

Web-based Factors Influencing Online Purchasing in B2C Market; View of ICT Professionals

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ABSTRACT

The growing use of internet in Malaysia, especially among information and communication technology (ICT) literate users, provides a huge prospect in Business to Consumers (B2C) market. In this market, if E-marketers know web-based factors influencing online purchasing, then they can develop their marketing strategies to convert potential customers into active one, while retaining existing online customers. Review of previous studies related to web-based factors for online purchasing in B2C market has point out that the conceptualization and empirical validation of the online purchasing behavior of ICT literate users, or ICT professional, in Malaysia has not been addressed. Therefore, this paper attempted to determine web-based factors that online buyers keep in mind when they do online shopping. Based on the extensive literature review, a conceptual framework of 24 items of five factors - website design, fulfillment/reliability, customer service, privacy/security and information quality - was constructed to determine web-based factors influencing online purchasing of ICT literate users. Analysis of data was performed based on the 310 questionnaires, which were collected using a stratified random sampling method from ICT students in a public university in Malaysia. The Exploratory factor analysis performed showed that five web-based factors influencing online purchasing in B2C market are Information Quality, Fulfillment/Reliability/Customer Service, Website Design, Quick and Details, and Privacy/Security. The result of Multiple Regression Analysis indicated that Information Quality, Quick and Details, and Privacy/Security significantly and positively affect online purchase behavior. The results provide a usable model for measuring web-based factors influencing online purchasing in B2C market, as well as for e-marketers to tailor their marketing efforts to assuage online consumers' anxiety with respect to online purchasing.

Keywords: B2C, Website-based Factors, online purchasing

1.0 Introduction

1.1 E-Commerce, B2C Market and the Importance of Understanding Web-based Factors Influencing Online Purchasing Behavior

Electronic commerce (E-commerce) refers to the process of buying, selling, transferring, or exchanging products, services, or information via computer networks (Turban, Lee, and Viehland 2009). Business to Consumer (B2C) is one of the natures of transactions or interactions in e-commerce. B2C refers to e-commerce model in which businesses sell to individual shoppers (Turban, Lee, and Viehland 2009) and the volume of online B2C transactions is increasing worldwide. In Malaysia, the number of Malaysian people shopping online has grown by 12% in year 2011 compared to the year before - 55% in 2010 - (The Star Online, 2012). The growing number of B2C transactions provides a huge prospect of online buyers for E-marketers in Malaysia, and therefore, examining factors influencing online buyers' behavior in B2C market is crucial.

However, it was reported that e-commerce in Malaysia is not as popular as in western countries. Although almost every Internet user surveyed said in general they like the idea of shopping on the internet, in fact, only a small number of Malaysians actually buy online (John and Lim, 2001). Thus, if E-marketers know the factors influencing online buyers' behavior in B2C market, and the effect of these factors on behavior of online consumers, then they can develop effective marketing strategies to (i) attract more Malaysian to get involve in online purchase; (ii) convert potential customers or less active online buyers into active one; and (iii) improve quality of online transactions by focusing on web-based factors that are perceived as important by online buyers.

According to Syed et al. (2008), the dominant factor which influences consumer perceptions of online purchasing is the website design characteristics. With reference to website design/ quality, it was found that navigation and content were the most sought after factors of online purchasing (Ruchi, Ashish and Gupta, 2010). On the other hand, Zeithaml, Parasuraman, and Malhotra (2002) suggest that entertainment criteria identified in the studies of more general websites are not relevant in the online purchase context. Shergill and Chen (2005) found that website design quality was an important issue in customer satisfaction. When the customers satisfied with the website quality, this will increase their involvement in online purchasing. Based on Yam et al. (2011), privacy and security are the examples of the factors which affect consumers' willingness to buy from online retailers. Grace and Chia (2009) stated that consumers' attitudes and beliefs related to convenience and security concerns (shaped during the online purchase process) have significant effects on their intention to purchase online. Thus, as suggested by Nunes (2011), if E-marketers intend to ignore the fundamental truths about online consumer behavior and which web-based factors valued most by online buyers in different situations or countries, most of the promises of E-marketing in the B2C context will not be fulfilled. Thus, the effect of web-based factors on online purchasing behavior in the Malaysia context should be determined.

1.2 Young Consumers Involving in Online Purchase

The evolution in B2C studies has point out the importance of enhancing quality of web-based transactions to ensure sustainability of business in e-commerce. E-marketers need to address web-based factors which are significantly influencing buyers' online purchase behavior, especially among young consumers. Young consumers are playing an important role in online shopping and this provides an emerging prospect for online retailers Syed et al. (2008). Particular to the behaviors

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of online consumers, skills in information and communication technology (ICT) and age has been found to be strongly related to adoption and use of information systems, including online retailing web-based systems (Feller, 2003). In Malaysia, as reported by Haque and Khatib (2005), most internet users are youths (15-20 years old; 50 per cent) and young adults (20 - 29 years old; 39 per cent). These groups of users consist of those between 15 – 29 years of age, in which most of them are students in secondary schools and universities. Thus, students in tertiary education, especially those who have knowledge in ICT and e-business, have significant influences to B2C market. ICT students are regarded as ICT literate; therefore studying their behavior towards online purchasing provides a new landscape in understanding behavior of online buyers. In addition, given that the ICT students are considerably 'expert' in information technology systems, revealing their online purchase behavior in B2C market would be interesting to research. Hence, this study provides empirical evidence on online purchasing behavior of Malaysian young customers, specifically future ICT professionals.

Therefore, this study aims to answer to the following questions; (i) what are web-based factors influencing online purchasing behavior of information technology literate consumers, i.e. ICT students?; and (ii) what is the effect of web-based factors on online behavior of ICT students?

2.0 Literature Review

2.1 The buying process in an e-market

In consumer behavior research, it is very important for marketers to understand consumer decision making process. This will help them predicting consumers' purchase behavior, especially in the context of online purchasing. Current literature on consumer online purchasing decisions has mainly concentrated on identifying the factors which affect the willingness of consumers to engage in internet shopping. Based on Na Li and Ping Zhang (2002), online purchasing behavior refers to the process of purchasing products or services via the Internet. Consumers' attitude towards online shopping is a prominent factor affecting actual purchasing behavior. The potential buyers recognize a need for some merchandise or service and they will go to the internet and search for related information before they make a buying decision. They will evaluate the alternatives and choose the best which they satisfied for it. Hence, the online transaction is conducted.

Customers purchase goods online in different modes. The most common mode is purchasing from catalogs at fixed prices. Sometimes prices are negotiated or discounted. Another mode is dynamic pricing, which refers to non-fixed prices, such as those in auctions or stock (commodity) markets. According to the buying process in an e-market, the process starts with logging into a seller's site, registering (if needed), and entering into an online catalog (E-catalog) or the buyer's account. E-catalog can be very large, so a search mechanism may be needed. Besides that, the online buyer needs to compare prices. If the buyer unsatisfied, the buyer may abandon the site. On the other hand, if satisfied, the buyer will select the item and place it in a shopping cart. The buyer might then return to the e-catalog to choose more items. When shopping is completed, the buyer goes to a check out page where a shipment option is selected from a menu. A payment option may be available. Payment method may be PayPal, credit card and others. After checking all the details for accuracy, the buyer submits the order.

2.2 Measuring Quality of Web-based Transactions

2.2.1 Theories Related to the Understanding of Online Purchasing Behavior

The classic Theory of Reasoned Action (Ajzen and Fishbein, 1980), the Theory of Planned Behavior (Ajzen, 1991), Theory of Technology Readiness of Consumers and (Zeithaml, 2002) and Technology Acceptance Model (Davis, 1985) have been extensively adopted for explaining and predicting user behavior in an online shopping environment. Theory of Reasoned Action (TRA), is a theory of attitude-behavior relationships which links attitudes (considered as beliefs that a person accumulates over his lifetime), subjective norms, behavioral intention and behavior in a fixed causal sequences. Attitudes are said arise from the beliefs about behavioral outcomes and the evaluations of those outcomes. A person's overall attitude toward an object is derived from his beliefs and feelings about various attributes of the object. According to TRA, a person's behavior (i.e. online purchase, vote, etc.) is determined by his/her intention to perform this behavior. Intention is the cognitive representation of a person's readiness to perform a given behavior, and it is considered to be the immediate antecedent of behavior. So, the stronger the intention of an individual to perform a particular behavior, the greater the most likely the particular behavior will be performed (Ajzen, 1991).

An expansion of the TRA is the Theory of Planned Behavior (TPB) which is proposed by Ajzen (1985). In fact, TPB differs from the TRA with its addition of the perceived behavioral control (PBC). TPB suggests that a central factor in human behavior is behavioral intention, which is affected by attitude toward behavior, subjective norm, and perceived behavioral control (Ajzen, 1985 and 1991). PBC reflects a person's perception of the ease or difficulty of implementing the behavior in question. It concerns with the beliefs about the presence of control factors that may facilitate or hinder individuals from performing the behavior. In TPB, behavioral control directly affects the intention to perform behavior, such as to use internet-based transaction or online purchasing, and may directly affect behavior in situations where the user intends to perform the behavior, but is prevented from doing so (Ajzen, 1985 and 1991). PBC relates to the extent to which the person believes that she/he has control over personal or external factors that may facilitate or constrain the behavioral performance (Ajzen, 1991). It is assumed that PBC together with behavioral intention, can be used directly or indirectly to predict behavior achievement.

In a further extension of TRA, Technology Acceptance Model (TAM) was introduced by Davis (1985), which described an individuals' acceptance of information technology. In general, TAM is a theoretical model that evaluates the effects of things like system characteristics on user acceptance. In understanding acceptance of information technology systems, such as online retailing websites, TAM was used as the basis of the theoretical framework to build a model to determine intention of users to use a system or a website. TAM stressed on adoption degree of a person in using a technology and aspects that affect his or her acceptance or intention to use the technology. It suggests that users' adoption of information technology systems, in this case is online retailing websites, is determined by their intention to use the systems, which in turn is determined by their beliefs towards the systems. Users' beliefs about information technology systems are influenced by their perceived usefulness and perceived ease of use of the systems.

Consumer technology readiness is one of the most significant concepts related to customer's online behaviours (Zeithaml, et al., 2002) because it plays an important role in an organization's ability to use technology effectively to serve customers. Technology readiness can be defined as "people's propensity to embrace and use new technologies for accomplishing goals in home life and at work (Parasuraman, 2002, p. 308)". Technology readiness has four underlying dimensions that can be divided into two categories - contributors and inhibitors. The underlying dimensions are

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optimism (a positive view and belief in that technology offers increased control, flexibility, and efficiency to its users); innovativeness (a tendency to become a technology pioneer and thought leader); discomfort (feeling of lack of control and being overwhelmed by technology); and insecurity (unable to trust and becomes sceptic about technology's ability to work properly).

2.2.2 Scales Developed to Measure Quality of Web-based Transactions

Several scales have been developed in measuring the website electronic service quality (e-SQ). Among the e-SQ measurement or assessment techniques, eTailQ, WEBQUAL, SITEQUAL and e-SERVQUAL are the most popular techniques used by researchers to determine e-SQ in different internet context. However, different types of services required different approaches to assessing the website e-SQ.

a. The eTailQ

The eTailQ, a reliable and valid scale for the measurement of etail quality, was developed by Wolfinbarger and Gilly (2003). The authors suggested that four factors—website design, fulfillment/reliability, privacy/security and customer service—are strongly predictive of customer judgments of quality and satisfaction, customer loyalty and attitudes toward a website. ETailQ was one of the newest, most mature and scholarly models of website quality and it encompasses the entire life cycle associated with electronic transactions. Besides that, each of its factors, variables and items exhibit high levels of inter-item reliability and validity.

Wolfinbarger and Gilly (2003) used online and offline focus groups to develop a reliable and valid scale for the measurement of e-tail quality. The scale was developed in a three-stage study approach: focus group discussions with online buyers (first stage of research); conceptualisation and categorisation of emerged items (e-tail quality dimensions) from the customer's perspective (second stage of research); and an online survey to determine the scale dimensions (third stage of research). The results suggest that four website quality dimensions can predict customer judgments of quality and satisfaction with the website, namely Website design: Involves expected attributes associated with the design, also deals with personalization of an item. Fulfilment/Reliability: Involves precise presentation of product, on-time delivery, and accurate orders. Privacy/Security: Involves the feeling of safe and trust on the website. Customer Service: Combines the personnel's interest in solving problems and helping and prompting to the inquiries of customers.

For e-tailQ, Szymanski and Hise (2000) used an online survey to study the role of consumer perceptions of online convenience, merchandising (product offerings and product information), site design, and financial security. Sadly, the study did not include aspects of customer service or fulfillment; it dealt with satisfaction rather than service quality.

b. WEBQUAL

WEBQUAL was developed by Loiacono, Watson and Goodhue (2002) in order to evaluate website quality focusing on the website interface. The WEBQUAL was used to predict the re-visit/re-use behavior of web users based on their perceptions of overall website quality. There are four dimensions in WEBQUAL - usefulness, ease of use, entertainment and complimentary relationship (Loiacono, Watson and Goodhue, 2002). WEBQUAL 4 developed by Barnes & Vidgen (2003) was the new generation for WEBQUAL and it composed of 22 items of three dimensions, namely, quality of information, quality of interactivity/confidence and empathy and

usability of the site/usability and design.

Generally, based on a review of the WEBQUAL items, it can be said that with WEBQUAL a website is judged for its ability to satisfy customer needs. However one important limitation of the WEBQUAL-instrument is that the development was based on the responses of undergraduate students, who evaluated several selected e-retailing websites. Another important limitation is that respondents also were not on-going customers of the websites they were evaluating. Therefore, further confirmatory research is needed with broad samples of “real” customers of websites (Loiacono, Watson and Goodhue, 2002).

c. E-SERVQUAL

Zeithaml, Parasuraman and Malhotra (Zeithaml, et al., 2000, 2002) developed e-SERVQUAL for measuring e-service. This instrument was developed based on the type of criteria customers used to evaluate the electronic service quality of a website as (i.e., concrete cues, perceptual attributes, broader dimensions, and higher-order abstractions). The authors created seven dimensions namely, efficiency, reliability, fulfilment, and privacy to form the core service scale, while responsiveness, compensation, and contact form the recovery service scale. The core service scale measures customers’ perceptions of SQ delivered by online retailers and their experience in smooth routine online service. Zeithaml *et al.* (2002) also found that three dimensions become important only when the online customers have encountered obstacles related the site’s responsiveness, compensation, and contact; these dimensions constitute a recovery e-SERVQUAL scale.

E-SERVQUAL measures website e-SQ as perceived by customers. It is a method for measuring website e-SQ that is based on the same principle as the original SERVQUAL method and includes some dimensions similar to those of SERVQUAL. The e-SERVQUAL scale contains a core and recovery scale, represented by four and three dimensions respectively. E-S-QUAL or core scale is used to measure the customers’ perceptions of service quality delivered by online retailers. E-RecS-QUAL or recovery scale refers to specific situations, when a customer has a question or runs into a problem (Zeithaml, et al., 2002). In simpler terms, it can be said that core scale refers to the quality of the company’s website, while the recovery scale is more concerned with the actual performance of the company, rather than with website performance.

Four dimensions of core e-SERVQUAL scale are efficiency, fulfilment, reliability and privacy. Three recovery dimensions of e-SERVQUAL are responsiveness, compensation and contact points, which are mainly concerned with the situations which arise when a problem needs to be solved and “personal service” is required.

d. SiteQual

Yoo and Donthu (2001) developed a nine-item SITEQUAL scale for measuring site quality on four dimensions: ease of use, aesthetic design, processing speed, and security. In order to determine quality of a website, students enrolled in marketing classes were asked to visit and interact with three Internet shopping sites of their own choice and then evaluate each site. However, the SiteQual does not capture all aspects of the purchasing process as well and therefore does not constitute a comprehensive assessment of a site’s service quality.

2.3 The influence of web-based factors on online purchasing behavior

A customer's online buying experience consists of everything from information search, product evaluation, decision making, making the transaction, delivery, returns and customer service (Wolfinbarger and Gilly, 2003). Web-based factors influence online purchasing behavior either positively or negatively Syed et al. (2008). By using a sample of 214 online shoppers, Ranganathan and Ganapathy (2002) found four key dimensions of B2C web sites - information content, web design, security and privacy – and although all these dimensions have an impact on the online purchase behavior, security and privacy were found to have greater effect on the purchase intent of online buyers. With reference to website quality, Ruchi et al. (2010) suggested that navigation and content are the most sought after factors consumers are looking for when dealing with a web-site. Categorization of information, color usage, layout/space usage, graphics usage, establishing website's identity and presentation of information are also the important factors. The web site design describes the appeal of the user interface design that will increase the willingness of customers to visit a website more often and to stay longer with the site.

Vijayarathy and Jones (2000) stated that reliability is a measure of customers' perceptions on delivery of online purchased order as promised by e-retailers and it is closely associated with risk. According to Na Li and Ping Zhang (2002), online consumers apparently want to receive the right quality and right quantity of items that they have ordered within the time frame promised by the retailers, and they expect to be billed accurately. Online service providers who deliver the promised services within promised time frame only will be considered as reliable (Syed et al., 2008).

Customer service's dimension of responsiveness, courtesy and understanding/knowing the customer are included in the original conceptualization of service quality (Parsuraman, Zeithaml & Berry, 1985). In internet or web-based transaction, compare to the voice interaction, the response on email inquiries are more important (Wolfinbarger and Gilly, 2003). This is why most companies used online customer service as a way to provide help and service to their online customers.

According to Chiu, et.al, (2009), privacy refers to the degree to which the online shopping web site is safe and protects the customers' information. Security refers to consumers' perceptions about the security of the online transactions as well as the protection of financial information from unauthorized access in an online retailing context (Roman, 2007). Prior researches on online shopping context indicated that consumers' perceptions of privacy have a significant and positive effect on their trust in the online vendor (Chiu, Chang, Cheng, and Fang, 2009). Based on Ahuja et al., (2003), security and privacy were the biggest barriers to online shopping and online buyers' purchasing behavior was significantly affected by these factors.

3.0 Methodology

3.1 Measure of Web-based Factors and Consumers' Online Purchasing Behavior

Based on review of TRA, TPB, Theory of Technology Readiness of Consumers and TAM theories and e-SQ instruments related to the determination of consumers' online purchase behavior, as discussed in the literature review, the dependent variable of this study was determined, i.e. online purchasing behavior. The independent variable identified in this study was web-based factors. The selection of the web-based factors was based on the following steps:

- Step 1: Review of literature and current trend in the usage of internet and online purchasing in Malaysia resulting in the need to examine web-based factors affecting behavior of ICT professional;
- Step 2: Review of theories related to website quality and e-SQ instruments. This process had contributed to the identification of four factors in the eTailQ instrument – fulfillment/reliability, website design, privacy/security, and customer service – as web-based factors that may affect the behavior of online buyers Wolfenbarger and Gilly (2003). These factors have been widely validated as predictors of online purchasing behavior (Wolfenbarger and Gilly; Shergill and Chen, 2005).
- Step 3: Review of previous studies related to the consumers' online purchasing behavior revealed that information content was one of the factors which affect online purchasing behavior (Ranganathan, and Ganapathy, 2002; Barnes and Vidgen, 2003) and this factor will either attracts or repels online customers. According to Szymanski and Hise (2000), consumer satisfaction with Internet shopping is largely determined by the quality of a site's product information. Web site information is often scanned, rather than read in detail and users want useful information and reliable information which they can access quickly. Hence, website information quality was included as one of the web-based factors.
- Step 4: The impact of those web-based factors must be examined in order to determine the extent to which they exert influence on attitude of online buyers. Therefore, attitude towards or online purchasing behavior was established as dependent variable of the study.

3.2 Research Instruments, Sampling Procedure and Data Collection

The four web-based factors - website design, fulfillment/ reliability, customer service and privacy/security - of eTailQ, developed by Wolfenbarger and Gilly (2003) were used in this study. The scale was chosen as it has already been tested and validated as strong predictive of customer judgments of quality and satisfaction, customer loyalty and attitudes toward the website. 14 items of the four web-based factors originally proposed in e-TailQ (2003) with three additional items (for Web Design factor) based on the work of Shergill and Chen, 2005) was employed.

Website information quality (with seven items), which is one of the dimensions in WEQUAL4, proposed by Barnes and Vidgen (2003), was additional factor included in the web-based factors of this study. 24 items of these five factors (Refer to Table 1) were developed in the questionnaire. Three questions (The idea of using this website to purchase a product or service is appealing, I like the idea of purchasing a product or service on this website, and Using this website to purchase a product or service at this store would be a good idea), which were adopted from Hans, Tibert and Marcel (2003), were used to measure attitudes towards or online purchasing behaviour. The items were rated using five point Likert scales of *1=strongly disagree, 2=disagree, 3=somewhat agree, 4=agree and 5=strongly agree*.

All ICT undergraduate students of a public university served as a population of this study. In multivariate research, the sample size required should be 5 to 10 times of variables for 10% and 5% margin error (Hair, et.al, 2003). The number of questions in the questionnaire was 27 and, therefore 270 questionnaires must be collected to ensure 5% of margin error. However, 320 questionnaires were distributed, and 310 of them were gathered and completed for further analysis. The Stratified Random Sampling technique (based on students' year of study and academic programs) was used in order to increase the accuracy of the data and the

representativeness of the population of the study. In distributing and collecting the questionnaire, the students were first asked whether or not they have experience in online purchasing. Those who have the experience were asked to complete the questionnaires and then the researchers collected them back instantly.

3.3 Measurement Assessment

As indicated in Table 1, the KMO measure of sampling for the web-based factors was .919, which was greater than 0.6, supported by Bartlett's test of Sphericity of 0.00 that was less than 0.05, allowing the research to proceed with factor analysis. The results of Total Variance Explained of Exploratory Factor Analysis (EFA) indicated that five factors in the initial solution with eigenvalues greater than 1.0 have been extracted with the cumulative percentage of 64.83%. All the 24 items of these five web-based factors were retained based on the results of component matrix with factor loading ≥ 0.5 . However, based on result of EFA, the original five web-based factors were reorganized and renaming as follows:

- Factor 1 - Information Quality. This factor was retained as in the proposed research framework. 7 items of Information Quality were accurate information, believable information, timely information, relevant information, information is easy to understand, information at right level of details and appropriate format of information.
- Factor 2 was a combination of items of Fulfillment/Reliability and Customer Service. Hence, it had been renaming as Fulfillment/ Reliability /Customer Service. The items were receiving the correct products, on-time delivery, and product represented accurately by the site, responding to customer needs, problem solving and prompt reply.
- Factor 3 consists of four items proposed in the original items in Website Design factor, and it was retained as Website Design. The items were good selection, competitive prices, understanding the needs of customers and comfort and ease of surfing.
- Factor 4 consists of four items proposed in the original Web Design factor. The items were in-depth information, time efficiency, ease in completing transaction and level of personalization. Therefore, it was labeled as Quick and Details.
- Factor 5 was Privacy/Security. Three items of originally proposed in the Privacy/Security factor – privacy protected, feel safe in transaction and adequate security – were retained.

Reliability coefficient assessing the consistency of the entire scale, in which *Cronbach's Alpha* is the most often used; and it is generally agreed that Cronbach's Alpha should exceed 0.70. In this study, the alpha value for the all five factors was 0.940. Specifically, the Cronbach's Alpha values for Information Quality was .902, Fulfillment/Reliability/Customer Service (.842), Website Design (.828), Quick and Details (.814), and Privacy/Security (.865) respectively. Results of reliability coefficient were presented in Table 2.

4.0 Results

4.1 Profile of Respondents

The brief profile of respondents of this study indicated that:

- 47.4% are male respondents and the rest 52.6% are female respondents.
- Most of the respondents (27.4%) are 1st year students. 29.6% are 2nd year students, followed by 3rd year students (22%) and 21% are the final year students.
- In term of academic program, 83 students (26.8%) are pursuing their degree in Computer Science (Software Engineering), which is the highest response rate among the six programs of ICT in this university. The least students (25 students or 8.1%) participated in this study are pursuing their degree in Bachelor of Computer Science (Industrial Computing).

Table 1: Rotated Factor Matrix of Web-based Factors Influencing Online Purchasing

Variables		Factors				
		1	2	3	4	5
IQ1	The website provides accurate information.	.688	.209	.140	.284	.286
IQ2	The website provides believable information.	.766	.105	.110	.120	.292
IQ3	The website provides timely information.	.770	.159	.225	.041	.213
IQ4	The website provides relevant information	.726	.240	.183	.199	.094
IQ5	Information provided was easy to understand	.635	.322	.317	.172	.100
IQ6	The website provides information at the right level of detail	.536	.435	.072	.379	.031
IQ7	The website presents the information in an appropriate format	.555	.390	.040	.401	.080
FR8	I received my product which I ordered from the site	.277	.617	.218	.179	.133
FR9	I received my product by the time promised by the company	.371	.575	.196	.092	.152
FR10	I received the product represented accurately by the site	.221	.655	.261	-.012	.177
CS11	I feel the company was willing and ready to respond to customer needs.	.174	.724	.106	.139	.150
CS12	The website showed a sincere interest in solving the problem when I face it.	.115	.712	.088	.190	.100
CS13	The inquiries were answered promptly	.089	.623	.118	.319	.285
WD14	The website has good selection	.041	.306	.695	.309	.157
WD15	The site has competitive prices	.075	.262	.794	.118	-.056
WD16	The website understands my needs	.348	.145	.722	.141	.123
WD17	I feel comfortable in surfing this site	.344	-.008	.669	.273	.073
WD18	The website provides in-depth information	.305	.219	.184	.726	.039
WD19	The site doesn't waste my time	.123	.154	.306	.734	.158
WD20	It is quick and easy to complete a transaction at this website	.260	.193	.266	.554	.167
WD21	The level of personalization at site is about right, not too much or too little	.181	.262	.486	.503	.293
PS22	I feel my privacy was being protected by this site	.112	.357	.084	.151	.766
PS23	The transaction of the website makes me feel safe	.237	.236	.064	.056	.850
PS24	The website provides adequate security features	.350	.092	.097	.182	.783
Total variation explained by these factors		64.833%				
Cronbach's Alpha		0.940				
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.919				
Barlett's Test of Sphericity:						
Approc. Chi-Square		4410.471				
D.F.		276				
Significance		.000				

Table 2: Reliability Coefficients

No.	Dimension	No. of Items	Cronbach's Alpha
1	Information Quality	7	0.902
2	Fulfillment/Reliability/Customer Service	6	0.842
3	Website Design	4	0.828
4	Quick and Details	4	0.814
5	Privacy/Security	3	0.865

4.2 Examining web-based factors influencing online purchasing behavior

As presented in Table 3, result of Multiple Regression Analysis indicated that Information Quality ($\beta=.292$, $p\text{-value}<0.05$), Quick and Details ($\beta=.151$, $p\text{-value}<0.05$) and Privacy/Security ($\beta=.117$, $p\text{-value}<0.05$) were positively and significantly affected online purchasing behavior. The effect of Fulfillment/Reliability/Customer service (Sig.109, $p\text{-value}<0.05$) and Web Design (Sig.569, $p\text{-value}<0.05$) of web-based factors on online purchasing behavior was insignificant.

Table 3: Regression results between Web-Based Factors and Online Purchasing Behaviour

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	VIF
	B	Std. Error	β			
1 (Constant)	1.069	.216		4.960	.000	
Information quality	.299	.072	.292	4.149	.000**	2.302
Fulfillment/reliability / customer service	.117	.073	.108	1.608	.109	2.095
Website Design	.035	.062	.037	.570	.569	1.910
Quick and Details	.156	.074	.151	2.121	.035*	2.363
Privacy/Security	.102	.051	.117	2.007	.046*	1.574
Note: * $p<0.05$; ** $p<0.01$	F statistic		78.546			
	R ²		.346			

5.0 Discussion

Based on the EFA analysis, web-based factors that are considered by ICT students when they do online purchase were Information quality, Web Design,

Fulfillment/Reliability/Customer service, Quick and Details and Privacy/Security. The result of Multiple Regression indicated that Information quality, Quick and Details and Privacy/Security were positively and significantly affected the online purchasing behavior of the students. Based on these findings, the major implication of this study can be discussed in the following three perspectives:

- **Issues of Web Design factor** – Four items of the originally proposed Web Design factor were found to have insignificant effect on online purchase behavior. This is consistent with Syed, et.al (2008) who found insignificant relationship between Web Design and online purchasing behaviour. Young consumers of ICT students' perceived characteristics of web site design as less important factor that would likely to influence their online buying behavior. These characteristics include elements of good selection, competitive prices, understanding the needs of customers and comfort and ease of surfing feature in the websites. In contrast, four items of Quick and Details (originally there were items of Web Design factor) were positively and significantly affected consumers' online purchasing behaviour. This finding is consistent with the work of Wolfinbarger and Gilly (2003) who suggested that web design is a strong predictive of customer judgments of quality of and attitudes toward a website. The design characteristics of a website that exhibit much influence on young ICT students' online behaviour were in-depth information, time efficiency, ease in completing transaction and level of personalization. In this study, ICT professional valued time efficiency and ease in completing transactions, and this finding support the idea of Ruchi et al. (2010) who highlighted that navigation of a website are the most sought after factors consumers are looking for when dealing with a web-site. This suggests that efficiency in online transaction is important as being addressed in e-SERVQUAL scale Zeithaml, Parasuraman, and Malhotra, 2002). In addition, this group of consumers valued rich product related information that stimulate information processing before they commit in any online purchase decision.

- **Information quality** was found to have significant effect on online purchase behaviour, which is consistent with the study of Zhang and Von Dran (2000) and Ranganathan and Ganapathy (2002). Considering the online market is highly competitive, and users experience and expectation from online services are fast changing, it was necessary for the online companies to provide quality information in the websites. Two types of information; non-value-added and value-added; should be used by search mechanisms in web-based stores, which can lead to shoppers gaining a feeling of increased convenience, and allow them to make quick and right online purchase decision.

- The finding of this study highlighted that **privacy/security** is important in an online buying situation, which is consistent with the work of Ranganathan and Ganapathy (2002), Wolfinbarger and Gilly (2003), Ahuja, et.al. (2003), Shergill and Chen (2005), and Chen and Tsao et al. (2008). Considering ICT students are information technology literate, issues related to transaction security, financial and identity theft, misuse of personal information are universal regardless of the extent to which online consumers possess knowledge in information or web-based systems. Consumers' perceived privacy/security of online purchasing has a critical effect on their decision making, and therefore, procedure and policy related to safeguard of individuals' personal information and the security of online transaction systems must be well addressed in the B2C market.

6.0 Conclusion

In this research, respondents who are information technology literate were chosen to examine the influence of web-based factors on their online purchase behavior. Information Quality ($\beta=.292$, $p\text{-value}<0.05$), Quick and Details ($\beta=.151$,
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p-value<0.05) and Privacy/Security ($\beta=.117$, p-value<0.05) of web-based factors were positively and significantly influence the behavior of online purchasing of this group of consumers. Despite meeting the research questions of the study, further study should be carried out to validate this finding by extending involvement of ICT students to cover all Malaysian public universities. Further, specific online shopping website was not determined in this study, and this make very difficult for E-marketers to focus on website improvement. Therefore, specific online shopping website (e.g. eBay) is suggested to cover.

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