

FACTORS INFLUENCING THE ACCEPTANCE OF MOBILE APPLICATION
AMONG MILLENNIALS

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To my beloved mother and father

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ABSTRACT

The market for mobile applications (apps) has been rising rapidly because most daily activities currently involve the use of mobile applications. There is great potential for this service mode in the mobile market as it reversed the traditional business model of the mobile industry. Because there is an increasing interest in mobile applications, it has created new opportunities for the mobile market. With more and more consumers around the world, the organization soon will serve to promote the application, involving consumers through apps and in-app advertising. Therefore, the user acceptance is very important in the mobile application market. This leads to the importance of studying the factors that influence the behavior intention to adopt mobile applications for the industry to develop successfully. Besides, mobile phone users have been dominated by millennials generation, from the age group of 20-24. However, there is very limited knowledge about online consumer behavior because it is a complicated socio-technical phenomenon and involves too many factors that influence the behavioral intention to adopt mobile applications (apps). The purpose of this study is to analyze factors that influence the behavioral intention to adopt mobile applications (apps) in among millennials in Malaysia. The conceptual framework derived from selection of related construct has been used to facilitate the data collection of this study. These constructs are performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit Behavioral intention has been used as indicator of the acceptance of mobile applications (apps) among millennials in Malaysia. Quantitative method using online questionnaires survey has been applied. There are seventy seven returned and usable questionnaire used in this study. The respondents to the questionnaire were consumers who used mobile apps to shop online. Lastly, the results revealed that hedonic motivation, facilitating conditions, price value, social influence and habit have significant correlation with behavioral intention.

ABSTRAK

Pasaran untuk aplikasi mudah alih (aplikasi) telah meningkat dengan cepat kerana kebanyakan aktiviti harian kini melibatkan penggunaan aplikasi mudah alih. Terdapat potensi yang besar untuk memasuki mod perkhidmatan ini dalam pasaran mudah alih kerana ia diterbalikkan model perniagaan tradisional industri mudah alih. Kerana terdapat minat yang semakin meningkat dalam aplikasi mudah alih, ia telah mewujudkan peluang-peluang baru untuk pasaran mudah alih. Dengan lebih ramai pengguna di seluruh dunia, organisasi itu tidak lama lagi akan berkhidmat untuk menggalakkan permohonan itu, yang melibatkan pengguna melalui aplikasi dan di-app pengiklanan. Oleh itu, penerimaan pengguna adalah sangat penting dalam pasaran aplikasi mudah alih. Ini membawa kepada kepentingan mengkaji faktor-faktor yang mempengaruhi tingkah laku niat untuk menerima pakai aplikasi mudah alih bagi industri untuk membangunkan dengan jayanya. Selain itu, pengguna telefon mudah alih telah dikuasai oleh generasi millennials, dari kumpulan umur 20-24. Walau bagaimanapun, terdapat pengetahuan yang sangat terhad mengenai tingkah laku pengguna dalam talian kerana ia adalah satu fenomena sosio-teknikal yang rumit dan melibatkan terlalu banyak faktor yang mempengaruhi niat tingkah laku untuk menerima pakai aplikasi mudah alih (aplikasi). Tujuan kajian ini adalah untuk menganalisis faktor-faktor yang mempengaruhi niat tingkah laku untuk menerima pakai aplikasi mudah alih (aplikasi) dalam kalangan millennials di Malaysia. Kerangka konseptual yang diperolehi dari pemilihan konstruk yang berkaitan telah digunakan untuk memudahkan pengumpulan data kajian ini. Ini konstruk adalah jangka prestasi, usaha jangka, pengaruh sosial, keadaan memudahkan, motivasi hedonik, nilai harga, dan tabiat niat Behavioral telah digunakan sebagai penunjuk penerimaan aplikasi mudah alih (aplikasi) di kalangan millennials di Malaysia. Kaedah kuantitatif dengan menggunakan soal selidik dalam talian kaji selidik telah digunakan. Terdapat Seventy Seven kembali dan soal selidik digunakan yang digunakan dalam kajian ini. Responden untuk soal selidik

ini adalah pengguna yang menggunakan aplikasi mudah alih untuk membeli-belah dalam talian. Akhir sekali, keputusan mendedahkan bahawa motivasi hedonik, keadaan memudahkan, nilai harga, pengaruh sosial dan tabiat mempunyai hubungan yang signifikan dengan niat tingkah laku.

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CHAPTER 1

INTRODUCTION

1.1 Overview

This chapter discusses the background, problem statement, research objectives and questions and lastly the significance of this study.

1.2 Research Background

In Malaysia, has shown a large number of users who use the Internet. Majority of them spent on the Internet at about five or more hours per day (Tan, 2012). It is a heavy, medium, and small number of users who used the Internet perceives online shopping similarly, in terms of how to evaluate the reliability/credibility of online shops, advantages, disadvantages, and perceived risks associated with e-commerce (Tan, 2012).

The latest research forecast a significant growth of e-commerce in Asian economies including Malaysia, Singapore, Hong Kong and Korea. The rapid growth of e-Commerce will probably be challenging for Europe and United States because it will add to the already competitive global market (Danial Hassan, 2012). The survey findings revealed that tourism is the most common items purchased online in Southeast Asia, along

with tickets for events such as movies, live performances, exhibitions and sports games. More than 6 in 10 consumers in Malaysia are planning to go online to buy tickets (67% and the third highest globally) and make hotel and travel reservations (62% and the second highest in the world) within the next six months, while 58 percent of Malaysian consumers will go online to buy tickets for events such as films, plays and exhibitions (third highest globally) (Holdings, 2014).

As more people connect to the Internet, the electronic market place has increased. Internets actually open a business with a cost-effective way to distribute and obtain information quickly. Businesses around the world have revolutionized by the advent of the Internet, where electronic commerce via the Internet is a way of doing business transactions today (Noor, 2006).

E-Commerce is the buying and selling of goods or services, on the Internet. E-Commerce websites are in abundance these days. In Malaysia, e-commerce sells books, clothes and even groceries online, can pay monthly bills with a few clicks of the mouse and even sell off some of old stuff that never imagined anyone would want. The more the people are connected to the internet; the value of the electronic market place has increased. The Internet inherently provides businesses with cost-effective means of distributing as well as obtaining information quickly. Businesses around the world have been revolutionized with the advent of the Internet, where the electronic commerce via the Internet is the way of conducting business transactions these days (Noor, 2006).

E-commerce is more commonly practiced in developed countries as opposed to developing countries. The attempts to bridge the gap of e-commerce growth in the two aforementioned nations are expected to lead to stronger impacts on developing countries. Internet capabilities clearly involve referral to collect information, purchase goods, or services representative. Advances in Internet technology enable the development of shopping online outside of traditional methods, which can be more wasting time. With more and more people moving to the Internet and e-commerce world for shopping, business, make payments, and conducting online banking, new technological advances have to happen to make this transaction safe. Focused on individual growth towards a more comprehensive use of the Internet as a technology facilities, availability of information, and the ability to interact with the increase in Internet and grow. Consumer

behavior is fundamental for any business. In addition, businesses continue to create an online presence; they found that some consumers are still reluctant to move in the same direction (Salehi, 2012).

Nowadays, has become a phenomenon among youth in the middle age buy Muslim clothes via computer networks. Online shopping has been a growing phenomenon in all four corners of the world, in particular amongst countries possessing highly developed infrastructure available for marketing activities through the internet (Delafrooz, Paim, & Khatib, 2010).

Malaysia one of the country that has potential and deep concern on e-commerce, National Electronic Commerce Committee has been formed to provide a framework for promoting and coordinating the development of e-commerce (Information and communications technology, 2001-2005) In addition, Malaysia's online shopping market size was RM 1.8 billion in 2010, estimated to be RM 5 billion in 2014 (Nielsen, 2014). It's safe to predict that our e-commerce market size is around RM 2-3 billion for this year (Nielsen, 2014). This estimate may seem quite high.

Table 1.1: Online buying intentions in the next 6 months for 5 out of 22 categories

BUYERS	Asia-pacific	Europe	Middle east/Africa	Latin America	North America
CLOTHING, ACCESSORIES AND SHOES	57%	34%	26%	28%	42%
ELECTRONIC EQUIPMENT	41%	25%	26%	29%	30%
TOURS AND HOTEL RESERVATIONS	53%	33%	35%		43%
AIRLINE TICKETS AND RESERVATIONS	59%	34%	39%	36%	43%
MOBILE PHONE	44%	22%	28%	27%	22%

The table 1.1 shows, Asia-Pacific has highest online buy rates. In Asia-Pacific, the first rank recorded mostly the internet user will do online buying intentions in the next 6 months for airline tickets and reservations. Then followed by the internet user will do online buying intentions in the next 6 months for clothing, accessories and shoes.

Based on the table for online buying intentions in the next 6 months, the statistics show clothing is ranked amongst the top 3. It shows that in the next 6 months the most popular items for online buying intentions are clothing, accessories and shoes. Therefore, the highest rated for online buying intentions in the next 6 months towards clothes are relevant to explore in depth the factors that affect them to buy through online.

Table 1.2 below shows the percentage distribution of hand phone users by age category. According to (Statistical brief number seventeen Handphone Users Survey 2014, 2014), mobile phone users has been dominated by young adults, from the age group of 20-24 with 18.8%. The second largest group is 25-29, which accounted for 16.3%.

Table 1.2: Percentage distribution of hand phone users by age category

Year	2012	2013	2014
Age Classes			
Below 15	1.8	1.7	1.8
15 – 19	11.4	13.0	10.7
20 – 24	17.3	18.1	18.8
25 – 29	15.8	16.3	16.3
30 – 34	13.8	13.5	12.7
35 – 39	10.8	9.3	10.0
40 – 44	9.2	9.2	8.3
45 – 49	6.5	6.0	7.2
50 – 54	5.4	4.9	4.6
55 – 59	3.3	3.6	4.8
60 – 64	1.9	2.4	2.8
65 and above	2.9	2.0	2.3

Table 1.3: The global average percent of the population ranges that make up online purchase intenders

Age group \ Types	Will browse online	Will buy online
Generation Z (under 20)	6 – 9%	5 – 9%
Millennial (21 – 34)	49 – 59%	52 – 63%
Generation X (35 – 49)	25 – 28%	25 – 30%
Baby boomers (50 – 64)	7 – 13%	6 – 13%
Silent generation (65++)	1 – 3%	1 – 3%

Based on the table 1.3, millennial make up the majority of online purchase intenders (Holdings, 2014). Millennial (age 21-34) are a coveted demographic for marketers in just about any industry, and e-commerce is no exception. This age segment has grown up in the digital era, so this comes as no surprise. But while Millennial comprise more than half of respondents (53%) who plan to make an online purchase across every product category in the study, older generations represent a sizeable 40% share, too.

Reaching older age segments, however, is much more fragmented territory than with their younger counterparts. As expected, the older the age, the greater their decline in online shopping. Globally, Generation X (age 35-49) respondents comprise about 28% of those willing to make a purchase online and Baby Boomers (age 50-64) make up about 10%. The Silent Generation (age 65+) contributes roughly 2%. The youngest age group, Generation Z (under age 20), represents about 7% of those who intend to purchase online (Nielsen, 2014).

The appetite for online browsing is strongest in the largely developing regions of Latin America and Asia-Pacific; with both eclipsing the global average (Nielsen, 2014). 76% of shopaholics who represents the attitude survey of global buyers to purchase consumable product line has supported online is convenient (Nielsen, 2014). Malaysian shoppers look for free shipping, convenience and exclusive online deals offered by online stores. Moreover, online shopping is encouraged by new E-Commerce regulations adopted in 2013, aimed at protecting consumer rights and preventing online fraud (Ystat, 2014).

Table 1.4: Device used most frequently for online shopping in year 2014

Devices Percentage Countries	COMPUTER (%)	MOBILE DEVICE (%)	TABLET (%)
Global average	80	44	31
Asia pacific	81	52	35
Europe	78	33	24
Middle east/ Africa	60	55	38
Latin America	82	48	29
North America	84	27	26

Based on the table 1.4 above, in Asia Pacific computers are the most frequently used devices for online shopping. Computers recorded the largest percentage among others. Then, followed by mobile device which is the second highest percentage was recorded. Lastly, respondents from Asia Pacific are used less tablet device for shopping online. Tablet device is less popular than the other devices. Computers dominate in the majority of Southeast Asia markets, use of mobile and tablet devices also growing in popularity across the region for online shopping. However, the penetration of smart phones may increase the main contributors to the growth of online shopping, which enables users to shop spontaneously on their own, without the need to access PC constraints. Despite the larger screen size of many mobile phones do not improve the shopping experience, it reinforces the benefits of having a dedicated app, which lets shoppers, user-friendly shopping experience to more and better meet the needs of the facility (Nielsen, 2014). The use of mobile applications (apps) to grow rapidly since Apple first introduced the iPhone in 2007. The mobile application is an end-user application software created for the operating system tools that extend the capabilities of mobile devices (Purcell, 2011). It is also defined as a program that runs on mobile devices and perform banking tasks to games and surfing the web (Taylor, Voelker, & Pentina, 2011). According to Portio Research, it is estimated that 1.2 billion people worldwide were using mobile apps at the end of 2012. This is forecast to grow at a 29.8 percent each year, to

reach 4.4 billion users by the end of 2017. Much of this growth will come from Asia, which will account for almost half of app users in 2017 (mobiThinking, 2013). However, the increasing penetration of mobile applications on the market, users of mobile applications also increased (Handphone Users survey 2012, 2012).

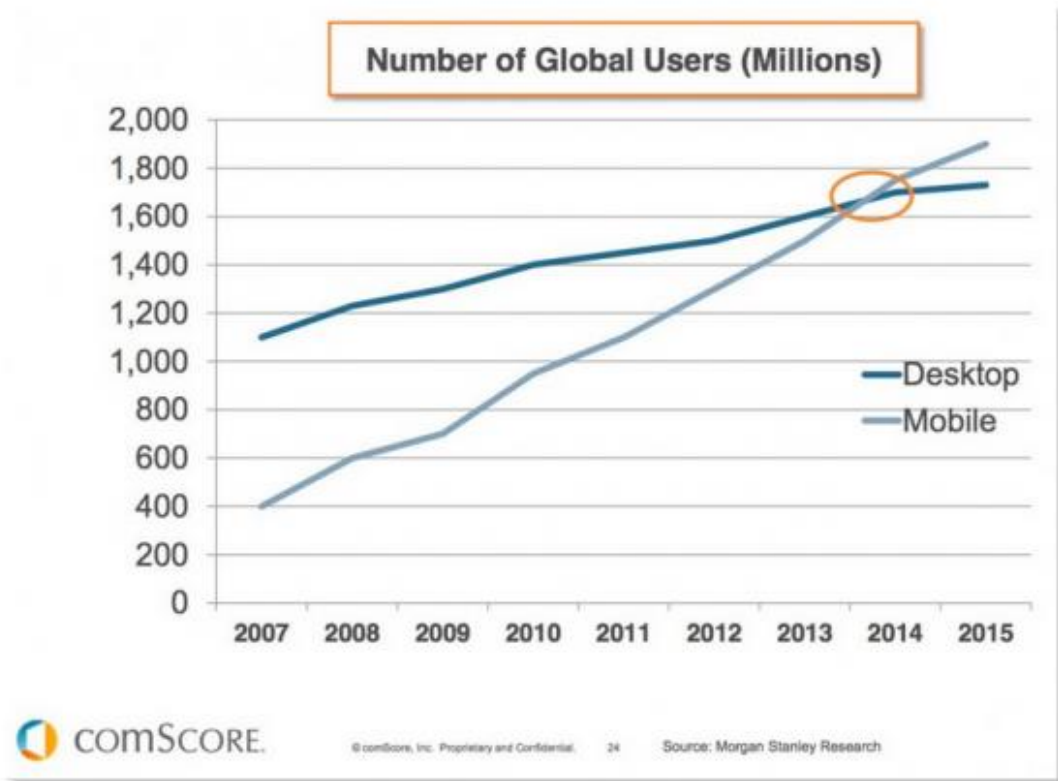


Figure 1.1: Statistics on mobile usage and adoption to inform mobile marketing strategy.

Based on the statistics for 2015, mobile phone rated highest number of global users as the consumer and company adoption of mobile including communication and web surfing device compared to 2014. Due to this, it might affect the number of users doing online shopping through mobile device compared to desktop and other device (Bosomworth, 2012).

In a nutshell, the new opportunities and increased use of mobile applications makes it important to determine the elements that affect consumer behavior intention to use the mobile application as a whole since there is not much research done on it.

1.3 Problem Statement

E-commerce is rather known in terms of concept than its usage and application to most of the businesses. It is perceived as a technology that will enhance the way people conduct businesses. Some big businesses have successfully implemented ecommerce, but small businesses, despite realizing its importance of e-commerce for today and future business operation are quite hesitant to venture into it.

The involvement of e-commerce towards the contribution of online shopping marketplace gives the big impacts to the middle-aged group online shoppers to buy the products. One of the most popular products of E-commerce market in Malaysia is selling fashion products. It has become a trend nowadays online shopper buying Muslim clothes via online. So then, in order to increase online shopping in Malaysia, understanding the factors that influencing consumer online shopping behavior and factors that influencing the acceptance of mobile applications when shopping online should be given priority.

In order to gain a competitive advantage in the marketplace, marketers need to know the behavior of consumers in shopping online. So it is important to analyze and identify the factors that influence consumers to adopt mobile apps to shopping online, to capture consumer demand. Shopping online is a new medium that consumer behavior in the field of online shopping is also quite different in nature compared to the traditional consumer behavior, so it is equally important for a person to identify what factors influence users to adopt mobile apps for shopping online. Despite the pervasiveness of mobile apps penetration in Malaysia, there is limited understanding of consumers' acceptance of mobile apps.

As consumer's acceptance is the foundation of mobile apps success, this study will evaluate the factors that affect behavioral intention to adopt apps which will be useful to parties earning profits from apps development. These factors are important for retailers to compete in the market and make their products more compatible.

1.4 Research Objectives

The specific objectives of this research are:

- i) To identify the factors that affect behavioral intention to adopt mobile apps.
- ii) To develop a research model of online shopping behavioral intention to adopt mobile applications based on any chosen model and framework.
- iii) To examine the influences of the factors in determining shopping behavior intention to adopt mobile applications.

1.5 Research Questions

Research questions are as follows:

- 1) What are the factors that influence the behavioural intention to adopt mobile apps?
- 2) How to develop a research model of online shopping behavioral intention to adopt mobile applications?
- 3) How to examine the influences of factor in determining shopping behavioral intention to adopt mobile applications.

1.6 Scope of study

The study focused on one major cities in Malaysia namely Kuala Lumpur. The city was selected due to its increasing importance on the global scale Kuala Lumpur has been named an ‘Alpha City’ by the Globalization and World Cities Research Network: a category the city shares with Mumbai, Moscow and Sao Paulo and ranked 10th as an emerging city in the world (Malaysia, 2014). The target respondents for the survey are the millennial group of e-commerce. The younger users targeted because they are the majority on this group has grown up in the digital era. This research will focus only on mobile apps as a whole.

1.7 Research Significance

From the standpoint of theoretical, UTAUT2 have additional of three elements, namely Hedonic Motivation (HM), Price Value (PV) and Habit (HT). As a result, UTAUT2 better will allow the user acceptance of the technology by increasing the variance in behavioral intention by 18% and the technology used by 12% (Viswanath Venkatesh, 2012). Although there are many studies that show mobile literature, few have integrated model of UTAUT2. This study is important because it uses UTAUT2 model to test its effect on behavior intention to use mobile applications that will further validate the extended model of UTAUT in Malaysia.

In terms of practical significance, this study will provide practitioners in the mobile industry with a better idea about how to develop and enhance the applications that support the needs of users and improve usability of mobile applications. Therefore, this will benefit the mobile application industry as a whole because UTAUT2 help to determine its effect on behavior intention to adopt mobile applications in Malaysia.

1.8 Summary

This chapter is the introduction for the topic of the research. Among other, it discusses the background of study, problems related to the topic, objectives of the study, research scope, significance of study, and finally outlines the whole chapters in this thesis. In general, this chapter provides basic ideas of what this research is all about.

REFERENCES

- Ahmad, A., & Khan, a. D. (2015). Mapping Online Buyer Behavior: A Critical Review of Empirical Studies. *Pacific Business Review International*.
- Akour, H. (2009). Determinants of mobile learning acceptance: An Emperical Investiation In Higher Education.
- Albugami, M., & Bellaaj, a. M. (2014). The Continued Use of Internet Banking: Combining UTAUT2 Theory And Service Quality Model. *Journal of Global Management Research*.
- Ally, M., & Gardiner, a. M. (2012). The moderating influence of device characteristics and usage on user acceptance of Smart Mobile Devices . *23rd Australasian Conference on Information Systems* .
- ALMowalad, A., & Putit, a. L. (2013). Factors Influencing Saudi Arabian Women’s Shopping. *Journal of Emerging Economies and Islamix Research*.
- Bosomworth, D. (2012). *Statistics on mobile usage and adoption to inform your mobile marketing strategy*. Retrieved from Mobile Marketing Statistics 2015: <http://www.smartinsights.com/mobile-marketing/mobile-marketing-analytics/mobile-marketing-statistics/>
- Bray, J. (2010). Consumer Behaviour Theory: Approaches and Models.
- Brosekhan, A., & Velayutham, a. M. (2007). Consumer Buying Behaviour – A Literature Review. *IOSR Journal of Business and Management*.

- Carmen C. Lewis¹, C. E. (2013). Faculty Use of Established and Emerging Technologies in Higher Education: A Unified Theory of Acceptance and Use of Technology Perspective. *International Journal of Higher Education*.
- Chang, A. (2012). Utaut and Utaut 2: A Review And Agenda For Future Research. *Journal The WINNERS*.
- Chen, S.-C., Li, S.-H., & Li, a. C.-Y. (2011). Recent Related Research in Technology Acceptance Model: A Literature Review. *Australian Journal of Business and Management Research*.
- Constantinides, E. (2004). Influencing the online. *Emerald Group Publishing*.
- Danial Hassan, a. S. (2012). Exploring E-commerce Activity in Malaysia: Challenges and opportunities. *Journal of Economics and Sustainable Development*.
- Davis, F. (1989). Perceived usefulness, perceived ease of use and user acceptance of information technology. *MIS Quarterly*.
- Delafrooz, N., Paim, a. L., & Khatib, a. A. (2010). Students' Online Shopping Behavior: An Empirical Study . *Journal of American Science*.
- Dennis, *. C., Morgan, A., Wright, L. T., & Jayawardhena, a. C. (2010). The Influences of Social e-Shopping in Enhancing Young Women's Online Shopping Behaviour. *Journal of Customer Behaviour*.

- Dennis, C., Morgan, A., Wright, L. T., & Jayawardhena, a. C. (2010). The Influences of Social e-Shopping in Enhancing Young Women's Online Shopping Behaviour. *Journal of Customer Behaviour*.
- Dillon, A. (2001). User acceptance of information technology. *Encyclopedia of Human Factors and Ergonomics*.
- Eriksen, K., & Hemmingsen, a. C. (n.d.). Online Marketing: New models of advertising?
- Ghalandari, K. (2012). The Effect of Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Conditions on Acceptance of E-Banking Services in Iran: the Moderating Role of Age and Gender. *Middle-East Journal of Scientific Research*.
- Grimsley, S. (2010). *What Is Consumer Buying Behavior?* Retrieved from Educational Portal: <http://education-portal.com/academy/lesson/what-is-consumer-buying-behavior-definition-types-quiz.html#lesson>
- Handphone Users survey 2012*. (2012). Malaysian Communications and Multimedia Comission.
- Harsono, I. L., & Suryana, a. L. (2014). Factors Affecting the Use Behavior of Social Media Using UTAUT 2 Model. *Proceedings of the First Asia-Pacific Conference on Global Business, Economics, Finance and Social Sciences*.
- Holdings, N. (2014). *Malaysians Rank Among The World's Most and Avid Online Shoppers*.

- Huang, C.-Y., & Kao, a. Y.-S. (2015). UTAUT2 Based Predictions of Factors Influencing the Technology Acceptance of Phablets by DNP. *Mathematical Problems in Engineering*.
- Indrawati¹, & Marhaeni², a. G. (2015). Predicting instant messenger application adoption using A Unified Theory of Acceptance and use of technology 2. *Proceedings of the 5th International Conference on Computing and Informatics*.
- Information and communications technology*. (2001-2005). The Eighth Malaysia Plan.
- Jambulingam, M. (2013). Behavioural Intention to Adopt Mobile Technology among Tertiary Students. *World Applied Sciences Journal*.
- Jones, C. L. (2008). The influence of online apparel shopping intention and brand loyalty for multi-channel retailers.
- Kit, A. K., Ni, A. H., Badri, E. N., & Yee, a. T. (2014). UTAUT2 influencing the behavioral intention to adopt mobile applications.
- Koufaris, M. (2002). Applying the Technology Acceptance Model and Flow Theory to Online Consumer Behavior.
- Leong, L.-Y., Hewb, a. T.-S., Tan, a. G.-H., & Ooi, a. K.-B. (2013). Predicting the determinants of the NFC-enabled mobile credit card acceptance: A neural networks approach. *Expert Systems with Application*.

- Li, N., & Zhang, a. P. (2002). Consumer online shopping Attitudes and behavior: An Assessment of Research. *Eighth Americas Conference on Information Systems*.
- Malaysia. (2014). Retrieved from Tun Razak Exchange: <http://trx.my/malaysia/>
- mobiThinking. (2013). *Portio Research*. Retrieved from Global mobile statistics 2013 Section E: Mobile apps, app stores, pricing and failure rates: <https://mobiforge.com/research-analysis/global-mobile-statistics-2013-section-e-mobile-apps-app-stores-pricing-and-failure-rates>
- Muhammad Umar Sultan, a. M. (2011). Consumers' Attitude towards Online Shopping.
- Mun Y. Yia, *. J. (2015). Understanding information technology acceptance by individual professionals: Toward an integrative view. *Information & Management* .
- Nielsen. (2014). *E-COMMERCE Evolution or revolution*. Nielsen.
- Noor, R. M. (2006). A Study on the factors that influence the adoption of E-Commerce among Malaysian Small and Medium Entreprises.
- Oechslein, O., Fleischmann, a. M., & Hess, a. T. (2014). An Application of UTAUT2 on Social Recommender Systems: Incorporating Social Information for Performance Expectancy. *Hawaii International Conference on System Science*.

- Purcell, K. (2011). Half of adult cell phone owners have apps on their phones. *Pew Research Center's Internet & American Life Project*.
- Raman, M., & Jambulingam, a. M. (2012). Adoption of Mobile Technology in a Learning Environment .
- Salehi, M. (2012). Consumer Buying Behavior towards Online Shopping Stores in Malaysia. *International Journal of Academic Research in Business and Social Sciences*.
- Shergill, G. S., & Chen, a. Z. (2005). Web-based shopping: Consumer's attitudes towards online shopping in New Zealand. *Journal of Electronic Commerce Research*.
- (2014). *Statistical brief number seventeen Handphone Users Survey 2014*. Commission, Malaysian Communications and Multimedia.
- Sultan, M. U., & Uddin, a. M. (2011). Consumers' Atitude towards online shopping. *Online Shopping*.
- Tan, C. F. (2012). Malaysian Consumers' Perceptions of Online Shopping. *COMM 803 Empirical Quantitative Research*.
- Taylor, D. G., Voelker, a. T., & Pentina, a. I. (2011). *Mobile Application Adoption by Young Adults: A Social Network Perspective*. WCOB Faculty Publications.
- Thomas, T. D., Singh, a. L., & Gaffar, a. K. (2013). The utility of the UTAUT model in explaining mobile learning adoption in higher education in Guyana. *International Journal of Education and Development using Information and Communication Technology*.

- Venkatesh, V. e. (2003). User Acceptance of information technology: Toward A Unified View. *MIS Quarterly*.
- Viswanath Venkatesh. (2012). Consumer Acceptance And Use of Information Technology: Extending The Unified Theory of Accptance And Use of Technology1. *MIS QUARTERLY*.
- WU, M.-Y., CHOU, H.-P., WENG, Y.-C., & HUANG, a. Y.-H. (2011). TAM2-based Study of Website User Behavior. *WSEAS TRANSACTIONS on BUSINESS and ECONOMICS* .
- Yang, S. (2013). Understanding Undergraduate Students' Adoption of Mobile Learning Model: A Perspective of the Extended UTAUT2 . *Journal of Convergence Information Technology(JCIT)*.
- Yulihasri, Islam, M. A., & Daud, a. K. (2011). Factors that Influence Customers' Buying Intention on Shopping Online. *International Journal of Marketing Studies*.
- Zhou, L., Dai, L., & Zhang, a. D. (2007). Online Shopping Acceptance Model. *Journal of Electronic Commerce Research*.