PERCEIVED RISKS AND ITS EFFECT ON MOBILE SHOPPING BEHAVIOUR AMONG UTAR STUDENTS

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ABSTRACT

The purpose of this study is to determine the effect of perceived risks on mobile shopping behaviour among UTAR students. The risk perceptions being examined are product performance risk, health risk, time risk, financial risk, security risk and social risk. An online survey form was used for the purpose of data collection using purposive sampling. Upon sending emails to 900 students, 405 questionnaires were collected with response rate of 45.11%. A five-point Likert scale questionnaire was employed during the data collection process. Two experts have validated the instrument used and the reliability test of Cronbach Alpha coefficients were between $\alpha = 0.637$ to 0.839. The data collected were quantitatively analysed using SPSS version 24 and AMOS version 22 software. The results showed that product performance risk ($\beta = -0.638$, $p= 0.000$), time risk ($\beta = -5.715$, $p = 0.010$), financial risk ($\beta = -9.768$, $p = 0.024$) and security risk ($\beta = -4.453$, $p = 0.034$) have significant relationship with mobile shopping behaviour. While health risk ($\beta = -0.055$, $p = 0.215$) and social risk ($\beta = -0.082$, $p = 0.063$) do not have significant relationship with mobile shopping behaviour. Among these dimensions, financial risk has the highest significance. This study provides useful information to online retailers as to formulate strategies to reduce risks in the mobile shopping environment, especially financial risk. Besides, this study also provides the viewpoints of UTAR students in terms of how they perceived the different dimensions of perceived risk as significant to them and these insights can assist stakeholders to increase stakeholder engagement in creating new policies or strategies that can bring benefit to consumers and online retailers in the long run.

PERSEPSI RISIKO DAN KESANNYA TERHADAP TINGKAH LAKU PEMBELIAN MUDAH ALIH DI KALANGAN PELAJAR UTAR

ABSTRAK

Kajian ini bertujuan menentukan kesan persepsi risiko terhadap tingkah laku pelajar di UTAR semasa membeli belah dengan menggunakan alat komunikasi mudah alih. Persepsi risiko yang dikaji adalah risiko prestasi produk, risiko kesihatan, risiko masa, risiko kewangan, risiko keselamatan dan risiko sosial. Borang tinjauan secara atas talian digunakan bagi tujuan pengumpulan data menerusi kaedah persampelan bertujuan. Setelah menghantar e-mel kepada 900 orang pelajar, 405 borang tinjauan telah dikumpul dengan kadar respons sebanyak 45.11%. Soal selidik dengan skala Likert lima-mata telah digunakan dalam proses pengumpulan data. Dua orang pakar telah dilantik untuk mengesahkan instrumen yang digunakan dan kebolehpercayaan intrumen berdasarkan Cronbach Alpha coefficients adalah di antara $\alpha = 0.637$ to 0.839. Data telah dianalisis secara kuantitatif dengan menggunakan perisian SPSS versi 24 dan AMOS versi 22. Keputusan menunjukkan risiko prestasi produk ($\beta = -0.638$, $p = 0.000$), risiko masa ($\beta = -5.715$, $p = 0.010$), risiko kewangan ($\beta = -9.768$, $p = 0.024$) dan risiko keselamatan ($\beta = -4.453$, $p = 0.034$) mempunyai hubungan yang signifikan terhadap tingkah laku pembelian mudah alih. Manakala risiko kesihatan ($\beta = -0.055$, $p = 0.215$) dan risiko sosial ($\beta = -0.082$, $p = 0.063$) tidak menunjukkan hubungan yang signifikan dengan tingkah laku pembelian mudah alih. Antara enam dimensi, risiko kewangan adalah paling signifikan. Kajian ini dapat memberi maklumat yang berguna kepada peruncit dalam talian untuk mengkaji cara mengurangkan risiko semasa membeli belah dalam talian, terutamanya risiko kewangan. Selain itu, kajian ini juga memberikan pandangan pelajar UTAR dari segi dimensi persepsi risiko yang berbeza yang penting kepada mereka dan pandangan ini boleh membantu pihak berkepentingan untuk meningkatkan penglibatan mereka dalam mewujudkan dasar atau strategi baharu yang boleh membawa manfaat kepada pengguna dan peruncit dalam talian pada jangka masa panjang.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

AMOS	Analysis of Moment Structures
ASEAN	Association of Southeast Asian Nations
AVE	Average Variance Extracted
CA	Cronbach's Alpha
CB-SEM	Covariance-based Structural Equation Modeling
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
Chisq	Chi-squared
Chisq/df	Normed Chi-sq
COD	Cash-on-delivery
COVID-19	Coronavirus disease
CR	Composite Reliability
Df	Degree of Freedom
DV	Dependent Variable
FR	Financial Risk
GFI	Goodness-of-fit Index
GOF	Goodness-of-fit
HR	Health Risk
HTMT	Heterotrait-Monotriat Ratio of Correlations
IV	Independent Variable

LISREL	Linear Structural Relations
MCO	Movement Control Order
MSB	Mobile Shopping Behavior
O-T-P	One-Time-Password
PDPA	Personal Data Protection Act
PLS-SEM	Partial Least Squares Structural Equation Modeling
PPR	Product Performance Risk
PR	Perceived Risk
PTPTN	Perbadanan Tabung Pendidikan Tinggi Nasional
RMSEA	Root Mean Square of Error Approximation
RQ	Research Questions
SAS	Statistical Analysis System
SEM	Structural Equation Modeling
SMS	Short Message Service
SOR	Social Risk
SPSS	Statistical Package for the Social Sciences
SR	Security Risk
TLI	Tucker Lewis Index
TOL	Tolerance
TPR	Theory of Perceived Risk
TR	Time Risk
UTAR	Universiti Tunku Abdul Rahman
VIF	Variance Inflation Factor
Wi-Fi	Wireless Fidelity

APPENDIX LIST

CHAPTER 1

INTRODUCTION

1.1 Introduction

Consumer buying behaviour includes the study of individuals or groups when selecting, purchasing and utilising and disposing of products, services, ideas and experiences to meet their needs and wants (Fernandes & Panda, 2019). Traditionally, consumer buying behaviour mainly focused on physical shop shopping, whereby consumers physically purchase in a physical store (Ghazali, Mutum, Chong, & Nguyen, 2018). Because of new technology such as the internet, online buying behaviour has become an area of interest, and an increasing number of researchers have placed much attention on online shopping in recent years (Svatosova, 2020).

Due to the advancement of the internet and the ease of opening an online shop as compared to a physical shop, online shopping is springing up like mushrooms after

rain (Gregor & Kalińska-Kula, 2020). It is reported that half of the worldwide internet users are from Asia, and this has contributed to the growth of online shopping as more people can connect to the internet and has access to online shopping (Statista, 2021). As for Malaysia, online shopping has increased whereby it was 53.3 per cent in 2018 to 64.2 per cent in 2021 and internet accessibility has also increased by 22.1 per cent from 66.6 per cent in 2014 to 88.7 per cent in 2020 (Malaysian Communications and Multimedia Commission, 2020). With improved internet accessibility and 98.7 per cent of internet users accessing through smartphones among Malaysians, it has reached a near-saturation level. With a smartphone and internet connection, consumers can now shop from around the globe.

The rapid growth of mobile has contributed to new problems that cause concerns to consumers in general, such as security of payment and data protection when buying from online platforms (Ariffin, Mohan, & Goh, 2018). Compared to shopping in a physical shop, consumers perceived online shopping to pose higher risks. A classic example is consumers may receive items that are not as described, or they may not receive the items at all. Besides, buying on their mobile devices such as smartphones at times may cause consumers to click on the wrong item due to the limited screen size and setting. Therefore, consumers may end up wasting more time and money on exchange and return when shopping on mobile. Thus, this risk perception may hinder some consumers from adopting mobile shopping as a lifestyle. Hence, consumer perceived risks have become significant factors that affect mobile shopping behaviour (Amirtha, Sivakumar, & Hwang, 2020).

1.2 Background of the Study

In the early stage of online shopping, it was found that most online purchases were made using personal computers as compared to smartphones, as the usage of smartphones was limited (He, Li, Li and Chen, 2020). In early 1999, internet connections were limited with only 12.3 per cent of the population of Malaysia having an internet connection. Infrastructures were put in place to improve the connectivity and the availability of seamless internet connection in Malaysia. According to Table 1.1, in 2019, the penetration rate increased to 84.2 per cent, with a substantial increase of 71.9 per cent over the past 20 years (World Bank Data, 2020). As smartphone users continue to grow, more consumers are shifting to using smartphones as a terminal for shopping. In 2020, a survey revealed that 80 per cent of respondents shopped with their smartphones, while Lazada and Shopee are the most popular electronic commerce sites in Malaysia (Statista, 2021a). The availability of internet connections in computers and mobile devices has caused mobile shopping to become a regular occurrence that is no longer a foreign terminology to many (Ariffin et al., 2018).

Table 1.1

Individuals using the Internet (% of the population) - Malaysia

Year	Percentage (%)
1999	12.31
2000	21.38
2001	26.70

(continued)

Table 1.1 *(continued)*

Year	Percentage (%)
2002	32.34
2003	34.97
2004	42.25
2005	48.63
2006	51.64
2007	55.70
2008	55.80
2009	55.90
2010	56.30
2011	61.00
2012	65.80
2013	57.06
2014	63.67
2015	71.06
2016	78.79
2017	80.14
2018	81.20
2019	84.21

Source: World Bank Data (2020)

As mobile commerce gains popularity, so do the variations of mobile electronic commerce services. The business-to-consumer sector includes mobile shopping (for example, m-retailing, m-auctions and m-ticketing), mobile financial services (for example, m-banking, m-brokering and m-payment), mobile entertainment (for example,

m-gaming, m-betting, m-music and m-videos), and mobile information (for example weather forecasts, sports news and maps) (Batkovic & Batkovic, 2015; Marriot and Williams, 2018). With the rapid development of new services such as these, the migration of technology to mobile has transformed the consumer experiences in the different aspects of daily life, providing more opportunities for new business ventures (Ghazali et al., 2018). From shoppers' point of view, electronic commerce provides a convenient platform for them to buy a massive number of products and services at a better price. With the usage of search engines and price comparison sites, shoppers can search and compare prices for the same product. This is a cost and time-saving for shoppers (Lim. Yeo, & Wong, 2020).

Mobile shopping is the online searching, browsing, comparing, and purchasing of goods and services by consumers using wireless portable, or mobile devices, specifically smartphones and tablets (Marriot, Williams, & Dwivedi, 2017). Smartphones are the most recent types of mobile phones, designed for accomplishing a wide range of computer tasks and offering users enhanced comfort and convenience when performing online purchases (Ba, He, & Lee, 2022). Smartphones allow transactions to be done anywhere and anytime without the limitations of opening hours or item availability (He et al., 2020). The pervasiveness of mobile shopping allows shopping anywhere and anytime and has altered the consumer shopping experience to a new level as compared to the traditional shopping experience. Shoppers do not need to leave their homes to be in a physical store when they make purchases, and they are not required to queue for payment (Alaimo, Fiore, & Galati, 2021). Furthermore, due to lesser costs incurred, prices tend to be lower, and this cost-saving benefit is passed

on to mobile shoppers. The advantages of mobile shopping are undeniable, as consumers can save time and money as well as the freedom to choose when and where it is done (Ghazali et al., 2018).

Besides just browsing, mobile devices are used as shopping organisers because of the existence of applications that can assist shoppers in their budgeting and also as social devices that allow them to connect with other shoppers (Lim, Yeo, & Wong, 2020; Spaid & Flint, 2014). According to these prior studies, the definition and understanding of mobile shopping are no longer limited to the act of purchasing products and services with your smartphone but also a wide range of activities such as comparing products and prices, gathering information, reading user reviews and making payment (Fuentes & Svingstedt, 2017; Hou & Elliott, 2021). In Malaysia, 83.5 % of individuals will use the internet to search for information about products and services in 2019 (Department of Statistics Malaysia, 2020). It has become common to search for more information and reviews about products and services online in this smartphone era (Lim et al., 2020).

This new lifestyle of mobile shopping has impacted the majority of people, especially internet users. According to the Internet Users Survey 2020, the majority of internet users are adults in their 20s and 30s, contributing 46.0 per cent and 21.2 per cent, respectively (Malaysian Communications and Multimedia Commission, 2020). The majority of internet users are in the age of tertiary education and are young working adults. Upon completion of secondary education at 17 or 18 years old, Malaysian students usually proceed to pre-tertiary for one to two years and tertiary education for

three to five years (Study Malaysia, 2017). The average age of university undergraduates falls between 20 to 23 years old and are in the category of highest internet users and also smartphone users in the country. Statistics by the Malaysian Communications and Multimedia Commission (2020) revealed that about 86.3 per cent of respondents who were below 20 years old already owned a smartphone. Therefore, smartphones and internet usage are highly associated with youth and undergraduates.

1.3 Problem Statement

Smartphone usage has become a norm that many are unaware of their reliance on and addiction to their phones (Haripriya, Preetha, & Devi, 2018). Similarly, many students in Malaysia cannot imagine life without their smartphones as they have become a necessity instead of a luxury. In a recent research conducted in India, the majority of undergraduates are addicted to smartphones as one per cent suffers from severe addiction, 23 per cent had minor addiction and 76 per cent had moderate addiction problems (Prasad et al., 2022). Findings in the Internet Users Survey by Malaysian Communications and Multimedia Commission (2020) showed half of the internet users spend around five to 12 hours a day, and another 21.5 per cent spend more than 12 hours a day on the internet, mainly on social purposes such as communication and visiting social networks. Moreover, due to the conveniences and advanced functions of smartphones and tablets, college and university students use them extensively to search journals and articles on the web. Communication between classmates and lecturers is done using smartphones as well. The loss of focus, health-related behaviours, and

academic activities are all linked to a strong relationship and addiction to chronic mobile usage (Abhishek, Sudha, & Amrutha, 2020).

Smartphone usage before sleep can affect sleep quality and reduce sleep duration, which could lead to other health complications (Haripriya et al., 2018). Young adults, especially college and university students, are more susceptible to mental health disorders such as depression, unable to manage stress and suicidal tendency but only 16.4 per cent seek help from professionals due to the stigma society has towards mental health disorders (Kajitani et al., 2020). Studies show that smartphone addiction is causing an impact on physical and psychological health and teenagers are more addicted than adults due to a lack of self-control (Haripriya et al., 2018). According to the annual national statistics of South Korea on smartphone overdependence rates, college students made up 33.1 per cent of individuals with smartphone overdependence in 2022, an increase of 0.9% from 2021. Recent survey showed that teenagers and people in their 20s had the greatest rates of smartphone overdependence (Seo, Hwang, & Cho, 2023). Therefore, the issue of health risk from using mobile devices among students is worth studying.

The percentage of smartphone users accessing the internet rose from 93.1 per cent in 2018 to 98.37 per cent in 2020. More people are spending time on their mobile devices daily, but the increase in online sales is not substantial. Even though the number of hours had increased, the usages were mainly for messaging services, communicating via voice or video and social networking sites (Malaysian Communications and Multimedia Commission, 2020). 98 per cent of Malaysians are mostly sending text

communication when online, and 93 per cent of users are on social media most of the time but only 64 per cent of users shop online. Despite the increasing importance of smartphones in today's society, some Malaysians are still reluctant to shop with their mobile devices. Results from the Internet Users Survey by Malaysian Communications and Multimedia Commission (2020) showed that the most commonly owned device to access the internet is the smartphone. In addition, among those who use the internet, 33 per cent belong to the age group of 20 to 24 years old, who are mainly university or college undergraduates who spend a lot of time on social media. This group are the potential buyers who shop online as they spend the most time online. Hence, the higher online penetration rate in Malaysia did not translate into higher online sales as time spent is mostly on social media. This is an alarming sign and should be addressed to find out the obstacles that hinder those who do not perform online transactions.

The fact that online users are susceptible to scammers and fraud is inevitable. According to Malaysia Computer Emergency Response Team (2020), a total of 10,790 cases of cybercrimes were reported in 2020 and 7593 were fraud cases. A recent article in Malay Mail wrote that a student from a private university in Malacca was scammed by a Facebook scam and transferred money to the scammer based on investment in Bitcoin (Bernama, 2021). The safety of these students is at stake as they are spending more time online without guidance. Besides, the information provided to online merchants may be misused by unscrupulous parties that will contact unsuspecting users who are easily influenced to provide information that leads to monetary loss. Armed with just the contact number of consumers, scammers were able to retrieve financial information such as debit or credit card details and security pins sent by banks for

verification purposes. In addition, recent scammers use online merchants such as Shopee and Lazada links to lure users into providing banking information and One-Time-Password (O-T-P) to help them claim their prizes. Unauthorised fraudulent transactions were later performed without their permission from their bank accounts and mobile wallets (Ong, 2020). Consumers are worried about fraud when using the internet and are mainly put off due to the fear of losing money when involved in online transactions (Ghazali et al., 2018). According to Thompson and Siamagka (2022), when shoppers' perceived organisational privacy ethical care is high, the levels of correct information sharing is higher. However, when it comes to data privacy and data collection effort, the majority of organisations use moral reasoning, which causes increased privacy fears (Hong, Chan, & Thong, 2021).

Data privacy has become an issue that triggers users' lack of trust towards the internet and new technology (Meredith, 2018). The risk perception towards online privacy is high as consumers are becoming more concerned with 60.9 per cent viewing it as highly significant in the Internet Users Survey by Malaysian Communications and Multimedia Commission (2020). As a result, concerns about privacy and security play a critical part in understanding consumer reluctance to online shopping (Mwencha & Muathe, 2019). College and university students are the ones who grow up with computers, internet connection, using smartphones and social media daily and not foreign to online shopping (Dang, Wang & Wu, 2020). Students are the most active age group when it comes to online shopping because they prefer individualised services and are more familiar with technology (Fang, Li, & Li., 2020). However, the risk of losing

digital identity or personal information while shopping online may defer some from involving in mobile shopping.

Many individuals consider shopping to be a social activity, and the social contact between the vendor and the buyer is crucial. The customer relationship is developed over time as they interact. With the usage of technology such as mobile shopping, the interaction between sellers and buyers is almost limited whereby consumers usually search for the items and information individually (Prasetyo & Fuente, 2020). Students are affected by the lack of face-to-face interaction due to the extensive usage of electronic devices daily. Students who have weak peer relationships are more likely to form and sustain relationships through social media, avoiding difficult social interactions and becoming more reliant on smartphones (Lim & You, 2019). College and university students are experiencing a loss of communication skills and confidence as a result of fewer face-to-face interactions (Gentina, Chen, & Yang, 2021). The social impact of dependence upon mobile technology, especially mobile shopping, upon youth is unknown. Besides, when one is uncertain about a technology's adoption by their peers, the social risk is perceived to be significant. Because social networks are important to young adults and most individuals have already adopted electronic shopping, social risk towards mobile shopping is projected to be lower among young adult consumers (Amirtha et al., 2020). It is still worthwhile to gauge the social risk perception of students towards mobile shopping behaviour.

The convenience of mobile shopping has provided consumers with a sea of products at their fingertips. However, some consumers may feel reluctant to purchase

online, and they are facing new problems such as information being overloaded or information provided being too superficial. A study by Prasetyo and Fuente (2020) conducted in the Philippines revealed it is important to provide useful information about the items, and the ease of finding product specifications affects online buying behaviour and customer satisfaction. Therefore, product descriptions have the utmost importance on buying behaviour and customer satisfaction level when buying online as consumers do more information searches before buying (Parmer, Dillard, & Lin, 2021). The risk of purchasing a product that does not meet requirements or expectations is amplified in the online shopping scenario since consumers do not see or touch the product before purchasing it (Ariffin et al., 2018). Statistics from the Ministry of Domestic Trade and Consumer Affairs (2019) revealed that the complaints received regarding online purchases were almost 500 cases a month in the year 2019, totalling more than 6000 cases in the same year. The number of complaints is increasing, and it affects consumers' confidence in online shopping. Due to the lack of face-to-face interaction, consumers typically view online shopping to be a higher risk than physical shop shopping. Consumers may be concerned that the goods are counterfeit, of poor quality, or that the product's quality differs from being advertised (Dang et al., 2020). Decisions made based on inaccurate information provided by sellers can cause buyers to end up with products that are useless to them.

Moreover, when purchasing items using a mobile device with a smaller screen can be a hassle as the number of items is limited and some may end up buying at a higher price (Marriot & Williams, 2018). Financial risk is considered one of the major fears consumers' face when shopping online using their smartphones (Dogbe, Zakari,

& Passe-Kumar, 2019; Park & Tussyadiah, 2017). Therefore, financial risk perception has adverse effects on mobile shopping behaviour and is worth studying.

College or university students are the generations of consumers who grew up in the internet era and they consider online shopping to be an essential part of their lifestyle as it provides them convenience (Pentz, Preez, & Swlegers, 2020). However, most undergraduates depend on funds from parents, loans or scholarships during their course of study. Due to limited finance when they are studying, they tend to go for lower price products to reduce their expenses. Findings by Kumsa, Lemu, & Nguse (2020) showed that university students in Africa are limited in terms of finance which is also similar to the undergraduates in Malaysia. Malaysians who borrowed student loans from PTPTN (Perbadanan Tabung Pendidikan Tinggi Nasional) from the year 2013 to 2018 reached more than one million with a total loan amount worth more than RM25 million (Prime Minister's Office of Malaysia, 2019). The frustration when receiving poor-quality products added to the hassle of returning the items caused dissatisfaction among all buyers in general (Amirtha et al., 2020). Moreover, this issue is amplified for students without transportation mode because they may need to spend even more to return than to purchase a brand new item, and this could be a major reason for not buying online. It is especially true for students who reside on gated university campuses, as the public transportation to go outside of campus is limited (Sun, Cheng, Lin, & Peng, 2018). Therefore, it is important to gauge the risk perception of product performance risk towards mobile shopping to understand more about consumer behaviour.

To add insult to injury, mobile shopping involves remote transactions, whereby those who purchase the products online are unable to consume immediately and have to wait for the product to be delivered. Hence, consumers may experience low satisfaction levels, intention to repurchase or have the tendency to complain due to the gap between the purchase and consumption time (Pentz et al., 2020). On another note, Fang, Li, and Li (2020) discovered that the major complaints received by electronic commerce vendors revolved around miscommunication with couriers, broken deliveries and delayed deliveries. These have become common issues faced by online buyers and sellers that cause many inconveniences to the involved parties. Customer satisfaction for online shopping is much affected by the timeliness of the delivery, the delivery quality and the convenience of the process (He et al., 2020). Therefore, it is important to understand the perceived time risk of mobile shopping behaviour.

Electronic commerce revenue hit $1.6 trillion globally in 2018 and is anticipated to reach $2.7 trillion by 2023. With over 350 million Internet users and a market value of US$72 billion in 2018, the Association of Southeast Asian Nations (ASEAN) and East Asia together have the world's fastest-growing online market globally. The regional electronic commerce market is expected to increase at a rate of 25 per cent to 35 per cent each year over the next 5 to 10 years. Electronic commerce will be worth over $100 billion by 2025, up from $20 billion in 2017 (Chen, 2020). A digital-friendly ecosystem is required to support digital transformation in the region to realise the region's potential for rapid growth. Therefore, understanding the barriers that may cause the low online shopping penetration rate is important to solve this issue.

1.4 Objectives of the Study

This research aims to investigate the relationship between the different dimensions of risk towards mobile shopping behaviour. This research aims to analyse the risks that affect consumers' mobile shopping behaviour based on the Theory of Perceived Risk (TPR).

The specific objectives of this research are:

i. To investigate the relationship between product performance risk and mobile shopping behaviour.
ii. To investigate the relationship between health risk and mobile shopping behaviour.
iii. To investigate the relationship between time risk and mobile shopping behaviour.
iv. To investigate the relationship between financial risk and mobile shopping behaviour.
v. To investigate the relationship between security risk and mobile shopping behaviour.
vi. To investigate the relationship between social risk and mobile shopping behaviour.
vii. To investigate the perceived risk dimension with highest significance in affecting mobile shopping behaviour.

1.5 Research Questions (RQ)

This research will seek to answer the following questions:

RQ1 Is there a negative relationship between product performance risk and mobile shopping behaviour?

RQ2 Is there a negative relationship between health risk and mobile shopping behaviour?

RQ3 Is there a negative relationship between time risk and mobile shopping behaviour?

RQ4 Is there a negative relationship between financial risk and mobile shopping behaviour?

RQ5 Is there a negative relationship between security risk and mobile shopping behaviour?

RQ6 Is there a negative relationship between social risk and mobile shopping behaviour?

RQ7 Which of the perceived risk dimensions has the highest significance in affecting mobile shopping behaviour?

1.6 Research Hypothesis

Based on literature research, this research hypothesises that:

H0: There is no negative relationship between product performance risk and mobile shopping behaviour.

H1: There is a negative relationship between product performance risk and mobile shopping behaviour.

H0: There is no negative relationship between health risk and mobile shopping behaviour.

H2: There is a negative relationship between health risk and mobile shopping behaviour.

H0: There is no negative relationship between time risk and mobile shopping behaviour.

H3: There is a negative relationship between time risk and mobile shopping behaviour.

H0: There is no negative relationship between financial risk and mobile shopping behaviour.

H4: There is a negative relationship between financial risk and mobile shopping behaviour.

H0: There is no negative relationship between security risk and mobile shopping behaviour.

H5: There is a negative relationship between security risk and mobile shopping behaviour.

H0: There is no negative relationship between social risk and mobile shopping behaviour.

H6: There is a negative relationship between social risk and mobile shopping behaviour.

1.7 Conceptual Framework

Figure 1.1 shows the conceptual framework of this study on how the different dimensions of perceived risk affect mobile shopping behaviour. Relationships between six independent variables (IV) (exogenous variables) and dependent variables (DV) (endogenous variable) are tested. For this study, we are looking at the risk perception of university students who use mobile devices to conduct shopping.

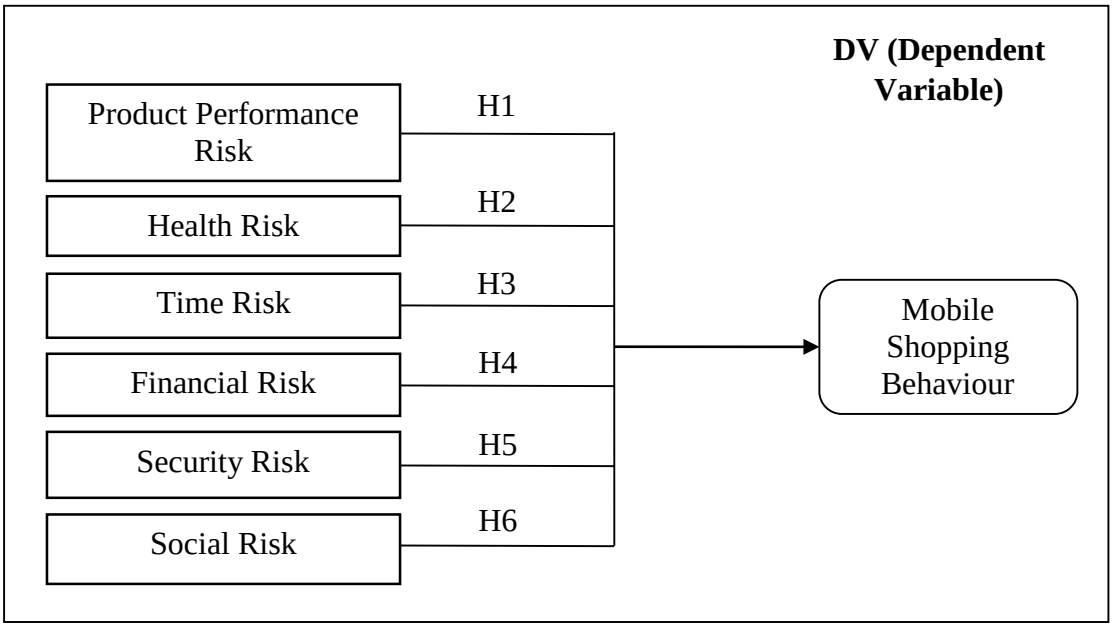

Figure 1.1. Conceptual Framework of Research

1.8 Operational Definition

The definitions of the constructs of this study are explained in this section. Perceived risk is the degree that a consumer perceives uncertainties and consequences that may follow after purchasing and consuming a product due to a lack of information during the process of decision-making (Mitchell, 1992). Both academics and practitioners continue to pay attention to perceived risk, which has been used in many different contexts such as food, dental services, banking services and apparel shopping (Mitchell, 1999). This study focuses on the mobile shopping behaviour among UTAR students and the followings are the dimensions of perceived risks included in this study.

1.8.1 Product Performance Risk

Product performance risk is UTAR students' fear of the product malfunctioning and not performing as it was designed and advertised and therefore failing to deliver the desired benefits (Zhang, Tan, Xu, & Tan, 2012).

1.8.2 Health Risk

Health risk includes the potential loss of health by UTAR students because of prolonged use of mobile shopping which will cause fatigue or visually impaired or buy counterfeit products that are harmful to UTAR students' health (Zhang et al., 2012).

1.8.3 Time Risk

Time risk, in this instance, comprises UTAR students' fear of time loss when making a bad purchase decision using mobile shopping (Liew, Teo, & Yap, 2014).

1.8.4 Financial Risk

Financial risk is defined as the potential loss of money by UTAR students due to fraud or when the products need to be returned (Liew et al., 2014).

1.8.5 Security Risk

In this research, security risk refers to UTAR students' fear of the possibility of losing control over personal information (Hubert, Blut, Brock, Backhaus, & Eberhard, 2017) and financial transactions via mobile shopping.

8.6 Social Risk

Social risk refers to UTAR students' anxiety about the possibility of losing status in a social group as a result of adopting mobile shopping (Marriott & Williams, 2018).

1.8.7 Mobile Shopping Behaviour

Mobile shopping, in its most comprehensive perception, refers to all the activities of consumers who use wireless internet connectivity when shopping and purchasing via a smartphone which includes the searching, evaluating, comparing and buying (Ko, Jung, Kim, & Shim, 2010; Marriot & Williams, 2018). Mobile shopping refers to any monetary purchases of goods and services using smartphones with an internet connection (Groß, 2016; Hou & Elliott, 2021). Mobile shopping includes buying through mobile applications and websites accessed by browsers (Musa et al., 2016; Tseng, Lee, Huang, & Yang, 2021).

For this study, the mobile shopping definition is adopted from Ariff, Sylvester, Zakuan, Ismail, and Ali (2014) and Marriot and Williams (2018), which refers to the purchase of products and services using smartphones by UTAR students. Here, the user accesses web pages or apps downloaded to the smartphone to make payments where a credit or debit card is generally required. The current environment also allows direct bank transfers to be done using mobile shopping. Consumers browse for products and services from the convenience of their smartphones and add them to their cart and complete the transaction by providing their information through the application or webpages.

1.8.8 University Tunku Abdul Rahman (UTAR) undergraduates

In this study, UTAR undergraduates are students who are studying at University Tunku Abdul Rahman during the data collection period. Undergraduates include those in any discipline under the foundation or degree courses.

1.9 Significance of the Study

Failure to understand the consumer behaviour of mobile shoppers, in general, will cause companies to lose business opportunities that are global and not geographically limited in this world of the internet. The results from this study can be very useful for the management of mobile service providers and also mobile shopping platform providers in their effort to encourage their customers to purchase with their mobile devices rather than other means, such as physical shops.

Since the use of mobile commerce in developing countries is at its growing stage (Broadband Commission for Sustainable Development, 2020; Majid & Firend, 2017), the government, the mobile service providers and those in the industry need to create a conducive environment. Educational and marketing campaigns have to be created to promote the use of mobile shopping in our country. Consumers seem to face a significant challenge in completing transactions online, as shown in the low online shopping rate among Malaysians. It is of utmost importance to understand the reason behind the consumer behaviour that surrounds m-commerce, in particular to address

the issues at stake. A deeper level of understanding of mobile shopping behaviour among Malaysians will inevitably bring benefits to all parties, including consumers themselves, business owners and the government (Ariffin et al., 2018; Madhavan & Chandrasekar, 2015)

The academics' interest in mobile shopping has grown over the years, and literature on its adoption has increased tremendously (Marriott, Williams, & Dwivedi, 2017). M-shopping literature has made important contributions to this under-researched field by focusing on the positive influence of intention, such as perceived ease of use, perceived utility, and social impact (Ghazali et al., 2018; Hubert et al., 2017; Lim et al., 2020; Saprikis, Markos, Zarmpou, & Vlachopoulou, 2018).

Perceived risk, which stands for a consumer's belief about the possible uncertainty correlates with negative outcomes in a purchase situation, is one of the main obstacles that make consumers hesitant when faced with purchase decisions (Amirtha et al., 2020; Brosdahl & Almousa, 2013; Cozzarin & Dimitrov, 2015; Park & Tussyadiah, 2017; Zhang et al., 2012). Mobile shopping, in particular, poses a risk because consumers are not able to perform a pre-purchase evaluation of the actual product. As mobile shopping is mainly self-service in nature, the major burden and responsibility now fall on the consumers' ability to make evaluations (Ariff, Sylvester, Zakuan, Ismail, & Ali, 2014; Zamil, Abu-AlSondos, & Salameh, 2020). Consumers who are making purchases on mobile devices are expected to perform their search for information from multiple sites and applications to compare prices and make bookings (Chen, 2015; Hou & Elliott, 2021). The loss due to imprudent decisions is blamed on

the consumers, who may have constraints when it comes to adjustment of transaction errors.

Prior researchers have developed the different dimensions of perceived risk based on the early theory of perceived risk into the context of mobile shopping behaviour based on the applicability and appropriateness (Amirtha et al., 2020: Ariffin et al., 2018; Marriot & Williams., 2018; Park & Tussyadiah, 2017). Therefore, this research proposes the multiple dimensions of risk perceived when mobile devices are used to purchase products and services. These factors relevant to perceived risks are useful to marketers as they can be lessened to encourage mobile shopping among Malaysians.

1.10 Summary

This chapter provides the research background, problem statement, research objectives with questions of the study, research framework, hypotheses and operational definition. Then it was followed by the limitation and the significance of the study. This study aims to provide useful results that may be a reference to other researchers.