

# Factors that Influence Customers' Buying Intention on Shopping Online

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## Abstract

On-line commerce through Internet is gaining attention from students today. The aim of this research is to study the factors influencing student's buying intention through internet shopping in an institution of higher learning in Malaysia. Several factors such as usefulness, ease of use, compatibility, privacy, security, normative-beliefs and attitude that influence student's buying intention were analyzed. Respondents who were selected are studying in a public institution of higher learning in Penang, Malaysia. Based on theory of reasoned action (TRA), the technology acceptance model (TAM) concluded that there are two salient beliefs which are ease of use and usefulness. This theory has been applied on the study to adopt technology user different and has been emerged as a model in investigation to increase predictive power. Such theory was used in this study to explain students' buying intention on-line. Besides the ease of use and usefulness, others factors such as: compatibility, privacy, security, normative beliefs and self-efficacy are utilized at this TAM. The results support seven hypotheses from nine. Compatibility, usefulness, ease of use and security has been found to be important predictors toward attitude in on-line shopping.

**Keywords:** Technology acceptance model, Perceived usefulness, Perceived ease of use, Attitude, Intention to shop online, University students, Malaysia

## 1. Introduction

Today Internet is not only a networking media, but also as transaction medium for consumers at global market in the world, and becomes dominant retailers in the future. The most necessary element of e-retail offers a direct interactive channel as well as no time definition, people and place. To shop on Internet becomes an alternative for consumers since it is more comfortable than conventional shopping which usually attributed with anxious, crowded, traffic jam, limited time, parking space and etc. Internet in Malaysia is still considered as a new medium toll between the retailers and the students as consumers, and also retaining students as consumer on e-retail is the most issue that is faced any e-retail store. To increase the understanding in this area, the question needs a correct answer. Is Malaysian student ready to embrace Internet shopping? In addition, this study wants to know the reasons, why are the students in Malaysia, particularly in a public institution of higher learning accept or refuse internet shopping application? And what are dominant predictors that influence the student's intention to shop on internet in Penang, Malaysia? This study can help local e-retail to adjust their e-retailing strategies, by learning of this research results. Consequently, the expectation of this study is to provide relevant results to the e-retail company to engage the students to shop online. E-retailer can be more attractive to encourage the students do shopping on internet. By testing the relevance other beliefs in the context of using the internet for shopping, it can be obtained more understanding, why students in a public institution of higher learning accept or refuse e-retail as medium shopping can be gained.

The remainder of this paper is organized as follows. Section II documents literature review related to E-retailing. Section III discusses the data and methodology. Section IV presents the empirical results. The paper ends with a brief summary of conclusions.

## 2. Literature review

Internet was first found by American Defense Department Network through the Advanced Research Project Agency (ARPANET) at 1969. Early target ARPANET was to develop educated information for the army forces of US. Most creative technology that has reached a big impact at all of us is Internet innovation. Yu and Abdulai (2000) mentioned that the most significant result of the rapid innovations in information and communication technology is electronic-commerce. What is e-commerce? E-commerce basically refers to trade that takes place over the Internet where a buyer visits a seller's web site, orders and makes the payment of the product over the internet and finally, goods are delivered physically to the consumers. Anil (2000) also mentioned that electronic commerce is an important part of the growth of the Internet. Brown, Pope and Voges (2003) mentioned that the key feature of e-retailing, the consumers is facilitated by information with regard to product attributes, comparative pricing, availability and overall value added. According to Oinas (2002) internet retailing seems to be growing in all places on the world, including developing countries. Due to the changes taking place in the business in connection with the technological opportunities provided by the Internet which in the future it become the dominant shopping practically. Hofacker (2001) mentioned that people might have known the word Internet the past several years before. The Internet is difficult to define but for simple definition. The Internet is the sum total of devices interconnected using the Internet Protocol. It was created using computer software and since software can be programmed to do almost anything. Historically, Rowley (1996) viewed that the Internet was essentially an academic network, but business used is growing, so the Internet is no longer an elite network for communication between research centers, but also is accessible to small colleges, small businesses and libraries through the world. Finally, IBM also defined e-commerce as business to vendors, to customers, to employees, and to suppliers via Intranet, Extranets and Internet.

### 2.1 Technology Acceptance Model (TAM)

Davis, introduced TAM to explain acceptance of information technology (IT). It was relied on TRA (the Theory of Reasoned Action) and its contents intention and behavior to use an information system which depends on two salient beliefs, namely perceived usefulness and ease of use. A key purpose of TAM is to provide a basis for tracing the impact of external factors on internal beliefs, attitude and intention, more TAM consist that two particular beliefs, perceived usefulness and perceived ease of use are primary relevance for computer acceptance behaviors, (Davis, Bagozzi & Warshaw, 1989). Usefulness, ease of use is expected that they can be influence individual's attitude at using that system; they also explain difference intention to use that system. TAM also figures in a harmony link between ease of use and usefulness, proposed individual's perception how easy or difficult to use that system will influence their perception about usefulness of that system (Vijayarathy, 2003). David, Rodney and Allison (1989) found three main insights concerning the determinant of managerial computer use which are: firstly, people's computer use can be predicted reasonably well from their intention, secondly, perceived usefulness is a major determinant of people's intention to use computer, thirdly, perceived ease of use as a significant secondary determinant of people's intention to use computer. Fishbein and Ajzen (1975) the Theory of Reasoned Action (TRA) and Davis (1989) the Technology Acceptance Model (TAM) provided theoretical context to measure beliefs, forecast future behavior. TAM model accommodate the Theory of Reasoned Action (TRA) (Fishbein and Ajzen 1975) to show acceptance information technology. TAM express that two beliefs of specific behavior, ease of use and usefulness, determine the individual intention and behavior to use a technology, where attitudes toward use directly influence the intention for the actual usage. Adam, Nelson and Todd (1992) also noted that perceived ease of use has a direct effect on both perceived usefulness and technology usage (see figure 1).

In addition to that Individual may use a technology if they think it is beneficial, convenient and socially important although they do enjoy for using the technology (Saga & Zmud, 1994). Vijayarathy (2003) furthermore mentioned a set of variables in TAM possible for explaining technology adoption at work, where usage at the time of technology in most cases, compulsory its user, otherwise was compelled. In good arrangement, felt usefulness and easy of use are good for possible dominant predictor.

### 2.2 Theory of Planned Behavior (TPB)

A center factor in theory of planned behavior is determined by individual intention to execute the behavior. The intention is proposed to explain factors that influencing behavior. That is to indicate, how people will try, about many efforts to plan in using, in executing behavior (Ajzen, 1991). Ajzen and Maden (1985) found that perception of control, like attitude towards the behavior and subjective norm can have an important impact on an individual's behavioral motivation. Perceived behavior control the importance of behavior control is self evident and refers to people's perception of the ease or difficulty performs the interest behavior (Ajzen & Maden, 1985).

According to the theory of planned behavior that the behavior is a joint function with intentions and perceived control behavioral. The two perceptions and intention conduct behavior can make important contribution to behavior prediction. Ajzen (1991) mentioned that the central factor in the TBP is the person's intention to perform a behavior. Intention is assumed to capture the motivational variables that influence a behavior. They are indications of how hard people are willing to perform the behavior. In addition, the stronger the intention to engage in a behavior, the more likely must be its performance (see figure 2).

Many researchers in Malaysia used the TAM model for their studies. Basyir (2000) adopted this model to study the various factors associated with acceptance of internet shopping behavior. Teck (2002) used TAM model for research about the impact perceived web security, perceived privacy, perceived usefulness, and perceived ease of use on the based online transaction intent. Aulvin (2000) modified the TAM model to study the individual differences such as prior web experience, shopping orientation and demographic factors that will influence the individuals' intention to shop on the web. Fok (2001) adopted TAM to study on self-efficacy and its determinant as factors that are affecting perceived ease of use, perceived usefulness, and the use of the internet. Choong (2003) used TAM to assess owners/managers intention to adopt Web-based Supply Chain Management in SMI organizations. More recently Ramayah, Aafaqi and Jantan (2003) used TAM to predict students acceptance of a course website toward e-learning in Malaysia. Finally, Ramayah, Dahlan, Teck and Aafaqi (2003) used TAM to predict perceived web security that influence web-based online transaction intent.

### *2.3 Salient Beliefs of Usefulness and Ease of Use*

Teck (2002) noted that usefulness refer to the utility of the online transaction on the World Wide Web. It attempts to measure the degree to which individuals perceive the benefits and advantages of performing web-based online transaction. Ramayah, Aafaqi and Jantan (2003) found perceived usefulness and perceived ease of use have significant impacts student's acceptance and usage of course online among higher education institution student and when perceived ease of use and perceived usefulness are combined together was found that perceived usefulness acts as partial mediator. Davis (1989) found that the relative strength of the usefulness to usage relationship compared to the ease of use to usage relationship, in other hand, usefulness was significantly more strongly associated to usage than was ease of use. Chin and Todd (1995) found also that there was no empirical support or substantive rationale for the separation of the usefulness constructs into two dimensions (usefulness and effectiveness factors).

### *2.4 Salient Beliefs of Compatibility, Privacy and Security*

Chau and Hwa (2001) identified compatibility as an essential factor for innovation adoption also included in the decomposed model. The significant effect of compatibility on user technology acceptance decisions has been reported by many previous studies reported a strong relationship between compatibility and relative advantage, which is largely congruent with perceived usefulness in the context of TAM. Karyanni (2003) found also that compatibility was successful in distinguishing between Web shopper and non-shopper. Significant variables included three factors of compatibility are use of direct shopping, use of browsing activities at home and use of browsing activities at the office. Anil (2000) explained that Internet shopping activities often lead to several ways of processing personal data. To protect the privacy is important and these personal are used with care, required for legitimate purposes, not disclosed to the wrong persons and not processed without knowledge of the person concerned. Therefore, the processing of personal data should be to deal with certain conditions Fatimah (2000). Ramayah, Dahlan, Teck and Aafaqi (2003) described that the major barrier to adoption of e-retail belief on the security and privacy issues, in addition the technology has to be improved, the users have to be convinced and guaranteed of their security and privacy for growing internet shopping.

Security concerns are one of the main reasons web users are not purchasing over the Internet. Consumer reluctant to the internet commerce because of partly due to the barrier to shopping on internet, high privacy and security concerns (Udo, 2001; Grandinetti, 1996). Udo (2001) mentioned that, there is a close relationship between security and privacy. While privacy is related to what a company purposely decides to do with consumer data, security is concerned with any accidental comprises of consumer data to a third party (e.g. Hacker and identify thief) and Salim (2000) mentioned that we have to realize that in that future, the hackers are not from inside the company but also it can be from outside or somewhere else where can not identify. Consumers' privacy issues are not new and consumer have worried about how personal data are used by government and more recently by business. Internet users want to feel that their privacy are being protected. The government must also protect the privacy and security of consumers as one of the main roles it can contribute in growing internet shopping, Yu and Abdulai (2000).

### *2.5 Salient Beliefs Normative-Beliefs and Self-Efficacy*

Ajzen (1991) mentioned normative-beliefs include three kinds of salient beliefs are distinguished: behavioral belief which are assumed to influence attitudes toward behavior, normative beliefs which constitute the underlying determinants of subjective norms and control beliefs which provide the basis for perceptions of behavioral control. Budd (1985) found also personal normative-beliefs significantly contribute to the theory of reason's predictive power, a variable which mediates the relationship between attitudes, subjective norm and intention.

The Theory of Planned Behavior places the constructs of self-efficacy belief or perceived behavioral control within a more general frame work of the relations among beliefs, attitude, intention and behavior (Ajzen, 1991). Self-efficacy is associated with beliefs and behaviors (Badura, 1986). It also has significant impact on decisions involving computer usage and adoption (Davis, 1989). Individuals who consider internet is too complex and believe that they will never be able to master the internet technology will prefer to avoid them and are less to use them. Gist (1989) also suggests that self-efficacy is an important motivational variable, which influences individual affect, effort persistence and motivation.

### **3. Research Methodology**

Data for this study were collected from a higher learning institution through questionnaires. Survey questionnaires were distributed to randomly selected students who were experiencing e-retailing in the diploma, degree, masters and PhD programs. Sekaran (2000) explained since the focus of research is exploratory, convenience sampling is done for the sampling purposes, as this method is considered as easy, fastest, and most efficient way to collect the information that were needed. Penang was selected as study place as it is the second metropolis of Malaysia after Kuala Lumpur in users' number of Internet in Malaysia. A survey questionnaire was designed to gather information on the students' experiences of e-retailing. The statements and questions were closed-ended, whereby the choice is limited to fixed response on specific points on a Likert-type and nominal scales. The questionnaires were distributed to the respondents to a total of 300 of respondents along with permission letters. It consists of students with different genders, different age groups, various background and different types of courses at the institute. The questionnaires were distributed to the respondents by hand personally. Confidentiality was assured by encouraging the respondent to return back the questionnaire directly. The questionnaires were distributed to all categories of students that were met in the class, library, office, mosque, cybercafé and so on at main Campus of the higher learning institution. Then, after the respondents have completed the questionnaires, they were collected personally. The data was collected from students both who they were surfing and shopping on the Internet and the data was collected over a period of 3 weeks. The questionnaires were prepared in English.

The research model was adopted from Vijayasarathy (2003), because of two reasons: firstly, this model is an extended TAM model (Vijayasarathy, 2003), secondly, in this model an integrated model of three models such as: TAM, TRA, and TPB. It indicates that in addition to the two salient beliefs that comprise the core TAM (usefulness and ease of use), three other beliefs should be relevant to shop on internet (compatibility, privacy and security). Furthermore, normative-beliefs, a key variable of TRA, and self-efficacy, which is an important component of TPB, are combined to provide a more complete set of factors that could show significant role in predicting student's intention to shop on line. The theoretical framework of this research is displays at figure 3.

The hypotheses for the study are as follows:

Students who believe that using this technology can lead to positive attitude. Here, we extend TAM to specific behavior on-line transaction and propose the following hypothesis was supported from previous research relationship between attitude and usefulness.

Hypothesis 1: There is a positive association between students' attitude towards on-line shopping and their beliefs about its usefulness.

The variable ease of use is very relevant for respondent which a few experience on Internet usage can perform on-line shopping with using this technology to replace traditional shopping. For future Internet shopping will expand as well as increasing the amount internet user and propose the following hypothesis:

Hypothesis 2: There is a positive association between students' attitude towards on-line shopping and their beliefs about its ease of use.

Respondents who spend a amount of money and time on internet, consider Internet like e-mail fit in their working and personal life. Furthermore, support compatibility is input in this model to explain technology acceptance. Therefore:

Hypothesis 3: There is a positive association between students' attitude towards on-line shopping and their beliefs about its compatibility.

As an innovation that is expanding quickly, internet shopping has certain risks. Here, we consider connectivity risk between privacy and security. Expectation of this research that students have more positive perception about privacy level on the internet will be an influential attitude towards the usage of this medium to do shopping. We offer the following hypotheses:

Hypothesis 4: There is a positive association between students' attitude towards on-line shopping and their beliefs on privacy afforded by on-line shopping.

At globalization era, openness has resulted in global network which is easy to be accessed and make internet sensitive to security crash. Students' perception is related to the credit card usage in purchasing on-line can be expected to influence their attitude towards internet shopping and propose the following hypothesis:

Hypothesis 5: There is a positive association between students' attitude towards on-line shopping and their beliefs about security of on-line shopping.

TAM merges both indirect link (through the mediating variable of attitude) as well as a direct link between usefulness and intention. A student's cognitive appraisal of the outcome to engage the behavior (usefulness) can have direct relation on their behavioral intention and therefore the following hypothesis:

Hypothesis 6: There is a positive association between students' intention to use on-line shopping and their beliefs about its usefulness.

TRA theorizes that intention for behavior is influenced by salient beliefs and the normative beliefs. Furthermore, student's intention to use on-line shopping is influenced by important people. In the framework of innovator-imitator, students try to fit-in opinion with important others people who may be earlier to use a technology innovation and for that propose the following hypothesis:

Hypothesis 7: There is a positive association between students' intention towards on-line shopping and their normative beliefs about it.

This study expressed that there is relationship between students confidential in their capabilities to conduct on-line shopping. The self-efficacy power explains in this model the intention predict technology adoption. Studies have indicated that there is a positive association between self-efficacy and Internet use. Therefore:

Hypothesis 8: There is a positive association between students' intention to use on-line shopping and their self-efficacy about using it.

Most intention theory, attitude as mediator between intention and beliefs. Individual's salient beliefs about result are expected that can influence their attitude toward behavioral will be affect at their intention to execute that behavior. There was evidence, for relationship between intention and attitude theoretically and empirically and propose the following hypothesis:

Hypothesis 9: There is a positive association between students' intention to use on-line shopping and their attitude toward it.

## 4. Results

### 4.1 Descriptive Analysis

A total About 300 questionnaire was distributed, and 237 were received and yielding a response rate is 79 %, 226 usable and 11 were returned blank or incomplete. Among the respondents, there were 87 (38.30 %) females and 139 (61.70%) males, 83 (36.60%) principal shopper and 143 (63.40%) were not, 115 (50.70%) who were married and 111 (49.30%) who were single, divorced, separated, or widowed and their highest education have completed, with bachelor's degree 141 (62.10%), 52 (22.90%) with master's degree, 12 (5.30%) with Ph.D. level, 12 (5.30%) and 21(9.30%) with secondary and diploma level. A majority of the respondents 167 (73.60%) were in 25-44 age category, while approximately half of them (54.60%) indicated a household income of RM. 25,000 or lower. All the students (100%) have used the internet and 60.80% of them have been using it for 4 years or more. A sizeable number 83 (36.60%) of the respondents indicated that they had shopped on the internet and 63.40% have not. The most frequently cited items shopped or will be shopping on the Internet included books (52.40%), gift (22.50%), others such as ticketing (32.20%), computer (22%) and electronic (17.20%) and etc. For the Internet usage in Table 1 is presented their frequency and percentage value. From the frequency table 1, most the students have been using Internet for over four years (61.10%) followed by 23.80% of them used it for two years. The amount of time that they spent per week on internet usage varies among students but majority of

them (59%) spent 1 to 9 hours in using Internet and followed 24.8% of the students spent 10 to 19 hours per week.

#### 4.2 Reliability Analysis

Reliability test using Cronbach's Alpha was conducted on most variables to measure the inter reliability. In this test, any item that was not significant will be deleted (in this case ease of use 2) and items of privacy was reverse coded (because negative statement) in order to fulfill the highest reliability of the measurement. According to Srivasan (1985), a reliability coefficient 0.5 or higher is acceptable. The variables that were tested include of usefulness, ease of use, compatibility, privacy, security, normative beliefs, self-efficacy, attitude and student's buying intention. Since all the items have alpha value greater than 0.5, and 1 item from the questionnaire (ease of use) was dropped.

#### 4.3 Findings

Pearson correlation analysis provided statistical information about the relationship of each independent variable with dependent variables. It did not expose the possible interrelations among the independent variable, which are usefulness, ease of use, compatibility, privacy, security toward the attitude and usefulness, normative-beliefs, self-efficacy, attitude towards buying intention.

##### 4.3.1 Attitude and its determinants (usefulness, ease of use, compatibility, privacy and security)

The first regression was carried out to determine the relationship between usefulness, ease of use, compatibility, privacy, security with attitude. The first regression model was conducted by using two block independent variables. The first block of the variables that was entered usefulness and ease of use. The second block of the variables were usefulness, ease of use and compatibility, privacy, security. The regression out-put is presented in Table 2.

The Durbin-Watson value is shows more than two (2.02) indicated that there was no auto-correlation problem of error terms here. From the coefficient matrix of this integrated model, usefulness is significant at  $t = 3.84$ ,  $p = 0.00$ , ease of use is significant at  $t = 2.13$ ,  $p < 0.05$ , compatibility is significant at  $t = 5.98$ ,  $p = 0.00$ , privacy is not significant  $t = -1.68$   $p > 0.05$  and security is significant at  $t = 2.25$ ,  $p < 0.05$ , all results were measured with at  $\alpha = 0.05$  (this level of significance will be used throughout this study).

##### 4.3.2 Intention and its determinants (usefulness, attitude, normative-beliefs and self-efficacy).

The second multiple regression was carried out to examine the relationship between independent variables (usefulness, attitude, normative-beliefs and self-efficacy). The dependent variable here is intention. The second regression model investigates between four independent variables (usefulness, attitude, normative-beliefs, self-efficacy) and dependent variable, the intention. It is conducted by using two block of independent variable. The first block of variables that are entered are usefulness and attitude. The second block of variables consist usefulness, attitude, normative-beliefs and self-efficacy. The regression output is presented in Table 3.

From the result, there is a significant change of R-square from 35% to 42% and significance of the F change value is 0.00, which is significant at  $\alpha = 0.05$  (this level of significance will be used throughout this study). There was no auto-correlation of error terms problem here because the Durbin-Watson value was close to two (1.70). From the coefficient matrix of this integrated model, usefulness  $t = 0.97$ ,  $p > 0.05$  is not significant, attitude  $t = 5.58$ ,  $p = 0.00$  is significant, normative-beliefs  $t = 4.22$ ,  $p = 0.00$  is significant and self-efficacy  $t = 2.31$ ,  $p < 0.05$  is significant, all results were measured with at  $\alpha = 0.05$  (this level of significance will be used throughout this study).

Based on the analysis above, it can be concluded that usefulness, ease of use, compatibility, security, have a significant impact to attitude for shopping on internet except privacy and attitude, normative-beliefs, self-efficacy influence student's buying intention on the internet except usefulness.

## 5. Discussion

Karayanni (2003) found that the most powerful discriminate variable between Web shopper and non-shopper were web shopping motives concerning time efficiency, availability of shopping on 24 hours. E-retailing becomes one of the most valuable medium for supporting the development e-commerce by reduction of transaction costs (Yu & Abdulai, 2000). Pechtl (2003) also confirmed that online shopping constitutes a service innovation in retailing, enabling consumers to order goods from home and delivered to their private address. The Internet offers a larger geographic coverage of suppliers. Thus, particularly Internet search engines, the consumers may detect retailers and manufacturers or consumers should not visit physically because the geographical distance is too great. Yu and Abdulai (2000) concluded that generally is true that e-retail impact a

lower transaction cost to consumer to compare the traditional retailing. The issue here is that why the students unwilling to accept available systems and no response to new shopping medium introduced by e-retailer. Moreover, this study tries to address the low intention to shop online among the students in Penang, Malaysia? Mostly, after visiting the web site store, many students were disappointed that the online experience could not replace the real thing. The virtual shop offers very much fewer items compared to the real store. In fact, after browsing a few pages, many of the items offered were not what the students needed. The problem will be happen, students who are surfing a retail web site, but they will buy products to a physical store. The major resistor of on-line shopping is security perception which is related to payment. There are on-line shoppers who are still reluctant to give their credit card numbers to Internet service providers. Positive association between security on-line transaction and attitudes support this statement. Innovation technologies in processing and payment have improved security on-line payment. However, on-line retailers still suffer from security or accidental exposure of customers' credit card information which can reduce students' beliefs. Otherwise, on-line retailers can persuade students with the existence of high security standards, it may be still difficult to change their attitude toward on-line shopping.

Teck (2002) noted that Malaysia tries to lead among other nations in this world on Internet technology. Anil (2000) described that Government initiative to boost up level of Internet World. Malaysia is first country in the world to design respective law with Internet activities. Salim, Tayib and Abidin (2000) also noted we have Computer Crimes Bill 1997, Digital Signature Bill 1997 but we are not sure yet how effective this act is when comes to enforcement (Madieha, 2000), Copyright Bill and Communication and Multimedia Bill 1998. The Multimedia Super Corridor mega project, which was launched in 1997, has become the major driven of the development Information Communication and Technology (ICT). The Copyright Act 1987 was amended in 1997 to confer copyright protection to the contents of the Internet. On-line retailers have also given all minds to students about privacy with adapting personal data, sharing statements and privacy policy, but students' beliefs about level privacy that on the market by on-line retailer did not show in influencing attitude. This is possible reflection of students' acceptance towards some of level invasion privacy of database marketing on Internet shopping. Attitude towards on-line shopping has been found powerful in as much that it influences the intention to do on line shopping. Furthermore, normative-beliefs and self-efficacy were also very strong predictors in this model, because using on-line medium to shop is new phenomenon for student's intention to engage this behavior that influenced by opinion of people who were used earlier. Self-efficacy has positive association with intention to shop on-line. A number of retailers on-line have to design their location to imitate shopping experience at the traditional shopping, brick and mortar store, print catalog, and etc. Shopping on-line does not confined to merely perception but it needs addition skill to find product and service that are wanted, evaluate product information, comparison, make election, to develop confidential. On-line retailers can follow the lead of some electronic retailers to encourage and engage students to do on-line shopping.

## 6. Conclusions

The results from the data analysis considered all of 9 proposed hypotheses and answered the key research questions. Among all the proposed students differences factors, compatibility and usefulness have been found as the most significant to influence students' attitude for shopping on Internet and attitude, normative-beliefs have been found as the most significant to influence students' intention for shopping on Internet. This study suggests that a student's confidence in their capabilities to do on-line shopping is relevant. The power of self-efficacy in this model proposed to predict technology adoption has been demonstrated. This study has shown that there is a positive association between self-efficacy and Internet shopping. The results show, greatly the idea of salient beliefs including compatibility, ease of use, usefulness and security are highly relevant that influence students' attitude towards on-line shopping, except privacy. However, attitude strongly associated to intention. Furthermore, normative beliefs and self-efficacy are also shown to be appropriate towards intention on-line shopping as medium shopping but except usefulness did not give significant effect.

Limitation of this study is our respondents, all of them from the university community and so the results may not reflect the full diversifies of beliefs, attitude and intention towards Internet shopping. The respondents have been collected from a homogeneous group as students who live single city area in Penang. The factors that were utilized in this study were borrowed from various literature reviews. Attitude and others factors (usefulness, ease of use, compatibility, privacy, security, normative-beliefs, self-efficacy) that affect student's buying intention to do shopping on the internet is complex phenomenon and very difficult to understand. There are other factors where are also relevant variables when attributing to intention to do shopping on Internet could not be included in this research. This study provides many opportunities for future research, for example Vijayasathy (2003) suggested a wide range of possible salient beliefs about shopping on-line. Future research should be addressed

other relevant constructs. It is likely that web advertising will favorably influence purchasing of a company's products. The measures created for this study should support future research. It is clear that more and different variables are needed to understand shopping on Internet fully. It is relatively new phenomenon, and as such may require additional rethinking of used models. This study provides a guideline for future research as better understand Internet shopping, so that the benefits from it can be explored completely. This study did not examine the effect of environmental factors such as the role of government, financial system, internet service provider and the views of different potential Internet market segment by using the attitude-behavior model as a framework, Crisp et.al (1997).

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Table 1. Descriptive analysis of respondents

Variable		Frequency	Percentage
Length of use in years	< 6 months	3	1.30
	6 months-1 years	9	4.00
	1-2 years	22	9.70
	2-4 years	54	23.80
	> 4 years	138	61.10
	Total	226	100
Online Transaction	Yes	83	36.60
	No	143	63.40
	Total	226	100
Frequency of online transaction	Never	143	63.30
	1-5 times	71	31.40
	6-10 times	9	3.90
	More than 10 times	3	1.30
	Total	226	100
Internet usage per weeks	1-9 hours	134	59.00
	10-19 hours	56	24.80
	20-29 hours	19	8.40
	30-39 hours	11	4.90
	More than 39 hours	6	2.60
	Total	226	100

Table 2. First Regression Results-Attitude Toward on-line Shopping

Model		R <sup>2</sup>	Adjusted R <sup>2</sup>	Change in R <sup>2</sup>	F	Sig. of F	Change in F	Sig. of Change in F
Model summary								
1		0.20	0.19	0.20	28.12	0.00	28.12	0.00
2		0.35	0.33	0.14	23.17	0.00	16.07	0.00
Variables		B	Std. Error	Beta	t	Sig.		
1	Constant	1.22	0.49		2.47	0.01		
	Usefulness	0.37	0.07	0.32	5.05	0.00		
	Ease of Use	0.33	0.09	0.24	3.90	0.00		
2	Usefulness	0.26	0.07	0.23	3.84	0.00		
	Ease of Use	0.17	0.08	0.13	2.13	0.03		
	Compatibility	0.35	0.06	0.35	5.98	0.00		
	Privacy	-0.09	0.05	-0.09	-1.68	0.09		
	Security	0.11	0.05	0.13	2.25	0.03		

*Dependent variable: Attitude*

Second Regression Results-Intention to Use on-line Shopping

Model	R <sup>2</sup>	Adjusted R <sup>2</sup>	Change in R <sup>2</sup>	F	Sig. Of F	Change in F	Sig. of Change in F
Model summary							
1	0.35	0.34	0.35	59.99	0.00.	59.99	0.00
2	0.42	0.41	0.07	39.56	0.00	13.20	0.00
Variables	B	Std. Error	Beta	t	Sig.		
Constant	1.12	0.38		2.93	0.00		
Usefulness	-0.10	0.07	0.08	1.33	0.19		
Attitude	0.59	0.06	0.56	9.48	0.00		
Usefulness	0.07	0.07	0.05	0.97	0.33		
Attitude	0.41	0.07	0.39	5.68	0.00		
Norma-Beliefs	0.23	0.06	0.24	4.22	0.00		
Self-Efficacy	0.16	0.07	0.15	2.31	0.02		

Dependent variable: Intention

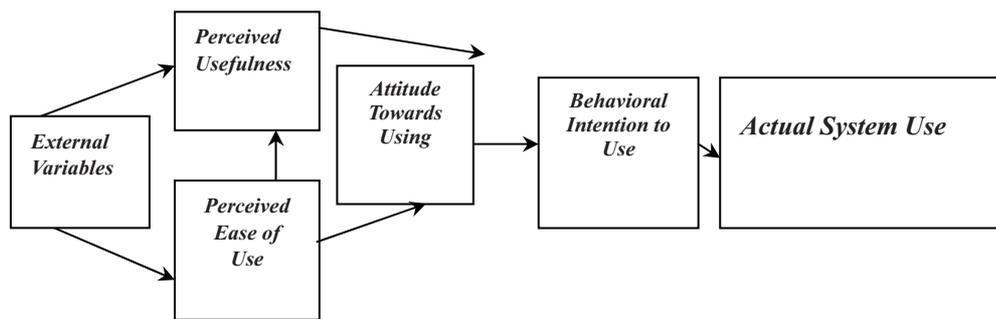


Figure 1. Technology acceptance model (adopted from Davis, Bagozzi & Warshaw, 1989)

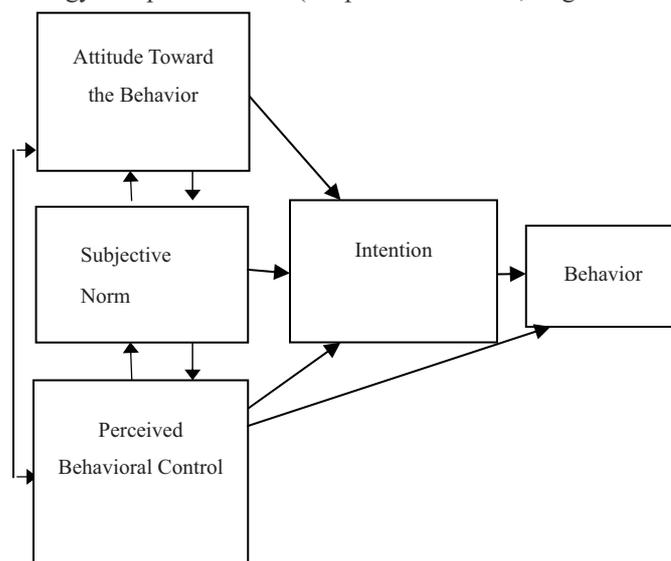


Figure 2. Theory of planned behavior

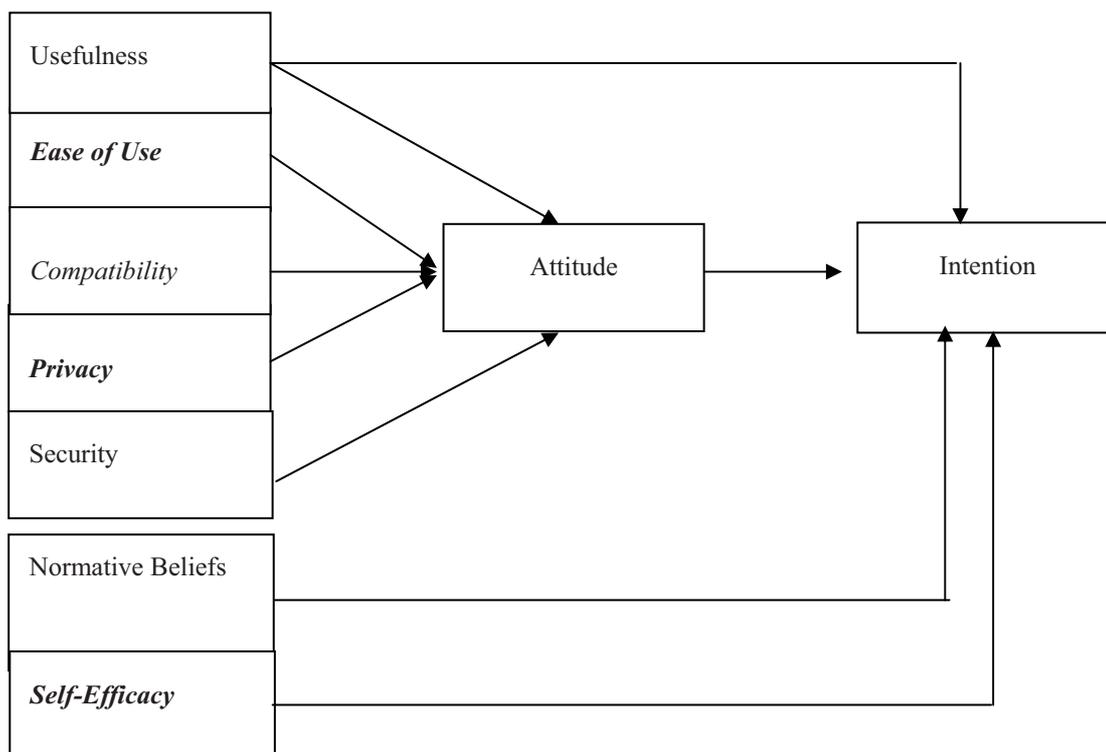


Figure 3. Our Theoretical framework