

Tendency of Generation Y in Malaysia to Purchase Online Technological Products

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Abstract: The purpose of this study is to investigate the determinants that influence the behavioural intention of online purchases among generation Y. The rapid growth of broadband web internet technology changes our life style of consumers by offering a wide variety of products online. Main novelty of this study is in its studied type of products. The study used modified TAM (Technology Adoption Model). The study addresses the key issues of perceived usefulness, perceived risk and perceived ease of use of consumers to purchase online technological products in order to establish a consensus among Gen Y. The sample size comprises of 200 undergraduate students and questionnaire is developed on Google drive and distributed through online survey methods using Facebook and Twitter. The analyses are completed with Pearson correlation coefficients and multiple linear regressions. The findings revealed that perceived usefulness and perceived risk of the website are significantly related to behaviour intention of online purchases among generation Y. The findings showed that Gen Y are willing to purchase online, if the retailers provide security on e-Transactions. The result will give useful information and attract more retailers to establish online business.

Key words: e-Commerce, technological products, generation Y, technology adoption, Twitter

INTRODUCTION

In record, the internet subscriber has reached up to 35% of the populations in 2011 and over 2.7 billion people at 39% of the populations in 2013 based on (International Telecommunications Union) ITU study. Therefore the future of digital economy looks promising with the high penetration of internet in 2013 (ITU, 2013). Thousands of organizations are moving towards into e-Commerce business model and many countries' government also implement policies to transform their economies into digital economies. Malaysia is one of the countries that the government is inspired to aggressively transform and shape Malaysia into a digital economy. e-Commerce has existed in Malaysia since the mid-nineties but the ecosystem of Malaysia is still far behind from countries like Korea, United Kingdom and Hong Kong. According to Leong and Lee (2009), 30% of Malaysian internet users are involved in online shopping. This low level involvement in online shopping is relatively low as compared to other developed countries in Asia Pacific Region. As it can be inferred, Malaysians are considerably reluctant to shop online compared to those countries. With a new PayPal survey conducted by GfK (Enterprise IT News, 2012), it is stated that Malaysians intend to spend half of their holidays shopping online this year and that has saved 36 h of their

precious time. Therefore, it is believed that Malaysians have higher acceptance of extending their shopping behaviour from offline to online. This, thus enables the market of online shopping in Malaysia believed to be full of opportunities and the chances are enormous. Among the internet users preference in Malaysia, booking travel with airline tickets, hotel and tour reservations are the top pick (The Nielsen Company, 2012).

However, a mid-2005 survey by the Malaysian Communication and Multimedia Corporation (MCMC), presents that only 9.3% of internet users had purchased products or services through the internet during the preceding 3 months. Among of the product and services purchased online by the consumers; airline tickets were the most popular item (43.8%) followed by books (15.6%) and music (6.8%). All these transaction spent on are relatively smalls and over 57.7% of transactions worth less than RM 500. It shows that Malaysians are reluctant to purchase high price products such as technological products (laptops, mobile phones) through internet as they prefer to see, touch and feel the product by themselves. According to the Nielsen Company's Mobile Insights Survey, it show majority of Malaysians (71%) especially the younger generations were using internet for non-shopping purpose such as looking for information, communication with others, playing games and other entertainments.

In AC Nielsen Survey in 2008, it stated that most frequent mode of payment in e-Commerce were credit card at 77% followed by money transfer at 38%, cash on delivery at 19%, PayPal at 15% and pre-paid credit cards at 11%. Followed by Kamaruzaman they found that in 2007 Malaysians were using more credit card and internet banking for electronic transactions compared to the statistics recorded in the year 2003. Despite the increase usage of credit cards and internet banking to shop online, the concern of security and privacy aspects has never been reduced. According to Haque *et al.* (2009), a total of 38% Malaysians felt that it is safer to purchase products or services physically in shops and 36% of them do not want to disclose their personal information and credit card details due to lack of trust and security issues. As a result, the online shopping rate in Malaysia still remains slow even with the supports of the government and encouragement of local marketers to urge people to purchase online. In this case, most of Malaysians would still prefer to have physical business dealing rather than applying e-Commerce concept. Due to the nature of e-Commerce, despite that it would provide conveniences or cheaper price, decision making in purchasing items online differs as the consumer would still have reluctance to purchase certain product and services online. Moreover, consumer protection acts that explicitly exclude protection in electronic transactions had shown why consumers lack of confidence and trust on online transactions. Therefore, it is believed that the security issues are the main reason that hinders consumer from shopping online (Kaur, 2005). Furthermore, difficulties in obtaining merchants accounts and delivery and stocking problems has also lead to dissatisfied consumers which further constraints the development of e-Commerce business in Malaysia. However, the government and local marketers persevere at actively encouraging the companies to expand into e-Commerce industry in Malaysia despite the knowledge that the consumers are still at lack of confidence to use it. The online shopping in Malaysia has a potential for huge opportunities to grow in the e-Commerce market. High incidents of online fraud and generalized consumer preference for physical business dealings are part of the consumers' concern that restraints the e-Commerce development in Malaysia. Thus, this creates a necessity for the companies build the consumer confidence upon expansion of their products and services through e-Commerce to the consumers (Ahmed *et al.*, 2006).

With the advantages of minimal start-off capital and global reach, it has become the most viable and popular business model of today's entrepreneur to start off with

their business. However, majority of Malaysians are still uncomfortable to shop online as they have stronger cultural preference to see or hold the products in their hands compared to the Western countries. In Malaysia, many shops and restaurants are generally located nearby consumer's residential areas and operate on longer period enabling the consumers to be able to shop or be served. Therefore, looking into the Malaysia general business environment, the aspect of convenience in e-Commerce is less effective for many Malaysian consumers. Adhering to this as well, the consumer's concerns such as untouchable products, privacy issues and security issues had become major barriers to attract a sizeable sales amount from the consumers via e-Commerce. Several studies had been conducted to find out why many consumers are not interested to purchase online despite its convenience, cheaper price and wider variety of choices but rather prefer to purchase certain items physically (Boyle and Ruppel, 2006).

Technology products were chosen to be studied in this research because of the potential growth in Malaysia especially with the rapid innovative trend of PC adoption. Based on the Malaysia Information Technology Report (BMS, 2014), Malaysian expenditure on technological products is expected to reach up to 7% compared to last year (2012), an approximately US \$5.6 billion. Therefore, the booming of technological products is believed to be prominently supported by generation Y, the technology savvy group. Thus, it is important to discover the determinants of tendency of generation Y at Malaysia to purchase technological products online.

Past literature on e-Commerce are mostly on e-Banking (Poon, 2008), e-Governments (Carter and Belanger, 2005; Belanger and Hiller, 2006) and e-Ticketing (Sulaiman *et al.*, 2006, 2008; Rezamand and Sorooshian, 2012) rather than in marketing fields like what are the main factors that affect the tendency of generation Y in Malaysia to purchase technological products online. Today, the total size of e-Commerce in technological products market is yet lacking in information in Malaysia. However, the online shopping in Malaysia is still not very favourable as looking into the general Malaysia business context as majority would still prefer to have physical dealing. Furthermore, there is yet to have a research conducted by the previous researchers on purchase of technological products towards the tendency of Malaysian generation Y in the field of marketing. Therefore, the aim of this study is to discover how the theory of Technology Acceptance Model (TAM) would affect Malaysian generation Y tendency to purchase technological product online.

Literature review

e-Commerce adoption in Malaysia: Several researches on e-Commerce adoption in Malaysia can be found in early 2000 (Ahmed *et al.*, 2006; Lee and Uchenna, 2011). However, most of the past research just focused on early 1990s e-Commerce adoption in Malaysia to examine consumer purchase behaviour on different areas. Therefore, a brief review of the e-Commerce adoptions in Malaysia from year 2005 will be covered.

Malaysia is one of the Asian countries that are rapidly growing in e-Commerce in the recent years. e-Commerce in Malaysia is fast approaching a growth inflection point with the support of government; launching and promoting internet and Information Communication and Technology (ICT) in the early of 2001. The government launched the multi-billion dollar projects such as Multimedia Super Corridor, National Broadband Initiative where Malaysian government set the vision to transform Malaysia into fully developed country by 2020 through these projects. Many platforms had been introduced to assist and enable the Malaysians to develop knowledge such as venture capital funds, tax incentives and the application of technology oriented Multimedia Super Corridor. Malaysia has ranked the 35th position out of 65 countries and dropped from 5.61-5.43 in e-Readiness level also is lagging behind Asia countries like Singapore, Hong Kong and Taiwan (Poong *et al.*, 2007).

However, rapid growth of the information and communication technology had likely affected the internet growth in Malaysia. In the study of International Data Corporation (IDC, 2007), it is shown that the overall of e-Commerce expense in Malaysia has grown to 70% in year 2006 as compared to year 2005. Based on the department of statistics, it is stated that 52.9% of Malaysian populations is within the same age groups and 85% of Malaysian internet users' age groups ranged among 15-50 years old. This study shows that the number of Malaysian online buyers are increasing year by year as they have grasped to 7.1 million in 2008. According to the statistics of international data corporations study, most of the Malaysian internet users are professionals, students and traders. Moreover, in the star news article by Ho (2011), stated that Malaysians have spent RM 1.8 billion on online shopping in the year 2011 and this number is expected to triple in 3 years times.

According to EI (2014), the study reveals that Malaysia has transacted over RM 842 million of the total e-Commerce transaction and is expected to surpass RM1.9 billion by the year 2016. Along with the study by Nielsen with Paypal, they stated that the growth rate would be over RM5 billion by 2015 which stated a higher

rate of estimation than Euromonitor's studies. On top of that the studies have also showed that 45% of Malaysians prefers to shop at local websites and only 35% prefers to have online transaction at the foreign websites. It shows that over RM825 million has been transacted in the local websites and only RM627 million were transacted in foreign website (Ho, 2011), this is a positive sign for the Malaysia's economy and a motivational factor that would drive existing organizations to venture into e-Commerce business model. This research was conducted in early 2011 with 400 Malaysian online shoppers aged 18 and above by looking at their online and mobile shopping transaction over the past 12 months. In the study, it also stated that Malaysians most online expenditure is on travel (24%), bill payment (18%), entertainment and lifestyle (14%). Most of them spend online on airline tickets, bill payments such as electrical billings and fashion apparels from local websites while foreign websites on the purchases of books, music and movie downloads. However, in the same news article is also stated that the security issues was the top concern with seven out of ten shoppers stated they are willing to spend more if internet safety measures is improved.

Additionally, Malaysia has ranked only seventh behind China in Asia based on the e inaugural AT Kearney's 2012 e-Commerce Index (Moriarty *et al.*, 2012). Moreover, Paypal's managing director for South-East Asia and India, Elias Ghanem also mentioned that the local websites have higher chances to overdo the foreign website based on the facts that Malaysians spend more on local website and he encouraged local marketer to venture into e-Commerce models to capture share of the growing market (Ho, 2011). Therefore, Malaysia is believed to be the new booming of e-Commerce country for the next coming years.

According to the data from The World Bank Group (2013), it found out that Malaysia with 28 millions of people has an internet penetration of 61%, behind New Zealand (86.2%), Korea (81.5%), Australia (78.9%), Japan (78.7%), Singapore (75.1%) and Hong Kong (75%). The high acceptance of new technology and internet users, increasing trend for online shopping area has greatly driven the development of e-Commerce in Malaysia. Furthermore, the success of e-Commerce activities in Malaysia is because of the increasingly improving and cheaper online payment solutions that are offered by the local banks with the help of government. Even with high internet penetration across Malaysia, Malaysians are still reluctant to purchase product that are over RM 500 in single transactions (Wong, 2013). Thus,

online shopping in Malaysia is still relatively slow compared to other Western countries such as Australia, United Kingdom and United States.

Besides that, Malaysia's e-Commerce industry is gradually opened up to more opportunities to grow through the efforts of government on implementing new policies that set up in 2013. Based on the Malaysia Budget 2013 announced by the Prime Minister Datuk Seri Najib Tun Razak, a programme named "Business in Transformation Programme" is one of the projects that is intended to provide guidance and consultation services on the new business concepts including the online business by Perbadanan Nasional Berhad (PNS) along with soft loan provided. Furthermore, in the budget 2013, it also mentioned that the Malaysian government would allocate RM 50 million to support the developments of the economies. The fund would be used in assisting the small entrepreneurs especially women to encourage them to promote business by increasing sales online with the incentives of RM 1,000 from Malaysian Communications and Multimedia Commission (SKMM). Moreover, the government will be involved in building hundreds of 1 Malaysia Internet Centre in Rakyat Housing Programme (PPR) location as to further enhance the socio economic activities through broadband internet access in between year 2013 and 2015 (The Star, 2012).

On the other hands, the government has also taken an important action in announcing the new electronic trade transactions regulations 2012 that all business and services conducted online will have to abide with the new regulations to protect the interest of consumers starting from July 2013. It is believed as to help Malaysia's e-Commerce industry to further develop, over 1.1 million of Malaysians had carried out transactions online with the business worth of RM 1.8 billion in year 2010 and the amount is expected to boost up to RM 5 billion by the year 2014. Therefore, for such large amount of transactions, the measurements to protect the interest of consumers are essentially needed and it is believed to help increase the consumers' confidence level on doing electronic transactions. In accordance to these regulations, web entities are included to display the full details of the enterprise and full costs of items and services such as transportation and taxes is used to reduce and control the increasing cases of electronic transaction fraud that happens in Malaysia. Therefore, if the merchants had violated these regulations, he or she would face prison sentence for not >3 years or fines not more than RM 50,000 or both. These new regulations are applicable on traders that supply products and services through website and online market places including social

media like Facebook and Blogger. Therefore, the development of e-Commerce in Malaysia for the future years is positively bright and it could be the new rising star in ASEAN countries with its booming e-Commerce industry (Ueno, 2012).

e-Commerce in Malaysia is rapidly developing overall but then, several areas still need to be looked into for Malaysian to actively engage in online purchasing. Most of the Malaysians are still unfavourable on the deals with e-Commerce due to uncertainty such as lack of policies. Furthermore, majority Malaysian still prefer conventional shopping rather than online shopping and high cyber crime rate takes the form of threat for consumers to purchase online. Moreover, the awareness and knowledge of technologies are still in formative phases where by majority of Malaysians are still not familiar with some new technologies and this cause reluctance for them to adopt new knowledge. Followed by security and privacy issues that is the main concern for the consumers. Then, the other concerns which include the high cost of internet services such as broadband services and usage of the new technologies are relatively higher compared to other regions (Jehangir *et al.*, 2011).

Generation Y: Several researches have been done on generation Y (Kumar and Lim, 2008; Crampton and Hodge, 2011; Harp, 2013). However, most of the past researches only provide a brief review on the generation Y based on different fields such as in business context. Therefore, a further review of the generation Y will be covered in the next section.

Generation Y has become a unique target and demography for marketers to study in order to succeed in the markets (Djamasbi *et al.*, 2010). As in ITU (2011) world telecommunication study, it is stated that 45% of the world's internet users are below 25 years old and generation Y is frequently on the internet than the elder people (Baby Boomers). Generation Y had been recognized as a new sizable market segment that will change the landscape of business models (Sullivan and Heitmeyer, 2008). They are also the largest generation with estimations of 80 million people aged ranging from 19-31 after Baby Boomers. Generation Y is comprised of those who were born between the year 1980 and 1999 (Crampton and Hodge, 2011) and is the first generation to grow up using technology. They are the first generation integrated with technology in their daily life. Generations Y feels comfortable using internet to search for the information that they require of a product or service. Therefore, they are known as technologically savvy due to quick master of the computers and the latest gadgets

(The Portal, 2008). It is crucial to understand the generation Y segment due to their substantial population and heavy usage of technology.

Generation Y is targeted in today's business market as today they have approximately \$150 billion direct purchasing power and nearly \$500 billion indirect purchasing power as compared to their parents, Baby Boomers. Therefore, generation Y is to be the target and study due to their strong influential power in spending. Generation Y between age group of 15 and 29 years old has stated a recorded a parameter of approximately 6.9 million in 2009 which makes up a total of 27% of Malaysia's populations. Additionally, generations-Y in Malaysia would reach between 26-30% of global consumer market in 2010. This shows that they have been marked up as an important market segment globally whereby they can generate up to trillion dollars of business globally. Therefore, following by the exit of Baby Boomers in 2020, generation Y would be seen to take over the market and become the target of the marketers to focus on in future. As result with this sizable populations and newly developed spending power, the influence of the generation Y on today's business environments is unquestionable.

According to Partridge and Hallam (2006), generation Y had embraced their life with technology by learning and processing information. However, Myron (2005) stated that the generation Y are more individualist and independent rather than being brand loyal as there would be wide range of information in the internet that would influence their decision making in purchasing. In Oblinger and Oblinger (2005) research, it is shown that generation Y is more reliant on technologies such as the computers and especially on the internet in their life. Generation Y takes technological products as the symbol to represent the choice, flexibility and reliance which represents the current generation Y's e-Lifestyle (Gross, 2006). Moreover, generation Y was also believed to shop for self-expression that includes the consumptions of lifestyles goods such as books, CDs and games (Misonzhnik, 2009). Generation Y are also believed to have less brand loyalty as rapidly evolving internet that led the cohort to be correspondingly flexible and shifting the style as well as be authentic (The Portal, 2008). Furthermore, according to Steve Murphy from Synovate, generation Y is described as critical consumer to be studied for the marketers despite the sizable percentage of the population, they are also the opinion leaders in adoption of new technology and ideas (Tan, 2009). Besides that, generation Y was estimated to spend averagely USD 39 billion per year and have total

annual incomes of USD 211 billion (Nowak *et al.*, 2006). Furthermore, generation Y would increase their spending power by year 2015 to USD 2.45 trillion per year based on the Visa USA Inc. study in 2007. According to Yarrow and O'Donnell, generation Y will be having more spending power than any other generation by year 2017. Besides that they also stated that 65% of the generation Y that they have surveyed shops with more passion compared to 43% of those over 30. As a result, generation Y is viewed as one of the generation with a strong powerful purchasing power in the next coming trends.

Generation Y are the generation that is born in dual income household and full employment environments. Therefore, in most household, both parents of generation Y often work outside and have the capabilities to satisfy most of the monetary needs for generation Y to spend and purchase. Moreover, generation Y is believed to not only shop for them but also involved in and influences their family purchase decision from grocery to new cars. One in nine of generation Y has a credit card that is co-signed by their parents (The Portal, 2008). Therefore, generation Y is believed to have direct influences on all the purchasing decision of their parents. However, generation Y will spend all their money as soon as they receive it and most of them usually spend on consumer goods and personal services (Martin and Turley, 2004). Therefore, the culture of generation Y is on spending, spending and spending. According to Martin and Turley (2004), the top three purchases categories of generation Y are clothing and entertainment followed by food. Therefore, it shows that generation Y do not only purchase for themselves using their own money but also with money that are given by their parents or relatives. It was believed that generation Y has more wealth and economic influences compared to their parents' era, Baby Boomers (Grant and Stephen, 2005). Moreover, the age group between 19 and 29 years old are the wealthiest group of generation Y as currently many of them are working in part time or full time jobs. Moreover, by embracing this lifestyles of theirs with the internet and ability to think out of the box, generation Y had eagerly become entrepreneurs at young age that potentially bring them a large fortune in their early 30s. For such, Lokman Teh at his 21 years old could already afford to shop luxuries in branded shops like Gucci and owned two luxury cars of a Nissan Skyline and a Hummer H3 by setting up his own business at a young age. He is an executive director of Zaitun Kosmetik Industri Sdn Bhd and a trader of automobile where these businesses had enabled him to earn big money for his current luxuries lifestyle. Thus, generation Y is viewed as ambitious,

entrepreneurial and demanding yet these are one of those reasons that shaped their influential power in the future market trends.

As result, the total size of the generation Y population, their spending power and strong ability to generate income is essential for marketers to take into consideration to relocate their business and marketing models. Additionally, marketers should also respect and understand generation Y as consumers by taking in their opinion and experiences into their product or services. Thus, generation Y would be a rewarding and profitable target segments for Malaysian e-Marketers if they successfully understand the generation Y and develop products or services that meets their needs and wants as generation Y have strong drives and financial capabilities to spend in orders to satisfy their wants.

Technology Acceptance Model (TAM): The fundamental concept of the framework is adopted from the Technology Acceptance Model (TAM) by Davis (1989) which is a well-adopted information system field of research model. TAM Model has been supported to be the most suitable theoretical foundation for the e-Commerce adoptions in several studies in the past few years (Qiu and Li, 2008; Johar and Awalluddin, 2011; Awa *et al.*, 2012). Therefore, the TAM Model is adopted and used to construct the basis of this research framework to research on the determinants of tendency of generation Y at Malaysia to purchase technological products through online.

The theoretical frameworks were mainly abstracts from the TAM which are Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) with one supplementary construct that is taken from Rogers (1995) and Sekaran (2005) diffusion of innovation which is Perceived Risk (PR). The relationships based on the TAM constructs are shown in Fig. 1.

TAM proposes that the two factors that are important for the actual usage of a technological

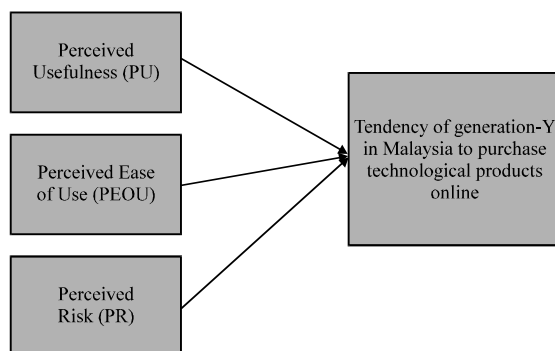


Fig. 1: The determinants of the tendency of generation Y to purchase technological products online

innovationare ‘Perceived Usefulness’ (PU) and ‘Perceived Ease of Use’ (PEOU). ‘Perceived Usefulness’ (PU) is explained as if the users believe by using a particular system, it will be able to improve his or her job performances (Davis, 1989). PEOU is explained as the users’ belief that usage of the particular system will be effortless (Davis, 1989). PR added in as the additional factor that is identified from Rogers’ Diffusion of Innovation theory is also recognized to influence the tendency of generation Y in Malaysia to purchase technological product online. Firstly, perceived risk has been acknowledged as the common hindrance to electronic commerce technologies adoption (Cunningham *et al.*, 2005; Aldas-Manzano *et al.*, 2009) as it was believed to have the likely effects on the tendency of generation Y to purchase technological products online.

Perceived risk referred to as the potential uncertain negative outcomes that would occur due to online purchasing (Kim *et al.*, 2008). According to Taylor (1974), he stated that perceived risk would occur when consumers face uncertainty and undesirable consequences due to wrong decision. In the study by Chen and Barnes (2007), they had stated that perceived risk may be categorized into two categories; security risk and privacy risk. In Malaysia, security risk is one of the major barriers in e-Commerce growth where consumers refuse to disclose their personal and credit card details unless the e-Merchants showed the credibility and trustworthy. Perceived risk is believed can be reduced by online trust according to the study by Gefen *et al.* (2008). Furthermore, Chen and Barnes (2007) also described that it shows positive relationship between perceived risks and trusts in e-Commerce. However, Kim *et al.* (2008) studies, he stated that trust have negative relationship with perceived risk in e-Commerce. Therefore, it is has no accurate results in the extant literature in determining the relationship between perceived risk and trust.

According to Davis (1989), perceived ease of use is defined as a person’s belief that using the particular system would be free of efforts in certain extents. It is also referred as the subjective perception by consumers regarding how much efforts are needed to put in order to learn and use the websites (Koufaris and Hampton-Sosa, 2004). They also stated that if the company’s website is easy to use; simplify purchasing procedures and detailed information on the websites, would relatively increase the consumer’s level of online trust. Therefore, it is believed that a clear and simplified website layout would boost the trust level of consumers towards online purchase. In addition, perceived ease of use would not only increase online trust but also the perceived usefulness of

e-Commerce (Kamarulzaman, 2007). Besides that perceived usefulness is referred to as a person's belief that using the particular system would enhance his or her job performance to a certain extent (Davis, 1989). However, it is also based on individual perception by consumers regarding the websites' efficiency in utilization of their shopping task (Koufaris and Hampton-Sosa, 2004). Therefore, it is believed that if the online purchases are able to improve the consumer's performance; save time and cost, it would have positive relationship between perceived usefulness and tendency of generation Y in Malaysia to purchase technological products online. Based on this, we therefore construct the following hypotheses in relation to tendency of generation Y in Malaysia to purchase technological product online.

MATERIALS AND METHODS

Hypothesis development: This research is aimed to answer the main objectives as what are the determinants that would influence the tendency of purchasing technological product (laptop, mobile devices and tablets) online among generation Y in Malaysia and what are the most important determinants that would influence the tendency of generation Y to purchase technological products online. In this study, hypotheses will be developed to research on the relationships between the tendency of generation Y in Malaysia to purchase technological products online and the 3 interdependent variables (PU, PEOU and PR).

This research will be tested on the following hypotheses in the context of determinants that influence the decision of generation Y in Malaysia on purchasing technological products online.

PU is defined as the users' perception that by using particular Information Systems, it would increase their job performance (Davis, 1989). The past studies had researched the relationship of PU with the tendencies to purchase online as they are proved to have significant positive relationship. Therefore, the development of relationship between PU and the tendency of generation Y at Malaysia to purchase technological products online have a positive influence. Hence, the first hypothesis is developed as below:

- H₁: perceived usefulness have a significant positive relationship with tendency of generation Y at Malaysia to purchase technological products online

PEOU is defined as the users' perception that using particular information systems on their job performance would be free of efforts (Davis, 1989). Previous research

had shown that the customers' PEOU will enhance their shopping performance and they would have greater tendency to purchase online. Therefore, the development of relationship between PEOU and the tendency of generation Y at Malaysia to purchase technological products online are proven to be having significant positive relationship. Thus, the second hypothesis is developed as follow:

- H₂: perceived ease of use has a significant positive relationship with the tendency of generation Y at Malaysia to purchase technological products online

PR is defined as the users' perceived risks that would occur by using particular information systems on their job performance (Rogers, 1995; Sekaran, 2005). In the past research, perceived risk is proven to be the factor that will influence the consumers' tendency to purchase online due to the risks involved. Therefore, it is found that the relationship between PR and the tendency to purchase online is significantly a positive relationship. Hereafter, the third hypothesis is constructed as below:

- H₃: perceived risk has a positive significant positive relationship with the tendency of generation Y at Malaysia to purchase technological products online

Research approach: Quantitative research is described as a more closely scientific method than the qualitative researches (Taylor, 2005). Quantitative research is more reliable and can be generalized to a large sample. Conversely, qualitative research is generally expressed in words and has extensive narrations in describing the phenomena in great details (Taylor, 2005). Furthermore, SS qualitative research is more subjective than quantitative (Taylor, 2005). Hence why, quantitative research methods are used in this research as it is the most suitable traditional approach to find out the relationship between the variables and to test the hypotheses (Leedy and Ormrod, 2001). Survey questionnaire is used as the research instrument for this research. Survey questionnaire is used because of its accessibility to collect different aspects of data and have larger samples plus can swiftly collect the data in short timeframe. Hence, survey questionnaire is the most appropriate method in this research. Furthermore, secondary data will be used in this research study as to review the literature of e-Commerce adoption in Malaysia, generation Y and TAM. Sources of secondary data that will be used are government reports and statistics, online databases like Euromonitor, news articles like Forbes, The Edge Malaysia and the star online and online journals such as Emerald, J-Stor and others.

Sampling plan: An online questionnaire has been developed to collect the required data in the most efficient manner possible. The questionnaire was designed in the most simple and understandable manner for the respondent to interpret and complete the survey. Two hundred samples of questionnaire responded to by generation Y were randomly selected as sample size. The sample size of two hundred has been collected and was used in this study for analysis. Respondents can be with or without experiences on purchasing online. Furthermore, convenience sampling was used to examine the characteristics of random respondents selected from the public because it easier and more convenient to access.

The survey questionnaire had a total of 28 questions and was separated into five parts. Eight questions were asked to evaluate the perceived usefulness of online purchasing that will influence the tendency to purchase online on the first part of the questionnaire. Second part would include 7 questions that related to perceived ease of use will influence their tendency to purchase online. Followed by, third part consisting 5 questions that are related to perceived risk that will influence their tendency to purchase online. Subsequently, the fourth part comprises of 5 questions that are related to the tendency of generation Y to purchase technological products online in future. The last part would be personal profile information of the respondent which includes gender, age and education level. The first four parts of the questionnaire is set on the five-point Likert scale which are 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree. Lastly, the demographic part has sets of multiple choices for gender and education level whereas age is set on open answer for respondents to fill in their age. The entire respondents are required to answer all the questions. It takes approximately 10 min to complete the questionnaire. Last of all, this survey questionnaire had been developed by adopting from the research study by Lim (2012).

Data collection approach: Online survey questionnaire is developed by using Google Drive and was distributed to random pool of respondents through social media websites; Facebook and Twitter. Data collected from the respondents will be directly recorded within Google Drive database as it would create a new spreadsheet that will contain the respondents' data and responses in sequence. The data collection time frame is set on approximately one week from the 22nd of May 2013 to 29th of May 2013. Therefore, the link of the online survey questionnaire form is shared on the social media website (Facebook and Twitter) with the respondents enabling them to answer the survey questionnaire. The

internet-based survey is employed as it is a better alternative to postal questionnaire (Braithwaite *et al.*, 2003). Therefore, using online survey questionnaire and distributing it purely online is effective for researches to collect data on the current trend. It is also convenient to reach and collect data of generation Y whom are actively engaged in social media websites. The entire respondent that participated in this study voluntarily completed the survey questionnaire as they had been communicated that all the details and information is only to be used for academic purposes and it would be strictly confidential and will not reveal to the public.

Data analysis methods: First of all, Statistical Package for Social Science (SPSS) 16.0 Software was used to analyse the data collected from the respondents. Followed by, descriptive statistics, correlations and multiple linear regressions was used in the data analysis. Descriptive statistics were used to identify the brief features of data collected by showing its frequency and percentage of the research study. Next, correlations analysis was used to measure the linear relationships between the interdependent and dependent variables. As result, if the two variables are independent of each other, the correlations results will be shown as approximately zero. Besides that, multiple regression analysis was used to examine the impact of independent variables on the dependent variables. In the meantime, multiple regression analysis was also used as investigate the relationship between a single dependent variables and few independent variable that act as predictor to have influences on the dependent variables.

RESULTS AND DISCUSSION

Response rate and respondent demographic profile: The 200 of completed survey questionnaires had been received from the respondents and no missing data were found in this study. The entire 200 survey questionnaires collected were used for analysis in this study. In these 200 respondents, female respondents and male respondents were equally distributed; 100 (50%) questionnaire for each gender. Majority of the respondents, in terms of age groups, falls under the age of 22-24 years old which is 135 respondents (67.5%) followed by 43 respondents (21.5%) from the age groups of 18-21 years old and 21 respondents (10.5%) from the age groups of 25-31 years old, respectively. The lowest respondent age group falls under the age groups ranging from 29-31 years old which is of only 1 respondent (0.5%). In these 200 respondents, the majority educations levels of respondents fall under the undergraduate level as 146 respondents (73%) in the

category. Followed by 32 respondents (16%) are from the Diploma level of education, 12 respondents (6%) from the Foundation/Pre-university of education level and 7 respondents (3.5%) are from Masters level of education. The lowest numbers of the respondents' educational category is the high school level of education; only 3 respondents (1.5%).

Pearson correlation coefficient: Based on Table 1, PU is positively significant related to tendency of generation Y ($r = 0.228$, $p = 0.001$), PEOU ($r = 0.480$, $p = 0.000$) because PU ($p > 0.005$). However, PR ($r = 0.083$, $p = 0.241$) is not significantly related to PU. Followed by, PEOU is positively but not significantly related to tendency of generation Y ($r = 0.169$, $p = 0.017$) and PR ($r = 0.124$, $p = 0.81$). Subsequent, PR is positively significant related to tendency of generation Y ($r = 0.592$, $p = 0.000$). As for tendency of generation Y in Malaysia to purchase technological products online has positively significant related to PU ($r = 0.228$, $p = 0.001$) and PR ($r = 0.592$, $p = 0.000$). However, tendency of generation Y in Malaysia to purchase technological product online is positive but not significant related to PEOU ($r = 0.169$, $p = 0.017$). Therefore, we can conclude tendency of generation Y in Malaysia to purchase technological products online has positively significant relationship with PU and PR as this two.

Multiple Linear Regressions (MLR): In this study, multiple linear regressions analysis was employed to determine if the dependent variable can be predicted from the independent variables. The independent variable is the Perceived Usefulness (PU), Perceived Ease of Use (PEOU) and Perceived Risk (PR) whereas the dependent variables are the tendency of generation Y to purchase technological products online. The three predictor

Table 1: Correlations analysis between variables

Correlations	AVR_PU	AVR_PEOU	AVR_PR	AVR_TY
AVR_PU				
Pearson correlation	1	0.480**	0.083	0.228**
Sig. (2-tailed)	-	0.000	0.241	0.001
N	200	200	200	200
AVR_PEOU				
Pearson correlation	0.480**	1	0.124	0.169*
Sig. (2-tailed)	0.000		0.081	0.017
N	200	200	200	200
AVR_PR				
Pearson correlation	0.083	0.124	1	0.592**
Sig. (2-tailed)	0.241	0.081		0.000
N	200	200	200	200
AVR_TY				
Pearson correlation	0.228**	0.169*	0.592**	1
Sig. (2-tailed)	0.001	0.017	0.000	
N	200	200	200	200

**Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed)

variables and dependent variable are now computed into regression equations as scales as it will be used in the multiple regression analysis. The multiple correlations (R) between tendency of generation Y to purchase technological products online and the three predictor variable are strong at 0.619 based on Table 2. The combination of the predictor variables has rounded off for nearly 39% of the variation in tendency of generation Y to purchase technological products online (R^2) 0.383.

Based on Table 3, ANOVA had presented from here for the regression equations. The regression equations is significant as ($F = 40.558$, $p < 0.000$). As results, we can conclude that the independent variables have significant relationships between the dependent variables. The independent variables (PU, PEOU and PR) will likely have significant effects towards the dependent variables (tendency of generation Y to purchase technological products online).

Based on Table 4, it had shown the information of the effects between the interdependent variables towards the dependent variable of tendency of generation Y in Malaysia to purchase technological products online. Two of the interdependent variables (PU and PR) had shown to have significant and positive effect on the tendency of generation Y to purchase technological products online. The PU variable of standardized regression weights has shown ($\beta = 0.173$, $t = 2.706$, $p < 0.07$). Followed by, PR

Table 2: Multiple linear regression results for the TAM Model summary

Model	R	R ²	Adjusted R ²	SE of the estimate
1	0.619 ^a	0.383	0.374	0.55908

^aPredictors: constant, AVR_PR, AVR_PU, AVR_PEOU

Table 3: Multiple linear regression results of Perceived Useful (PU), Perceived Ease of Use (PEOU) and Perceived Risk (PR)

Model 1	Sum of squares	df	Mean square	F-value	Sig.
Regression	38.032	3	12.677	40.558	0.000 ^a
Residual	61.264	196	0.313	-	-
Total	99.296	199	-	-	-

^aPredictors: constant, AVR_PR, AVR_PU, AVR_PEOU; dependent variable: AVR_TY

Table 4: Coefficients results of Perceived Useful (PU), Perceived Ease of Use (PEOU) and Perceived Risk (PR)

Coefficients ^a					
Model 1	Unstandardized coefficients		Standardized coefficients		
	B	SE	Beta	t-values	Sig.
Constant	0.405	0.434	-	0.933	0.352
AVR_PU	0.283	0.104	0.173	2.706	0.007
AVR_PEOU	0.028	0.126	0.014	0.222	0.824
AVR_PR	0.651	0.064	0.576	10.184	0.000

^aDependent variable: AVR_TY

variables of standardize regression weights had also shown positive significant relationship toward tendency of generation Y in Malaysia to purchase technological products online at ($\beta = 0.576$, $t = 10.184$, $p < 0.00$). As result, these 2 variables (PU and PR) are significant contributors to predict the tendency of generation Y in Malaysia to purchase technological products online. Therefore, the standardized coefficient for PU ($t = 2.706$, $p < 0.07$) and PR ($t = 10.184$, $p < 0.00$) supports the hypothesis H_1 and H_3 . However, the PEOU variable did not appear to have unique predictive power when the effects of the other variables are held constant ($\beta = 0.014$, $t = 0.222$, $p < 0.824$). As results, the PEOU variable is not significant towards the tendency of generation Y to purchase technological products online. Thus, the standardized coefficient for PR ($\beta = 0.014$, $t = 0.222$, $p < 0.824$) does not support the hypothesis H_2 . As results, PR has the highest effect on the tendency of generation Y to purchase technological products online than the PU variable.

Based on Table 5, the findings of this study had showed the applicability of TAM in assessing the tendency of generation Y in Malaysia to purchase technological products online in the e-Commerce fields. Three of the hypotheses constructed based on the TAM and the hypotheses relationships have been proven. For PU and PR, it showed that the relationships are relevant to the tendency of generation Y in Malaysia to purchase technological products online. The positive significance relationship of PU towards tendency of generation Y in Malaysia to purchase technological products is because of the Malaysian generation Y perceived that purchase technological products online can helps them improve their shopping performance. Furthermore, the generation Y will have the strong tendency to purchase technological products online if the online shopping sites are perceived useful. Therefore, the online retailers should consider the importance of shopping performance to the Malaysia's generation Y. As result, online retailers should offer products and services that help the consumers to save the time and money. Moreover, it is important to provide delivery services for the young consumers to eliminate the need to travel to the physical shops to make purchases.

However, the unexpected result of the study is PEOU had insignificant relationship with the tendency of generation Y in Malaysia to purchase technological products online. Therefore, it can only mean that the perceived ease of use are not one of the factor that would likely affect the tendency of generation Y in Malaysia to purchase technological products online. By other ways or means, there might be other factors that cause them to purchase technological products online. Therefore, this insignificant relationship may occur due to the generation Y has no difficulties in using the internet and browsing through the website. Moreover, it may also be due to the generation Y nature known as technologically savvy and they can quickly master in using the computer to browse the website and deal with the procedures of purchasing online. As generation Y are born in the information technology environments, PEOU factors has less effect on their tendency to purchase technological products as compared to the other two factors (PU and PR). As result, the browsing websites and complicated procedures of shops online had no relation towards their tendency as generation Y is good at computer and especially in using Internet to search for the products and services that they want.

Lastly, the positive significant relationship of PR towards tendency of generation Y in Malaysia to purchase technological products is because they tend to purchase technological products online if the privacy and security of the e-Transactions were well-protected. As perceived risk are the major factors that hinders the generation Y from purchasing technological products online, therefore the online retailer should improve their security and provide detailed information of sellers, products and services as to increase the trust of consumers, in order to increase their sales. Moreover, online retailers should also ensure and investigate their suppliers' products sources and credibility before they proceed with the low quality products and sell to consumers.

Thus, the results and findings of this study had provided some insights and feedback for the online retailers and e-Marketer to formulate their strategies on how to build up the tendency of consumers to purchase online.

Table 5: Summary of the findings

Hypothesis	Relationship	Supported/Not supported
H_1	Perceived Usefulness (PU) will have positive significance relationship between tendencies of generation Y in Malaysia to purchase technological products online	Supported
H_2	Perceived Ease of Use (PEOU) will have positive significance relationship between tendencies of generation Y in Malaysia to purchase technological products online	Not supported
H_3	Perceived Risk (PR) will have positive significance relationship between tendencies of generation Y in Malaysia to purchase technological products online	Supported

CONCLUSION

e-Commerce has started booming in Malaysia as the government has started to recognize the importance of it which can be realized by the policy measures that the Malaysia government has taken. This study is expected to have significant relationships among variables which are perceived usefulness, perceived ease of use and perceived risk on the tendency of generation Y at Malaysia to purchase technological products online. These relationships were derived from the TAM Model. However, the results and findings had slightly differed than what the researches had anticipated. The hypothesis relationship of PU and PR between the tendencies of generation Y in Malaysia to purchase technological products is proved to be positively and significantly related. The hypothesis of PEOU between tendencies of generation Y in Malaysia to purchase technological products online is expected to be a positively significant relationship. In the results and findings of hypothesis of PEOU, it is found that PEOU had no significant relationship between the tendencies of generation Y in Malaysia to purchase technological products online. Therefore, the importance of acceptance level of usefulness of websites should be exploited sensibly by the online retailers and e-Marketers.

On the other hand, it is recommended that additional research be conducted to provide in-depth understanding and information on the research area. Furthermore, it is also recommended that further research should be done using larger sample size and geographic areas. As this research sample size may not be large enough and the geographic locations just focuses more on Klang Valley, due to the convenience sampling method the researcher employed to collect the data nearby the living place. Adding on it, the further research should also look more in-depth into generation gap that would influence the tendency of Malaysia generation Y's buying behaviour compared to the last two generations (Baby Boomers and generation-X). Moreover, it should also look into more aspects of consumer lifestyles such as their income level, buying behaviour to be more accurate in the research. Besides, it is also recommended to investigate other determinants that affect the tendency of generation Y at Malaysia to purchase technological products online using different models.

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