Factors affecting user's online shopping behavior: Integrating the constraint-based and dedication-based relationship perspectives

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The influence of dedication-based relationships on post-adoption behavior in recent information systems continuance literature has been explored in detail. However, such is not the case for constraint-based relationships. This study aims to examine the relationship between the antecedents and consequences of both dedication-based and constraint-based factors on information systems post-adoption using online shopping as an example. The results indicated that the antecedents of constraint-based influences - the effectiveness of online shopping websites (perceived operational competence and communication) and the perceptions of online shoppers' closeness in the relationship (customer relationship investment and perceived cohesion) - have indirect positive effects on online shoppers' continuance intention toward online shopping websites, as mediated by their trust in the online shopping website and their perceptions of the switching cost. The data also showed that constraint-based influences have a more significant effect than dedication-based influences (satisfaction and perceived usefulness) on the continuance intention toward online shopping websites. The paper verified the antecedents and effects of both constraint-based and dedication-based influences on online shoppers' continued online shopping behavior. Moreover, this article validated the causal relationship between perceived cohesion and trust as well as relationship investment and perceived switching costs in the e-commerce setting.

Key words: Information system continuance, post-adoption behaviors, dedication and constraint based influences, online shopping.

INTRODUCTION

Both the research literature and businesses recognize that customer loyalty is the key to building and maintaining market share and sustainable competitive advantage (Chen and Wang, 2009). Customer satisfaction and loyalty have become a vital concern for organizations in their efforts to improve product and service quality and to maintain customer loyalty in a highly competitive marketplace (Garbarino and Johnson, 1999; Kim et al., 2004; Ping, 1933). According to the marketing literature, customer satisfaction never explains all the variation in repurchase intention, because customers are seldom completely free to choose suppliers (Jones et al., 2000). Fornell (1992) demonstrates that firms adopt both offensive and defensive strategies for choosing their position to locking-in customers. With the rapid growth of online consumer shopping, the importance of creating and maintaining customer loyalty in the electronic marketplace has come more sharply into focus, both in the marketing literature and in practice (Bigné-Alcañiz et al., 2008). E-commerce and m-commerce that depend heavily on information technology (IT) are considered examples of an information system (IS). In an effort to explain and predict the continued use of IS, Bhattacharjee (2001a, b) integrates expectation-confirmation theory (ECT) from the consumer behavior literature to develop a model of IS continuance. Since the publication of this model, the literature has focused on
dedication-based relationships, studying specific factors such as satisfaction and perceived usefulness (Bhattacherjee, 2001a; Hsu et al., 2006; Lee et al., 2007; Liao et al., 2006). However, a comprehensive model that explicitly addresses both the advantages and disadvantages of considering organization-customers relationships from the customer’s perspective has yet to be developed. This deficiency reveals a need to increase the awareness of the important point that a constraint-based perspective is also necessary to explain the persistence of IS usage. Steeper switching barriers imply that customers perceive that they must stay with their current service provider, irrespective of how satisfied they are with their relationship with this provider. The role of these barriers has received relatively little attention in the IS post-adoption literature. Therefore, to increase our understanding of customer retention in online shopping, we decided to extend IS continuance theory by adopting a marketing perspective and incorporating both constraint-based and dedication-based relationships in our model.

The current study makes two key contributions to the literature. The first is an integrated theoretical model that incorporates concepts of relationship marketing and IS continuance theory (that is, the expectation-confirmation model, ECM), constraint-based relationships, and dedication-based relationships to provide a better explanation of the decision-making process that underlies continued online shopping. Second, we provide empirical evidence for the utility of the proposed model by identifying the important factors that online shopping websites should consider in their efforts to improve customer retention.

In the course of meeting these objectives, we provide answers to three key questions: (a) What are the most effective strategies for promoting customers’ continued online shopping behavior toward online shopping websites in the online shopping setting? (b) Can the proposed model be empirically validated through a field survey? and (c) What are the relative roles of constraint-based and dedication-based variables in promoting customers’ continued online shopping behavior toward online shopping websites? In the second section, we outline the theoretical model and state the research hypotheses.

THEORETICAL MODEL AND RESEARCH HYPOTHESES

According to the relationship marketing literature, customers are motivated to maintain relationships with a service provider either because they really want to or because they believe they have no other option. The former is referred to as dedication-based relationship maintenance and the latter as constraint-based relationship maintenance (Bendapudi and Berry, 1997). The IS continuance literature has focused only on dedication-based relationships by identifying factors such as satisfaction and perceived usefulness (Kim et al., 2002; Kim and Son, 2009). Few studies have adopted a constraint-based perspective, which can help online shopping websites lock in customers. Drawing on the investment model (Jones et al., 2000; Ping, 1993), we adopt trust and perceived switching cost as the constraint-based relationship variables. The closeness of an online shopper’s relationship with an online shopping website (that is, relationship investment and perceived cohesion) and the effectiveness of an online shopping website (that is, perceived operational competence and communication) is the most important antecedent of constraint-based relationships (e.g., Jones et al., 2000; Kim et al., 2004; Mayer et al., 1995). To answer our first research question, we use both dedication-based and constraint-based variables to study the factors that influence online customers’ intention to continue using online shopping websites. The objective of the research is to create a predictive model of users’ continuous intention toward an online shopping website. The research model with its hypotheses is shown in Figure 1.

The expectation-confirmation model

Expectation-confirmation theory (ECT) is widely used in consumer behavior research to study consumer satisfaction following a purchase; it has consistently dominated both academic research and managerial practice (Spreng et al., 1996). ECT is commonly used to predict consumer satisfaction and loyalty to many products and services (Spreng et al., 1996). ECT examines the variables associated with post-purchase behavior (perceived performance), not just pre-purchase behavior (expectation) (Lin et al., 2005). It proposes that a consumer’s initial expectations and beliefs about a product or service are developed prior to its purchase or use. After this purchase or use, the consumer forms a post-usage perception about the performance of the product or service, and a comparison is made between the initial expectation and actual performance. This comparison leads the consumer to either confirm or disconfirm the pre-purchase expectation. A positive confirmation means that performance was better than expected, whereas a negative confirmation means that performance was worse than expected. Expectation is the baseline that determines users’ satisfaction with a product or service. In ECT, satisfaction is determined by expectation and perceived level of confirmation; these two variables are considered key to building and retaining a base of loyal, long-term consumers. Finally, customers who are highly satisfied with a product or service are likely to have a stronger intention to repurchase than less satisfied customers.

In studying the continued use of a technology, it is important to examine the user’s experience with a given
system over a period of time. Bhattacherjee (2001b) suggests that an IS user’s choice to continue with a technology is similar to a consumer’s decision to repurchase a product or service. He integrates ECT’s confirmation of expectation and user satisfaction variables as well as technology acceptance model’s (TAM; Davis et al., 1989) perceived usefulness variable to develop the ECM. His results suggest that the most significant antecedent of continuance intention is satisfaction, which in turn is determined by the user’s perception that the technology is useful (cf. perceived usefulness) and his/her pre-acceptance expectations are confirmed (cf. confirmation).

Dedication-based influences, confirmation and continuance intention

Dedication-based influences include two constructs, satisfaction and perceived usefulness. ECM links five hypotheses; based on this, prior empirical studies have shown that the five hypotheses proposed by ECM can potentially explain post-adoption behavior within the web context (e.g., Bhattacherjee, 2001a, b; Hsu et al., 2006; Lee et al., 2007; Lin et al., 2005; Roca et al., 2006; Thong et al., 2006). Therefore,

H₁: Users’ satisfaction is positively associated with their continuance intention.
H₂: For users, perceived usefulness is positively associated with their satisfaction.
H₃: For users, perceived usefulness is positively associated with their continuance intention.
H₄: Users’ confirmation is positively associated with their satisfaction.
H₅: Users’ confirmation is positively associated with their perceived level of usefulness.

Constraint-based influences and continuance intention

Constraint-based influences include two constructs, trust and perceived switching costs. Trust: Both academicians and practitioners suggest that relationship marketing is an alternate perspective for managing customer privacy issues (Milne and Boza, 1999). In addition, many researchers identify trust as the key to understanding the relationship between customers and websites (Salo and Karjaluoto, 2007; Yeh and Li, 2008). Garbarino and Johnson (1999) define trust as “the customers’ confidence in the quality and reliability of the services offered by an organization”. Since IS plays a very important role in internet service and cannot be easily replaced, a user’s satisfaction with an IS depends on the perceived contribution of that IS that leads to successful user performance (Yeh and Li, 2008). When users are dependent on an IS for critical resources, and alternate sources of supply are limited, their satisfaction and trust should increase. Previous research suggests a positive relationship

Figure 1. Research model. Dotted lines (-----) indicates the constraint-based variables; round-dotted line (............) indicates the dedication-based variables.
relationship between customer satisfaction and trust (Batt, 2003; Kennedy et al., 2001).

The importance of trust is magnified in the highly uncertain e-commerce environment (Wang and Pho, 2009). Liao et al. (2006) found trust is positively associated with customers' perceived usefulness of and continued intention to use a B2C (business-to-consumer) website. Prior studies have also concluded that web-enabled medical IS must satisfy the conditions of continued consumer trust, loyalty, and retention (Smith and Manna, 2004). If they do so, they increase the intention to continue adopting the medical advice, including e-healthcare applications. Accordingly, the following hypotheses are proposed:

\[ H_6: \text{Users' trust is positively associated with their } \text{perceived level of usefulness.} \]
\[ H_7: \text{Users' trust is positively associated with their satisfaction.} \]
\[ H_8: \text{Users' trust is positively associated with their continuance intention.} \]

**Perceived switching costs**

This variable can be defined from the customer perspective as any costs associated with changing to a new supplier, vendor, or service provider. The higher the buyers' anticipated switching costs, the greater their interest in maintaining a quality relationship. According to the theory of planned behavior (TPB; Ajzen, 1991), perceived switching costs can be regarded as a control belief or perceived behavioral control, which directly predicts behavioral intention. In the context of barriers to switching, perceived switching costs thus correspond to an external control belief. As a hindrance to barriers to switching, perceived switching costs are likely to facilitate the continued usage of an IS. Previous studies have examined the effect of perceived switching costs on customer attitudes and reported positive effects (Anderson and Sullivan, 1993; Jones et al., 2000; Kim et al., 2004). The higher the perceived switching costs, the more one is forced to remain with one's existing service provider. It is logically understood that an e-shop customer who feels burdened by the perceived switching costs associated with transferring to an e-shop may become locked with the service. Therefore:

\[ H_9: \text{The switching costs users perceive are positively associated with their continuance intention.} \]

**Antecedents of constraint-based influences**

Effectiveness of online shopping websites: This dimension includes two constructs, perceived operational competence and communication. Perceived operational competence refers to the perceived ability of an online shopping website to deliver high-quality day-to-day operational performance (Balasubramanian et al., 2003). This belief reflects one dimension of trust (Mayer et al., 1995) and is also identified as one of the determinants of service quality (Parasuraman et al., 1985). Perceived operational competence captures the responsiveness of the IS towards filling orders and providing customers with feedback, as well as the ability of online shopping providers to offer sufficient, timely, and accurate information (DeLone and McLean, 1992). Consumers might find that such services are time-critical, place-critical, or both.

Most studies find a significant relationship between perceived operational competence and trust (e.g., McKnight et al., 1998). Users who perceive that an online shopping website meets high standards of operational competence will place greater trust in the vendor. Customers develop trust based on the perceived competence, benevolence, and integrity of the service provider (Mayer et al., 1995; McKnight et al., 1998).

In their report of a study of two service industries (banks and hairstylists), Jones et al. (2002) suggest that service quality has a positive influence on switching costs. In an analysis of antecedents to customer loyalty, Aydin and Özer (2005) show that perceived service quality is positively associated with perceived switching costs, but only when online shoppers who perceive their online shopping website to be operating at a high level of operational competence also perceive that switching to another online vendor would incur increased costs. They also suggest that operational competence is positively associated with loyalty, through three important mediators: corporate image, perceived switching costs, and trust. Thus, the following hypotheses are proposed:

\[ H_{10a}: \text{Users' perception of the operational competence of an online shopping website is positively associated with their trust in the shopping website.} \]
\[ H_{11a}: \text{Users' perception of the operational competence of an online shopping website is positively associated with their perceived switching costs.} \]

Communication reflects the pleasantness of the interaction between users and websites (Kim et al., 2002). Several authors have shown that communication between online shopping websites and their customers is linked to trust (Kim et al., 2002; MacDonald and Smith, 2004). Based on the results of their study of web-based electronic commerce, Vatanasombut et al. (2008) propose that trust might mediate communication and IS continuance intention.

The literature suggests that high quality and frequent communication may lead to changes in the perceived switching cost of online shopping; however, the expected outcomes are quite different. Rowley and Slack (2001) suggest that if online shopping websites provide interaction and transaction benefits to customers, they will see improvement in their customer relations. Therefore, more and better online communication builds barriers to switching. On the other hand, an orientation toward
communication with users characterizes all online vendors and makes switching easier, thus negatively influencing the relationship between communication and perceived switching costs (Wang and Head, 2007). Therefore, it can be argued that communication that is more frequent does not erect barriers to switching. Based on the reviewed literature, the following hypotheses are proposed:

\( H_{12b} \): The extent of users’ communication is positively associated with their trust.

\( H_{11b} \): The extent of users’ communication is associated, either positively or negatively, with their perceived switching costs.

**Online shoppers’ perception of relationship closeness**

This dimension includes two constructs, customer relationship investment and perceived cohesion. Customer relationship investment is defined as consumers’ perception of a vendor’s efforts to create a psychological bond with customers, as well as its application of other intangible resources, for the purpose of encouraging or inducing them to continue the relationship (Smith and Barclay, 1997). When this increased investment happens, the quality of the relationship improves, which increases customers’ loyalty and continuance intention (De-Wuff et al., 2001). In a survey of online retailing customers, Wang and Head (2007) found that relationship investment positively impacts customer trust.

Increased investment in a relationship should increase the perceived switching costs of moving to another relationship. If relationship-specific investments are substantial, they are perceived as indicators of the costs required to establish and maintain an alternate relationship, not only because they are relationship-specific (and thus would be lost), but also because they would likely be reoccurred in the alternate relationship. As a result, increased investment in relationships should always increase the cost of switching to an alternate relationship, and relationship investment should be positively associated with switching costs.

When considering the effect of relationship investment on relationship intention, Wang and Head (2007) show that the estimate of the direct path from relationship investment to relationship intention is very small and no significant. Accordingly, we propose that relationship investment has indirect effects on continuance intention, mediated by trust and perceived switching costs. Thus:

\( H_{12a} \): Users’ relationship investment is positively associated with their trust.

\( H_{13a} \): Users’ relationship investment is positively associated with their perceived switching costs.

Bollen and Hoyle (1990) define perceived cohesion as an individuals’ sense of belonging to a particular group and the heightened morale they feel as a result of belonging to the group. It is the individual attributes of the group members that define their relationship to the group. Therefore, friendship can be seen as essential to social cohesion in specific social groups (Casaló et al., 2007). Accordingly, trust is tied to both individuals and communities.

The literature on organizational theory has different views about the relations between perceived cohesion and trust. In the first type, trust precedes perceived group cohesion. For example, Jarvenpaa et al. (2004) found that members’ trust in global virtual groups had a direct positive effect on their perceptions of group cohesive-ness. In the second type of relationship, perceived group cohesion precedes trust. For example, Casaló et al. (2007) suggest that greater participation in a free software virtual community is directly and positively associated with greater consumer trust in the free software virtual community.

However, there is no clear evidence pertaining to the direction of the causal relationship between perceived cohesion and trust in the e-commerce setting. Many e-commerce websites recognize that increasing perceived cohesion among online shoppers increases their intention to stick with the website. Recently, many e-commerce websites have launched communities as an operation model in electronic markets. As customers can easily change the way they shop, creating cohesion with an online shopping website is necessary for a totally positive customer experience, which in turn improves the shopping website’s performance; yet, few online shopping websites meet this goal. The more that a community connected to an online shopping website is cohesive, the more likely it is that its members will share a mutual attraction and admiration for one another, and the more it is that they will behave in a friendly, trusting, and caring manner toward one another (Casaló et al., 2007; Mudrack, 1989). As a result, the proposed research model postulates that cohesion is associated with trust in an online shopping website.

When consumers express their dependence on a certain brand in the virtual community, they are likely to meet others in the community with the same tendencies; then they can share their mutual experiences and other relevant information. Therefore, we propose that (a) when consumers’ sense of belonging to a virtual community is high, (b) interaction with other members of the community is strong, and (c) the probability of mutual feelings of friendship with other community members is high, then their knowledge of the goods and services that the website offers, as well as their identification with the website, increases.

According to a study by Hsu and Lu (2007), perceived cohesion has indirect effects, mediated by customer preferences, on loyalty toward the online game community. Therefore, we suggest that perceived cohesion will have indirect effects, mediated by trust and perceived switching costs, on continuance intentions. Thus:
H₁₀b: Users’ perception of group cohesion is positively associated with their trust.

H₁₀c: Users’ perception of group cohesion is positively associated with their perceived switching costs.

**METHODS**

**Instrument development**

To test the hypotheses discussed above, we first surveyed users’ intentions to continue online shopping. The questionnaire was designed to capture 10 constructs that are presented in the proposed model and drawn from prior studies. The content validity of the variables is considered to be adequate. Perceived operational competence was adapted from a study of Balasubramanian et al. (2003) and modified to fit the online shopping context. It includes five items (Cronbach’s α = 0.95). Communication was adapted from Yilmaz and Hunt (2001) and from Morgan and Hunt (1994) and was modified to fit the online shopping context. It includes four items (Cronbach’s α = 0.91). Customer relationship investment was adapted from De Wuff et al. (2001), includes three items (Cronbach’s α = 0.90). Perceived cohesion was adapted from Hsu and Lu (2007), consists of three items (Cronbach’s α = 0.86). Trust was adapted from Gefen et al. (2003), includes three items (Cronbach’s α = 0.91). Perceived switching costs was adapted from Jones et al. (2000), includes three items (Cronbach’s α = 0.91). Confirmation was adapted from Bhattacharjee (2001a), includes three items (Cronbach’s α = 0.92). Perceived usefulness was adapted from Davis et al. (1989), includes four items (Cronbach’s α = 0.95). Satisfaction was adapted from Spreng et al. (1996), includes four items (Cronbach’s α = 0.91). Continuance intention was adapted from Bhattacharjee (2001a), includes two items (Cronbach’s α = 0.88). All the research constructs were measured using multiple-item 7-point Likert scales adapted from previous studies, with strongly disagree (1) and strongly agree (7) as the anchors.

**Pilot test**

The sample for the pilot study consisted of online shoppers who were using the internet to facilitate shopping transactions at the time of the study. Data were collected via a survey questionnaire pretested for face validity by two academics and five current online shoppers with more than 1 year of experience. Based on feedback, minor changes were made to the instructions and wording of some of the items to reflect the online shopping setting. Prior to formally administering the survey, a convenience sample of 60 users completed it in a test environment. Forty-five valid responses were received, a response rate of 75%. The questionnaire was then modified based on the comments and suggestions of the pilot participants. Cronbach’s α for the scales in the questionnaire ranges from 0.89 to 0.94, indicating satisfactory reliability and exceeding the value commonly required for exploratory research (Nunnally and Bernstein, 1994). The minimum values of the item-to-total correlations all exceed 0.5 (minimum = 0.76), also indicating that the instrument has good reliability (Churchill, 1995). In short, the pilot test demonstrates convergent and discriminant validity for all the constructs and reveals that all the scales exceed the reliability thresholds for more established research (Hair et al., 1992). A detailed overview of the scales is included in the Appendix. The pilot test participants were excluded from the final data collection and the subsequent study.

**Sampling plan and data collection**

The final questionnaire was distributed onsite to 800 current online shopping customers in eastern China during February 2009. All respondents were asked to provide the name of online shopping websites that they had purchased products from and at least once during the past 12 months. Respondents indicating online purchasing experience were instructed to answer all the questions in the questionnaire. Completed questionnaires were received from 605 members of the original sample, a response rate of 75.6%. Fifty-six indicated that they had not used the online shopping service during the 3 months prior to the survey. Following Bhattacharjee and Premkumar’s (2004) definition of continuous users as those with more than 3 months experience, we eliminated those with less than 3 months experience, reducing the sample size to 549, an overall response rate of 68.6%. The demographic profile of the survey respondents shows that 53% are female. Most (53.7%) were between 21 and 30 years old, and 62.8% were undergraduate students. Most (73%) had 3 to 5 years experience with online shopping. The sample demographics are presented in Table 1. All the scales have Cronbach α exceeding the standard acceptance level of 0.8 (see Appendix), which indicates that the data are highly reliable.

**Data analysis**

The data were tested for reliability and validity using confirmatory factor analysis (CFA). The confirmatory model was used to determine whether the research model can explain the observed data. Next, structural equation modeling was employed to study the causal relationships among all the parameters in each model. The estimates were obtained using maximum likelihood estimation. These measures were calculated using SPSS 13.0 and LISREL 8.51 software.

**RESULTS**

**Assessment of the measurement model**

A confirmatory factor analysis is conducted for the measurement model. The related goodness-of-fit measures and their corresponding recommended values are shown in Table 2. These results indicated a good overall fit of the model to the data ($\chi^2$ (482) = 648.41, p < 0.001; $\chi^2$/df = 1.42; GFI = 0.93; AGFI = 0.92; NFI = 0.96; NNFI = 0.98; CFI = 0.99; RMSEA = 0.029). Convergent validity and discriminate validity for the research constructs were evaluated with the three most frequently used indexes, as suggested by Bagozzi and Yi (1988): individual item reliability, composite reliability, and average variance extracted (AVE). The internal consistency reliability of each item exceeded the benchmark of 0.50 (Hair et al., 1992; see Appendix). All the composite reliability estimates were 0.86 or higher, and all the AVEs were 0.67 or higher, exceeding the benchmark of 0.50 recommended by Fornell and Larcker (1981). To determine discriminate validity, we compared the shared variances (i.e., R²) between the variables with the AVEs for the individual variables (Fornell and Larcker, 1981). Table 3 shows that the AVEs are all greater than the variances, providing evidence of discriminate validity. The results for convergent and discriminate validity are shown in Table 3. They indicated that the measurement model had an acceptable level of construct validity.
Table 1. Sample demographics.

<table>
<thead>
<tr>
<th>Demographic variable</th>
<th>Value (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>53</td>
</tr>
<tr>
<td>Male</td>
<td>47</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>&lt;20</td>
<td>26.42</td>
</tr>
<tr>
<td>21-30</td>
<td>53.73</td>
</tr>
<tr>
<td>31-40</td>
<td>19.13</td>
</tr>
<tr>
<td>40-50</td>
<td>0.36</td>
</tr>
<tr>
<td>&gt;50</td>
<td>0.36</td>
</tr>
<tr>
<td>Education level</td>
<td></td>
</tr>
<tr>
<td>High school</td>
<td>2.19</td>
</tr>
<tr>
<td>Some college</td>
<td>8.74</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>62.84</td>
</tr>
<tr>
<td>Graduate</td>
<td>26.23</td>
</tr>
<tr>
<td>Length of using online shopping service (%)</td>
<td></td>
</tr>
<tr>
<td>3 month to 1 year</td>
<td>7.20</td>
</tr>
<tr>
<td>1 to 2 years</td>
<td>9.72</td>
</tr>
<tr>
<td>3 to 5 years</td>
<td>72.96</td>
</tr>
<tr>
<td>More than 5 years</td>
<td>10.12</td>
</tr>
</tbody>
</table>

Table 2. Assessment of model fit.

<table>
<thead>
<tr>
<th>Fit Indices</th>
<th>Measurement model</th>
<th>Structural model</th>
<th>Original ECM</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>χ²/df</td>
<td>≤ 3.0</td>
<td>1.42</td>
<td>1.92</td>
<td>2.42</td>
</tr>
<tr>
<td>GFI</td>
<td>≥ 0.9</td>
<td>0.93</td>
<td>0.91</td>
<td>0.96</td>
</tr>
<tr>
<td>AGFI</td>
<td>≥ 0.8</td>
<td>0.92</td>
<td>0.89</td>
<td>0.94</td>
</tr>
<tr>
<td>NFI</td>
<td>≥ 0.9</td>
<td>0.96</td>
<td>0.94</td>
<td>0.98</td>
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<tr>
<td>NNFI</td>
<td>≥ 0.9</td>
<td>0.98</td>
<td>0.97</td>
<td>0.98</td>
</tr>
<tr>
<td>CFI</td>
<td>≥ 0.9</td>
<td>0.99</td>
<td>0.97</td>
<td>0.99</td>
</tr>
<tr>
<td>RMSR</td>
<td>≤ 1.0</td>
<td>0.029</td>
<td>0.086</td>
<td>0.039</td>
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<tr>
<td>RMSEA</td>
<td>≤ 0.08</td>
<td>0.028</td>
<td>0.041</td>
<td>0.048</td>
</tr>
</tbody>
</table>

Table 3. Construct reliability, convergent validity and discriminant validity.

<table>
<thead>
<tr>
<th>Construct</th>
<th>CR</th>
<th>AVE</th>
<th>Comm.</th>
<th>POC</th>
<th>PU</th>
<th>T</th>
<th>CI</th>
<th>Sat</th>
<th>Con</th>
<th>PSC</th>
<th>CRI</th>
<th>PC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comm.</td>
<td>0.92</td>
<td>0.73</td>
<td>-</td>
<td></td>
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<tr>
<td>POC</td>
<td>0.95</td>
<td>0.78</td>
<td>0.16</td>
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<tr>
<td>PU</td>
<td>0.94</td>
<td>0.81</td>
<td>0.04</td>
<td>0.05</td>
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<tr>
<td>T</td>
<td>0.91</td>
<td>0.76</td>
<td>0.14</td>
<td>0.18</td>
<td>0.14</td>
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<tr>
<td>CI</td>
<td>0.88</td>
<td>0.78</td>
<td>0.15</td>
<td>0.18</td>
<td>0.22</td>
<td>0.37</td>
<td></td>
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<tr>
<td>Sat</td>
<td>0.91</td>
<td>0.71</td>
<td>0.08</td>
<td>0.08</td>
<td>0.18</td>
<td>0.26</td>
<td>0.29</td>
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<tr>
<td>Con</td>
<td>0.92</td>
<td>0.79</td>
<td>0.12</td>
<td>0.10</td>
<td>0.12</td>
<td>0.05</td>
<td>0.10</td>
<td>0.18</td>
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<tr>
<td>PSC</td>
<td>0.86</td>
<td>0.67</td>
<td>0.23</td>
<td>0.26</td>
<td>0.03</td>
<td>0.13</td>
<td>0.32</td>
<td>0.06</td>
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<td>0.75</td>
<td>0.03</td>
<td>0.02</td>
<td>0.01</td>
<td>0.08</td>
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<td>0.02</td>
<td>0.01</td>
<td>0.08</td>
<td></td>
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<tr>
<td>PC</td>
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<td>0.67</td>
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<td>0.06</td>
<td>0.03</td>
<td>0.14</td>
<td>0.10</td>
<td>0.06</td>
<td>0.05</td>
<td>0.09</td>
<td>0.02</td>
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</table>

Note: Off-diagonals are shared variance.

Communication (Comm.), Perceived operational competence (POC), Perceived usefulness (PU), Trust (T), Continuance intention (CI), Satisfaction (Sat), Confirmation (Con), Perceived Switching Costs (PSC), Customer relationship investment (CRI) and Perceived Cohesion (PC).
Assessment of the structural model

The structural model showed acceptable fit as measured by the goodness-of-fit indices, $\chi^2(500) = 957.30, p < 0.001; \chi^2/df = 1.92; \text{GFI} = 0.91; \text{AGFI} = 0.89; \text{NFI} = 0.94; \text{NNFI} = 0.97; \text{CFI} = 0.97; \text{RMSR} = 0.086; \text{RMSEA} = 0.041$ (Table 2).

Tests of the hypotheses

Figure 2 shows the structural relationships among the variables and the standardized path coefficients. All the hypothesized paths were significant. In short, the data confirmed that our causal model is empirically validated through a field survey, thereby answering research question 1 and 2. Continuance intention was predicted by satisfaction ($\beta = 0.22$), perceived usefulness ($\beta = 0.20$), trust ($\beta = 0.27$), and perceived switching costs ($\beta = 0.37$). Together, these relationships explained 61% of the total variance. Thus, $H_1$, $H_5$, $H_6$ and $H_8$ were supported. Satisfaction was jointly predicted by perceived usefulness ($\beta = 0.16$), confirmation ($\gamma = 0.26$) and trust ($\gamma = 0.36$); these variables together explained 39% of the variance in satisfaction. Thus, $H_2$, $H_4$ and $H_7$ were supported.

Perceived usefulness was jointly predicted by confirmation ($\gamma = 0.28$) and trust ($\beta = 0.31$). Together, these relationships explained 21% of the total variance. Thus, $H_5$ and $H_6$ were supported. Perceived operational competence ($\gamma = 0.28$), communication ($\gamma = 0.16$), customer relationship investment ($\gamma = 0.20$), and perceived cohesion ($\gamma = 0.27$) significantly influenced trust; together, these variables explained 34% of the variance in trust. Thus, $H_{10a}$, $H_{10b}$, $H_{12a}$ and $H_{12b}$ were supported.

Finally, perceived operational competence ($\gamma = 0.34$), communication ($\gamma = 0.27$), customer relationship investment ($\gamma = 0.18$), and perceived cohesion ($\gamma = 0.14$) significantly influenced perceived switching costs, jointly explaining 40% of the total variance in perceived switching costs. Thus, $H_{11a}$, $H_{11b}$, $H_{13a}$ and $H_{13b}$ were supported.

Assessing the extended ECM using the original ECM

To determine whether our research model is an improvement over past models, we compared our research model with the original ECM model, $\chi^2(60) = 134.57, p < 0.001; \chi^2/df = 2.42; \text{GFI} = 0.96; \text{AGFI} = 0.94; \text{NFI} = 0.98; \text{NNFI} = 0.98; \text{CFI} = 0.99; \text{RMSR} = 0.039; \text{RMSEA} = 0.048$ (Figure 3; Table 2). The results supported the superiority
DISCUSSION AND IMPLICATIONS

Summary of results

The aims of this study were to (a) investigate factors that may provide insight into why online shoppers continue to do business with online shopping services, (b) build an integrated conceptual model to answer research question 1, and (c) design and conduct a methodologically sound survey to test the model. By integrating dedication-based relationships (those beneficial to the consumer) and constraint-based relationships (those stressing the attractiveness of existing alternatives), different constellations of relationships can be identified that are closely related to the basic types of relationships between users and online shopping websites. The study combined ECM with constraint-based and dedication-based variables to develop an integrated model to study users' continuance intention toward online shopping websites in an ecommerce setting. The results show that the constraint-based variables (i.e., trust and perceived switching costs) are critical determinants of users' continuance intentions toward online shopping websites.

To generate a better understanding of the roles of the mediators (i.e., the constraint-based variables of trust and perceived switching cost) of continuance intention, our model includes these as well as the direct paths, as shown in Figure 4. If the direct path coefficient is no longer statistically different from zero after controlling for the mediator variable, then the mediation effect is said to be complete. The total, direct, and indirect effects of the four antecedents of continuance intention are shown in Table 4. The data show that the four path estimates (i.e., perceived operational competence, communication, customer relationship investment, and perceived cohesion) do not have a significant direct effect on continuance intention. To the contrary, the results show that both trust and perceived switching costs are mediators.

Academic and practical implications

Academic implications

The primary academic contribution of this research is to successfully integrate ECM, constraint-based variables (i.e., trust and perceived switching costs), and dedication-based variables (i.e., satisfaction and perceived usefulness) in developing an integrated IS continuance model. As such, the study extends the heretofore limited research on continued IT usage for online shopping in the context of IS continuance theory. Specifically, the data show that the constraint-based variables have a stronger influence on continuance intention toward online shopping websites than do the dedication-based variables. This result was consistent with previous research in determining continuance intention (Omotayo and Joachim, 2008; Wang and Head, 2007). These findings provided an empirically validated answer to Research Question 3. The two constraint-based factors (i.e., trust and perceived switching costs) reinforce users' functional dependence on online shopping websites and can increase the switching cost.

Second, this research provides a theoretical framework for the antecedents that drive consumers' constraint-based perceptions. The results show that two categories of antecedents (that is, the effectiveness of the online shopping website and the perceptions of online shoppers' closeness in the relationship) can significantly influence users' switching costs and trust. Third, the results indicate that perceived operational competence and communication have a stronger impact on perceived switching costs and preference for online shopping than do customer relationship investment and perceived cohesion. These results highlight the importance of online shopping websites developing strategies and programs to increase online shopping customers' perceived operational competence and communication.
Table 4. Effects on continuance intention toward the online shopping.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Direct effects</th>
<th>Indirect effects</th>
<th>Total effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived operational competence</td>
<td>-0.05</td>
<td>0.35***</td>
<td>0.40***</td>
</tr>
<tr>
<td>Communication</td>
<td>-0.04</td>
<td>0.15***</td>
<td>0.11***</td>
</tr>
<tr>
<td>Customer relationship investment</td>
<td>-0.03</td>
<td>0.15***</td>
<td>0.12***</td>
</tr>
<tr>
<td>Perceived cohesion</td>
<td>-0.07</td>
<td>0.15***</td>
<td>0.08**</td>
</tr>
</tbody>
</table>

Fourth, the results of this study clearly show that the effectiveness of online shopping websites and online shoppers’ relationship investment are expected to have indirect effects, mediated by the constraint-based variables, on the relationship of trust and perceived switching costs with IS continuance intention. Overall, the findings suggest that the model successfully explains individuals’ online shopping behavior. The model’s description of what motivates people to shop online has reasonably strong empirical support. Fifth, there are disagreements in the literature about whether the effects of communication on perceived switching costs are positive or negative. The data show that the degree of users’ communication is positively associated with their perceived switching costs. In line with relationship market theories, our results suggest that extensive communication between an online shopping website and its users can strengthen the bond between them and ultimately lead to a long-term relationship (Jones et al., 2000; Kim et al., 2004).

Finally, organizational theorists differ in how they conceive the nature of the relation between perceived cohesion and trust. Our data indicates that the relationship between these variables is positive in the online shopping setting. It is plausible that the more cohesive the community that accesses an online shopping website, the more its members will share a mutual attraction and admiration for one another and behave towards one another in a friendly, trusting, and caring manner (Mudrack, 1989).

Practical implications

There are several practical implications of our work. First, the results reveal that customer satisfaction with an online shopping website is not great enough to keep people using the service. To increase customers' relationship investment, our results suggest that online shopping websites should launch strategic retention programs. The more such programs offer the possibility of new individual services in the provider’ networks, the
greater the program’s likelihood of locking in customers. Some websites now launch virtual communities to encourage customers to share or discuss their experiences with others on the website during the service delivery process. This strategy increases customers’ perceived cohesion in their attitudes toward the website.

Second, online shopping websites can develop trust by demonstrating excellent operational competence, as well as by creating a user-friendly virtual community where users can communicate with one another electronically (Mayer et al., 1995). In other words, to increase customer trust, online shopping websites should offer consistent customer support services and communication mechanisms, both online and offline. These services should allow users to contact their service provider immediately to resolve problems when they first arise.

Finally, online shopping websites demonstrate excellent operational competence, so they can deliver high-quality day-to-day performance. We suggest that a process and system should be in place to facilitate timely transactions with online shoppers and to ensure that the goods and services they receive are strategically consistent. Therefore, online shopping websites need to offer attractive service features that distinguish them from their competitors.

LIMITATIONS AND FUTURE RESEARCH

With limited manpower, resources, finance and time, the study may not be able to solve every problem. First, as with most research, caution must be exercised when generalizing the results. Additional research is needed to generalize our findings to other technologies or populations. Second, although we adopted two dedication-based and two constraint-based relationship-marketing variables wisely, as proposed by Jones et al. (2000), and Ping (1993). Thus, further research using other dimensional measures may be needed to fully verify the research model. Fourth, responses to questionnaires are inevitably subject to personal biases. In addition, our research was focused on post-adoption behavior. This means that we did not study potential new customers. Finally, as this study provides only a short-term snapshot of user behavior, longitudinal research would increase the validity of the model and ensure greater accuracy in the data.

Conclusion

In the recent literature on service management and information systems continuance has explored in detail the influence of dedication-based relationships on post-adoption behavior in these contexts has been explored in detail. However, such is not the case for constraint-based relationships. The purpose of this paper is to examine the relationships between the antecedents and consequences of both dedication-based and constraint-based factors on information systems post-adoption. The proposed theoretical model contributes to the development of a more comprehensive and specialized technology, and the study further empirically justified the proposed model in different IS continuance contexts. The results indicate that the antecedents of constraint-based influences - the effectiveness of online shopping websites (perceived operational competence and communication) and the perceptions of online shoppers’ closeness to the online shopping websites (customer relationship invest- ment and perceived cohesion) - have indirect positive effects on users’ continued online shopping behavior toward online hopping websites, as mediated by customers’ trust in the online shopping website and their perceptions of the switching cost. The data also show that constraint-based influences have a more significant effect than dedication-based influences (satisfaction and perceived usefulness) on the intention to continue using the online shopping service. From the online shopping users’ perspective, online shopping websites should increase online shopping website’s effectiveness and the perceptions of online shoppers’ closeness in the relationship, which would lead to continued online shopping.

REFERENCES


APPENDIX

Instrument items

(Internal consistency reliabilities are in parentheses.)
Perceived operational competence (Balasubramanian et al., 2003)

1. The quality of the online shopping website is excellent (0.76).
2. The online shopping website executes my transactions in a timely manner (0.79).
3. The online shopping website provides a wide range of services (0.79).
4. It is easy to use the online shopping website (0.79).
5. The number of steps required to execute a transaction at the online shopping website is low (0.79).

Communication (Morgan and Hunt, 1994; Yilmaz and Hunt, 2001)

1. The online shopping website shares relevant information with me (0.88).
2. The online shopping website provides fast and accurate answers to my inquiries (0.83).
3. The online shopping website frequently informs me of opportunities (0.67).
4. The online shopping website keeps me informed of new developments (0.55).

Customer relationship investment (De Wutf et al., 2001)

1. The online shopping website makes efforts to increase regular customers' loyalty (0.79).
2. The online shopping website makes various efforts to improve its ties with regular customers (0.85).
3. The online shopping website really cares about keeping regular customers (0.61).

Perceived cohesion (Hsu and Lu, 2007)

1. I fit in well with the online shopping website (0.67).
2. I like the members of the online shopping website (0.74).
3. In general, the members of the online shopping website act as a cohesive unit (0.59).

Trust (Gefen et al., 2003)

1. Based on my experience with the online shopping website in the past, I know it is predictable (0.79).
2. Based on my experience with the online shopping website in the past, I know it is trustworthy (0.74).
3. Based on my experience with the online shopping website in the past, I know it is honest (0.74).

Perceived switching costs (Jones et al., 2000)

1. In general it would be a hassle changing the online shopping website (0.77).
2. It would take a lot of time and effort changing the online shopping website (0.79).
3. For me, the costs in time, money, and effort to switch the online shopping website are high (0.74).

Confirmation (Bhattacherjee, 2001b)

1. My experience with using the online shopping website was better than what I expected (0.79).
2. The service level provided by the online shopping website was better than what I expected (0.81).
3. Overall, most of my expectations from using the online shopping website were confirmed (0.77).

Perceived usefulness (Davis et al., 1989)

1. Using the online shopping website enhances my effectiveness (0.79).
2. Using the online shopping website improves my performance (0.79).
3. Using the online shopping website increases my productivity (0.81).
4. Overall, the online shopping website is useful (0.83).

Satisfaction (Spreng et al., 1996)

1. The online shopping website makes me feel very satisfied (0.71).
2. Using the online shopping website makes me feel very pleased (0.64).
3. Using the online shopping website makes me feel very contented (0.64).
4. Using the online shopping website makes me feel very delighted (0.85).

Continuance intention toward an online shopping website (Bhattacherjee, 2001b)

1. I intend to continue using the online shopping website rather than discontinue its use (0.77).
2. My intentions are to continue using the online shopping website rather than any alternative means (0.76).