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MALAYSIAN'S PURCHASE INTENTION TOWARDS PAID MOBILE APPS

LEW SHEN HO

MASTER OF BUSINESS ADMINISTRATION

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF ACCOUNTANCY AND MANAGEMENT

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MALAYSIAN'S PURCHASE INTENTION TOWARDS PAID MOBILE APPS

LEW SHEN HO

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MALAYSIAN'S PURCHASE INTENTION TOWARDS PAID MOBILE APPS

By

Lew Shen Ho

This research project is supervised by:

Farah Waheeda binti Jalaludin

Lecturer

Department of Information Technology

Faculty of Accountancy and Management



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## DECLARATION

I hereby declare that:

1. This Research Project is the end result of my own work and the due acknowledgement has been given in the references to all sources of information be they printed, electronic, or personal.
2. No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.
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Name of Student: Lew Shen Ho

Student ID: 15UKM07200

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Secondly, I would like to thank those respondents for their time and effort in completing the survey. This research project certainly cannot be done without the participation of the respondents.

Finally, I also want to show my gratitude towards my family members, friends and colleagues for their insights, suggestions and encouragement.

## **DEDICATION**

This humble work is especially dedicated to:

Farah Waheeda binti Jalaludin, my project supervisor,

All the respondents,

And

To my family and all my loved ones,

Thank you for being my guidance and support.

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## **ABSTRACT**

There are numerous types of mobile apps available today, either in the form of free of charge, or we need to pay for it. The mobile apps that we need to pay for it, in other words, paid mobile apps, always come with full features of the app itself. The purpose of this study was to examine the Malaysian's purchase intention towards paid mobile apps. It also targets to check the relationship among paid mobile apps purchasing intention and its antecedents such as price influential, quality influential and advertisement influential. Past studies verified that there are 3 main variables that contributed to the purchase intention towards paid apps of the users. Despite these variables, this study added 2 more variables which were believed that this two will influence the purchase intention towards apps as well, such as after sale services and advertisement. In addition, the data were composed from 100 respondents over the distribution of questionnaires survey.

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.0 Introduction**

The purpose of this study is to examine why the Malaysian has the intention to purchase paid mobile apps where there are many alternative free apps available on the Google Playstore and iOS Appstore. There must be some factors such as quality of the paid mobile app or its valued for money features that leads the consumers to have the intention to buy it. In addition, research background, problem statement, research objectives and research questions, hypotheses of study and significance of study of Chapter 1 are included in this chapter.

#### **1.1 Research Background**

##### **1.1.1 Evolution of Mobile Apps**

At many years ago, mobile apps were only referred to those simple Java games, useful tools such as calculator and calendar that were installed on the mobile phone. Today, there are different kinds of mobile app that can be found on the smartphones, apps such as entertainment, communication, phone management apps, business, social networking, photos editing, etc.

### **1.1.2 Free Apps Versus Paid Apps**

Mobile apps today appeared as two common versions, free apps and paid apps. Mobile apps developer often produced both free of charge version and paid version of their mobile apps. Paid version of mobile apps always came with lots more features than the free version one. The free version of the mobile apps playing the role of testing purposes in which allowed the end users to test their apps functionality first before paying for a full version (paid mobile apps). The free apps also came with lots of third party of advertisement which provided some revenues to the mobile apps developers.

### **1.1.3 Why Mobile Apps So Popular Today?**

Today, smartphones became our one of the best companion in daily life. We can see most of the peoples using their smartphones while walking on street or traveling with transportation. Either they are holding iPhone or Android smartphones, these smartphones provided a stable operating system for the mobile apps. So, the users of the smartphones can easily access the mobile apps, thus simply made their life better as a result.

There are millions of mobile apps can be found on either Appstore or Google Playstore at present. Whether you are looking for some useful apps or tools to help you in daily entertainment needs, business transaction, social networking, communication purpose, or health monitoring needs, you can easily find them on Appstore or Google Playstore and download them with just simply one click. Most of these apps provide certain level of convenience to us. Therefore, most of us rely on these mobile apps to achieve better life.

#### **1.1.4 Relationship Among App Developers, Quality Of Apps, Revenue Of Developers**

There are billions of mobile apps developers exist in the world today. The mobile apps developers create the mobile apps, so they are responsible for the quality of content of their mobile apps. Also, the quality of the mobile apps related to the revenue of the mobile apps developers. The higher quality of the mobile apps, the higher amount of user is using it or willing to pay for it. In other words, the low quality of a mobile app leads to fewer people using it, thus making the mobile apps fall into category of “Fail Apps”.

#### **1.2 Problem Statement**

Hsu & Lin (2014) verified that apps rating, free alternatives to free apps and user habits will be contributed to the purchase intention towards paid mobile apps in the market. This study will add 2 more independent variables that are after sale services and advertisement which were believed these will also contributed to the purchase intention towards paid apps.

There are high rating apps and low rating apps in the Appstore and Google Playstore. The rating was evaluated by the exist users based on their experiences and satisfaction of using that certain mobile app. Higher rating of certain app would normally draw the attention of other potential buyer to decide whether to buy that app or not, meanwhile, lower rating of certain app could cause the buyers losing confidence of buying that app.

Despite the paid mobile apps, there are also tons of free mobile apps available for download in Appstore and Google Playstore. Some of these free mobile apps provide similar features

as those paid apps, thus providing the users the option to not spend money on those paid mobile apps. However, there are also some down effects on these free apps, such as there are lots of third party advertisement appeared in the app, thus creating frustration to some users.

User habits referring to how a user explore, execute or learn something through a mobile app. Different users certainly have different ways of using the mobile apps to achieve certain level of satisfaction thus increasing their quality of life. Therefore, the users will take this into consideration before they made decision to buy certain mobile app.

Another issue is after sale services, which means how much the effort of the mobile apps developer willing to put into the solution to the problem that faced by the buyers. Some of the mobile apps developers would just ignore the comments or problem faced by the buyers in the rating or comment page of the app, thus increasing the frustration of the buyers.

Finally, the mobile app developers advertise their apps at social media, website, in-apps and even on TV. The consumers have to aware that sometimes the content or features shown in the advertisement are not matching with the actual apps itself.

### **1.3 Research Objectives**

Based on the Research Background and Problem Statement above, the Research Objectives will be as following:

- 1) To investigate the relationship between the after sale services and the purchase intention towards paid mobile apps in the context of Malaysian.
- 2) To investigate the relationship between the advertisement and the purchase intention towards paid mobile apps in the context of Malaysian.

This research examines the factors that contribute to the purchase intention towards paid mobile apps in the context of Malaysian. Despite the 3 independent variables which are apps rating, free alternatives to paid apps and user habits, this study will focus on the other 2 new proposed variables that are after sale services influential and advertisement influential on the dependent variable, purchase intention towards paid mobile apps in the context of Malaysian.

#### **1.4 Research Questions**

The Research Questions of this study are as following:

1. What is the relationship between after sale services influential and purchase intention towards paid mobile apps in the context of Malaysian?
2. What is the relationship between advertisement influential and purchase intention towards paid mobile apps in the context of Malaysian?

#### **1.5 SignificanceOf Study**

This study will be beneficial to mobile apps development business by investigating market potential of mobile apps development towards the consumers in Malaysia. The contributions of this study are as following:

1. To help the mobile apps developers to gain knowledge of the potential of the mobile apps market.
2. To help the mobile apps developers to gain knowledge of the trend of the mobile apps purchasing behavior.



3. To help the mobile apps developers to gain knowledge of the purchasing behavior of the consumers in Malaysia.

This study will identify the factors contributed to the purchase intention towards paid mobile apps in the context of Malaysian. Also, it will investigate how the consumers make decision to purchase the mobile apps.

## **1.6 Chapter Layout**

This research was divided into 5 chapters, including Chapter 1: Introduction, Chapter 2: Literature Review, Chapter 3: Methodology, Chapter 4: Data Analysis, Chapter 5: Discussions And Conclusion.

Chapter 1 will discuss brief introduction of the research topic, which consists of background of mobile apps evolution and factors contributed to the intention of purchasing towards the paid mobile apps. This chapter also discussed the problem statement, research objectives, research questions and significance of study.

Chapter 2 will discuss the literature review that is related to the research topic. In addition, theoretical framework will be discussed to show the relationship between variables and hypotheses.

Chapter 3 consists of data collection techniques and other approaches to analyze the data that emphasize on the methodology of the study.

Chapter 4 consists of results obtained from the survey.

Chapter 5 concluded the finding of the study. It concludes and discusses the implications, recommendations, limitations, implications for future reference and research.

## **1.7 Conclusion**

This chapter discussed a brief summary of this study on factors contributed to the purchase intention towards paid mobile apps in the context of Malaysian. Researcher will first examine the issue in Research Background and Problem Statement. Then, the researcher will examine the Research Objectives and Research Questions. In addition, the contribution of the study will be mentioned in Chapter 1 as well. Chapter 2 will evaluate information provided in this chapter through literature review.

## **Chapter 2**

### **Literature Review**

## **2.0 Introduction**

Generally, the free mobile apps provided basic use of the app itself which is free of charge to the users. If the users required further premium features of that particular app, they can choose to pay for the full version of the app, in the form such as fixed monthly subscription fees. However, most mobile apps today are free since the apps developers adopt other business model for their revenue, such as advertisements. In addition, in-apps purchase is another one of the most common business model that can be seen in most mobile games app today.

According to Singer and Zalmanson (2013), there is a typical digital business strategy for the mobile apps developers. For an example, the users can pay to eliminate the advertisement appeared inside the mobile apps or get additional features of the apps.

## **2.1 Expectation Confirmation Model (ECM)**

Hsu & Lin (2014) indicated that for past decades, in the post-acceptance behavior, the ECM has draw much attention from IS researchers. The ECM is an adaptation of Expectation-Confirmation Theory or known as ECT. The ECT described that both expectations and perceived performance lead to post-purchase satisfaction, thus influence further repurchase intention. According to Oliver (1980), this kind of effect is mediated through positive or negative disconfirmation between expectations and performance.

According to Hsu & Lin (2014), two main determinants of IS continuance intention are perceived usefulness and confirmation. ECM is a model to explain or predict continued use of an IT system or application. Prediction here is referring to the expectation of the users towards the IT system while explanation is referring to the users' perception of the congruence between expectation of IT use and its actual performance. Both of these variables influence the satisfaction of the users. Satisfaction is defined as how's users' feeling about their prior IS use. Meanwhile, satisfaction and perceived usefulness predict the IS continuance intention. Additionally, confirmation will also influence the perceived usefulness.

Figure 1 below illustrates the Expectation Confirmation Model adopted from Hsu & Lin (2014):

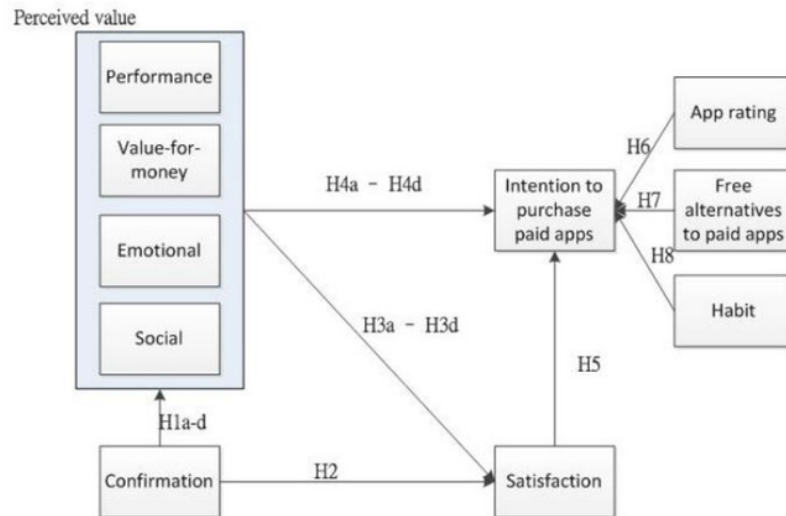
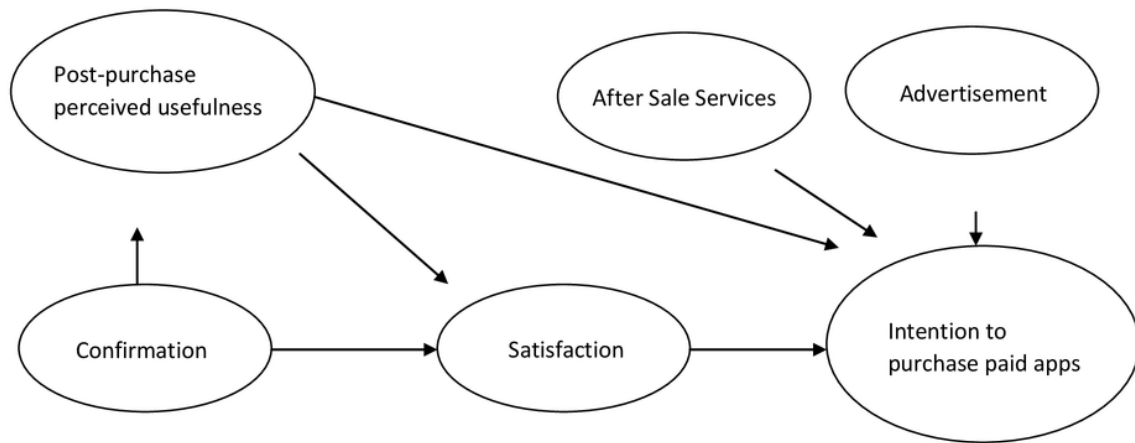


Figure 1. A study of user's intention to purchase paid mobile apps (Hsu & Lin, 2014)

## 2.2 Proposed Framework

This study will investigate the other two new independent variables which are after sale services and advertisement, which were believed that these two variables will also contribute to the purchase intention towards the paid mobile apps. Therefore, below is the proposed framework of this study:



*Figure 2. Proposed Framework*

### 2.3 Hypotheses Of The Study

H1: Confirmation will positively affect the intention to purchase paid mobile apps.

H2: Post-purchase perceived usefulness will positively affect the intention to purchase paid mobile apps.

H3: Satisfaction will positively affect the intention to purchase paid mobile apps.

H4: After sale services will positively affect the intention to purchase paid mobile apps.

H5: Advertisement will positively affect the intention to purchase paid mobile apps.

H6: Confirmation will positively affect post-purchase perceived usefulness.

H7: Confirmation will positively affect satisfaction.

H8: Post-purchase perceived usefulness will positively affect satisfaction.

## **2.4 Perceived Usefulness**

According to Davis (1989), perceived usefulness is the most important construct of the Technology Acceptance Model or known as TAM. Davis (1989) also indicated that perceived usefulness is a term to define how a person believes that using certain product or technology will enhance his or her daily job performance.

In this study, perceived usefulness describe the degree to which the users believe that using the paid mobile apps enhances their daily job performance. In addition, the paid mobile apps can be referred as mobile game as well. Then, the users will see how much happiness that the mobile game can bring to them, this is the definition of perceived usefulness under the entertainment sector.

## **2.5 Confirmation**

According to Bhattacharjee (2001b), in the Expectation Confirmation Model (ECM), the users' confirmation is the main component that determines the level of satisfaction, then the satisfaction will influences their continuance intention. The users' confirmation implies that they have successfully achieved certain level of expected benefits through the purchase decision, which positively affects their satisfaction (Bhattacharjee, 2001a).

Lee and Kwon (2011) indicated that the Expectation Confirmation Model (ECM) is a verified model in e-commerce field. Therefore, the constructs in the original ECM should also hold in this research study.

Therefore, it is reasonable to believe that the users' confirmation will contribute to the satisfaction with the purchase of a paid mobile app.

## **2.6 Satisfaction**

According to Bhattacharjee and Premkumar (2004), the satisfaction defined the summary psychological state after the purchase action has been done and that particular product has been consumed by the consumers as well.

This research study focuses on how's the feeling of the consumers after they bought their mobile apps and defines the satisfaction as an evaluation of using that particular mobile app. Lee and Kwon (2011) indicated that the level of satisfaction of the consumers is the main determinant in their decision to purchase the product again in the future.

## **2.7 Mobile Commerce (m-commerce)**

The purchase behavior of the users on the paid mobile apps belongs to the world of m-commerce, as the transaction conducted on mobile phones. According to Choiet al. (2008), what differentiate the m-commerce and e-commerce are the m-commerce can provide location based, customer based, personalization based and context based services. In other words, the m-commerce provides more features than the traditional e-commerce thus it is superior to the latter. Furthermore, there are several attributes of the m-commerce, including usability, identifiability, personalization and perceived enjoyment.

The usability is defined as the positive user experience that the technology given to the users in order to satisfy both sensory and functional needs (Venkatesh et al., 2003). For businesses, it is crucial to understand the different aspects of the usability of the m-commerce application as it can facilitate the development of new kind of business models (Tsalgatidou and Pitoura, 2001).

In addition, it also can help to develop innovative new strategies in order for the business owner to success in the m-commerce industry. There are three main features for the usability of the m-commerce application such as ubiquity, convenience and location-awareness (Clarke, 2001; Koet al., 2009; Tsalgatidou and Pitoura, 2001; Venkateshet al., 2003).

According to Clarke (2001), ubiquity is defined as the ability of m-commerce applications that allowed the users to receive certain information or perform transactions, at anywhere they like, on a real-time basis. Furthermore, Kim et al. (2008b) and Schierz et al. (2010) indicated that this kind of feature is the most advantage of the m-commerce applications compared to the e-commerce applications. Therefore, the users can receive the time-sensitive information at anytime, at anywhere, through their smartphones (Siau et al., 2001; Tsalgatidou and Pitoura, 2001).

Another feature is location-awareness. According to Mahatanankoon et al. (2005), the location-awareness is defined as the capability of the m-commerce application to recognize the location of the users through Global Positioning System (GPS) of the smartphones. Venkatesh et al. (2003) argued that the location issue is one of the important issue in the goal achievement of the m-commerce application. Therefore, the location-awareness is defined as a new dimension for value creation in the m-commerce application. It allows the smooth delivery of location-sensitive information to the users in real time, such as traffic conditions, tour guidances and weather information (Clarke, 2001; Yuan and Zhang, 2003).

According to Mahatanankoon et al. (2005), the convenience feature of the m-commerce application refers to how smartphones further eliminate the barriers caused by time and location in performing social and business activities. In addition, Clarke (2001) indicated



that the m-commerce provide improved quality of life to the consumers by having the consumers accessing it in a way which may eliminate some drudgery with certain activities.

Another attribute of the m-commerce is its personalization. Mulvenna et al. (2000) indicated that the personalization is defined as the capability of a vendor providing their customers with tailored products or services based on their interests and preferences. Nunes and Kambil (2001) also described the personalization in other words, both of them indicated that personalization is to provide the customers with tailored products or services without getting any explicit instructions from them. Therefore, in this research study, the personalization here refers to the use of mobile technologies with their own preference settings, to buy certain type of paid mobile application from the Appstore or Google Playstore, in order to meet the specific needs or requirements of the users (Ko et al., 2009).

Consequently, personalization is an important element of the m-commerce to meet the customers' expectations. The personalization also means to increase the customer trust in the m-commerce, thus contributed to both customer satisfaction and profits of the vendors (Li and Yeh, 2010; Venkatesh et al., 2003). Past studies have stressed the importance of personalization in the m-commerce application as it increases the purchase intention of the customers towards certain kind of technology or application through smartphones. However, barriers to this might happened sometimes as there are numerous kind of smartphones' screen size, resolution and more (Clarke, 2001; Lee and Park, 2006; Tsalgatidou and Pitoura, 2001).

Finally, Mahatanankoon et al. (2005) and Prykop and Heitmann (2006) indicated that the mobile phones especially smartphones today was registered by one unique subscriber name thus it is easily for the m-commerce vendors to identify a particular user through the smartphones. As a result, it is easily for the m-commerce vendors to provide personalized

services for the users, then they can perform some kinds of individual-based marketing. Yuan and Zhang (2003) also indicated that the users can benefit from a bunch of valuable services which are not seen in the e-commerce application. Such benefits including mobile payment services such as paying for transportation fees and fares, and time-critical information services as well such as notification of flight schedule changes, quick retrieval of personal medical information and more. Roussos et al. (2003) argued that the identifiability allows the employees to retrieve the information they need according to their role and credentials at different locations through different mobile phones.

According to Ko et al. (2009) and Venkatesh (2000), the perceived enjoyment is defined as the level of enjoyment the users get from using certain technology, product, service or application, regardless of the performance consequences of the usage of it. Additionally, Mahatanankoon (2007) argues that the users motivated by their own enjoyment instead of by the perceived usefulness of the mobile applications. As a result, the perceived enjoyment has been considered as an important antecedent to the mobile technology acceptance (Cheong and Park, 2005; Kim et al., 2007; Ko et al., 2009; Lu and Su, 2009).

## **2.8 Mobile Apps Development**

### **2.8.1 Real Challenges In Mobile Apps Development**

Everyone loves the world of mobile apps development. A great mobile app can be either a business tools or a mobile game. The end users are running these apps on their smartphones with smarter and better applications.

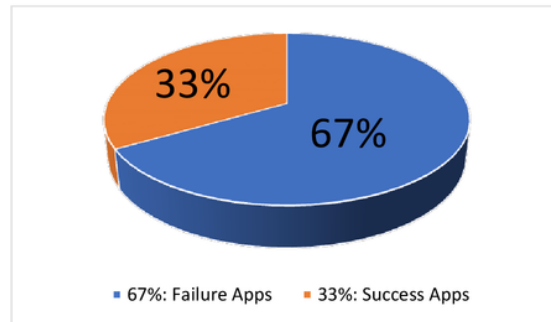
Mobile applications are those software applications developed for mobile devices such as smartphones. There is certain mobile application developed exclusively for iOS while others

are developed for both iOS and Android system. Mobile applications can be entertainment tools, communication tools, education tools and so on. Once a mobile application has been developed, it can be uploaded online for selling purpose or as a freeware. The mobile application is commonly sold via an application distribution platform which is Playstore (for Android) or Appstore (for iOS).

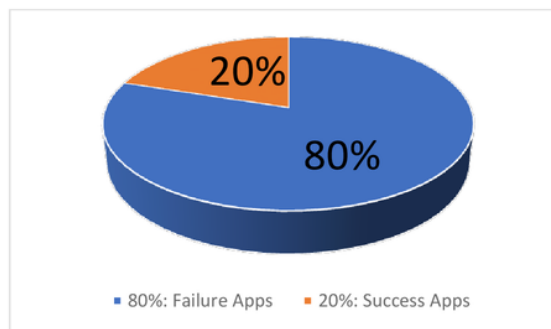
Mobile application development is market driven which is similar to traditional market-driven software for which the requirements for the particular mobile application are derived commonly from strategic business objectives or market opportunities. There will be limited contact between the developer and the user during the development stage. Therefore, it is impossible to know whether the particular application is success or not or able to bring revenue to the developers until the particular application reaches the stage of selling. Under this circumstance, the success of a mobile application can only be determined by its number of downloads. In addition, the concept of app store has democratized the software industry where everyone can build their favorite application and sell them to the users around the world through a channel called app store (Soo Ling Lim, Peter J. Bentley, Natalie Kanakam, Fuyuki Ishikawa, and Shinichi Honiden, 2015).

Today, the app market is loaded with tons of apps thus making the app developers facing a crowded and highly competitive app market. An app can fail due to its features not matched with its functionality and usability, factors such as name of the particular app, icon and level of exposure for the particular app can lead to this result. Moreover, there are many developers are unaware of a fact that different users from different countries have different behavior and needs. This fact can directly influence the number of downloads for a mobile app thus determining success or fail for the particular mobile app. In addition, lack of important information such as description of an app, less attractiveness of screenshots or preview videos, high pricing of an app and bad user feedbacks or comments can bring many

apps to fail. According to some studies, there are 400,000 out of 600,000 apps in the iOS App Store have zero downloads and 80 percent of paid Android apps getting less than 100 downloads (Soo Ling Lim, Peter J. Bentley, Natalie Kanakam, Fuyuki Ishikawa, and Shinichi Honiden, 2015). No doubt, these are terrible and shocking figures to those developers of mobile application.



*Figure 3. Percentage of Success / Failure Apps in Appstore*



*Figure 4. Percentage of Success / Failure Apps in GooglePlaystore*

Another common situation is the developers may have their apps success in one country but not in another country. This is due to limitation of contact between the developers and the users, thus it is difficult for the developers to identify their target audiences. Although the

developers can receive feedback or feature request via apps' review or rating, the percentage of getting this kind of feedback is very low, according to some developers. Furthermore, most of the feedbacks they get is those not constructive and not useful feedbacks. In contrast, only those successful apps with more than million downloads can get useful and constructive feedbacks from the users.

### **2.8.2 Solutions To Failure Apps**

Again, the figures of failure apps above are shocking and surprising to most of the developers of mobile applications. Therefore, there must be some solutions to it in order to find out the factors that could lead to the result mentioned above. One of the most effective way to do so is to conduct a survey or questionnaire to the users worldwide. This survey or questionnaire should cover the area of why the users abandoned certain mobile apps, the user's adoption to concept of both iOS App Store and Android Playstore, what are the expectations of the users towards certain apps and the users' behavior from different countries. In common sense, the users' apps behavior is different due to different cultures in different countries.

Moreover, quantitative methods analysis can be used to identify the factors that lead to the abandoning of certain apps by the users. Quantitative methods analysis such as regression analysis, Pearson correlation coefficient and Pearson's chisquare test, and so on can be an effective tool to analyze the reason why certain mobile apps getting zero downloads.

### **2.8.3 Motivation Of Mobile Apps Development**

The motivation of developing mobile apps is getting stronger in recent years. In other words, today, the development of mobile apps has become a mainstream form of software engineering. This trend is similar to the growth of website development as every company needs its own website for its business growth purpose. Nowadays, there are various companies providing service of apps development such as Oracle, IBM and Accenture (Soo Ling Lim, Peter J. Bentley, Natalie Kanakam, Fuyuki Ishikawa, and Shinichi Honiden, 2015). Due to so many competitors in the mobile apps development industry, packaging of app could become one of the most important factor that makes the particular app stand out from the crowd. Therefore, the developers should pay more attention to the app's icon, name and its description.

## **2.9 Proposed Variables**

### **2.9.1 After Sale Services**

According to Saccani et al. (2007) and Wise and Baumgartner (1999), the revenue gained from the after sales service is three times larger than the value gained from the initial purchase of a product or service. Furthermore, Bundschuh and Dezvane (2003) and Saccani et al. (2007) argued that the market for the after sales services is five times bigger than the new market. In this study, the after sale services referred to how the mobile apps developers react to the response of the consumers on the apps' comment page.

Eagle et al. (2003) indicated that this realization enables the sellers putting much efforts to build the after sale services networks. In addition, good after sale services lead to the

customers willing to pay a premium price for a product or service, thus achieved substantial growth in their sales. Therefore, after sale services is not only contributed to the purchase intention of the consumers towards product or service, it is also one of the source of revenue to the sellers. Moreover, the after sale services offers the opportunity for the sellers to use it in order to strengthen their brand equity (Cavalieri et al., 2007).

There are five main components in the after sale services in meeting the consumers' expectations for the after sale services, including parts availability, warranties and coverage, pricing policies, extent of technical support and technical service assistance (Asugman et al., 1997; Ehinlanwo and Zairi, 1996a, b; Simon, 1993).

In the context of mobile apps business, the technical support and assistance are more important at here. The customers will likely leave some comments on the apps' comment page to let the apps developers know that they have encountered certain problem in the usage of the apps they purchased. Besides leaving the comment, the customers will also give less "rating stars" if they have bad experiences with the mobile apps they purchased. Then, the level of after sale services will be judged at this moment to see whether the sellers or the mobile apps developers able to response to those comments, questions or problems in the shortest time or not. If they fail to do so, those customers will be frustrated as a result, thus affect the reputation of the apps company or the developers themselves. Therefore, the after sale services also considered as one of the source of additional cash flow to the sellers (Godlevskaja et al., 2011).

Consumer based brand equity, also known as CBBE is one of the unique added value in a product or service. It is attributed to the consumers' preferred knowledge and it is associated

with a brand (Farquhar, 1989; Farquhar et al., 1991; Keller, 1993). Aaker (1991, 1996a, b, c) argued that there are five dimensions of the CBBE which are brand awareness, brand association, perceived quality, brand loyalty and other proprietary brand assets. Brand assets here referred to patents, trademarks and channel relationships. Past studies verified that the seller of a product or service can generate more sales by maintaining a good level of after sale services in order to increase the brand loyalty or trust to the product or service offered by the seller.

According to Keller (1993), brand awareness is defined as the capability of the consumers to recall or recognize a brand and the brand image is the set of brand related associations. The brand related associations built up by the consumer brand related attributes, consumers' attitudes and benefits. For the attributes, there are product and non-product related attributes. Meanwhile, for the benefits, it can be classified into functional, symbolic and experiential benefits (Christodoulides et al., 2006).

### **2.9.2 Advertisement**

Today, the mobile advertising market is rising faster than ever. The reason behind this is due to the advanced technology of the current smartphones. It is a new advertising channel that using mainly smartphones and is believed that it will lead the whole advertising market for long term. Currently, there is a new consumption pattern where the users prefer to shop with their smartphones, and the rapid expansion of the mobile advertising market, most of the recent research emphasized on area of mobile advertisements that utilize the features of the smartphones (Lee et al., 2013; Saadeghvaziri and Hosseini, 2011; Xu et al., 2009).



Along these years, the purposes of advertising are to increase the sales and branding awareness. According to Laudon and Traver (2013), past studies focused only on the influence on sales of certain product or service in the mobile advertisements. Gardner (1985) indicated that although the branding is very important in forming the purchase intention towards somethings of the consumers who saw the advertisements, there have been less interest in the brand attitudes focuses on the brand of products or services.

Due to the fact that the mobile advertising is leading current advertising market and it also has more purposes than those traditional types of advertisement, it is must to develop a new research model to investigate the effect of different purposes of the advertisement value and the context awareness value delivered by the mobile advertisements. Since the goals of the advertising are to increase the sales and establish the brand awareness among the consumers (Laudon and Traver, 2013), it is necessary to understand both the advertising and process of customers' purchase pattern, in order to understand the effect of the smartphone advertising (Kim and Han, 2014).

Therefore, this study focuses on the mobile advertising which is to advertise a product or service through the mobile internet or in-apps. In addition, this study also identify their effect on the users' advertising and brand attitude, and determine the characteristics of the advertisement that able to contribute to the purchase intention towards paid mobile apps.

## **Chapter 3**

### **Research Methodology**

#### **3.0 Introduction**

In this chapter, the whole research study will be explained with the research design. This chapter will mainly focus on the research design, data collection methodology, sampling design, pilot test and research instrument. Besides that, it will also focus on the measurement scales and data analysis methods, which have been used to explain the hypothesis and problem statement .

#### **3.1 Research Design**

The research design is a basic plan or structure that provide guidance to the researchers to accomplish their research goal or test the hypothesis in their research studies.

##### **3.1.1 Quantitative Research**

Quantitative research applies mathematically based methods and provides a measurement of what the users think or the users' perception towards certain thing, in a statistical and numerical way. The quantitative research is able to obtain huge amount of data which were easily to be organized and then transfer to the report for further analysis purpose. Zikmund (2003) indicated that the quantitative research is suitable for the study that consists of huge amount of respondents.

### **3.1.2 Descriptive Research**

Descriptive research has been adopted in this research study because the researchers can use it to do a survey for a representative sample, in order for better understanding of Malaysian's purchase intention towards paid mobile apps. According to Kumar et al (2013), the descriptive research is used to describe market potential, adoption of a business concept or the demographics detail and attitudes of the users. The reason to use this descriptive research is it helps to describe the characteristic of the users in terms of the attitudes or perception towards new apps, and the apps' market potential as well. These data are extremely useful for this study as they help to identify the factors that influence the purchase intention towards the paid mobile apps.

### **3.2 Data Collection Method**

There are two kinds of data collected in this study, which were primary data and secondary data. The primary data is mainly gathered through the survey while the secondary data is mainly gathered through online journals.

#### **3.2.1 Primary Data**

According to Hair, Bush and Ortinau (2006), the primary data is similar to the raw data which have no any kind of meaningful interpretation. The primary data can be collected through few ways such as interviews, observation and surveys. For this study, a survey will be used to collect such primary data that are related to purchase intention towards paid mobile apps. The researcher will mainly use the online survey platform such as Google Forms, to distribute the survey to the users. The main reason to use the online survey platform is there

are increasing usages of internet among the users in various industries. Furthermore, it provides convenience to both survey creator and respondents in distribution and submission of the survey. In addition, the online survey is quick in collecting info compared to other channels such as interviews, observation and others. There are total 100 questionnaires distributed to the users through online method. This is the most quickest and cost efficient way to distribute the questionnaires.

### **3.2.2 Secondary Data**

According to Zikmund, Babin, Carr and Griffin (2010), the secondary data is kind of data that are already been assembled in historical way. The main advantage of these kinds of data is they are easily to find everywhere, either in internet or library of university. For this study, the secondary data are collected through UTAR Library online system. There are tons of journal resources in UTAR library OPAC. There are also various databases in the UTAR library OPAC such as Science Direct, Emerald-Sight that help the researcher better understanding in this research topic.

### **3.3 Sampling Design**

Malhotra and Peterson (2006) emphasized that the sample size is the total amount of participated respondents to be analyzed in this study. According to Zikmund (2003), the sampling process is to use subgroup of population that represents the whole large population. The sampling process allows the researcher to make certain kind of assumptions on characteristics of those unknown populations. Kline (2005) indicated that whenever the sample size less than 100 is considered too small for a study, the sample size in between 100

to 200 is considered medium size while the sample size exceed 200 is considered too large in size.

### **3.3.1 Target Population**

The target population is a group of peoples that have desire towards a study and make certain kind of implication. The aim of this study is to study the purchase intention towards paid mobile apps in the context of Malaysian. This group of respondents are selected because the researcher wanted to focus on only the consumers in Malaysia. The researcher also wanted to study the potential market of paid mobile apps in Malaysia. Furthermore, the term “Malaysian” helps the researcher to narrow down the scope of this study. The questionnaires were distributed to the users through online method at 6 August 2017. Once the target of total 100 respondents have been met, the process of collecting info will be stopped and the data analysis begins.

### **3.3.2 Sampling Frame and Sampling Location**

Based on Zikmund (2003), the sampling frame always listed with elements to indicate where the sample can be drawn. However, this study used non-probability sampling that is snowball sampling. There is a must for the researcher to ensure the accuracy and up-to-date of the collected data. The questionnaires were distributed to all users who were born in Malaysia and experienced in purchasing of paid mobile apps before.

### **3.3.3 Sampling Elements**

The targeted respondents are born in Malaysia and experienced in purchasing of paid mobile apps before, whether it was Android or iPhone apps. Hence, those who moved to other countries but born in Malaysia originally are entitled for the participation of the questionnaires.

### **3.3.4 Sampling Technique**

Based on Saunderson, Lewis and Thornhill (2009), they indicated that the sampling technique is the method that the researcher used to select a sample from population. There are two different kinds of sampling techniques available that are probability sampling and non-probability sampling. This study used the non-probability sampling because there's not everyone has equal chance due to selected individual is unknown. In addition, the snowball sampling is similar to idea of rolling a snowball so it is also called reputational sampling. With the snowball sampling, the sample will be spread out to additional people who linked to the initial sampled users (Neuman, 2005)

### **3.3.5 Sampling Size**

Malhotra and Peterson (2006) indicated that the sampling size is the total amount of respondents to be analyzed in the study. Saunders, Lewis and Thornhill (2009) emphasized that the bigger the sampling size, the lower the errors generated for the study. In this study, there are total 100 respondents participated in the online questionnaire.

### **3.4 Research Instrument**

The questionnaire used in this study is a self-administered questionnaire. According to Hair et al. (2006), the self-administered questionnaire required no any interviewer beside the respondents when they were answering the questionnaire. Questionnaire is a common method to collect public response or feedback for a study. In this study, the questionnaire is distributed to the Malaysian in order to get their feedback regarding the purchase intention towards paid mobile apps in the market today.

#### **3.4.1 Questionnaire Design**

The medium of language used in the questionnaire design is english, this is to ensure most of the mobile apps users today able to understand the questions and answers easily in the questionnaire. The questionnaire is divided into few sections including Post-purchase Perceived Usefulness, Satisfaction, Confirmation, Purchase Intention, After Sale Services, Advertisement.

Post-purchase Purceived Usefulness section is to investigate the effectiveness of a paid mobile app to the users' daily task or operation. These tasks could be their office administration works, meeting needs, document filling, graphic design, communication, banking, business transaction and so on. Hence, this section is required the respondents to rate how is the effectiveness of the app whether it made the whole process of completing a job in quicker or slower way.

Satisfaction section conducts an investigation in few areas. It asks about how was the instruction given in the paid mobile apps, is it clear or not. Friendliness of the user interface of the apps need to be investigated as well in order to see if the apps provided an easy to use

interface. The respondents also will be asked about if all the buttons working fine in the app or link to the right destination in the app. In addition, the security of an app plays an important role too. The respondents need to specify good or bad for the security of an app as some apps will track the users' current position through GPS (Global Positioning System).

Furthermore, the respondents also need to evaluate the price of the purchased mobile app whether it is expensive or reasonable in price. The quality of the content provided by the paid mobile app will also need to be taken into consideration when the respondents were filling the questionnaire. The respondents will also be asked about the system stability of the purchased mobile app to see whether the app hangs or encountered shut down automatically most of the time or not. Finally, the respondents need to make decision whether to recommend the purchased apps to their friends or family members or not.

Confirmation section mainly focuses on investigation on how is the actual use of the purchased mobile app meet the initial expectation of the buyer in terms of ease of use, system stability and quality of the content.

Purchase intention section investigates the users' intention to buy similar kind of mobile apps in future. Besides that, it also investigates the users' intention to buy any mobile app from the same developer again in future.

After sale services section mainly asked about the users' opinions on the developers' response in the app rating page. The respondents need to evaluate the "after sale services" provided by the developers in terms of their response to the users' comments or suggestions, and to see whether these responses do help the users solve the problem encountered by the users in the usage of the apps.

Advertisement section investigates where or how the consumers get the info of the new launching of a mobile app whether it's on TV advertisement, in-apps advertisement or



recommended by friends. In addition, this section also investigates whether the advertisement provided by the developers meet the actual performance of the mobile app.

### 3.5 Constructs Measurement

The measurement is a must have element for any scientific investigation study. The researcher will use the measurement to measure some variables that are related to their studies. The measurement is some kind of replicable and systematic process where the variables need to be quantified and classified with certain dimension.

For this study, most of the questions in the questionnaire are using five point Likert scale. Therefore, the respondents need to evaluate every single situation being asked in the questionnaire and recognize the level of poor or good in each scenario in the questionnaire.

#### 3.5.1 Origin of Constructs

The questionnaire used in this study constructed by the researcher himself. Below is all the questions in the questionnaire:

Factor Affecting Purchase Intention Towards Apps	Questions
Post Purchase Perceived Usefulness	1. Using your latest purchased app would enable you to accomplish task more quickly?  2. Using your latest purchased app

	<p>would improve your job performance?</p> <p>3. Using your latest purchased app would increase your productivity?</p> <p>4. Using your latest purchased app would make you easier to do your job?</p>
Satisfaction	<p>1. Was the instruction given in your latest purchased app clear?</p> <p>2. How friendly did you find the user interface of the app?</p> <p>3. Were all buttons or operations working fine in the app?</p> <p>4. How did you find the security of the app?</p> <p>5. Do you satisfy with the price of the app?</p>

	<p>6. Please rate the quality of the content of your latest purchased app.</p> <p>7. Please rate the ease of use of your latest purchased app.</p> <p>8. Please rate the user interface of your latest purchased app.</p> <p>9. Please rate the system stability of your latest purchased app.</p> <p>10. Overall, which level of satisfaction do you have with the app?</p> <p>11. Would you recommend this app to your family or friends?</p>
Confirmation	<p>1. Does your latest purchased app meet your initial expectation in term of ease of use?</p> <p>2. Does your latest purchased app meet your initial expectation in term of quality of content?</p>

	<p>3. Does your latest purchased app meet your initial expectation in term of its apps' system stability?</p>
Purchase Intention	<p>1. How much intention do you have to purchase this kind of similar app in future?</p> <p>2. How much intention do you have to purchase the app from the same developer again in future?</p>
After Sale Services	<p>1. Have you experienced before the developers reply to your comment on the apps' rating page?</p> <p>2. Does the reply from the developers solve your problem regarding the app?</p> <p>3. How often do you write or rate on the apps' rating page?</p>
Advertisement	<p>1. Where did you normally noticed of new launching of an app?</p> <p>2. How often does the advertisement</p>

	disappointed you when it comes to actual use of an app?
--	--

Table 1: Origin of Constructs

### **3.6 Data Processing**

#### **3.6.1 Descriptive Checking**

Based on Malhotra (2006), one must go through a data checking process to ensure there are complete questions in the questionnaires that are going to distribute to the peoples. This process ensure all the data were entered correctly and precisely, and completely returned by the people who participated in the survey. If there's any error detected and these mislead data will be taken out immediately for accuracy of the data analysis.

#### **3.6.2 Data Editing**

The data editing is a process to check the questions and answers given in the questionnaire for its accuracy and completeness.

#### **3.6.3 Data Coding**

The collected data are not organized properly in sequence. So, there's a need to conduct the data coding after completed the data editing process above. Malhotra (2006) indicated that the data coding helps the researcher to classify each specific item in the questionnaire. This is due to there will be some code or number will be assigned into those items to indicate that there are responses or feedbacks to the questions. Commonly, the researchers always assign some numbers to categorize their items in the questionnaire.

#### **3.6.4 Data Transcription**

Data transcription process is where the previous coded data are being transferred into SPSS software for further data analysis purpose.

#### **3.6.5 Data Cleaning**

Data cleaning process is to check the data that are already been key into the system have no any missing info or error. The errors could be caused by many reasons such as omission of data and incomplete data.

### **3.7 Data Analysis**

After the data were collected by the respondents, the researcher need to conduct data analysis to process the collected data in order to output some findings. There are numerous of data analysis methods including descriptive analysis, reliability test, factor analysis and inferential analysis. All of these methods will be used in this study.

#### **3.7.1 Descriptive Analysis**

Trochim (2008) and Zikmund (2003) indicated that the descriptive analysis is the process of transforming the raw data into another form of data which is easier for understanding of the people. According to Zikmund (2003), the frequency distribution is most suitable for ordinal scale or nominal scale because it will summarize the value to the times of a variable occurs in the collected data.

### **3.7.2 Factor Analysis**

Factor analysis is a process used to indicate variability among correlated and observed variables in terms of a lower amount of unobserved variables or known as factors. In other words, this process helps the researcher to analyze whether different type of variables are correlated to each others.

### **3.7.3 Reliability Test**

The term reliability is referred to how stable and consistent the results that produced by an assessment tool. Hence, the reliability test is kind of measurement that measure the reliability obtained by running the same test in two times over certain period of time to a group of peoples. For an example, Cronbach's alpha reliability coefficient is normally equal to range of zero to one. The higher the value of the coefficient, the higher the reliability of the result.

### **3.7.4 Inferential Analysis**

Inferential analysis is always used to infer from the sample data regarding how is the population think towards a certain issue. The inferential analysis also can be used to make judgements of the probability whether an observed difference among groups is in dependable way or just happened by chance. In this study, the researcher used the SPSS to analyze the data through Multiple Regression and Pearson's Correlation Analysis.

The Pearson's Correlation Analysis mainly used to describe the strength of two variables in a linear relationship (Zikmund, 2003). In this study, the researcher used the Pearson's Correlation Analysis to measure the relationship between attitude and purchase intention towards paid mobile apps.

Table below is the strength of the correlation between two variables:

Range of Coefficient	Strength
$\pm 0.91$ to $\pm 1.00$	Very high
$\pm 0.71$ to $\pm 0.90$	High
$\pm 0.41$ to $\pm 0.70$	Medium
$\pm 0.21$ to $\pm 0.40$	Small but definite relationship
$\pm 0.00$ to $\pm 0.20$	Very Small

*Table 1.* Rules of Thumb of Pearson's Correlation (Hair et al., 2008)

Another type of analysis is the Multiple Linear Regressions. The Multiple Linear Regressions is commonly used to describe the relationship among variables including explanatory variables and response variables by establishing a linear equation to them. The value of the independent variable  $x$  has certain relationship with the value of the dependent variable  $y$  (Suki & Suki, 2011). In this study, this method of analysis is to determine which factors have relationship with purchase intention towards paid mobile apps.

In this study, the model of the Multiple Linear Regressions is as below:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + \dots + b_zX_z$$



The equation will be as below:

$$IPPA = a + b_1C + b_2PU + b_3S + b_4ASS + b_5A$$

Whereby:

IPPA = Intention to Purchase Paid Apps

C = Confirmation

PU = Post-Purchase Perceived Usefulness

S = Satisfaction

ASS = After Sale Services

A = Advertisement

### **3.8 Conclusion**

This chapter explains the method of analysis that going to be used in this study to analyze the collected data. The next chapter will focus on the results of the analysis based on the methods that have been discussed in this chapter.

## Chapter 4

### Data Analysis

#### 4.1 Introduction

This chapter will analysis the data collected from the distributed questionnaire. These data will be analyzed with SPSS (version 19). There are three sections in this chapter which are descriptive analysis, reliability test and Multiple Linear Regression analysis.

#### 4.2 Descriptive Analysis

This section mainly describes the characteristic of the sample used in this study. The characteristic of the sample will be described in table below in order to provide clearer view of the data.

##### 4.2.1 Demographic Profiles

###### Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	70	70.0	70.0	70.0
Female	30	30.0	30.0	100.0
Total	100	100.0	100.0	

**Age**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 18	13	13.0	13.0	13.0
	18-30	58	58.0	58.0	71.0
	Above 30	29	29.0	29.0	100.0
	Total	100	100.0	100.0	

**Income**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	RM0- RM2000	45	45.0	45.0	45.0
	Above RM2000	55	55.0	55.0	100.0
	Total	100	100.0	100.0	

**Race**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Chinese	54	54.0	54.0	54.0
Non-Chinese	46	46.0	46.0	100.0
Total	100	100.0	100.0	

**Educational\_Background**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Primary Level	14	14.0	14.0	14.0
Secondary Level	32	32.0	32.0	46.0
College & University Level	54	54.0	54.0	100.0
Total	100	100.0	100.0	

*Table 3. Demographic Profiles*

By looking at table 3 above, there are total 70 percent of male respondents and 30 percent female respondents participated in this survey. This could be male respondents are more sensitive with IT stuff especially mobile apps in this study.

The table above also shown that 58 percent of respondents is 18 – 30 years old, 29 percent of respondents is above 30 years old while 13 percent of respondents is below 18 years old.

Next, based on the findings, there are 55 percent of respondents are having income above RM2000 while there are 45 percent of respondents are having income less than RM2000 or equal to RM2000.

In addition, there are total 54 percent of Chinese respondents participated in this survey while 46 percent of other races of respondents participated in this survey.

Also, there are 14 percent of respondents are from primary level of educational background, 32 percent of respondents are from secondary level of educational background, and 54 percent of respondents are from college and/or university level of educational background. This result illustrates that most participants are currently studying in college and/or university.

#### **4.3 Reliability Test**

The researcher used reliability test to check whether the questionnaire and collected data are accuracy or reliability or not. Cronbach's alpha test is used in this study to analyze the internal consistency of instruments. Based on Sekaran and Bougie (2010), when Cronbach's alpha is closer to 1, the reliability of the measurement is high. Table 4 below shows the Cronbach's alpha values for this study:

Table 4: Cronbach's alpha values for this study

Variables	No. of Items	Cronbach's alpha values
Post Purchase Perceived Usefulness (IV 1)	4	0.812
Satisfaction (IV 2)	11	0.641
Confirmation (IV 3)	3	0.708
After Sale Services (IV 4)	3	0.635
Advertisement (IV 5)	2	0.682
Purchase Intention (DV)	2	0.755

Source: Developed for this study

Based on the table 4 above, all the Cronbach's alpha for all variables are more than 0.6, the results shown that Post-Purchase Perceived Usefulness has the highest amount which is 0.812, followed by Purchase Intention which is 0.755, Confirmation is 0.708, Advertisement is 0.682, Satisfaction is 0.641 and After Sale Services is 0.635. Conclusion, the test is reliable because these variables fulfilled the level of reliability that is calculated by Cronbach's alpha.

#### **4.4 Correlation of Independent Variables and Dependent Variable**

The researcher will conduct the correlation analysis to identify the relationship between the independent variables and dependent variable. Therefore, Pearson correlation is adopted in this analysis to determine whether there is a positive relationship or negative relationship among the variables. The value of the relationship can be ranged from positive 1 to negative

1. The positive 1 value indicates that there is a strong relationship while the negative 1 indicates that there is a weak relationship. If the value of the relationship equal to 0, it means that there's no any relationship or known as "neutral relationship".

Table 5: Correlation of Independent Variables and Dependent Variables

**Correlations**

		C	PPPU	S	ASS	A	PI
C	Pearson	1	-.176	-.624**	-.454**	-.448**	-.407**
	Correlation						
	Sig. (2-tailed)		.081	.000	.000	.000	.000
	N	100	100	100	100	100	100
PPPU	Pearson	-.176	1	.161	-.101	-.131	.475**
	Correlation						
	Sig. (2-tailed)	.081		.109	.317	.194	.000
	N	100	100	100	100	100	100
S	Pearson	-.624**	.161	1	.716**	.695**	.470**
	Correlation						
	Sig. (2-tailed)	.000	.109		.000	.000	.000
	N	100	100	100	100	100	100
ASS	Pearson	-.454**	-.101	.716**	1	.632**	.089
	Correlation						
	Sig. (2-tailed)	.000	.317	.000		.000	.380

	N	100	100	100	100	100	100
A	Pearson	-.448**	-.131	.695**	.632**	1	.365**
	Correlation						
	Sig. (2-tailed)	.000	.194	.000	.000		.000
	N	100	100	100	100	100	100
PI	Pearson	-.407**	.475**	.470**	.089	.365**	1
	Correlation						
	Sig. (2-tailed)	.000	.000	.000	.380	.000	
	N	100	100	100	100	100	100

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Developed for this study

From the table above, PPPU is Mean of Post-Purchase Perceived Usefulness; C is Mean of Confirmation; S is Mean of Satisfaction; ASS is Mean of After Sale Services; A is Mean of Advertisement; PI is Mean of Purchase Intention.

#### **4.4.1 Correlation of Post Purchase Perceived Usefulness and Purchase Intention of Paid Mobile Apps**

The result above shown that there is positive correlation of 0.475 and it is significant at the 0.01 level. The positive correlation of 0.475 indicates that when the post purchase perceived usefulness increases by 1%, the purchase intention towards paid mobile apps will increases by 0.475%.



#### **4.4.2 Correlation of Confirmation and Purchase Intention of Paid Mobile Apps**

There is a negative correlation of 0.407 and it is significant at 0.01 level. The negative correlation of 0.407 indicates that the relationship between confirmation and purchase intention towards paid mobile apps is weak.

#### **4.4.3 Correlation of Satisfaction and Purchase Intention of Paid Mobile Apps**

There is a positive correlation of 0.470 and it is significant at 0.01 level. The positive correlation of 0.470 indicates that when the satisfaction increases by 1%, the purchase intention towards paid mobile apps will increase by 0.470%.

#### **4.4.4 Correlation of After Sale Services and Purchase Intention of Paid Mobile Apps**

There is a positive correlation of 0.089. The positive correlation of 0.089 indicates that when the value of after sale services increases by 1%, the purchase intention towards paid mobile apps will increase by 0.089%.

#### **4.4.5 Correlation of Advertisement and Purchase Intention of Paid Mobile Apps**

There is a positive correlation of 0.365 and it is significant at 0.01 level. The positive correlation of 0.365 indicates that when the value of advertisement increases by 1%, the purchase intention towards paid mobile apps will increase by 0.365%.

#### 4.5 Multiple Linear Regressions

The multiple linear regressions have been ran for Hypothesis 1 – 5:

Table 6: Model Summary

##### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.718 <sup>a</sup>	.516	.490	.53723

a. Predictors: (Constant), A, PPPU, C, ASS, S

Source: Developed for this study

From the table above, PPPU is Mean of Post-Purchase Perceived Usefulness; C is Mean of Confirmation; S is Mean of Satisfaction; ASS is Mean of After Sale Services; A is Mean of Advertisement; PI is Mean of Purchase Intention.

Based on the result above, R square is shown as 0.516, regression of purchase intention towards mobile apps is 0.718. This indicates that 52% of variance of the dependent variable, purchase intention towards mobile apps is explained by the independent variables which are post-purchase perceived usefulness, confirmation, satisfaction, after sale services and advertisement.

Table 7: ANOVA

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.897	5	5.779	20.025	.000 <sup>a</sup>
	Residual	27.130	94	.289		
	Total	56.027	99			

a. Predictors: (Constant), A, PPPU, C, ASS, S

b. Dependent Variable: PI

Source: Developed for this study

Based on the table 7 above, the F value is 20.025 and the significant level is 0.000. Hence, this result indicates that the regression model has been developed well to predict the independent variables which are post-purchase perceived usefulness, confirmation, satisfaction, after sale services and advertisement, to the dependent variable, purchase intention towards paid mobile apps.

Table 8: Coefficients for Hypothesis 1 - 5

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.233	.565		2.183	.031
	C	-.262	.180	-.135	-1.454	.149
	PPPU	.402	.082	.394	4.904	.000
	S	.571	.205	.379	2.784	.006
	ASS	-.765	.193	-.437	-3.964	.000
	A	.399	.117	.369	3.408	.001

a. Dependent Variable: PI

Source: Developed for this study

Based on the result of table 8 above, the regression equation will be:

$$\text{Purchase Intention} = 1.233 + (-0.262) \text{ Confirmation} + 0.402 \text{ Post Purchase Perceived Usefulness} + 0.571 \text{ Satisfaction} + (-0.765) \text{ After Sale Services} + 0.399 \text{ Advertisement}$$

Based on the equation above, it can be explained in following way:

- 1) The level of purchase intention will decrease 0.262 units when confirmation (C) decreases one unit while others remain.
- 2) The level of purchase intention will increase 0.402 units when post purchase perceived usefulness (PPPU) increases one unit while others remain.

- 3) The level of purchase intention will decrease 0.571 units when satisfaction (S) increases one unit while others remain.
- 4) The level of purchase intention will decrease 0.765 units when after sale services (ASS) decrease one unit while others remain.
- 5) The level of purchase intention will increase 0.399 units when advertisement (A) increases one unit while others remain.

In addition, the standardized coefficient of post purchase perceived usefulness (PPPU) is 0.394, which is the highest among other variables. Hence, this indicates that the post purchase perceived usefulness (PPPU) is an important factor influencing the purchase intention towards paid mobile apps.

Besides that, the multiple linear regressions also have been ran for Hypothesis 6 – 8, PPPU is Mean of Post-Purchase Perceived Usefulness; C is Mean of Confirmation; S is Mean of Satisfaction; ASS is Mean of After Sale Services; A is Mean of Advertisement; PI is Mean of Purchase Intention:

Table 9: Coefficients for Hypothesis 6

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.659	.292		12.534	.000
C	-.336	.190	-.176	-1.765	.081

a. Dependent Variable: PPPU

Source: Developed for this study

Table 10: Coefficients for Hypothesis 7

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.250	.157		20.723	.000
C	-.806	.102	-.624	-7.896	.000

a. Dependent Variable: S

Source: Developed for this study

Table 11: Coefficients for Hypothesis 8

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.706	.219		7.797	.000
PPPU	.109	.067	.161	1.619	.109

a. Dependent Variable: S

Source: Developed for this study

#### 4.6 Significant Test

**Hypothesis 1: There is positive relationship between confirmation and intention to purchase paid mobile apps.**

Based on the table 8 above, the significant value of confirmation is 0.149, which is higher than the p-value, 0.05. Therefore, H1 is not supported and there is no positive relationship between confirmation and purchase intention towards paid mobile apps.

**Hypothesis 2: There is positive relationship between post purchase perceived usefulness and intention to purchase paid mobile apps.**

Based on the table 8 above, the significant value of post purchase perceived usefulness is 0.000, which is lower than the p-value, 0.05. Therefore, H2 is supported and there is positive relationship between post purchase perceived usefulness and purchase intention towards paid mobile apps.

**Hypothesis 3: There is positive relationship between satisfaction and intention to purchase paid mobile apps.**

Based on the table 8 above, the significant value of satisfaction is 0.006, which is lower than the p-value, 0.05. Therefore, H3 is supported and there is positive relationship between satisfaction and purchase intention towards paid mobile apps.

**Hypothesis 4: There is positive relationship between after sale services and intention to purchase paid mobile apps.**

Based on the table 8 above, the significant value of after sale service is 0.000, which is lower than the p-value, 0.05. Therefore, H4 is supported and there is positive relationship between after sale services and purchase intention towards paid mobile apps.



**Hypothesis 5: There is positive relationship between advertisement and intention to purchase paid mobile apps.**

Based on the table 8 above, the significant value of advertisement is 0.001, which is lower than the p-value, 0.05. Therefore, H5 is supported and there is positive relationship between advertisement and purchase intention towards paid mobile apps.

**Hypothesis 6: There is positive relationship between confirmation and post purchase perceived usefulness.**

Based on the table 9 above, the significant value of confirmation is 0.081, which is higher than the p-value, 0.05. Therefore, H6 is not supported and there is no positive relationship between confirmation and post purchase perceived usefulness.

**Hypothesis 7: There is positive relationship between confirmation and satisfaction.**

Based on the table 10 above, the significant value of confirmation is 0.000, which is less than the p-value, 0.05. Therefore, H7 is supported and there is positive relationship between confirmation and satisfaction.

**Hypothesis 8: There is positive relationship between post purchase perceived usefulness and satisfaction.**

Based on the table 11 above, the significant value of post purchase perceived usefulness is 0.109, which is higher than the p-value, 0.05. Therefore, H8 is not supported and there is no positive relationship between post purchase perceived usefulness and satisfaction.

#### **4.7 Conclusion**

As a conclusion, the researcher used descriptive analysis to analyze the demographic profiles of the respondents of this survey. In addition, the researcher also used Cronbach alpha of reliability test to check the level of reliability of the variables mentioned previously. Furthermore, the correlation analysis and multiple regression analysis were used to further analyze the relationship among the independent variables and the purchase intention towards paid mobile apps. In next chapter, the researcher will discuss some of the major findings and conclude this study as well.

## **Chapter 5**

### **DISCUSSION AND CONCLUSION**

#### **5.0 Introduction**

In this chapter, the researcher will discuss the result of data analysis from the previous chapter including summary of descriptive analysis, inferential analysis and other major findings and implications as well. In addition, this chapter will also discussed the limitation, recommendations for future study and conclusion of this study.

#### **5.1 Summary of Statistical Analysis**

##### **5.1.1 Descriptive Analysis**

Based on the result of the demographic profiles in previous chapter, the male respondents are significantly more than the female respondents, there are 70 percent of male respondents compared to 30 percent of female respondents. One of the reason could be male respondents are more interested to participated in this kind of IT related survey because they are more sensitive with IT stuff. Besides that, there are 13 percent of respondents are below 18 years old, 58 percent of respondents are 18 – 30 years old, 29 percent of respondents are above 30 years old. This result shows that most of the respondents fall in the age group of 18 – 30.

For the income, there are 55 percent of respondents are earning income above RM2000 monthly while there are 45 percent of respondents are only earning RM2000 or less than it. Therefore, most of the respondents have certain purchase power to purchase the paid mobile

apps. For the race, there are 54 percent of Chinese respondents and 46 percent non-chinese respondents. For the educational background, there are 54 percent of respondents came from college and university level, 32 percent of respondents came from secondary level and 14 percent of respondents came from primary level.

### **5.1.2 Scale Measurement**

The researcher used Cronbach's Alpha to run the reliability test for total 25 items that weighted both independent variables and dependent variables. According to the result obtained previously, Post-Purchase Perceived Usefulness has the highest amount which is 0.812, followed by Purchase Intention which is 0.755, Confirmation is 0.708, Advertisement is 0.682, Satisfaction is 0.641 and After Sale Services is 0.635. This result shows that all the Cronbach's alpha for all variables are more than 0.6 and fall in the range of 0.635 – 0.812. Thus, this reliability test shows that all variables and its items are acceptable and consistent.

### **5.1.3 Inferential Analysis**

Pearson Correlation Analysis has been used in this study to identify the relationship between the independent variables and dependent variable. Based on the result, all the p-value for the variables are equal to 0.00 except the after sale services in which its p-value is 0.380. This indicates that the after sale services variable is less important in this study. However, the p-value of the multiple regression analysis also need to be considered as an important indicator when the researcher was making the decision to reject one hypothesis or not in later stage.

For the multiple regression analysis, the R square is 0.516 which means there are 52 percent of variance of the dependent variable, purchase intention towards mobile apps is explained by the independent variables which are post-purchase perceived usefulness, confirmation, satisfaction, after sale services and advertisement. Furthermore, the adjusted R square is 0.490 which also means that there are 49 percent of variance of the purchase intention is explained by the factor influences.

For the ANOVA test, the F value is 20.025 and the significant level is 0.000. Hence, this result indicates that the regression model has been developed well to predict the independent variables which are post-purchase perceived usefulness, confirmation, satisfaction, after sale services and advertisement, to the dependent variable, purchase intention towards paid mobile apps. In addition, the regression equation is shown at below:

$$\text{Purchase Intention} = 1.233 + (-0.262) \text{ Confirmation} + 0.402 \text{ Post Purchase Perceived Usefulness} + 0.571 \text{ Satisfaction} + (-0.765) \text{ After Sale Services} + 0.399 \text{ Advertisement}$$

Based on the regression equation shown at above, every single unit increases from post purchase perceived usefulness, satisfaction and advertisement will lead to increases by 0.402, 0.571 and 0.399 respectively in the intention of purchase the paid mobile apps.

## **5.2 Discussion of Major Findings**

**Hypothesis 1: There is positive relationship between confirmation and intention to purchase paid mobile apps.**

Based on the analysis above, the H1 is not supported in this study. This result shows that the respondents didn't care much about what were their expectation towards the paid mobile apps that they are going to buy later. As long as the paid mobile apps they bought can fulfil minimum level of their expectation and it didn't disappoint them much in term of the quality of the app itself, the consumers will still consider to buy more apps from the same developer again in future.

**Hypothesis 2: There is positive relationship between post purchase perceived usefulness and intention to purchase paid mobile apps.**

H2 is supported in this study. The respondents will take the post purchase perceived usefulness into consideration when they are planning to buy more apps in future. In other words, the respondents will look into aspects of how quickly the paid mobile apps able to help them in completing certain tasks in daily life, or the level of efficiency of completed that particular task by using that paid mobile app. If there are some free mobile apps in the market that provide the same features and functions as the paid mobile apps they bought, they certainly will switch to use the free mobile apps.

**Hypothesis 3: There is positive relationship between satisfaction and intention to purchase paid mobile apps.**

H3 is supported in this study. This illustrates that the respondents need to achieve certain high level of satisfaction in order to purchase the mobile apps again in future. All of these

aspects including system stability, quality of content, user interface and more will have certain influences on the consumers' purchase intention towards paid mobile apps. Moreover, if the current buyer is satisfied with the current bought apps, he or she certainly will recommend the apps to other peoples and this could lead to more purchases of the apps and more income generated by the apps developers.

**Hypothesis 4: There is positive relationship between after sale services and intention to purchase paid mobile apps.**

H4 is supported too in this study. This means that the after sale services are important to the consumers as well. The term after sale services here is referring to the comment or rating leave by the buyer for the bought mobile apps and the frequency of the apps developers response to these comments or ratings. The consumers might provide some important info such as recommendation, suggestions or they are seeking for help for certain aspect of the bought apps. If the app developers just ignore them then it will lead to high level of dissatisfaction during the launch of new app in future in terms of the quality of content or user interface problem that have been raised previously by the consumers. Also, the ignorance of the help from the consumers certainly will create their frustration and ended with changing of purchases from other apps developers next time. Therefore, the apps developers must practice this by always reply to the comments left on the app rating page in order to retain the current consumers.

**Hypothesis 5: There is positive relationship between advertisement and intention to purchase paid mobile apps.**

Based on the result, the H5 is supported in this study. The result indicates that the advertisement does have certain impact on the purchase intention towards paid mobile apps. Today, most of the advertisement related to new apps come from in between apps' advertisement. There are also few apps developers put their advertisement on TV too. The analysis also shows that the consumers can get information related to new apps through the recommendation of their friends or family members. No matter where did these advertisements come from, the content of the advertisement should provide the actual performance or images that similar to the app itself. However, there are still many advertisement that provide fake information or unrealistic performance in order to attract the buyers' purchase intention, this action shouldn't be practice by the app developers at anytime as it certainly will create the frustration too among the group of consumers after they found out the differences.

**Hypothesis 6: There is positive relationship between confirmation and post purchase perceived usefulness.**

In this study, H6 is not supported. This could be the reason of although the consumer get what they were expected from the apps, it couldn't satisfy the consumers due to unexpected instability of the app system or the mobile phone's operating system.



**Hypothesis 7: There is positive relationship between confirmation and satisfaction.**

In this study, H7 is supported. This means that the consumers certainly will have high level of satisfaction if they get what they see in the advertisement of the paid mobile apps. The advertisement of the app will create certain image on consumers' mind before they make the decision to purchase that particular app. Therefore, the actual functions and performance of the app should match precisely with the earlier expectation of the consumers.

**Hypothesis 8: There is positive relationship between post purchase perceived usefulness and satisfaction.**

The last H8 is not supported in this study. This could be due to the major satisfaction of the respondents come from another way which is confirmation variable. Again, the app developers need to make sure that the consumers won't get disappointed after they see the app at first glance after the purchases.

**5.3 Managerial Implications**

This study provides useful insights for the mobile app developers in both developing and selling the mobile apps. There are few important strategies that the mobile app developers can implement to increase the purchase intention of the consumers towards their paid mobile apps.

In the stage of developing the mobile apps, the developers should always test their application for bug-free and system stability issue. In addition, the developers also should pay more attention to the quality of content in their application in order to meet today customers' taste. The developer also needs to ensure that their application's user interface is friendly and easier to use for the end users. Failure to establish any of these could lead to decreasing of the level of satisfaction among the consumers.

When it comes to the advertisement of the mobile apps, the developers shouldn't exaggerate their application in terms of its performance and functionality. The developers should always bear in mind that the actual outcome of the mobile app should be similar to the minimum level of expectation of the consumers after they saw the advertisement.

Post purchase perceived usefulness of an application is an important factor that influences the continuance use of that particular application in consumers' daily life. If the consumers found that the mobile apps they just bought able to solve their daily tasks in easily way, of course they are happy to use it everyday. In this way, the app developers might want to add some additional features or functionality inside the application that will cost the consumers for few more bucks in order to unlock those new added features or functionality. The consumers certainly will feel happy to pay for it if they had a great experience in using that particular app.

The developers should provide a good "after sale services" to their customers. For examples, the developers should always check their apps' rating page in Playstore or Appstore in order to response to the comments left by the customers. The comments could be a valued suggestion or a bad critic. Either one of them will help the developers to develop the next app in better quality way and suit to the customers' demand and taste. In addition, there's another kind of comment which is the customers were seeking for help in terms of the apps'

compatibility and functionality. The developers must help them to solve these kinds of problem in order to raise the consumers' confidence in using their application.

#### **5.4 Limitations of Study**

There are few limitations of this study thus providing possible avenue for future research study. First of all, this study is only targeted the Malaysian or people who born in Malaysia originally. There are different spending patterns and attitudes among the peoples over the world. Therefore, this study is only suitable for use in context of Malaysian.

In addition, there are other variables that could influence the purchase intention of the consumers towards the paid mobile apps as well, such as price of the apps and income of the peoples. These variables have not been included in this study due to the complexness of the model of the study.

#### **5.5 Recommendations For Future Research**

Future researchers may want to look into other variables as well when they conduct their research. These variables including price of the apps and income of the peoples. The future researcher may include these variables as their independent variables in order to better understanding the purchase intention of the consumers towards the paid mobile apps.

In addition, the future researcher may want to expand their study to other countries as well as this study analyzes only the purchase intention of Malaysian towards paid mobile apps.

This research studied only on the quantitative items. The future researcher are encouraged to include qualitative items as well in order to obtain a more comprehensive data related to the purchase intention of the consumers towards the paid mobile apps in the market.

## **5.6 Conclusion**

This research studied the impact of confirmation, satisfaction, post-purchase perceived usefulness, after sale services and advertisement on the purchase intention of Malaysian towards the paid mobile apps in the market today.

Among all the independent variables mentioned above, the post-purchase perceived usefulness plays an important role in determining the intention to purchase the paid mobile apps. Therefore, the mobile app developers have to make sure that their paid mobile application able to help the consumers to solve daily tasks in an effective and efficient way, but not complicated the process of completing these daily tasks.

In addition, the independent variable, after sale services indicated that the developers are encouraged to check often the apps' rating page for its comments and rating. By doing so, good rating can give more confidence to the app developers while bad rating or constructive suggestion can help the developers to improve the quality of their next application.

The developers are not encouraged to exaggerate their application in advertisement as this action will create frustration among the consumers. All of these findings certainly will give essential insights to the mobile app developers in order for them to retain their current customers and also to attract more new customers in future as well.

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## **Appendix A: Questionnaire**

### **Malaysian's Purchase Intention Towards Paid Mobile Apps**

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Dear respondents,

I am a postgraduate student from University Tunku Abdul Rahman (UTAR) and currently conducting a survey for my master study. The purpose of this survey is to identify Malaysian's purchase intention towards paid mobile apps. Thank you for your time to participate in this survey.

---

**Instructions:**

1. Please answer all questions in every section.
2. This survey will take you approximately 5 to 10 minutes.
3. The content that you provided in this questionnaire will be kept strictly Confidential and it will be used for academic purpose only.

**Section A: Demographic**

1. Gender

☐ Male

☐ Female

2. Age

☐ Below 18

☐ 18 – 30

☐ Above 30

3. Income

☐ RM0 – RM2000

☐ Above RM2000

4. Race

☐ Chinese

☐ Non-Chinese

5. Educational Background

- ☐ Primary Level
- ☐ Secondary Level
- ☐ College & University Level

**Section B: Post-Purchase Perceived Usefulness**

1. Using your latest purchased app would enable you to accomplish task more quickly?

(1-Extremely Unlikely; 5-Extremely Likely)

- ☐ 1      ☐ 2      ☐ 3      ☐ 4      ☐ 5

2. Using your latest purchased app would improve your job performance? (1-Extremely

Unlikely; 5-Extremely Likely)

- ☐ 1      ☐ 2      ☐ 3      ☐ 4      ☐ 5

3. Using your latest purchased app would increase your productivity? (1-Extremely

Unlikely; 5-Extremely Likely)

- ☐ 1      ☐ 2      ☐ 3      ☐ 4      ☐ 5

4. Using your latest purchased app would make you easier to do your job? (1-Extremely

Unlikely; 5-Extremely Likely)

- ☐ 1      ☐ 2      ☐ 3      ☐ 4      ☐ 5

### **Section C: Satisfaction**

1. Was the instruction given in your latest purchased app clear?

☐ YES      ☐ NO

2. How friendly did you find the user interface of the app? (1- Very Poor; 5- Very Good)

☐ 1      ☐ 2      ☐ 3      ☐ 4      ☐ 5

3. Were all buttons or operations working fine in the app?

☐ YES      ☐ NO

4. How did you find the security of the app?

☐ GOOD      ☐ BAD

5. Do you satisfy with the price of the app?

☐ Satisfied.

☐ The price is too high.

☐ The price is too low.

6. Please rate the quality of the content of your latest purchased app. (1-Very Poor; 5-Very Good)

☐ 1      ☐ 2      ☐ 3      ☐ 4      ☐ 5

7. Please rate the ease of use of your latest purchased app. (1-Very Poor; 5-Very Good)

☐ 1      ☐ 2      ☐ 3      ☐ 4      ☐ 5

8. Please rate the user interface of your latest purchased app. (1-Very Poor; 5-Very Good)

☐ 1      ☐ 2      ☐ 3      ☐ 4      ☐ 5

9. Please rate the system stability of your latest purchased app. (1-Very Poor; 5-Very Good)

☐ 1      ☐ 2      ☐ 3      ☐ 4      ☐ 5

10. Overall, which level of satisfaction do you have with the app? (1-Very Poor; 5-Very Good)

☐ 1      ☐ 2      ☐ 3      ☐ 4      ☐ 5

11. Would you recommend this app to your family or friends?

☐ YES      ☐ NO

**Section D: Confirmation**

1. Does your latest purchased app meet your initial expectation in term of ease of use?

☐ YES      ☐ NO

2. Does your latest purchased app meet your initial expectation in term of quality of content?

☐ YES      ☐ NO

3. Does your latest purchased app meet your initial expectation in term of its apps' system stability?

☐ YES      ☐ NO

**Section E: Purchase Intention**

1. How much intention do you have to purchase this kind of similar app in future? (1-Very Poor; 5-Very Good)

☐ 1      ☐ 2      ☐ 3      ☐ 4      ☐ 5

2. How much intention do you have to purchase the app from the same developer again in future? (1-Very Poor; 5-Very Good)

☐ 1      ☐ 2      ☐ 3      ☐ 4      ☐ 5

### **Section F: After Sale Services**

1. Have you experienced before the developers reply to your comment on the apps' rating page?

☐ YES      ☐ NO

2. Does the reply from the developers solve your problem regarding the app?

☐ YES      ☐ NO

3. How often do you write or rate on the apps' rating page?

- ☐ Not at all.
- ☐ Most of the time.
- ☐ Only if I encounter some issues regarding the app.

### **Section G: Advertisement**

1. Where did you normally noticed of new launching of an app?

- ☐ TV advertisement.
- ☐ In-apps advertisement.
- ☐ Recommended by family or friends.



2. How often does the advertisement disappointed you when it comes to actual use of an app?

- ☐ Not at all.
- ☐ Most of the time.
- ☐ Sometimes.

## Appendix B: SPSS Results

### Demographic Profiles

#### Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	70	70.0	70.0	70.0
	Female	30	30.0	30.0	100.0
	Total	100	100.0	100.0	

#### Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 18	13	13.0	13.0	13.0
	18-30	58	58.0	58.0	71.0
	Above 30	29	29.0	29.0	100.0
	Total	100	100.0	100.0	

#### Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	RM0-RM2000	45	45.0	45.0	45.0
	Above RM2000	55	55.0	55.0	100.0
	Total	100	100.0	100.0	

#### Race

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Chinese	54	54.0	54.0	54.0
	Non-Chinese	46	46.0	46.0	100.0
	Total	100	100.0	100.0	

#### Educational Background

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Primary Level	14	14.0	14.0	14.0
Secondary Level	32	32.0	32.0	46.0
College & University Level	54	54.0	54.0	100.0
Total	100	100.0	100.0	

#### Reliability Test

Variables	No. of Items	Cronbach's alpha values
Post Purchase Perceived Usefulness (IV 1)	4	0.812
Satisfaction (IV 2)	11	0.641
Confirmation (IV 3)	3	0.708
After Sale Services (IV 4)	3	0.635
Advertisement (IV 5)	2	0.682
Purchase Intention (DV)	2	0.755

#### Post Purchase Perceived Usefulness

##### Reliability Statistics

Cronbach's Alpha	N of Items
.812	3

### **Satisfaction**

#### **Reliability Statistics**

Cronbach's Alpha	N of Items
.641	11

### **Confirmation**

#### **Reliability Statistics**

Cronbach's Alpha	N of Items
.708	3

### **After Sale Services**

#### **Reliability Statistics**

Cronbach's Alpha	N of Items
.635	3

### **Advertisement**

#### **Reliability Statistics**

Cronbach's Alpha	N of Items
.682	2

## Purchase Intention

### Reliability Statistics

Cronbach's Alpha	N of Items
.755	2

## Correlations

### Correlations

		C	PPPU	S	ASS	A	PI
C	Pearson Correlation	1	-.176	-.624**	-.454**	-.448**	-.407**
	Sig. (2-tailed)		.081	.000	.000	.000	.000
	N	100	100	100	100	100	100
PPPU	Pearson Correlation	-.176	1	.161	-.101	-.131	.475**
	Sig. (2-tailed)	.081		.109	.317	.194	.000
	N	100	100	100	100	100	100
S	Pearson Correlation	-.624**	.161	1	.716**	.695**	.470**
	Sig. (2-tailed)	.000	.109		.000	.000	.000
	N	100	100	100	100	100	100
ASS	Pearson Correlation	-.454**	-.101	.716**	1	.632**	.089
	Sig. (2-tailed)	.000	.317	.000		.000	.380
	N	100	100	100	100	100	100
A	Pearson Correlation	-.448**	-.131	.695**	.632**	1	.365**
	Sig. (2-tailed)	.000	.194	.000	.000		.000
	N	100	100	100	100	100	100
PI	Pearson Correlation	-.407**	.475**	.470**	.089	.365**	1
	Sig. (2-tailed)	.000	.000	.000	.380	.000	
	N	100	100	100	100	100	100

\*\* . Correlation is significant at the 0.01 level (2-tailed).

## Multiple Linear Regressions

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.718 <sup>a</sup>	.516	.490	.53723

a. Predictors: (Constant), A, PPPU, C, ASS, S

Source: Developed for this study

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.897	5	5.779	20.025	.000 <sup>a</sup>
	Residual	27.130	94	.289		
	Total	56.027	99			

a. Predictors: (Constant), A, PPPU, C, ASS, S

b. Dependent Variable: PI

Source: Developed for this study

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.233	.565		2.183	.031
	C	-.262	.180	-.135	-1.454	.149
	PPPU	.402	.082	.394	4.904	.000
	S	.571	.205	.379	2.784	.006
	ASS	-.765	.193	-.437	-3.964	.000
	A	.399	.117	.369	3.408	.001

a. Dependent Variable: PI

Source: Developed for this study

Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.659	.292		12.534	.000
C	-.336	.190	-.176	-1.765	.081

a. Dependent Variable: PPPU

Source: Developed for this study

Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.250	.157		20.723	.000
C	-.806	.102	-.624	-7.896	.000

a. Dependent Variable: S

Source: Developed for this study

Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.706	.219		7.797	.000
PPPU	.109	.067	.161	1.619	.109

a. Dependent Variable: S

Source: Developed for this study

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