
- ☐ Maybank Islamic Berhad
- ☐ OCBC Al-Amin Berhad
- ☐ Public Islamic Bank Berhad
- ☑ RHB Islamic Bank Berhad
- ☐ Standard Charted Saadiq Berhad
- ☐ BSN Islamic
- ☐ Saya tidak mempunyai sebarang akaun perbankan Islam
- ☐ Other:

Bahagian 2

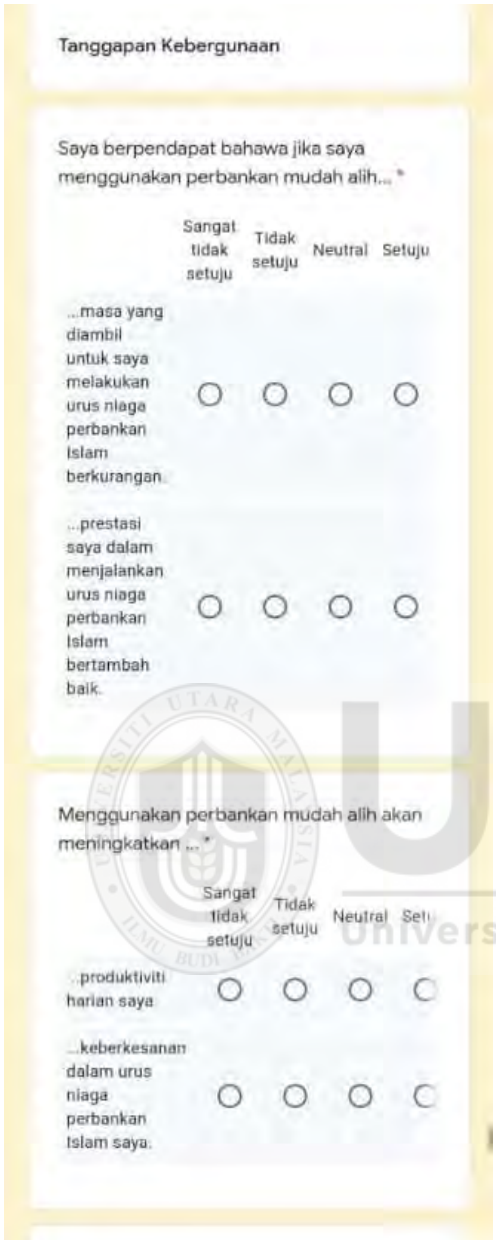
Sila baca setiap pernyataan dengan teliti dan tandakan pilihan anda dengan membulatkan nombor yang bersesuaian (pada skala 5-poin yang disediakan) iaitu nombor yang paling menggambarkan perasaan anda tentang pernyataan-pernyataan tersebut.

Sikap

*Perbankan mudah alih = Transaksi perbankan melalui telefon mudah alih, telefon pintar "smartphone", tablet dan phablet.

*

	Sangat tidak setuju	Tidak setuju	Neutral	Setuju
Saya akan berasa gembira jika saya menggunakan perkhidmatan perbankan mudah alih dalam institusi perbankan Islam (IPI).	○	○	○	○
Menggunakan perbankan mudah alih melalui IPI akan menjadi menarik.	○	○	○	○
Saya akan berasa selesa apabila saya menggunakan perbankan mudah alih melalui IPI.	○	○	○	○
Saya akan suka melakukan urus niaga dalam talian melalui perbankan mudah alih di IPI.	○	○	○	○



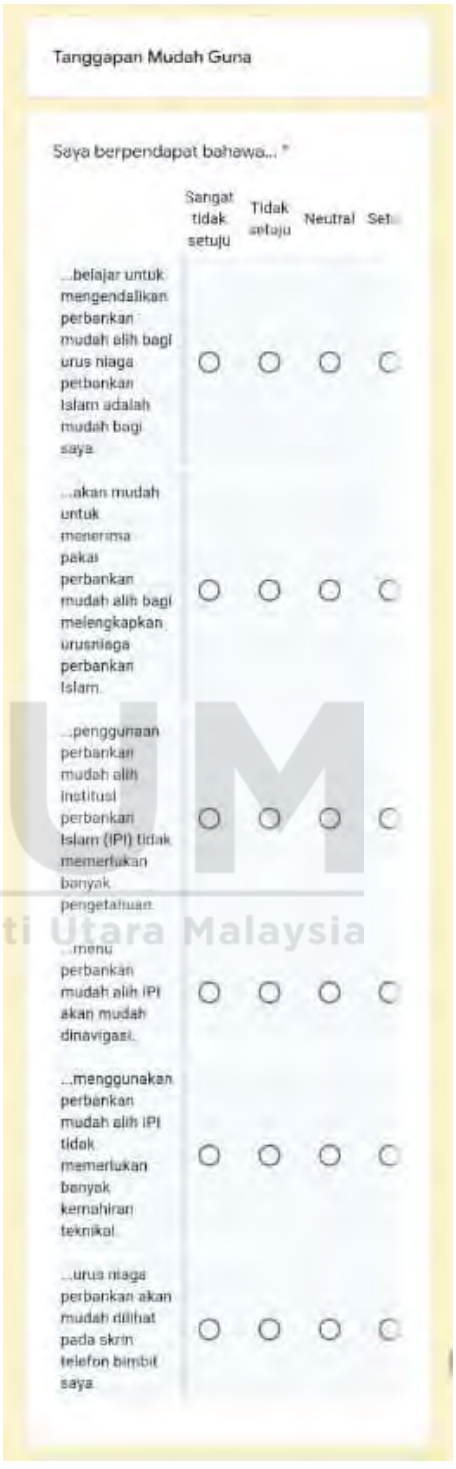
Tanggapan Kebergunaan

Saya berpendapat bahawa jika saya menggunakan perbankan mudah alih... *

	Sangat tidak setuju	Tidak setuju	Neutral	Setuju
...masa yang diambil untuk saya melakukan urus niaga perbankan Islam berkurangan.	○	○	○	○
...prestasi saya dalam menjalankan urus niaga perbankan Islam bertambah baik.	○	○	○	○

Menggunakan perbankan mudah alih akan meningkatkan ... *

	Sangat tidak setuju	Tidak setuju	Neutral	Setu
...produktiviti harian saya	○	○	○	○
...keberkesanan dalam urus niaga perbankan Islam saya.	○	○	○	○



Tanggapan Mudah Guna

Saya berpendapat bahawa... *

	Sangat tidak setuju	Tidak setuju	Neutral	Setu
...belajar untuk mengendalikan perbankan mudah alih bagi urus niaga perbankan Islam adalah mudah bagi saya.	○	○	○	○
...akan mudah untuk menerima pakai perbankan mudah alih bagi melengkapkan urusniaga perbankan Islam.	○	○	○	○
...penggunaan perbankan mudah alih institusi perbankan Islam (IPI) tidak memerlukan banyak pengetahuan.	○	○	○	○
...menu perbankan mudah alih IPI akan mudah dinavigasi.	○	○	○	○
...menggunakan perbankan mudah alih IPI tidak memerlukan banyak kemahiran teknikal.	○	○	○	○
...urus niaga perbankan akan mudah dilihat pada skrin telefon bimbit saya.	○	○	○	○

Kepatuhan Syariah

*Gharar = Transaksi yang tidak jelas contohnya dalam transaksi pembelian dalam talian, produk yang dipamerkan dalam laman web mengelirukan

Saya berpendapat bahawa perbankan mudah alih di institusi perbankan Islam ... *

	Sangat tidak setuju	Tidak setuju	Neutral	Setuju
...beroperasi mengikut undang-undang Syariah.	○	○	○	○
...adalah berdasarkan falsafah Islam.	○	○	○	○

Saya berpendapat bahawa perbankan mudah alih melalui IPI tidak mengandungi... *

	Sangat tidak setuju	Tidak setuju	Neutral	Setu
...riba dalam semua bentuk urus niaga.	○	○	○	C
...riba dalam urus niaga membeli-belah dalam talian.	○	○	○	C
...ketidakpastian (gharar)* dalam semua bentuk urus niaga.	○	○	○	C
...ketidakpastian (gharar)* dalam transaksi membeli-belah dalam talian.	○	○	○	C
...unsur penipuan dalam urus niaga membeli-belah dalam talian.	○	○	○	C

Gaya Hidup

*

	Sangat tidak setuju	Tidak setuju	Neutral	Setuju
Perbankan mudah alih melalui institusi perbankan Islam (IPI) akan serasi dengan gaya hidup saya.	○	○	○	○
Menerima pakai perbankan mudah alih di IPI akan bersesuaian dengan cara yang saya ingin menguruskan kewangan saya.	○	○	○	○
Menerima pakai perbankan mudah alih untuk menjalankan urus niaga perbankan Islam akan bersesuaian dengan gaya kerja saya.	○	○	○	○
Saya fikir perbankan mudah alih di IPI akan bersesuaian dengan imej diri saya.	○	○	○	○
Saya akan mendapati perkhidmatan perbankan mudah alih di IPI serasi dengan pekerjaan saya.	○	○	○	○

Daya Pembaharuan Diri

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	Sangat tidak setuju	Tidak setuju	Neutral	Setuju
Sekiranya saya mendengar tentang teknologi baru, saya mencari jalan untuk bereksperimen dengannya.	○	○	○	○
Saya sentiasa menjadi yang terawal untuk mencuba teknologi maklumat terbaru dalam kalangan rakan-rakan saya.	○	○	○	○
Secara umumnya, saya tidak teragak-agak untuk mencuba teknologi maklumat baru.	○	○	○	○
Saya suka bereksperimen dengan teknologi maklumat baru.	○	○	○	○

Norma Subjektif

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	Sangat tidak setuju	Tidak setuju	Neutral	Setuju
Orang yang rapat dengan saya mengesyorkan penggunaan perbankan mudah alih melalui institusi perbankan Islam (IPI).	○	○	○	○
Orang yang mempengaruhi tingkah laku saya melihat perbankan mudah alih di IPI sebagai bermanfaat.	○	○	○	○
Orang yang pendapatnya saya hargai menganggap bahawa perbankan mudah alih melalui IPI ialah idea yang baik.	○	○	○	○
Pastinya bergaya jika saya menerima pakai perbankan mudah alih melalui IPI.	○	○	○	○

Pengaruh Luaran

*

	Sangat tidak setuju	Tidak setuju	Neutral	Setuj
Menurut laporan akhbar yang saya baca, menggunakan perbankan mudah alih melalui institusi perbankan Islam (IPI) adalah cara yang baik untuk melaksanakan urusan perbankan.	○	○	○	○
Iklan-iklan di media massa mencadangkan agar orang ramai menggunakan perbankan mudah alih melalui IPI.	○	○	○	○
Iklan-iklan di media massa mengenai perbankan mudah alih melalui IPI adalah sangat menarik.	○	○	○	○
Semua saluran media sosial memberikan gambaran positif tentang penggunaan perbankan mudah alih melalui IPI.	○	○	○	○
Semua saluran media mempengaruhi saya untuk mencuba perbankan mudah alih melalui IPI.	○	○	○	○

Pengaruh antara perorangan

*

	Sangat tidak setuju	Tidak setuju	Neutral	Setuj
Rakan-rakan saya berpendapat bahawa saya harus menggunakan perbankan mudah alih melalui institusi perbankan Islam IPI untuk urus niaga perbankan.	○	○	○	○
Orang yang saya kenal berpendapat bahawa penggunaan perbankan mudah alih melalui IPI ialah idea yang baik.	○	○	○	○
Orang yang saya kenal mempengaruhi saya untuk mencuba perbankan mudah alih untuk aktiviti perbankan saya melalui IPI.	○	○	○	○
Para pekerja di bank-bank Islam mencadangkan agar saya menggunakan perbankan mudah alih.	○	○	○	○

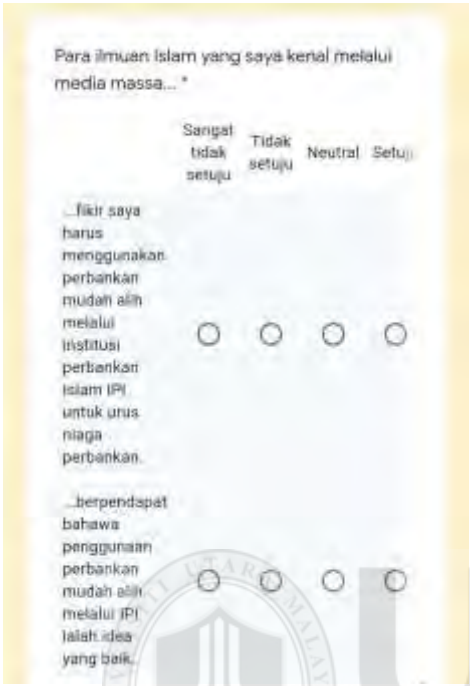
Pengaruh Ilmuan Islam

Para ilmuan Islam yang saya kenal secara peribadi... *

	Sangat tidak setuju	Tidak setuju	Neutral	Se
...berpendapat bahawa saya harus menggunakan perbankan mudah alih melalui institusi perbankan Islam IPI untuk urus niaga perbankan.	○	○	○	○
...berpendapat bahawa penggunaan perbankan mudah alih melalui IPI ialah idea yang baik.	○	○	○	○
...mempengaruhi saya untuk mencuba perbankan mudah alih untuk aktiviti perbankan saya melalui IPI.	○	○	○	○

*

	Sangat tidak setuju	Tidak setuju	Neutral	Setu
Salah seorang ilmuan Islam yang saya kenal secara peribadi mencadangkan agar saya menggunakan perbankan mudah alih.	○	○	○	○
Ceramah agama di media massa mencadangkan agar orang ramai menggunakan perbankan mudah alih melalui IPI.	○	○	○	○
Ceramah agama di semua saluran media mempengaruhi saya untuk mencuba perbankan mudah alih di IPI.	○	○	○	○



Para ilmuan Islam yang saya kenal melalui media massa... *

	Sangat tidak setuju	Tidak setuju	Neutral	Setuju
...fikir saya harus menggunakan perbankan mudah alih melalui institusi perbankan Islam IPI untuk urus niaga perbankan.	○	○	○	○
...berpendapat bahawa penggunaan perbankan mudah alih melalui IPI ialah idea yang baik.	○	○	○	○

Tanggapan Kawalan Tingkah Laku

*

	Sangat tidak setuju	Tidak setuju	Neutral	Setu
Sekiranya saya mahu, saya boleh menggunakan perbankan mudah alih melalui institusi perbankan Islam (IPI).	○	○	○	○
Saya berkemungkinan akan menggunakan perbankan mudah alih melalui IPI.	○	○	○	○
Saya dapat menggunakan perbankan mudah alih dengan cukup baik untuk urus niaga perbankan saya melalui IPI.	○	○	○	○
Sekiranya saya menggunakan perbankan mudah alih melalui IPI, penggunaannya di bawah kawalan saya sepenuhnya.	○	○	○	○
Saya mempunyai sumber untuk menggunakan perbankan mudah alih melalui IPI.	○	○	○	○

Kecekapan Diri

I think that/Saya berpendapat bahawa... *

	Sangat tidak setuju	Tidak setuju	Neutral	Setuju
...saya boleh menyelesaikan urus niaga menggunakan perbankan mudah alih melalui institusi perbankan Islam (IPI) walaupun tiada seiapa di sekitar untuk memberitahu saya perkara yang perlu dilakukan.	○	○	○	○
...saya boleh menyelesaikan urus niaga menggunakan perbankan mudah alih melalui IPI jika saya boleh menghubungi seseorang untuk mendapatkan bantuan sekiranya saya buntu.	○	○	○	○
...saya boleh menyelesaikan urusniaga perbankan Islam dengan menggunakan perkhidmatan perbankan mudah alih jika saya ada banyak masa untuk menghabiskan tugasan yang telah saya mulakan.	○	○	○	○
...melalui perbankan mudah alih, saya dapat menyelesaikan urus niaga perbankan Islam jika saya mempunyai kemudahan bantuan terbina dalam untuk mendapatkan bantuan.	○	○	○	○
...saya dapat menyelesaikan urus niaga menggunakan perbankan mudah alih melalui IPI walaupun saya tidak pernah menggunakan sistem seperti itu sebelumnya.	○	○	○	○

Keadaan Memudahkan

*

	Sangat tidak setuju	Tidak setuju	Neutral	Setuju
Saya percaya bahawa saya mempunyai telefon pintar yang diperlukan untuk menggunakan perbankan mudah alih melalui institusi perbankan Islam (IPI).	○	○	○	○
Saya percaya bahawa saya mempunyai pengetahuan yang diperlukan untuk menggunakan perbankan mudah alih melalui IPI.	○	○	○	○
Saya rasa saya terkekang oleh kekurangan sumber yang diperlukan jika saya ingin menerima pakai perbankan mudah alih melalui IPI.	○	○	○	○
Saya percaya bahawa perbankan mudah alih melalui IPI adalah bersesuaian dengan teknologi lain yang saya gunakan.	○	○	○	○

Niat Tingkah Laku

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	Sangat tidak setuju	Tidak setuju	Neutral	Setuj
Saya berhasrat untuk menggunakan perbankan mudah alih melalui institusi perbankan Islam (IPI) pada masa yang terdekat.	○	○	○	○
Saya jangka yang saya akan menggunakan perbankan mudah alih melalui IPI pada bulan-bulan akan datang.	○	○	○	○
Saya bercadang untuk menerima pakai perbankan mudah alih melalui IPI pada bulan-bulan akan datang.	○	○	○	○
Saya percaya bahawa berbaloi untuk saya menerima pakai perbankan mudah alih melalui IPI.	○	○	○	○
Perbankan mudah alih melalui IPI penting untuk memenuhi keperluan perbankan saya.	○	○	○	○

SEKIAN TERIMA KASIH

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