Application of the Theory of Reasoned Action to On-line Shopping

Supanat Chuchinprakarn

ABSTRACT

This study was carried out with the objectives of studying the behavior of Internet users and the effects of key factors on the intention to shop on-line. The theory of reasoned action (TRA) was employed to develop the conceptual framework. The population of interest was confined to full-time employees in Thailand with frequent use of the Internet. The results of hypothesis testing showed that all four key constructs, i.e., trust, confidence in using a credit card, subjective norm, and past behavior, had significant effects on the on-line shopping intentions. However, the confidence in using a credit card was not found to moderate the effects of trust and the subjective norm on the intentions to shop on-line. Trust was found to have the strongest effect, followed by confidence in using a credit card, past behavior, and subjective norm.

INTRODUCTION

In the past few years, e-commerce has increasingly become more and more important. The latest survey from shop.com and Boston Consulting Group on e-commerce indicated that on-line purchase has become stronger and more profitable. The evolution of the Internet, therefore, transforms and changes the way business transactions are conducted. Future business transactions were predicted to move from market place to market space (Kotler, 2000). Business transactions can easily be conducted on the Internet without the obstacles of international borders. Citizens living in one nation can purchase goods from corporations located in another nation with convenience and ease.

The growth of on-line selling in Thailand is on the rise. A variety of businesses, such as retailers, manufacturers, and food centers, have started using the Internet as a new channel of distribution (Jitpleecheep & Pamsoonthorn, 1999). However, having a website on the Internet does not guarantee success. On-line sellers need to pay close attention to those influential factors affecting the success of e-commerce and utilize them to develop websites and make them attractive to consumers.

Even though a number of studies have been carried out to investigate consumer acceptance of on-line shopping, little empirical research was conducted to study on-line purchase behavior. Existing research on Internet shopping is largely exploratory in nature. Information provided is often in the form of percentages or opinions. As a result, the objectives of this research were to empirically investigate the behavior of Internet users and the effects of key factors on the intention to shop on-line. The focus was on business-to-consumer e-commerce.

CONCEPTUAL FRAMEWORK

The development of the conceptual framework was based on the behavioral intention model, often referred to as the theory of reasoned action (TRA) (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Past research has tested the TRA on a variety of behavioral intentions, such as blood donation (Bumkrant & Page, 1982), bone marrow donation (Bagozzi, Lee, & Van Loo, 1996), and religious donation (Chuchinprakarn, Greer, & Wagner, 1998). In this research, the TRA was applied to test the on-line shopping intention. According to the theory, two components are expected to influence behavioral intention. These are attitude and the subjective norm. In this study, four constructs were proposed to influence the intention to shop on-line. The first two constructs, i.e., trust and confidence in using a credit card, were considered elements of the attitudinal component. The subjective norm (i.e., the influence of friends) was considered a third construct. The fourth construct was past behavior, which was considered an additional element added to the TRA model by previous researchers. These four constructs were predicted to directly affect the intention to shop on-line. In addition, it was also predicted that confidence in using a credit card would moderate the effects of trust and subjective norm on the intention to shop on-line. Figure 1 presents the proposed conceptual framework.
The intention to shop on-line is based on a well-defined concept in psychology and consumer behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). The concept of intention has also been applied to study exchange relationships among organizations, with emphasis on relationship continuity (Heide & John, 1992; Lusch & Brown, 1996; Noordewier et al., 1990). In this study, the intention to shop on-line is defined as the consumers’ intent or expectation to make an on-line purchase in the future.

**Main Effects**

The TRA model indicates that the attitudinal and normative components will have an effect on the behavioral intention. In this study, two key constructs, i.e., trust and confidence in using a credit card, are proposed to be associated with the attitudinal component. Trust has been recently discussed as a key construct influencing the success of e-commerce (McCole, 2002; Papa-dopoulou et al., 2001; Ratnasingham, 1998) and the success of buyer-seller relationship (Anderson & Narus, 1990; Doney & Cannon, 1997; Ganesan, 1994; Morgan & Hunt, 1994). In e-business transactions, trust can be defined as the consumers’ belief and expectation that e-sellers are reliable and will perform their obligations faithfully. In this light, trust is expected to be a key factor bringing about business transactions. Consumers are more willing to make a purchase on the Internet if they believe that on-line sellers are credible, reliable, and trustworthy. Past studies also showed that trust had a positive effect on relationship commitment or long-term orientation (Ganesan, 1994; Morgan & Hunt, 1994), a similar concept to behavioral intention. Thus, the following hypothesis is proposed.

$H_1$: Trust will have a positive effect on the intention to shop on-line.

Confidence in using a credit card is also a significant factor affecting consumers to shop on the Internet. It can be defined as the consumers’ belief in the security of using credit cards to purchase goods on the Internet. Security of their credit cards is a major concern to consumers. Lack of confidence in using a credit card may prevent the growth of e-commerce (Apicella, 2000; Bellman, Lohse, & Johnson, 1999; Bhatnagar, Misra & Rao, 2000; New Internet Survey, 2000). E-sellers who can assure consumers of the security of their credit cards will have an advantage over those who cannot. Therefore, the following hypothesis is suggested.

$H_2$: Confidence in using a credit card will have a positive effect on the intention to shop on-line.

The other component in the TRA theory affecting behavioral intention is the subjective norm (SN) (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). In this study, the subjective norm is referred to as the influence of friends. Friends can be characterized as a membership group in which consumers belong to (Assael, 1992). As part of the group, consumers will try to fit in with the group norm. If members of the group think positively about on-line transactions, then almost everybody in the group is likely to have no objection toward making an on-line purchase. Hence, the following hypothesis is posited.

$H_3$: Confidence in using a credit card will have a positive effect on the intention to shop on-line.
**H₁:** Subjective norm will have a positive effect on the intention to shop on-line.

Past behavior refers to the fact that consumers have or have not purchased anything on the Internet. Bentler & Speckart (1979) tested the TRA model by adding past behavior as an additional exogenous variable. Their results showed that past behavior had an effect on intention and behavior. Other studies also showed that adding past behavior as a third component in the TRA model helped strengthen the model (Bagozzi, 1981; Bentler & Speckart, 1981; Fredricks & Dossett, 1983). By the same token, it is believed that consumers who made an on-line purchase in the past are likely to feel more comfortable in making an on-line purchase in the future. As a result, the following hypothesis is derived.

**H₂:** Past behavior will have a positive effect on intention to shop on-line.

**Moderating Effects**

In addition to its main effect, confidence in using a credit card is expected to moderate the effect of trust on the intention to shop on-line. The effect of trust on the intention to shop on-line will depend on the level of confidence in using a credit card. Consumers with high levels of confidence will be less concerned with using credit cards on-line and, as a result, will be more willing to make on-line purchases. In this case, trust will have a strong effect on the intention to shop on-line. In contrast, consumers with low levels of confidence are expected to be concerned with using credit cards on the Internet and, as a result, will be less willing to make on-line purchases. In this situation, trust will have a weak effect on the intention to shop on-line. The following hypothesis is therefore suggested.

**H₃:** High levels of confidence in using a credit card will strengthen the relationship between trust and the intention to shop on-line.

Similarly, confidence in using a credit card will moderate the effect of the subjective norm on the intention to shop on-line. The effect of the subjective norm on the intention to shop on-line will depend on the level of confidence in using a credit card. Consumers with high levels of confidence will be less concerned with using credit cards on the Internet and, as a result, will be easily influenced by the group norm. In this case, the subjective norm will have a strong effect on the intention to shop on-line. On the other hand, consumers with low levels of confidence are expected to be concerned with using credit cards on the Internet and, as a result, will be less influenced by members of the group. These people are more conscientious in using their credit cards to purchase on line. In this situation, the subjective norm will have a weak effect on the intention to shop on-line. Hence, the following hypothesis is proposed.

**H₄:** High levels of confidence in using a credit card will strengthen the relationship between the subjective norm and the intention to shop online.

**METHODOLOGY**

**Sample**

The study focused on consumers who had the means and the opportunities to shop on the Internet; hence, the population of interest was confined to full-time employees in Thailand who frequently used the Internet. The sampling frame was based on the list of companies compiled from evening MBA students at a Thai university. There were a total of seven classes at this university with about 40 students each. To reduce the number of classes, a random sampling method was used to select two classes with a total of 80 students. Then, the names of the companies where the students worked as full-time employees were obtained. Some students who did not work as full-time employees were eliminated. Those students who worked in the same company were counted as one. A total of 74 companies were then obtained. The target number of completed questionnaires was 350. However, since we expected to have a response rate of 50%, the sample size used was 700. Therefore, we reduced the number of companies from 74 to 70 by using a random sampling procedure to eliminate four companies. Then, we gave each student ten copies of the questionnaire and asked them to complete one copy of the questionnaire by themselves and distribute the other nine copies to their colleagues at their place of work. Students were told to use their judgment to select qualified respondents to fill in the questionnaires.

**Questionnaire Design**

Depth interviews were carried out first with ten target respondents. The information received was used to develop questions on Internet user behavior. Scales used to measure key constructs were based on both existing scales and scales developed by the researcher. Reverse coded items were also used to check the consistency of the respondents’ answers. The questionnaire was then submitted to a panel of five academic scholars for evaluation and suggestions. After that, necessary changes were made to improve the questionnaire. The second draft of the questionnaire was pretested on 30 target respondents and changes were made to finalize the questionnaire.

Table 1 presents scale items of key constructs used in hypothesis testing.
ANALYSIS AND RESULTS

Descriptive Statistics

Seven hundred copies of the final version of the questionnaire were distributed to target respondents. Of this, three hundred and twenty completed and usable questionnaires were received. This represented a 45.71% response rate.

The respondents consisted of 42.6% male and 57.4% female. The age of respondents was between 26 - 30 (38.4%), followed by 31 - 35 (29.2%), and below 26 (18.2%). The income of respondents was between Baht 10,000 - 19,999 (42%) and Baht 20,000 - 29,999 (19.3%). In terms of education and marital status, the majority of respondents held a bachelor’s degree (67%) and were single (74.6%).

The results indicated that on average respondents used the Internet 4 days a week with a standard deviation of 1.62 days. The usage rate was 1 hour and 16 minutes with a standard deviation of 1 hour and 7 minutes. The purposes for using the Internet were to receive and send e-mail (80.6%), to follow news and current events (63.3%), to search for academic information (51.7%), to search for business information (46.1), and to search for traveling information (42.6%). Only 14.7% of respondents said they had experience in purchasing on-line. The majority of products these people had purchased were books (46.8%), CD/VDO (23.4%), air tickets (21.3%), and software (21.3%).

Hypothesis Testing

Preliminary Data Analysis. Before performing hypothesis testing, preliminary data analyses using exploratory factor analysis, coefficient alpha, and correlation were carried out to purify the measures using multiple items. The results indicated that item 2 and item 6 of the construct “trust” were inconsistent with the other items; hence, these two items were dropped. In addition, item 2 of the construct “confidence in using a credit card” was also found to be inconsistent and, as a result, this item was dropped from the study.

Test of Main and Moderating Effects. A multiple regression analysis using the ordinary least square (OLS) method was employed to test the hypotheses. However, before analyzing the results, the regression model’s assumptions associated with linearity, normality, heteroscedasticity, and outliers were tested. The results indicated that all the assumptions had been satisfactorily met.

Since our regression model included both main and moderating effects in the same model, multicollinearity would be a problem. Hence, before testing the model, a mean centering technique was used on all four exogenous variables. After that, an OLS regression analysis was utilized to test all the hypotheses. The results are presented in Table 2. The values of variance inflation factors (VIF) suggested no multicollinearity problem. The test results showed that all four constructs, i.e., trust, confidence in using a credit card, subjective norm, and past behavior, had significant effects on the intention to shop on-line (p < 0.001 for the effect of trust, p = 0.001 for the effect of confidence in using a credit card, and p < 0.01 for the effects of the other two constructs). However, confidence in using a credit card was not found to moderate the effects of trust and the subjective norm on the intention to shop on-line (p > 0.10). Thus, H1, H2, H3, and H4 were supported but H5 and H6 were not supported.

TABLE 1

Scale Items for Key Constructs

<table>
<thead>
<tr>
<th>Exogenous Variables</th>
<th>Items and Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust</td>
<td>6 items -- 5 point Likert scale -- Anchored at endpoints (Strongly Disagree/Strongly Agree)</td>
</tr>
<tr>
<td></td>
<td>1. Most on-line sellers provide us with credible information.</td>
</tr>
<tr>
<td></td>
<td>2. Most on-line sellers are not honest.* (R)</td>
</tr>
<tr>
<td></td>
<td>3. Most on-line sellers pay close attention to their customers’ welfare.</td>
</tr>
<tr>
<td></td>
<td>4. Most on-line sellers are reliable.</td>
</tr>
<tr>
<td></td>
<td>5. Most on-line sellers are capable of responding to their customers’ needs.</td>
</tr>
<tr>
<td></td>
<td>6. Most e-commerce websites are not trustworthy.* (R)</td>
</tr>
<tr>
<td>Source Adapted from Doney and Cannon (1997)</td>
<td></td>
</tr>
<tr>
<td>Confidence in using a credit card</td>
<td>3 items -- 5 point Likert scale -- Anchored at endpoints (Strongly Disagree/Strongly Agree)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. The use of credit card for on-line shopping is common to us.
2. We are not confident in using credit cards to purchase on-line.* (R)
3. We strongly believe in the security of using credit cards for on-line shopping.

Source: Constructed by the Researcher

Subjective Norm
1 item -- 5 point numerical scale -- Anchored at endpoints
(Should/Should not shop on the Internet.)

The majority of our friends think that we.....

Source: Adapted from Ajzen & Fishbein (1980)

Past Behavior
1 item -- a yes/no question

Have you ever purchased anything on the Internet?

Endogenous Variable

Intention to Shop On-line
3 items -- 5 point Likert scale -- Anchored at endpoints
(Strongly Disagree/Strongly Agree)

1. We intend to purchase goods on the Internet in the future.
2. We think that we will order goods from on-line sellers in the future.
3. The possibility that we will purchase goods on the Internet in the future is high.

Source: Adapted from Ajzen & Fishbein (1980)

* - Items that were deleted after preliminary data analysis
R - Reversed coded items.

TABLE 2

Results of Multiple Regression Analysis

<table>
<thead>
<tr>
<th>Construct</th>
<th>Standardized Coefficient</th>
<th>t-value</th>
<th>p</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust</td>
<td>0.224</td>
<td>4.655</td>
<td>0.000***</td>
<td>1.095</td>
</tr>
<tr>
<td>Confidence in Using a Credit Card</td>
<td>0.181</td>
<td>3.343</td>
<td>0.001***</td>
<td>1.164</td>
</tr>
<tr>
<td>Subjective Norm</td>
<td>0.160</td>
<td>3.017</td>
<td>0.003**</td>
<td>1.117</td>
</tr>
<tr>
<td>Past Behavior</td>
<td>0.158</td>
<td>3.049</td>
<td>0.002**</td>
<td>1.065</td>
</tr>
<tr>
<td>Confidence in Using a Credit Card x Trust</td>
<td>-0.079</td>
<td>-1.528</td>
<td>0.128</td>
<td>1.060</td>
</tr>
<tr>
<td>Confidence in Using a Credit Card x Subjective Norm</td>
<td>-0.012</td>
<td>-0.235</td>
<td>0.815</td>
<td>1.107</td>
</tr>
</tbody>
</table>

R-Square = 0.214, F = 14.172, p = 0.000
***Significant at 0.001
**Significant at 0.01
DISCUSSION

The proposed conceptual framework indicates that the two elements associated with attitude, i.e., trust and confidence in using a credit card, as well as the subjective norm and past behavior should influence the intention to shop on-line. In addition, confidence in using a credit card is also expected to moderate the effects of trust and the subjective norm on the intention to shop on-line.

The results of the study are consistent with the extended theory of reasoned action which states that attitude, subjective norm, and past behavior are exogenous variables influencing behavioral intention. Our test results show the significant effects of trust, confidence in using a credit card, subjective norm, and past behavior on the intention to shop on-line. In terms of the strengths of effects, trust has the strongest effect, followed by confidence in using a credit card, past behavior, and subjective norm. On the other hand, confidence in using a credit card is not found to moderate the effects of trust and the subjective norm on intention to shop on-line. This may be due to the fact that the main constructs are independent of one another and each has a very influential effect on the consumers’ intention to shop on-line. To verify this, we dropped the four main constructs from the model and tested only the effects of the two moderating variables. The results are consistent with the first test, i.e., the two moderating variables had no significant effects on the intention to shop on-line.

The theoretical contribution of this research is the development of the conceptual framework, which is based on the extended theory of reasoned action. Past studies have mainly focused on the theory’s application on donations. This study is different from past studies in the sense that it applies the TRA theory to e-commerce. The study tries to explain consumer behavior regarding on-line shopping. In addition, the proposed conceptual framework also divides the attitudinal component into two key elements, i.e., trust and confidence in using a credit card. These two attitudinal elements are considered the key factors affecting on-line shopping.

E-commerce marketers can benefit from the results of the study. An e-marketing manager will be able to design a marketing program based on the results found in this study. As the results suggest, trust is the most significant factor; hence, e-marketing managers should pay close attention to the reliability, credibility, and trustworthiness of their websites. They must provide credible information and always keep promises.

E-sellers need to make their customers feel more comfortable toward the use of credit cards on the Internet. They need to emphasize that using credit cards on the Internet is not different from using credit cards elsewhere. E-sellers also need to use a secure website and provide assurance to their customers regarding the security of their credit card information. They also need to provide other payment options to customers. Customers do not have to use credit cards to pay for their purchases if they do not want to. Customers should be able to use some other means to make payment, such as sending a money order via postal mail or deposit money directly into the merchant’s bank account.

This study also has several limitations. First, our study focuses on those who are full-time employees and ignore other groups of consumers, such as college students, who also have access to the Internet. Second, the use of the theory of reasoned action may have excluded some other constructs from the study. Other constructs, such as risk preference and marketing mix factors, may influence the consumers’ intentions to shop on-line. Hence, future research should extend the study to cover other groups of consumers and add additional constructs to the model.

CONCLUSION

E-commerce has been growing at an exponential rate. It is predicted that future business transactions will occur on the Internet. This study tries to capture this phenomenon by applying the theory of reasoned action to on-line transactions between e-sellers and consumers in Thailand. The results indicate that trust, confidence in using a credit card, subjective norm, and past behavior are key elements affecting on-line shopping intention. It is hoped that this study will be able to stimulate future research interests in the area of E-commerce.

REFERENCES


New Internet survey looks at customer benefits of Internet shopping. (2000, December), *Telecomworldwire*.


Asst. Prof. Dr. Supanat Chuchinprakarn received his Ph.D. in marketing from the University of Maryland at College Park, U.S.A., M.B.A. (Marketing and Operations Management) with Beta Gamma Sigma from Ohio State University, U.S.A., LL.B. from Ramkhamhaeng University, and B.B.A. (Management) from Bangkok University. He is currently an assistant professor of marketing at Bangkok University, Bangkok, Thailand. His research interests are in the areas of interactive marketing, international marketing, consumer behavior, and research methodology.

All correspondence should be directed to Asst. Prof. Dr. Supanat Chuchinprakarn, School of Business Administration, Bangkok University, 119 Rama IV Road, Klongtoey, Bangkok 10110, Thailand. Tel: 66-2350-3500 ext. 1520, Fax: 66-2240-1819, E-mail address: Supanat.c@bu.ac.th