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A preliminary investigation of factors influencing consumer adoption of online transactions in Malaysia

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Information technology is fundamentally changing business transaction worldwide. The advent of internet transaction offers business firms a new frontier of opportunities and challenges. An understanding of how demographic characteristics and social factors influence the adoption of online transaction can allow firms to create solutions and plans to attract consumers to their services, thus enabling them to gain a greater share in the market. Using data from a survey of 180 consumers, the study explored the relationship between hypothesized factors influencing online transactions such as consumers' attitude towards online products, transaction process, cultural diversity, facilitating conditions and the consumer adoption online transactions in Malaysia. The empirical findings suggest that most of the proposed relationships between the constructs postulated by the research model are well supported, accounting for 28.1% of the total variance in the adoption of online transactions. In addition, the findings also suggest that factors such as consumers' attitude towards online products and services, cultural related factors, and facilitating conditions significantly influence consumers' adoption of online transactions. Firms that wish to attract more consumers online should pay more attention to the quality and the price of their products and services. In addition, designing an interface that takes into consideration the cultural diversities such as language and religious belief among the consumers can induce them to make online transactions through the internet.

Key words: Online transaction, adoption, socio-cultural, consumer attitude.

INTRODUCTION

The growth of web-based transactions across different segments of the global society in recent years provides an opportunity for business firms to extend their presence in the electronic market places beyond different geographic boundaries. The potential for the business firms to succeed in these electronic market places depends on how well consumers respond to their presence on the World Wide Web and the pace at which

consumers will switch to electronic transactions. Considerable numbers of research findings (Aoyama, 2000; Lee and Ahn, 2001) have indicated that consumers' adoption of electronic transactions over the internet is growing at a slower pace than electronic transactions among the business firms. Although internet based electronic transaction has been diffused around the world with remarkable rapidity, there are still

Table 1. Trend of internet users in Malaysia 2000-2010.

Year	Users	Population	% of total population
2000	3,700,000	24,645,600	15
2005	10,040,000	26,500,699	38
2006	11,016,000	28,294,120	39
2007	13,528,200	28,294,120	48
2008	15,868,000	25,274,133	63
2009	16,902,600	25,715,819	66
2010	16,902,600	26,160,256	65

Sources: Malaysian communication and multimedia commission (MCMC), 2011.

significant variations in the acceptance and adoption of the Internet for commercial transactions among consumers across the world (George, 2002). The fundamental problem driving this study is, therefore, to explore the factors affecting consumers' adoption of internet-based electronic transactions in Malaysia (MCMC, 2008). For example, in 2005, 38% of the total population (10.04 million people in Malaysia) subscribed to internet and the figure rose to 65% of the total population (16.9 million) in 2010 (Table 1). A survey conducted by Malaysian Multimedia Commission found that only 9.3% of internet users had purchased products or services through the internet, while other 90% used it for information seeking and communication purpose only. Concerns about security, trust, authentication, fraud and risk of losing money were cited among the significant barriers in the growth of online transactions. The low level of online transaction adoption is a series impediment to the government policy for attempting to position Malaysia is a regional and global ICT and multimedia center by providing tax concessions to attract multinational firms and increasing the competitiveness of local companies through the development of an ICT hub, the Multimedia Super Corridor (MSC), near the capital, Kuala Lumpur. Thus, the factors affecting consumers' adoption of internet-based electronic transactions in Malaysia will certainly be of concern to both industry and policy makers. It is for this reason that this study is undertaken. Specifically, this study investigates the following research question:

How do consumers' attitude towards online transaction, their cultural diversity, and facilitating conditions influence their decision to adopt online transactions?

In examining the research question, a survey is used as a research methodology and multiple research literature was utilized to provide a broad basis for empirically analyzing and interpreting the data. A conceptual framework derived from consumer behavior theories is adopted to form the research framework for this study. Prior research on factors influencing electronic transactions over the internet is used as a basis for

specific hypotheses.

CONCEPTUAL FRAMEWORK

E-commerce, as an emerging field, has attracted increasing research activities in recent years. The increasing popularity of online retailing has opened doors for research on exploring ways of effectively utilizing this online retailing for commercial purposes (Chang and Daniel, 2002).

Most of the research into e-commerce is either a technology or consumer-centered view (Jamal and Ahmed, 2007). Research on the technology-centered view explains and predicts the consumer's acceptance of online retailing by examining the technical specifications of the website or the virtual store such as the user interface features, content, design, and the usability (Chang and Daniel, 2002). This view of e-commerce research examines the influence of the productive use of technology on the adoption of online shopping. A number of technology-centered studies (Hameed, 2001; Loh and Ong, 1998; Lohse and Spiller, 1998; Travica, 2002; Wan, 2000; Alba et al., 1997) demonstrate that the impeding factor on online shopping is the underutilization of technology by the virtual stores.

On the other hand, research on the consumer-centered view examines the adoption of online shopping from the consumer's point of view. Research based on the consumer's perspective examines the influences of the consumer's perception and belief about online shopping itself such as product perception, service quality, trust and shopping experiences as demonstrated in a number of studies (Aoyama, 2000; Jamal and Ahmed, 2007; Consalves et al., 1999; Lee and Ah, 2001; Ranganathan and Ganapathy, 2002; Paynter and Lim, 2001). In addition to the consumer's perception and belief, these studies have also examined the role played by socio-demographic factors in the acceptance of online shopping by consumers. The rationale behind this consumer-centered approach is that the success of electronic transactions is determined by the consumer's willingness to adopt it. It is widely believed that in order to

achieve electronic market success, consumers must be given the opportunity and the motivation to participate in electronic transactions.

Regardless of which view is adopted, most of the research on the acceptance and adoption of electronic transactions has mixed and inconclusive findings. This is because there are no established theoretical paradigms that can support the wide array of technical, business and personal issues regarding the adoption of electronic transactions (Change and Cheung, 2001). This view is also supported by others researches (Chen et al., 2002) which acknowledge that despite the availability of many articles emphasizing e-commerce strategies, organizations utilizing electronic markets are finding that their expectations exceed their achievements. In this study, research on the consumer-centered view of e-commerce adoption is reviewed to explore the factors influencing consumers' adoption of online transactions in the developing economies where the use internet and IT technology is increasing tremendously.

It is often acknowledged that the pace of technology adoption varies across society, and in this respect, the adoption of electronic commerce as a technology relies on the performance of the technology platform. However, as a commercial activity, an electronic transaction is a society-specific process involving change of behavior, which depends on how consumers perceive the activity (Aoyam, 2000). There are differences in the way organizations and consumers respond to innovation. While an organization responds to innovation due to competitive pressure, consumers respond to innovation based on the perceived consequences the innovation is believed to have (Aoyama, 2000). Behavioral theorists often include effective components in defining attitude. Attitude reflects the degree of favorableness or unfavorableness an individual feels about someone or something. Attitude is generally thought to be based on beliefs, thoughts or ideas held about something or someone (Dillon and Goldstein, 1994). In the adoption of electronic transactions, a number of studies have adopted the attitude theory to explain the effect of attitude on consumer behavior in the online environment. There is evidence that consumers' attitude towards online transaction influences their purchase decision. It has been shown that consumers would prefer to go to shopping mall for purchasing rather than virtual store (Norazah, 2001). Possible explanations have been put forward including consumers' perceived concerns on information security, privacy, and trustworthiness of the online stores owners and consumers' perception on the context of risk and benefits associated with electronic transactions (Laderer et al., 2000; Fuller, 2000; Change and Cheung, 2001). From this body of literature, we can propose the following hypothesis.

H1: Adoption of online transactions is positively related to consumers' attitude towards electronic transaction

processes.

Research has shown that consumers are concerned about the quality, brand, and price before making a decision to purchase a product or service online because of the belief that online store is an unknown place (Peterson et al., 1997). It is suggested that consumers value convenience and time saving as important reasons for engaging in electronic transactions. In addition to convenience, it is agreed that the vendors' reputation influences consumers' purchase decisions (Nielsen, 1998). Following these findings it might be that consumer's decision to purchase online are influenced by their belief about the products and services offered online. This therefore, leads us to the next hypothesis.

H2: Adoption of online transactions is positively related to consumers' attitude towards online products/services.

Cultural and social diversity are the two main factors that need consideration when assessing global electronic transactions' success. Customization of the online store to suit the needs of global consumers affects the consumer's decision to purchase goods and services from the site. Absence of online stores designed to suit local preferences and the variance in the culture of the global consumers affects how consumers purchase goods and services online (Bellman et al., 1999). The same has been about consumers' wary behavior when conducting an online transaction for fear of the Internet eroding their culture, values, and business systems.

Restrictions resulting from cultural and social norms influence the degree to which consumers can indulge in electronic transactions (George, 2002). On one hand, the absence of physical presence, "touch and feel", in online transactions creates some fermenting culture of trust in both product and web-vendors among consumers. On the other hand, the differences in the global culture might have contributed to the factors affecting trust in online transactions. For instance, while consumers in the west may value personal privacy, it may not be the same for other cultures elsewhere when purchasing online. The dominance of English over other local languages as a transaction medium also influences consumer purchases in the global electronic markets (Bellman and Johnson, 1999; Aoyama, 2000; Seldom 1997). From this piece of literature, we can conclude that the cultural differences of global consumers and social norms influence the consumers' decision to purchase online. Therefore, this leads us to propose the following hypothesis.

H3: Cultural differences such as language, local preferences and religious beliefs strongly influence consumers' decision to adopt online transactions.

Consumers' ease of access to electronic transactions

enabling technology such as the Internet, affects the way they do transactions online. A study on the determinants of the intention to use the Internet at work, found that ease of internet access affects both the users' intention as well as their behavior. Similarly, not only how easily consumers can access the web will affect electronic transactions but it will also have a tremendous impact on the consumers' ability and desire to conduct transactions and to interact online (Korper and Ellis, 2001). The ability of consumers to use electronic transactions enabling-technology without any technical help is another facilitating factor that influences consumers' desire to conduct electronic transactions. Most consumers do not have technical knowledge and will go elsewhere rather than tolerate difficulties. The complexity of the process of transaction and the use of interfaces play an important role in consumers' purchase decisions. It is acknowledged that there is a possibility of consumers abandoning transactions rather than tolerating technical difficulties involving the electronic purchase process (Jarvenpaa and Todd, 1997).

There is some evidence that (Fishbein and Ajzen, 1975), the majority of Internet users are not aware of the services available on the Internet. Most users surf the Internet for email and other non-transactional activities, not knowing the potential of internet transactions and the services it offers. Internet users' awareness of the potential benefits and services offered by electronic transactions facilitates Internet purchases among the potential consumer who would not have otherwise purchased through the Internet. This leads us to the following hypothesis.

H4: Facilitating conditions such as ease of access, awareness, and internet skills strongly influence consumers' decision to adopt online transactions.

An empirical study was conducted to examine the research question and the factors hypothesized to influence consumers' adoption of online transactions. The result of the survey data analyzed and the methodology are discussed in the next section.

MATERIALS AND METHODS

In this study, data were collected from consumers who were bank executives employed by two major local banks in Malaysia. The study used purposive sampling focusing on the respondents who are already using the Internet. A questionnaire was used to collect data for this study. The questionnaire consists of four sections: A, B, C, and D. Section A of the instrument was designed to collect data on demographic characteristics (gender, age, working status, academic qualification, social status, monthly household income, sources of information, computer ownership). Section B of the instrument collected data on sources of information for the respondents, while section C collected data on usage of Internet and online transaction services. Section D is on perception and attitude toward online transactions and related factors.

Four hundred questionnaires were distributed upon personal contact with the respondents and they were requested to return the completed questionnaires later.

However, only 180 completed questionnaires were returned. The respondents' age ranged from 21 to 50 with a median age of 21. They were highly experienced, having worked for different departments in a variety of positions such as administration, management, sales, and professional positions. The items in the scale of interest were developed for this study and the scale validities were assessed using reliability assessment test. The reliability assessment of the entire scale was first computed and then followed by the assessments of individual items supposed to measure the research constructs. The overall reliability of the entire scale was observed to be good with a cronbach alpha of 0.7220. The second test was conducted to assess the degree to which the items on the scale measured the hypothesized research constructs. 19 items measuring five constructs were assessed based on the correlation of items to their summated score or item-to-total correlation (Dillard, 1992). Out of the 19 items, only four items were observed to have item-to-total correlation of below 0.35 as shown in Table 2. To improve the reliability of the scale, items that were shown to have below 0.35 item-to-total correlations were excluded from further analysis.

RESULT AND DISCUSSION

Data from the survey were analyzed using multiple regression analysis. The multiple regression analysis was computed to evaluate the influences of consumer attitude, cultural factors, and facilitating conditions on the adoption of online transactions. Before testing research hypotheses a regression model was created that included attitude towards products, and the transaction process, cultural factors and facilitating conditions as the predictors and the online transaction adoption as the criterion. To evaluate the main effects of the predictors of e-commerce adoption, the F-test was used to see if all the terms in the model were significant.

The result of the regression showed that the linear combinations of the predictors were significantly related to the adoption of online transactions. The F- static value of 16.115 (degrees of freedom = 4) is significant at p-value of less than 0.05 ($p = 0.000$). The readings of the adjusted R-squared for the model is 0.681, indicating that approximately 68.1% of variance of e-commerce adoption decisions in the sample can be accounted for by the linear combination of consumers' attitude towards the product, attitude towards the process, cultural and facilitating conditions.

Having established the predictability power of the model, the analysis of significance in the individual terms in the model was computed. The results of the significance test of individual terms or predictors in the model associated with online transactions adoption show that all terms corresponding to the predictors except the attitude towards transaction process were significant ($\alpha < 0.05$). This result shows that consumers' attitude towards products, cultural factors and facilitating conditions significantly affect the decision to adopt online transactions which is consistent with the study of Chang and Cheung (2001). However, there was no significant

Table 2. Reliability and correlation analysis.

Items in the scale	Items-of-total correlation	Cronbach's alpha (α)
<i>Adoption</i>		
Purchase	0.6570	0.7398
Intention to purchase	0.6219	
Intention to continue purchasing	0.5070	
<i>Attitude toward transaction</i>		
Perceived security control	0.4723	0.7169
Perceived privacy control	0.6119	
Perceived convenience	0.2128	
Perceived efficiency	0.4160	
<i>Attitude toward products/service</i>		
Price	0.4118	0.6554
Quality	0.4790	
Product safety	0.3628	
variety	0.0960	
<i>Attitude toward vendors</i>		
Vendor's reliability	0.3135	0.6982
Easy of delivery	0.5211	
Easy of order	0.5122	
Easy to get information	0.5033	
<i>Cultural factors</i>		
Religious belief	0.4051	0.6554
Language	0.4790	
Local preferences	0.3628	
Social status	0.0960	
<i>Facilitating condition</i>		
Ease of access	0.2394	0.7428
Ease of Use	0.5185	
Service awareness	0.5768	
Internet skills	0.4891	

effect of consumers' attitude towards transaction process on the decision to adopt online transactions ($t=0.821$, $p=0.181$). From the results, facilitating condition (0.675) and attitude toward products (0.221) had the highest coefficient values as shown in Table 3.

This means the two factors have influenced the decision of consumer for adopting online transactions. Also, looking at the Beta value, it was confirmed and evident that consumer's attitude, and facilitating factors were the best predictors that can positively influence the adoption of online transactions. The findings of this study are not supporting some previous findings which suggested that the transaction security and privacy are the biggest concerns among the consumers for the enhancement of their confidence to adopt e-commerce

transactions (Berendt et al., 2005; Sulaiman, 2000). This may be because online service security has been improved in recent years in Malaysia and consumers are not more cautious with them. However, the results reveal that facilitating factors such as easy access for service and other internet skills are more important factors influencing usage attitude toward electronic transactions in the Malaysian users.

Conclusion

The major objective of this research was to investigate the potential determinants influencing adoption of online transactions among consumers. Based on the results of

Table 3. Result of regression model.

Variable	B	Std. error	Beta(β)	t-statistic	P-value
constant	1.04	0.936	-	1.114	0.121
Attitude toward products	0.221*	0.074	0.198	2.970	0.000
Attitude toward transaction	0.216	0.256	0.256	0.821	0.180
Cultural factors	0.209*	0.056	0.263	3.913	0.000
Facilitating condition	0.675*	0.185	0.250	3.652	0.000

$R^2=0.681$; $F=16.115^*$ (p-value 0.000)*significant at 5%.

Table 4. Hypothesis test.

Hypothesis	Influence on online transaction adoption	Supported/not supported
H1: Attitude toward transaction process	Not significant	Not supported
H2: Attitude toward online products	Positively significant	supported
H3: Cultural factors	Positively significant	supported
H4: Facilitating condition	Positively significant	supported

the data analysis, it may be possible to conclude that elements in the model jointly have some predictive power. The result shows that approximately 28.1% of variance of online transactions adoption decisions in the sample can be accounted for by the linear combination of all the four hypothesized factors in the model (Table 4). The strength of the relationship between individual factors and online Transaction adoption in the model showed that consumer attitude towards online products; facilitating conditions and cultural factors positively influence consumers' decision to adopt online transactions.

Consumers' attitudes (such as belief about product quality, price, and variety) towards online products significantly influence the adoption of online transactions. It is interesting to note how consumers' attitude towards online product influences their decision to adopt online transactions. A possible explanation to this relationship might be due to the absence of "touch and feel" of products in an online transactions. In Contrast, consumers' attitude towards the transaction process such as belief about security, privacy and efficiency of online transaction process did not prove to have a significant influence on the adoption of online transactions. This finding also suggests that consumers are more concerned about the online products than the transaction process. Cultural factors, such as language, religious belief, and local preferences, have significant influence on the adoption of online transactions.

Web merchants who wish to attract more consumers online should pay more attention to the quality and the price of their products and services. In addition, designing an interface that takes into consideration the cultural diversities such as language and religious belief among the consumers can induce them to make online transactions through the Internet. Similarly, in order for

electronic transactions to be accepted and diffused among the global society, consumers must be informed about the commercial services provided through the Internet and the World Wide Web. Online transaction awareness among the Internet users would stimulate the growth and adoption of commercial transactions through the Internet. In addition, educating consumers on the uses and benefits of Internet purchases would encourage consumers to make purchases through the Internet and consequently adopt online transactions.

In conclusion, this research, being an exploratory study, some factors like demographic variables have been excluded from the analysis. Furthermore, the model did not incorporate the legal aspect of online transactions and the role of government in assessing its adoption among consumers. Future research should therefore, investigate further these findings.

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