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ABSTRACT

A customer’s intention of reusing an e-commerce website for shopping has a great consequence for the website’s profitability; therefore, understanding the factors that influence a Web-customer’s reuse intention is of great importance to e-commerce. This study examines the influencing factors by constructing an integrated model with the Motivation Hub and the Expectancy Disconfirmation Theory, and adopting the constructs of general and specific Internet self-efficacy, perceived performance, disconfirmation, satisfaction, and reuse intention. Six research hypotheses derived from the integrated model were validated by EQS using a field survey of the users of top 100 e-commerce websites in Taiwan. The academic implication of this study is that the integrated model explains the factors that influence Web-customers’ reuse intention. For practical application, the e-commerce companies can adopt the research outcomes to ensure the success of their websites.

Keywords
Motivation hub, expectation disconfirmation theory, customer satisfaction, reuse intention.

INTRODUCTION

In the dynamic and turbulent e-commerce environment, web-based companies need to understand how to satisfy customers to sustain their growth and market share. A customer’s intention of reusing an e-commerce website for shopping has a great consequence for the website’s profitability; therefore, understanding the factors that influence a Web-customer’s reuse intention is of great importance to e-commerce. This study intends to construct a research model and examine the cognitive beliefs and affect that influence a shopper’s intention to continue using (reuse) e-commerce website.

During the last decade many studies have investigated variables that affect individual’s initial use of an information system (IS), and the dynamics of these variables (Davis, 1989, 1993). While initial use of information systems is the important first step toward realizing IS success, an eventual IS success further depends on its reuse. IS continuance is central to the survival of many business-to-consumer e-commerce (EC) firms, such as Internet service providers, online retailers, online banks, online brokerages, online travel agencies, and the like (Bhattacherjee, 2001). The cost of acquiring new customers may be as much as five times more than retaining existing ones (Parthasarathy and Bhattacherjee, 1998). E-commerce firms therefore need to identify the factors that aid in the retention of previous customers. Thus, studying the antecedents of customer reuse intention becomes an important issue for EC researchers to help IS professionals develop proper EC information systems.

In the last decade, some studies have articulated or tested the differences in the determinants of attitude or behavioral intention prior-to- and post- adoption (Venkatesh and Davis, 2000). In particular, substantial theoretical and empirical support has accumulated in favor of the Theory of Reasoned Action (TRA) and the Technology Acceptance Model (TAM). For example, a prior study based on TRA was conducted to test the determinants of information systems (IS) usage prior-to- and post-implementation (Harwick and Barki, 1994). Recently, some studies have adapted the Expectation Disconfirmation Theory from the consumer behavior literature to propose a model of IS continuance. For example, Seddon and Kiew (1994) investigated the impact of system quality, information quality, perceived usefulness and user satisfaction on continuing use of departmental accounting systems. Bhattacherjee (2001) studied the influence of users’ perceived usefulness of an IS and satisfaction with its use on their continuance intention of online banking service. McKinney (2002) separated website quality...
into information quality and system quality, and proposed key constructs for measuring Web customer satisfaction.

Locke (1991) integrated different work motivation theories into a motivation sequence framework (Figure 1). The model theorizes that: (1) One’s endeavor toward a goal begins with the needs who may or may not be aware of; (2) The needs, mediated by the psychological processes governing one’s value system, are converted into actions (performances); and (3) People can experience rewards or punishments as consequence of their actions or performance.

The motivation hub consists of two psychological mechanisms. The first is the perceived self-efficacy, referring to the beliefs in one’s capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands (Wood and Bandura, 1989). The other is the intention or goal. Behavioral intentions, according to Ajzen (1988), are “indication of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior”. Goals are what people “intend to do” in a particular situation (Locke 1991). The motivation hub theorizes that goals or intentions and self-efficacy (expectancy) are the most direct and immediate motivational determinants of performance, and the self-efficacy is also a determinant of goals or intentions.

Social cognitive theory posits that self-efficacy is a major determinant of choice of activities, degree of effort, period of persistence, and level of performance in the face of challenging situations. It also theorizes that behavior is affected by outcome.
expectations, personal goal, and self-efficacy, and these cognitive factors are in turn influenced by context information (Bandura, 1977, 1986).

People develop feelings of satisfaction or dissatisfaction by comparing their perceived performance with their expectations (Oliver, 1991). Goal theory and social cognitive theory both views goals as objects or outcomes to aim for as well as standards for evaluating one’s performance (Bandura, 1986). Thus goals can be viewed as expectations which success can lead to satisfaction and failure to dissatisfaction. Locke (1976) defines job satisfaction as “a pleasurable or positive emotional state resulting from the appraisal of one’s job performance” and “a function of the perceived relationship between what one wants from one’s job and what one perceives it as offering or entailing”. One’s satisfaction towards self and towards the work can reveal not only the quality of an experienced episode but also one’s motivation in subsequent similar experience.

Finally, the motivation sequence theory also theorizes that volitional control applies, at least indirectly, to every stage of the model. An individual’s behaviors may be directed by his or her volitional control (i.e. perceived behavioral control). The rationale for a direct link between the perceived behavioral control and behavior is that given a sufficient degree of actual control over the behavior, people are expected to carry out their intentions when requisite opportunities and resources (e.g., time, money, skills) are available (Ajzen, 1991).

**Expectancy Disconfirmation Theory**

The expectancy disconfirmation theory (EDT) or disconfirmation of expectation theory is a consumer behavior model that gains widespread acceptance in explaining and predicting consumer satisfaction and repurchase intention. The EDT model originally developed by Oliver (1980) theorizes that consumers’ intention to repurchase a product or reuse a service is determined primarily by their satisfaction with prior use of that product or service. Satisfaction is jointly determined by disconfirmation and expectation. In this model disconfirmation is the most immediate influence on satisfaction. Churchill and Suprenant (1982) extended the model to explicitly include perceived performance as an antecedent of satisfaction and include affect of expectations and perceived performance on disconfirmation and affect of expectations on perceived performance. Figure 2 illustrates key constructs and the relationships among them.

![Figure 2. Expectancy Disconfirmation Theory](image)

The EDT model assumes that consumers’ degree of satisfaction is an outcome of a five-step process (Oliver, 1980a). First, consumers form an initial expectation of a specific product or service prior to purchase. Second, they accept and use that product or service. Following a period of initial consumption, they form perceptions about its performance on the salient attributes. Third, they compare these perceptions of performance with their prior expectation levels and determine the extent to which their expectations are confirmed. Expectations could be positively disconfirmed (perceived performance exceeds expectations), confirmed (perceived performance equals expectations), or negatively disconfirmed (perceived performance falls short of expectations). Fourth, they form a feeling of satisfaction or dissatisfaction based on their disconfirmation level. A moderate satisfaction level will be maintained by confirmation, enhanced by the delight of positive disconfirmation, and decreased by the disappointment of negative disconfirmation. Finally, satisfied consumers form intentions to reuse the product or service in the future, while dissatisfied users discontinue its subsequent use.

**RESEARCH MODEL AND HYPOTHESES**

Based on the literatures of motivation hub and expectancy disconfirmation theory, this study proposes an integrated research model as shown in Figure 3.
Social cognitive theory (SCT) is a theory of cognitive mechanism of motivation that explains human behavior in terms of triadic and reciprocal causation among behavior, personal factors, and environmental factors. In particular, behavior is affected by outcome expectations, personal goal, and self-efficacy, and these cognitive factors are in turn influenced by context information. Self-efficacy refers to an individual’s belief in his or her capability to perform certain tasks. SCT posits that self-efficacy is a major determinant of choice of activities, degree of effort, period of persistence, and level of performance in the face of challenging situations. SCT also specifies four sources of information that interact to develop self-efficacy, which in turn affects outcome expectations and personal goal. The four sources of information are: enactive mastery, vicarious experience, verbal persuasion, and emotional arousal. Self-efficacy is not an estimation of skills; rather it is a judgment about what individuals can do with the skills they possess. People with high self-efficacy think, behave, and feel differently than people with low self-efficacy.

We examined the causal roles of two Internet self-efficacy (ISE) constructs, general ISE and specific ISE, in the motivation hub. General ISE refers to “an individual’s judgment of efficacy across multiple Internet application domains”, whereas specific ISE refers to “an individual’s perception of efficacy in using a specific WWW application (service) within the domain of general Internet computing”. Although the two efficacy beliefs are similar, there are several conceptual differences. First, general ISE is a trait-oriented efficacy, while specific ISE is state oriented. The difference between trait and state efficacy is that the former is a stable cognition that people hold and carry with them, reflecting the expectation that they possess the ability to successfully perform tasks in a variety of achievement situations. Conversely, the latter is a state-based expectation, meaning that it is a judgment about the likelihood of successful task performance measured immediately before any effort is expended on the task. Second, in the context of e-service usage, general ISE is developed across time and situations and measured before usage, while specific ISE is developed through usage and measured after usage. Thus, specific ISE is more variable than the enduring notions of general ISE.

Although efficacy judgments are idiosyncratic to particular domains, perceived efficacy will tend to transfer across two tasks within the same domain based on the extent of similarity between the qualitative features of the two tasks and the skill they require (Bandura, 1985). For example, familiarity with a WWW application should increase an individual’s belief in his/her capability to use another Web application, i.e., specific WWW application efficacy is likely to exhibit carryover effects. Thus within the domain of computing, general self-efficacy contributes to the shaping of an individual’s task-specific self-efficacy (Marakas et al., 1995). Agarwal et al. (2000) suggests that prior efficacy with regard to general software would have a cumulative effect on subsequent software-specific self-efficacy assessments. Consistent with these findings, we would expect general ISE to be a predictor of specific ISE. Therefore, the following hypothesis is proposed.

H1: Individuals with higher general ISE will demonstrate higher specific ISE toward e-commerce websites than individuals with lower general ISE.

Bandura (1985) suggests that perceived self-efficacy plays an important role in affecting an individual’s motivation and behavior. Prior studies provided support for the relationship between self-efficacy and decisions involving computer usage and adoption. Joo et al. (1999) found that ISE was able to predict students’ performance on search task in Web-based instruction (WBI). Eastin and LaRose (1996) showed that ISE was significantly (positively) related to Internet usage in the context of Digital Divide. Eastin (2002) performed an analysis of the adoption of four e-commerce activities, and Internet self-efficacy was only found to predict one of the four activities, i.e., online shopping. He suggested that task-specific self-efficacy could be considered a new variable in the adoption process. Thompson et al. (2000) showed that task-specific ISE had a marginally
This study employed the field survey method. A total of 400 surveys were sent to the college students majoring in information

**RESEARCH DESIGN**

This study employed the field survey method. A total of 400 surveys were sent to the college students majoring in information
system of three universities in southern Taiwan. The subjects were asked to shop the top 100 websites listed by the Department of Commerce, Ministry of Economic Affairs. The exclusion of responses from incomplete questionnaires resulted in a total of 240 usable questionnaires (a net response rate of 60%). All the instruments were designed by referring to the previous studies (Bhattacherjee 2001; Oliver 1980; Spreng et al. 1996; Swan and Trawick 1981) and measured on a 7-point Likert scale, with anchors ranging from strongly disagree (1) to strongly agree (7).

DATA ANALYSIS

Data analysis for this study was performed using EQS for Windows Version 6.0. EQS is a structural equation modeling approach similar to LISREL, where the covariance structure derived from observed data is used to simultaneously fit measurement equations and structural equations specified in the model. Such covariance-based approaches are appropriate for areas with strong a priori theory, where theory testing and refinement are the research goals, as was the case in this study. Model estimation was done in EQS using the maximum likelihood approach.

A pretest of the questionnaire was performed to ensure content validity and reliability within the targeted context. The data analysis included three major components. First, descriptive statistics, such as means, standard deviations, and correlations for all variables, are examined in order to ensure that further analysis can be undertaken. Second, the measurement model was first examined for validating and refining the research instrument. Confirmatory factor analysis was utilized to assess the instrument’s reliability, specifically the internal consistency and construct validity. Finally, an analysis of the structural equation model for testing the associations hypothesized in our research model was conducted. Reliability was examined using the Cronbach’s alpha values. All of these values were greater than 0.8, well above the commonly accepted levels of 0.60 or 0.70.

The structural model was examined in terms of model goodness-of-fit and postulated individual causal links. Bentler and Bonett (1980) suggest $\chi^2/df$ ratio ($df$: degree of freedom) as a more appropriate measure of model fit, and this ratio should not exceed 5 for models with good fit. The $\chi^2/df$ ratio was estimated as 1.43 in our hypothesized model. EQS also provides additional goodness-of-fit measures such as Bentler–Bonett Normed Fit Index (NFI), Comparative Fit Index (CFI), GFI Fit Index (GFI), and Standardized RMR (SRMR). In the hypothesized research model, all the indexes shown in Figure 4 meet the criteria listed in Table 1. Hence, this model fits reasonably well with the observed data.

<table>
<thead>
<tr>
<th>Fit Indices</th>
<th>Recommended value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normed Fit Index (NFI)</td>
<td>&gt;=0.9</td>
</tr>
<tr>
<td>Comparative Fit Index (CFI)</td>
<td>&gt;=0.9</td>
</tr>
<tr>
<td>Goodness of Fit Index (GFI)</td>
<td>&gt;=0.9</td>
</tr>
<tr>
<td>Standardized Root Mean Square Residual (SRMR)</td>
<td>&lt;=0.08</td>
</tr>
</tbody>
</table>

Table 1. Common fit indexes for analyzing the overall model goodness-of-fit

The six hypotheses presented earlier were tested collectively using the EQS. The path significance of each hypothesized association and the variance explained ($R^2$ value) by each path were examined. Figure 4 shows the standardized path coefficients and path significances, as reported by EQS. All the hypothesized paths in the model were significant at different $p$ value, except the path from Perceived Performance to Disconfirmation (H3). Consequently, Lagrange Multiplier (LM) test was employed to modify the research model. The LM test asks what parameters should be added to the model to improve the fit. A new path from Disconfirmation to Reuse Intention was suggested and created by the LM test of EQS. The new path’s standardized path coefficient equals to 0.742 and is significant at $p < 0.001$. Figure 4 is the final result of the EQS analysis of research model.
CONCLUSION AND DISCUSSION

This study constructed a research model based on Motivation Hub and Expectancy Disconfirmation Theory to examine the cognitive beliefs and affect that influence one’s intention to continue using e-commerce website. This model integrates the constructs of general and specific Internet self-efficacy, perceived performance, disconfirmation, satisfaction, and reuse intention within our current understanding of continuing use of e-commerce websites. Survey research was employed to validate the research model and test the six hypotheses. Among these six hypotheses, five of them are significantly supported statistically and one hypothesis (H3) was rejected. The proposed model was also validated with an addition of a new path from Disconfirmation to Reuse Intention, which is an unexpected finding of this study.

From this study, we can draw the following conclusions: (1) the “General Internet Self-efficacy” shows a strongly positive effect on the “Specific Internet Self-efficacy” ($R^2=0.741$), which is consistent with previous researches. (2) “Specific Internet Self-efficacy” significantly determines “Perceived Performance”. (3) “Perceived Performance” has no effect on “Disconfirmation”, indicating the lack of support for H3. (4) “Perceived Performance” and “Disconfirmation” both have a significantly positive effect on the “Satisfaction” ($R^2=0.191$). (5) “Satisfaction” also has a strongly and significantly positive effect on “Reuse Intention”. (6) A new path from “Disconfirmation” to “Reuse Intention” was suggested and created by the LM test of EQS, which means “Disconfirmation” and “Satisfaction” have a strongly positive effect on the “Reuse Intention” ($R^2=0.589$).

The contributions of this study are that we are able to find out the factors influencing the Web-customers’ reuse intention by constructing an integrated model with the Motivation Hub and the Expectancy Disconfirmation Theory, and to find out the causal relationships among all the variables in the research model. It empirically reveals a new strong relationship between “Disconfirmation” and “Reuse Intention”. It suggests that the expectation congruency (disconfirmation) has direct significant effects on reuse intention. The academic implication of this study is that the integrated model explains the factors that influence Web-customers’ reuse intention. For practical application, the e-commerce companies can adopt the research outcomes to ensure the success of their websites.

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