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Consumer Perceptions of Traditional and Electronic Markets:
A Pilot Study in Thailand

[ABSTRACT]

THE The objective of this study is to identify significant factors that differentiate consumers in electronic markets from those in traditional markets. The study uses consumer cost differences which are: product price, product quality, after-sales service, product refund or exchange, variety and assortment of product offerings, time saving in buying products, convenience in buying products, distribution costs, sufficient consumer legal protection, security of credit card payments, in order to differentiate consumers in traditional and electronic markets. The results indicate that four of ten proposed factors (product price, product quality, product refund or exchange, and time saving in buying products) can be used to classify consumers into the two markets. Internet buyers' characteristics and behavior are discussed.

Keywords: *electronic markets, traditional markets, product price, product quality, product refund or exchange, time saving in buying products*

Introduction

THE Internet has become an important medium for organizations wishing to market their products and services via an electronic market. Although many organizations have claimed that the use of the Internet is involved in their business success, little research has been conducted in Thailand to assess the success of electronic markets. Online shopping also has some limitations including a lack of variety of products, disappointing customer service, and wariness about unknown Internet retailers. Therefore, some consumers may still prefer traditional markets (i.e., retail stores) to electronic markets (i.e., e-commerce) or vice versa. In addition, the Internet's effects on consumer behavior are unpredictable.

The electronic market in Thailand is still in its infancy. A survey on factors affecting Internet usage revealed that Thai consumers are not sufficiently aware of the importance of legal protection for transactions processed via the Internet (Chumchuan, 1998). In addition, consumers are not confident in the quality of products/services purchased via the Internet and the security of payment systems (Tungkitvanit, 1999). Even though some Thai consumers are not confident in the electronic market, others buy products regularly on the Internet. Therefore, additional research is needed to understand which factors (such as: types of products, costs relevant to traditional or electronic markets, services from vendors etc.) are significantly associated with consumer perceptions of traditional and electronic markets. Once these factors are identified they can also be used to create models for predicting consumer group membership in traditional versus electronic markets from a set of predictors. The main purpose of this pilot study is to investigate factors that influence a person's decision to purchase using either electronic or traditional markets in Thailand.

Background to the Study

EVERY buyer is engaged in a continuous decision process which consists of five stages: need recognition, information search, evaluation of alternatives, purchase decision, and post-purchase behavior (Kalakota and Whinston, 1997; Kotler, 1997; Armstrong and Kotler, 2000). Many of these stages involve costs relating to searching for sellers, delivering and monitoring products/services. As different marketing channels have different associated costs, a consumer normally compares the relative advantages in each potential market. The relative advantage is often expressed in savings in time and effort, and cost reduction (Teo, 1997). Therefore, a reasonable consumer usually attempts to minimize the relative costs involved in the purchasing decision process (Gattiker et al., 2000). Given the two types of marketing channels (traditional and electronic markets), the six costs associated with these markets include: product price, search costs, risk costs, distribution costs, sales tax, and market costs (Strader and Shaw, 1999). We now examine each of these costs in detail. However, as sales tax in Thailand is the same for both marketing channels, this study does not take sales tax into consideration as a factor.

Product Price

Product price is the sum of the production costs, coordination costs, and profits added to the product or service (Strader and Shaw, 1999). The benefits of electronic markets to both buyers and sellers are low cost and improved efficiencies (Armstrong and Kotler, 2000). Electronic markets can reduce costs of order processing, inventory handling, delivery, and trade promotion because buyers deal directly with sellers. In addition, communicating electronically often costs less than communication using paper through the postal system.

Search Costs

Search costs are the time, effort, and money involved in obtaining and comparing the available brands and features of products from various sellers (Strader and Shaw, 1999). Generally, a consumer will search on product price, product quality, and product features until they reach the final purchasing decision (Strader and Shaw, 1999; Armstrong and Kotler, 2000). The product quality refers to the ability of the product to perform its functions free from defects, and its consistency in delivering a targeted level of performance. Electronic markets provide benefits to a buyer in terms of convenience which, in turn, reduces the buyer's search costs. The buyers do not have to go to various stores in order to find and examine products. In addition, the buyers have access to an abundance of comparative prices, from many locations, among competitive stores, products, or services that fit their needs.

Risk Costs

Risk costs refer to the costs resulting from economic, social, performance, personal, and privacy risks (Strader and Shaw, 1999; Vijayasarathy and Jones, 2000). The buyer's decision process does not end when the product is purchased. After purchasing the product, the consumer will be engaged in post-purchase behavior which reflects either their satisfaction or dissatisfaction with the purchase. Normally, the buyer is disappointed when the delivered product fails to meet specifications. As Internet buyers cannot touch or examine the products in a tangible way during the evaluation stages, and they usually receive purchases via mail delivery, the buyer will require favorable terms such as warranty or replacement of products without difficulty and within a short period of time (Gattiker, 2000). In addition, there are some risks associated with ensuring security of credit card transactions in an electronic market because information transmitted over the Internet may be intercepted and misused. Therefore, the consumer's perception of security risks may be different for electronic and traditional markets.

Distribution Costs

Distribution costs refer to the costs involving the physical exchange of products or services from the seller to the buyer (Strader and Shaw, 1999; Phau and Poon, 2000). Distribution costs are associated with different types of products and services purchased over the Internet. Digital products, such as electronic books and software, can be delivered digitally and can be used instantly by the consumer. Sending the digital products or services online significantly reduces the distribution costs. However, the distribution costs for tangible products are higher in the electronic market than in the traditional market because there is the need for the consumer to pay for the distribution costs in order to receive the product.

Market Costs

Market costs are the costs associated with participating in a market (Strader and Shaw, 1999; Gattiker, 2000). These costs include fees paid by buyers to access the Internet and the costs paid to the firms that operate the electronic market. In the traditional market these costs are different and relate to the form of transportation required to reach the retail site.

This study applies the work by Strader and Shaw (1999) on consumer cost differences for traditional and Internet markets incorporating additional costs associated with consumers. This study differs from previous studies on transaction cost economics and consumer cost differences in several ways. First, this study adds variables such as product quality, sufficient consumer legal protection, and security of credit card payments to the model. The previous studies typically emphasized on product costs, searching costs, and the costs of monitoring and enforcing the implementation of the contract. In addition, the studies did not include security of credit card to the model. Some customers in the markets are aware of the security of credit card. Second, this study analyses data by using more complex statistic (discriminant analysis) for construct validity than previous study. The previous research employs the mean and standard deviation to examine the model. Thus, the aim of this pilot study is to provide an answer, based on empirical evidence, to the research question: what are the significant factors that classify consumers in Thailand in electronic and traditional markets?

Research Methodology

FIVE hundred questionnaires were distributed to participants in three of the main cities in Thailand (Bangkok, Chiang Mai, and Khon Kaen). The reason for limiting the study to these cities was that participants in these main cities normally understand the electronic market much better than participants in the small cities. In addition, the participants were university students and office staffs who have knowledge in e-commerce. Two hundred and ninety nine returned questionnaires were usable for statistical analysis. The participants included of 54.4 percent of male and 45.6 of female. There were 11.5 percent of participants aged less than 20; 38.3 percent of participants aged 20-26 years old; 21.1 percent of participants aged 27-34 years old; 20.9 percent of participants aged 35-41 years old; and 8.2 percent of participants aged more than 42. In addition, the participants were students 39.2 percent; government officers 4.1 percent; state enterprise officer 18.1 percent; private company officer 28.0 percent; entrepreneur 2.4 percents; and others 8.2 percent. These questionnaires were divided into two groups, Internet buyers and non-Internet buyers. The groups were separated in terms of whether or not participants purchased products via the Internet. There were 73 questionnaires in the Internet buyers group and 226 questionnaires in non-Internet buyers group. In addition, the questionnaires in each of the two groups were split into analysis and holdout (validation) samples. The analysis sample was used to develop a discriminant function and the holdout sample was used to test the discriminant function. A 75-25 percent split was used to form the analysis and holdout samples noting that the smallest group size must exceed the number of independent variables in order to ensure the minimum impact of sample size on the estimation of the discriminant function (Hair et al., 1998). Finally, the Internet buyers group contained 55 observations for analysis and 18 observations for validation and the non-Internet buyers group was divided into 168 observations for analysis and 58 observations for validation. Analysis and holdout sample sizes were quite different for the Internet buyers and non-Internet buyers groups. However, with ratios of 1:3.05 for the analysis groups and 1:3.22 for the holdout groups, the discrepancy in sample sizes does not invalidate the use of discriminant analysis (Tabachnick and Fidell, 1996).

The evaluation of assumptions of linearity, normality, multicollinearity or singularity, and homogeneity of variance-covariance matrices revealed no threat to the use of multivariate analysis. The collected information was analyzed using discriminant analysis with the stepwise method. Ten variables were used as predictors of membership in the two groups. The ten variables used to distinguish Internet buyers from non-Internet buyers were product price, product quality, after-sales service, product refund or exchange, the variety and assortment of product offerings, time saving in buying products, convenience in buying products, distribution costs, sufficient legal protection for the consumer, security of payment by credit card. A six-point scale from 1 for "extremely disagree" to 6 for "extremely agree" was used for the rating of the ten variables.

Results

The results show that the discriminant function is significant with χ^2 (5) = 108.120 and a p value < 0.01. The discriminant function accounts for 81.60 percent of grouped cases. The discriminant loadings suggest that the best predictors for distinguishing between Internet buyers and non-Internet buyers are product price, product quality, product refund or exchange, and time saving in buying products. Of the four variables in the discriminant function, product quality discriminates the most while time saving in buying products discriminated the least. Even though the result for distribution costs showed statistical significance, this variable was not used for further analysis. The discriminant loading of this variable, was -0.005, which is less than an accepted level of $\pm$ 0.30. After distribution costs were deleted from the analysis the new discriminant function in (1) was obtained with χ^2 (4) = 101.825 and a p value < 0.01. The new discriminant function accounted for 78.90 percent of grouped cases and the discriminant loadings of all variables are shown in table 1.

D = -5.156 + 0.439 Product price + 0.467 Product quality + 0.364 Product refund or exchange + 0.374 Time saving in buying products

Table 1: Summary of interpretive measures for consumer perceptions of traditional and electronic markets

Independent variables	Standardized coefficients	Discriminant loadings		Univariate F	
	Value	Value	Rank	Value	Rank
Product price	.469	.586	2	44.913	2
Product quality	.464	.667	1	58.225	1
After-sales service	NI	.388	5	14.059	5
Product refund or exchange	.391	.492	4	31.673	4
Variety and assortment of product offerings	NI	.340	6	2.778	8
Time saving in buying products	.449	.497	3	32.266	3
Convenience in buying product	NI	-.107	8	.164	9
Sufficient legal protection for the consumer	NI	.210	7	4.135	7
Security of payment by credit card	NI	.098	9	5.630	6

Note: NI means this variable is not included in the stepwise solution.

The holdout samples were used to examine the predictive accuracy of the discriminant function in (1). The classification matrices for consumer perceptions of traditional and electronic markets are shown in table 2. The analysis samples (with 78.90 percent classification accuracy) have higher prediction accuracy than the holdout samples (with 61.84 percent classification accuracy).

Table 2: Classification matrices for consumer perceptions of traditional and electronic markets

Actual group	Number of cases	Predicted group membership	
		Internet buyers	Non-Internet buyers
Analysis sample[a]: Internet buyers	55	44 80.00%	11 20.00%
Non-Internet buyers	168	36 21.40%	132 78.60%
Number of cases		**80**	**143**
Holdout sample[b]: Internet buyers	18	11 61.11%	7 38.89%
Non-Internet buyers	58	22 37.93%	36 62.07%
Number of cases		**33**	**43**

[a] Percent of grouped cases correctly classified is 78.90%.

[b] Percent of grouped cases correctly classified is 61.84%.

Table 3 shows the profiling of correctly classified and misclassified cases from the analysis and holdout samples. Data in this table was used to identify specific differences on the independent variables that might identify either a new variable to be added or common characteristics that should be considered. The eighteen cases misclassified in the Internet buyers group have slightly significant differences on one of the four variables (time saving in buying products with p value = 0.074) in the discriminant function. In addition, almost all of the variables, which were not included in the discriminant function, demonstrate significant differences (i.e. variety and assortment of product offerings, convenience in buying products, sufficient legal protection for the consumer, and security of payment by credit card). The non-Internet buyers group shows a similar pattern but with different variables. The statistically significant differences of some variables (i.e. convenience in buying products, sufficient legal protection for the consumer, and security of payment by credit card) suggest that other variables would identify characteristics that may identify group membership.

Table 3: Profiling correctly classified and misclassified observations in consumer perceptions of traditional and electronic markets Independent variables

Independent variables	Mean scores			t test	
	Correctly classified	Misclassified	Difference	t value	Significance
Internet buyers:	(N = 55)	(N = 18)			
Product price[a]	4.102	2.597	1.505	4.452	.141
Product quality[a]	4.284	2.714	1.570	4.458	.140
After-sales service	3.920	2.701	1.219	5.431	.116
Product refund or exchange[a]	3.625	2.403	1.222	4.931	.127
Variety and assortment of product offerings	3.693	2.961	0.732	9.089	.070
Time saving in buying products[a]	4.386	3.468	0.919	8.548	.074
Convenience in buying products	4.761	5.097	-0.336	29.338	.022
Sufficient legal protection for the consumers	3.102	2.636	0.466	12.317	.052
Security of payment by credit card	4.193	3.967	0.225	36.165	.018
Non-Internet buyers:	(N = 168)	(N = 58)			
Product price[a]	2.601	3.725	-1.124	5.629	.112
Product quality[a]	2.561	3.529	-0.968	6.288	.100
After-sales service	2.765	3.128	-0.362	16.261	.039
Product refund or exchange[a]	2.490	2.876	-0.386	13.889	.046
Variety and assortment of product offerings	3.208	3.607	-0.399	17.082	.037
Time saving in buying products[a]	2.808	4.010	-1.202	5.672	.111
Convenience in buying products	4.730	4.433	0.297	30.881	.021
Sufficient legal protection for consumers	2.414	2.514	-0.100	49.405	.013
Security of payment by credit card	3.820	3.681	0.138	54.018	.012

[a] Variables included in the discriminant function (1).

The Internet buyers' behaviour towards the purchasing of products or services through the Internet is summarized in table 4.

Table 4: Information on buying product/service on electronic markets

Items	Response	Percentage
Purchase product/service via Internet market:		
1. Average number of Internet web sites searched for product/service before making purchasing decision	1-3 web sites	41.9
2. Time used to search product/service before making purchasing decision Less	than 2 hours	48.6
3. Product/service buying from internet 3.1 Highest ranking purchase	Book, article or magazine, and software	54.1
3.2 Second highest ranking purchase	Computer and peripheral	17.6
3.3 Third highest ranking purchase	Toys and recreation	14.9
4. Consideration of product brand	Considered	81.1
5. Product price	Should be less than buying product from the traditional market by at least10%	33.8
6. Method of payment	Credit card	66.2
7. Method of product delivery	Mail	68.9
8. Satisfaction with products	Satisfied	91.9
9. Product delivery time	3-7 days	48.6

In this study, the Internet buyers are predominantly young with 40.0 percent of Internet buyers of age 20-26 years; 29.1 percent of age 27-33 years; and 16.4 percent of age 34-40 years. The Internet buyers are mostly male (80.0 percent) and 76.4 percent of Internet buyers are single. In addition, most of the Internet buyers are college graduates with 54.5 percent holding a bachelor degree and an additional 21.8 percent holding a master degree. The mean income of Internet buyers is 20,000 baht per month (around 476 US$). Internet buyers spend only a small amount of time searching for information before making a purchasing decision. The most popular goods were publications and computer software. In addition, Thai Internet buyers prefer products with well-known brands but the product price needs to be 10% cheaper than the price available in retail stores. Usually, the products are paid for by credit card.
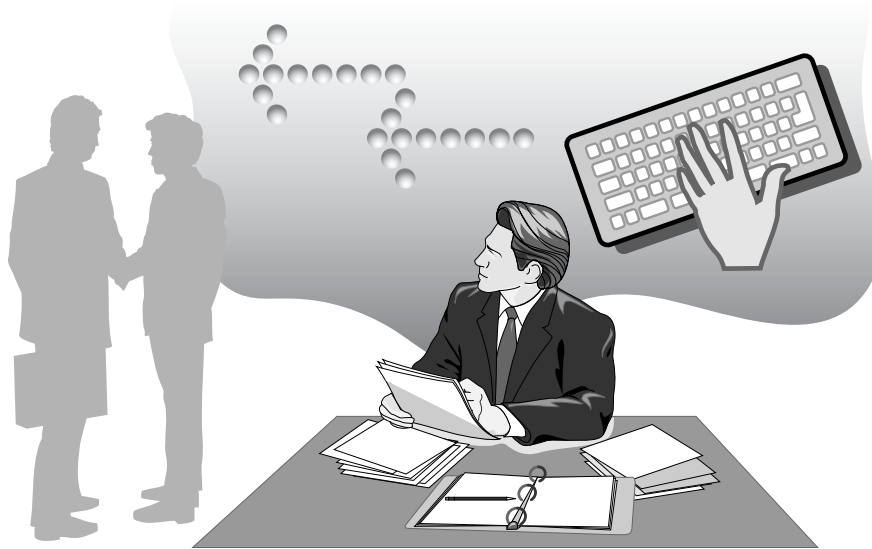
Discussion of Results

THE results provide some preliminary answers to the main purpose of this pilot study. The findings suggest that product price and quality influence consumers. If the savings in transactions costs in an Internet market can be passed on to consumers in the form of lower prices, without compromising quality, then this will have a positive influence on consumers to buy products. In addition, the results indicate that Internet buyers in Thailand usually buy well-known brands because the buyers are confident of the quality assurance of those products. Also, the tangibility of products is an important factor for Thai consumers. The survey by Wongpinunwatana and Achakulwisut (2000) on the

adoption of e-commerce by Small to Medium Enterprises (SME) in Thailand indicates that Thai consumers want to inspect products before making a purchasing decision. Since Internet buyers have to visualize products from the Internet they require warranties and product refund or exchange arrangements in case the products fail to meet their requirements (Research center, 1996). The distribution costs do not have a strong influence on purchasing decisions in either the traditional or electronic markets. The income of Internet buyers in Thailand is quite low compared to buyers in other developed nations and consequently in Thailand buyers will favor products with low cost. The products

frequently purchased from the Internet are books, articles or magazines, and computer software. Because the Internet buyers can download these types of products electronically they do not place an emphasis on distribution costs when making a purchasing decision. For example, when purchasing computer software, Thai consumers will always look for freeware.

However, the factors: after-sales service, variety and assortment of product offerings, convenience in buying products, sufficient consumer legal protection, security of payment by credit card cannot be used to distinguish Internet buyers from non-Internet buyers in Thailand. Several reasons can be given to explain this. First, intangible products (i.e. books, articles or magazines, and computer software) generally do not require after-sales support or warranty. Second, many of the Internet buyers are college students and office staffs who have Internet access through their school or workplace which is essentially free. If consumers access the Internet from home then they have to pay for local telephone charges and Internet access charges but these charges are relatively inexpensive in Thailand. In addition, they spend less time on the Internet and visit very few web sites before making a purchasing decision. Therefore, the cost of participating in the Internet market is quite low and comparable to the low cost of participating in the traditional market. Third, contrary to expectations, Internet buyers are not overly concerned with security risks associated with the transmission of credit card information over the Internet. This may be due to the extensive use of credit cards in both marketing channels which has developed trust with the security of this method of payment.

The percentage of Internet buyers in this study (24.41%) is significantly lower than the percentage of non-Internet buyers (75.59%). This is consistent with the results in Ratpol et al. (1999) where it was reported that Thai consumers are most likely to buy products from the traditional market. As the Internet is still new for Thai consumers, those sellers who want to use the Internet as an electronic market may have to reconsider using the Internet as predominantly an information provider.

Conclusion

IN summary, the results from this study indicate that Internet and non-Internet buyers can be differentiated by product price, product quality, product refund or exchange, and time saving in buying products. This finding provides a reasonable starting point for understanding the types of transaction costs which influence consumers in using both traditional and electronic marketing channels in Thailand. In addition, organizations, which want to market their products via the Internet, can use these results to understand better the consumer cost differences for traditional and Internet markets in order to effectively launch new Internet marketing channels.

There are a number of limitations on this pilot study. First, the participants in three main cities in Thailand may not be suitable representatives of the whole population. Other samples from other main cities such as Phuket city should be examined. Second, the electronic market in Thailand is still in its infancy.

This market is still in a period of learning and unlike the participants in this study many Thai people may not have access to or be familiar with Internet technology.

Future research could be conducted by expanding the sample to include other cities. In addition, further studies should incorporate factors related to the possible effects of aspects of Thai culture since the need to understand how cultural factors affect the success of business on the Internet must be considered (Hofstede, 1994; Johnston and Johal; 1999; Steenkamp and Hofstede, 1999; Gattiker, 2000) and the impact of culture has been of continuing concern in electronic commerce research.

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