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2011

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# AN INTEGRATED MODEL FOR CUSTOMER ONLINE REPURCHASE INTENTION

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The explosion of e-commerce activities required industry and academia to understand the key determinants of consumers' online repurchase intention. We developed an integrated model by examining how utilitarian factors (perceived ease of use and perceived usefulness), the hedonic factor (perceived enjoyment), and social/psychological factors (confirmation, satisfaction and trust) directly or indirectly influenced consumers' continuance intention in the context of online shopping. Results from confirmatory factor analysis and structural equation model analysis with LISREL 8.72 indicate that both utilitarian factors and hedonic factors examined through this model provide statistically significant explanations of the variation in consumers' online repurchase intention. In the post-purchase stage, utilitarian factors play a more important role than hedonic factors in predicting customer online repurchase intention. The integrated theoretical framework explains 63% of the variations in online repurchase intention.

**KEYWORDS:** online repurchase intention, trust, enjoyment, Expectation-Confirmation Modeling, Structural Equation Modeling.

## 1. INTRODUCTION

As a relatively new medium for business, e-commerce websites have changed the way customers purchase products or services. Increasingly, customers start and get used to purchasing products or services from an e-commerce website instead of going to a physical store. Compared with the traditional face-to-face commerce mode, the online shopping mode offers several unique advantages, such as widespread selections, plenty of available product information, and no temporal and spatial limitations. By reviewing the literature generated during the last few decades, most of the studies have focused on IT initial adoption, or which factors influence consumers' initial usage of online shopping [15, 25, 39]. These studies were conducted on IT development as it relates to increasing e-commerce adoption. In contemporary IT environments, most Internet users have tried shopping online and are more familiar with this shopping channel than they were when that research was initiated. More than 85% of Internet users all over the world have made at least one online purchase, and between 2006 and 2008, the segment of the world's population who had shopped online had increased by approximately 40% within two years [32]. Therefore, this study has been conducted under a more mature e-commerce environment. Furthermore, from a marketing perspective, the cost of retaining a customer is much less than the cost to obtain a new customer. In the context

of an IS perspective, the success of e-commerce depends on the users' continued usage of the e-commerce website rather than on its initial adoption [3].

It is important for both IS researchers and online vendors to understand how to improve the customers' continued use of an e-commerce website. Online customers have "double identities as both shoppers and computer users" [26]. Factors that influence customers' repurchase behavior intention through e-commerce are complicated and different from those in traditional commerce. To extend DeLone and McLean's research questions in the IS area about "how to accurately explain user acceptance of information systems" [13], we investigated how to accurately explain user continued use of information systems in the context of e-commerce. Davis's technology acceptance model (TAM) was widely used to explain and predict consumer behavior in IT acceptance and continuance [15, 22, 25, 26, 34]. Furthermore, the Expectation-Confirmation Model (ECM) was constructed based on Expectation Confirmation Theory (ECT) [35] to predict IT continuance usage [3]. Trust plays a crucial role in customer retention and has been integrated with the TAM model to explain customers' behavior intention [17, 21]. Perceived usefulness, perceived ease of use and perceived enjoyment defined by Davis [10, 11] are considered and confirmed as the three major predictors of user acceptance of information systems. An essential factor in offline shopping is enjoyment, which is becoming increasingly crucial for online shopping as well [21]. Deb Sledianowski and Songpol Kulviwat [12] have studied the effects of trust, playfulness, perceived usefulness and perceived ease of use on the usage intention of social network sites in a hedonic context. To evaluate the determinants of online shopping intention, this paper investigates consumers' post-adoption behavioral process by comprehensively considering perceived ease of use and perceived usefulness from TAM, confirmation and satisfaction from ECM, trust, and online shopping enjoyment directly or indirectly influencing consumer online repurchase intention. All of these factors have been discussed in a variety of IS papers separately, but are not discussed as an integrated model to explain customer continued use of an e-commerce website.

## 2. THEORY AND LITERATURE REVIEW

With the improvement of information technology approaches in internet security, website functionalities, and website design, customers' perceptions about e-commerce are becoming more positive, and the online shopping environment is changing to an increasingly mature commercial channel. Thus, the research of online consumers' purchase intention should not only focus on the functional factors in IS, but also consider the

nonfunctional determinants in terms of marketing and social psychology.

Within IS theories, the technology acceptance model (TAM), proposed by Davis [10], has been confirmed as the most popular parsimonious framework used to explain consumers' behavioral intention. Known as extendable and flexible because of its parsimony, TAM is widely used and integrated with many other factors to create a new framework that will improve the explanatory and predictive power of the model. These external factors include: perceived enjoyment or playfulness [26], trust [17, 43], satisfaction and confirmation [22].

Bhattacharjee [3] proposed the theoretical model of ECM (Expectation-Confirmation Model) of IT continuance, which has subsequently been used in numerous studies of IS post-adoption intention. In this model, IT continuance intention is studied as an endogenous construct, and is validated as a direct outcome of two exogenous constructs: satisfaction and perceived usefulness. In addition, the model shows that the confirmation factor indirectly influences continuance intention through satisfaction. Nevertheless, the research related to IT continuance intention in the context of online shopping focused on the customers' preference for using the channel (website) versus going to the physical store. Koufaris [26] suggested that researchers should consider constructs from information technology, consumer behavior, and social psychology in order to comprehensively study online consumer behavior. Longitudinally, shopping online is a process that includes three behavioral phrases: pre-purchase, purchase and post-purchase [24]. Laterally, online shopping studies should consider the influences of IT technologies (functional), marketing theory and psychological methodologies (nonfunctional). Therefore, a comprehensive research model was proposed with functional factors treating online customers as web users and with nonfunctional factors treating online customers as traditional consumers.

Just like traditional shopping, customers' return intention is primarily based on satisfaction in a previous shopping experience. Satisfaction has also been tested in several academic studies as an important factor affecting repurchase intention in the context of e-commerce [4, 27, 23, 24]. Perceived enjoyment has a crucial influence in traditional brick-and-mortar shopping environments and is also becoming more and more important for online customers [21]. However, to our knowledge, online shopping enjoyment has been most tested as an influential antecedent of attitude [21] or the initial purchase intention [5]. In addition to perceived enjoyment, social/psychological factors, such as trust, also play a role in predicting customers' return intention. Online vendors face a significant challenge in creating an environment of mutual trust that can give customers confidence with online transactions [17], which makes their products and services appear visually attractive to consumers [21]. This study will test the influence of trust and online shopping enjoyment on online repurchase intention.

### 3. HYPOTHESES AND RESEARCH MODEL

The objective of this research paper is to investigate the determinants of online repurchase intention. We developed an integrated model by examining how utilitarian factors, such as perceived ease of use, perceived usefulness, confirmation and satisfaction from the Expectation-Confirmation Model (ECM), the hedonic factor of perceived enjoyment, and the social/psychological factor of trust directly or indirectly influenced

consumers' IT continuance intention in the context of online shopping. This is the first model developed by combining generally cited antecedents within the IS, marketing and social psychology areas. The model incorporates TAM constructs (perceived usefulness and perceived ease of use), ECM constructs (confirmation and satisfaction), trust, and perceived enjoyment to explore customers' online repurchase intention.

#### 3.1 Online repurchase intention

In this study, we examined online repurchase intention as the endogenous variable instead of studying the online consumers' actual behavior because, based on the theory of reasoned action proposed by Ajzen and Fishbein [1], intention is considered the best immediate factor in the relationship between attitude and behavior, and is appropriate to test consumers' behavior. Online customer retention is a hot issue in both the IT and marketing areas. Researchers have studied online customer retention in different contexts, such as "online repurchase intention" [23], "Continue to shop online" [34], "customer intention to return" [26], "Web site stickiness" [28], and "continued information systems/IT intention" [3, 22]. Both IT continuance intention and repurchase intention are influenced by the initial use/purchase experience. IT continuance intention in an online shopping context is slightly different from online repurchase intention. IT continuance emphasizes the continued usage of e-commercial websites to shop instead of the use of physical stores. However, online repurchase underlines consumer behavior. Online repurchase intention is a construct combining IS theory and marketing theory. In this construct, the customer is not only an e-commercial website user, but is also a consumer. The goal of this study is to understand the relative importance and differences between the hedonic factors or utilitarian factors in affecting customers' continuance usage of the e-commercial website to purchase products or services.

#### 3.2 Perceived usefulness and perceived ease of use

TAM was initially developed to study the adoption of technologies for utilitarian purposes whereby perceived usefulness (PU) and perceived ease of use (PEOU) appears to be the strongest predictor in most cases. In this model, PU and PEOU are considered the basic utilitarian factors in consumers' online repurchase intention. Adapting Davis' [10] definition of PU to the context of online shopping, PU in this model refers to the extent to which a consumer perceives that shopping at a web-based store will improve his or her shopping experience. PEOU in this paper is defined as the extent to which a consumer perceives the ease of interaction with the e-commerce website and is able to receive the product information that he or she needs. In some previous studies, attitudes were examined before intention. However, this construct has been excluded in succeeding studies of TAM because of its unreliable effect on user intentions [22]. Many researchers concluded, both theoretically and empirically, that the easy use of technology will lead to peoples' perception of usefulness [10, 18, 22, 34]. Therefore, PEOU has an essential effect on PU. When consumers find it easy to interact with e-commercial websites, to search product information, and to pay online, they will consider online shopping more useful. To extend TAM, some researchers found that TAM was originally developed for initial technology use and could be used for IT continuance intention behavior [26, 22, 34]. In the classic IT continuance intention research model —

ECM [4], PU is also validated to positively affect IT continuance intention. Thus, we set forth the following hypotheses.

*Hypothesis 1:* A customer's perceived ease of use of an e-commercial website positively affects a customer's perceived usefulness.

*Hypothesis 2:* A customer's perceived usefulness of an e-commercial website positively affects a customer's online repurchase intention.

### 3.3 Confirmation and satisfaction

Customers have certain expectations about the product and service offering at the pre-purchase stage. This expectation is usually based on others' experience or information obtained through product reviews or word of mouth. Confirmation was defined as "a cognitive belief representing the extent to which consumers' ex ante expectations of service use were met in reality, and refers to this evaluation process" [4]. Customers will return greater confirmation if lower expectation meets higher performance, which in turn positively affects repurchase intention by mediating customer satisfaction [4]. Satisfaction was defined as "the summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumer's prior feelings about the consumption experience" [35]. The relationship between confirmation and satisfaction, as well as that between satisfaction and continued intention has been developed in Bhattacharjee's [3] study, where an Expectation-Confirmation Model was proposed based on continued use rather than initial adoption in an IS discipline. Confirmation is an antecedent of customer satisfaction, and they together are used as the key determinants for the user's continued usage intention. Hong et al. [22] and Liao et al. [29] also confirmed these relationships in their studies. Relationships between PEOU, PU, confirmation, satisfaction, and IT continuance usage intention were tested in Hong's hybrid model [22]. Therefore, there is enough evidence to suggest the following hypotheses.

*Hypothesis 3:* A customer's confirmation of an e-commercial website positively affects a customer's perceived usefulness.

*Hypothesis 4:* A customer's confirmation of an e-commercial website positively affects a customer's online shopping satisfaction.

*Hypothesis 5:* A customer's perceived usefulness of an e-commercial website positively affects a customer's online shopping satisfaction.

*Hypothesis 6:* A customer's shopping satisfaction at an e-commercial website positively affects a customer's online repurchase intention.

### 3.4 Trust

Within the context of the e-commerce environment, the role of trust is more important compared to traditional business as increasing uncertainties will be caused by the distance and other impersonal factors. Yang et al.'s recent research [47] explored the effect of an e-commerce website's ethical performance on online trust and clarified the importance for online vendors of building a website that ethically states privacy policies and describes the product(s) accurately. Tim et al. [41] proposed that the violation of trust in e-commerce will lead

to negative repurchase intention and negative word of mouth communication. Gefen and Straub [18] pointed out that the relative lack of regulations and customs on the Internet made individuals rely on trust and familiarity as primary mechanisms to reduce uncertainties. More recently, trust has been defined as a multidimensional concept related to various targets: sales person, product, company, and Internet consumer trust. Online consumer trust was defined as the "consumer's subjective belief that the selling party or entity on the Internet will fulfill its transactional obligations as the consumer understands them" [24]. Online customers are both interacting with e-commercial websites and performing transactions with online vendors/stores. The fact that online customers do not trust e-commercial websites or online vendors was the main obstacle to consumer participation in e-commerce [7, 16]. Because of the limitations of online stores, it is difficult for the customer to judge whether a website's security is good and whether the online store chosen is trustworthy. Consumers' trust in the Internet and the online vendor is a key factor in determining the consumers' adoption of e-commerce [17]. Kim et al. [24] studied trust and satisfaction as crucial factors for successful e-commerce business relationships. Gefen and Straub [18] integrated TAM and trust in the same framework, and in this model, trust affected IT usage intention directly and indirectly through perceived usefulness. Thus, we propose the following three hypotheses.

*Hypothesis 7:* A customer's perceived ease of use of an e-commercial website positively affects a customer's trust.

*Hypothesis 8:* A customer's trust in an e-commercial website positively affects a customer's perceived usefulness.

*Hypothesis 9:* A customer's trust in an e-commercial website positively affects a customer's online repurchase intention.

### 3.5 Enjoyment

Flow was defined as "the holistic sensation that people feel when they act with total involvement" [8]. Enjoyment, defined as "an awareness of holistic sensation when people are totally involved in a certain activity" [8], was studied as a concept of flow theory. Customers would like to return to shopping in physical stores because they consider shopping enriching and enjoyable [36]. Online shopping enjoyment is as important as enjoyment in the physical shopping environment and has a crucial influence on customer intention and behavior [26]. When customers shop using an e-commerce website, they experience the process of searching for information about products and transactions using information systems, and it might be difficult for online customers to feel enjoyment using only their visual sense. In the pre-purchase phase, the customer is potentially curious about the convenience, security, privacy maintenance, and ease of operation. Therefore, perceived ease of use and trust are more important. In the purchase phase, customer enjoyment becomes more important and may inspire purchase-making decisions. Thus, online vendors might not retain customers if customers do not enjoy the online shopping experience.

Enjoyment is based on the design of the website and the information provided. In the post-purchase phase, customers will confirm the service they received based on their previous expectation and this confirmation will develop a level of

satisfaction and perceived usefulness that will influence future repurchase decisions. Based on the results of Koufaris's [26] research, both perceived usefulness and shopping enjoyment are positively related to the online customers' intention to return. Therefore, we offer the following hypothesis:

*Hypothesis 10:* A customer's high enjoyment of shopping at an e-commercial website positively affects a customer's online repurchase intention.

### 3.6 Utilitarian versus hedonic

In the scientific inquiry of why people shop, previous researchers have summarized two types of shopping motivation — utilitarian and hedonic motivation. The dual characterization of shopping motivation in the marketing literature is consistent with IS scholars' extrinsic-and-intrinsic motivation dichotomy in user technology adoption. Extrinsic motivation, analogous to utilitarian motivation, refers to "the performance of an activity because it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself", while intrinsic motivation refers to "the performance of an activity for no apparent reinforcement other than the process of performing the activity per se" [11]. In the inquiry of human-computer interaction, extrinsically motivated people focus on the reinforcement value of outcomes, (for example, enhanced effectiveness and efficiency) brought by using a computer or software application. By contrast, intrinsically motivated people expect to receive interest and enjoyment, to feel competent and self-determining, and to experience excitement and flow [37]. According to the definition, perceived usefulness and perceived ease of use are typical examples of extrinsic motivation, whereas perceived enjoyment, an important addendum to TAM, is an example of intrinsic motivation [11].

Researchers have extended the utilitarian and hedonic perspectives (or the extrinsic and intrinsic perspectives) to explore consumers' online shopping behavior. While previous research found varying relative importance of utilitarian and hedonic factors in technology acceptance [11, 33], the conflicting results remain the same in e-commerce. Shang et al. [37] found that hedonic factors of fashion and cognitive absorption experiences were more important than the extrinsic factor of perceived usefulness in explaining consumers' acceptance of on-line shopping. To et al. [42], however, suggested the stronger influence of utilitarian motivation. To our knowledge, little

e-commerce research has addressed this issue at the post-purchase stage. In accounting for the conflicting results of utilitarian versus hedonic, Magni et al. [30] indicated that as time goes by, the effects of hedonic factors decrease and utilitarian factors increase. Therefore, we hypothesized that:

*Hypothesis 11:* A customer's perceived usefulness affects a customer's online repurchase intention more strongly than perceived enjoyment.

In this paper, perceived usefulness, trust, satisfaction, and perceived enjoyment are considered direct support for repurchase intention. Perceived ease of use and confirmation are indirect constructs for repurchase intention through perceived usefulness and satisfaction. Based on these hypotheses regarding the relationships between the constructs developed in previous sections, we propose the research model as illustrated in Figure 1.

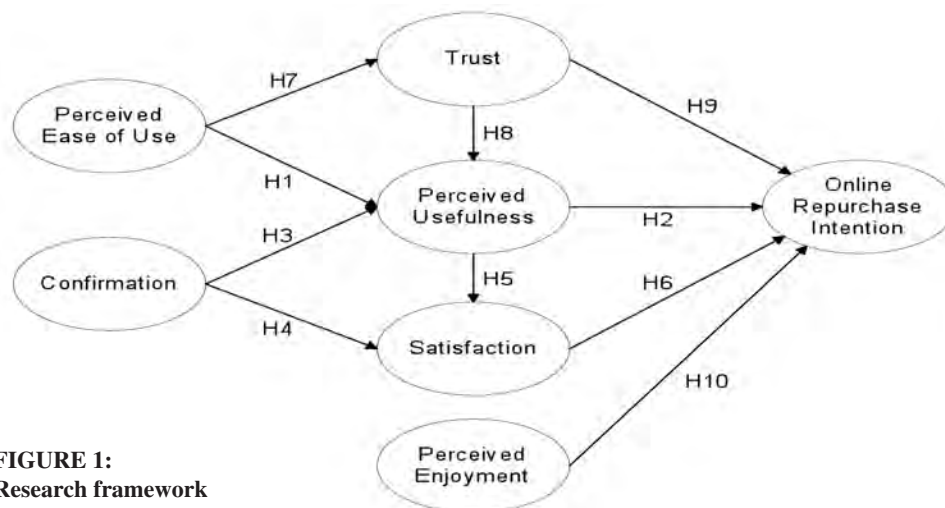
## 4. METHOD

### 4.1 Research instrument development

A paper-based questionnaire was developed to collect data to validate the constructs and theory posited in the research framework. The questionnaire was divided into three parts. The first part of the survey instrument was designed to get information about the participants' experience and online shopping habits. The respondents were asked to answer whether they bought products on the Internet, what products they bought online, and which websites they frequented. Reasons for shopping online and negative concerns related to shopping online were included to provide information about the possible factors that influence the consumers' online shopping intention. The second part of this survey instrument contains twenty-seven questionnaire items that measure the seven constructs in the proposed model. These questionnaire items are measured using a five-point Likert Scale (from 1 – strongly disagree to 5 – strongly agree). These items were selected from previous related research and subsequently modified to fit the online shopping experience. The final questionnaire measurement scales and the citations are depicted in Table 1. The third part of the survey included questions regarding demographic and socio-economic status.

### 4.2 Data collection

Two scholars with expertise in e-commerce research examined all of the items to verify that these items worked appropriately within the context of the present study. The questionnaires with revised items based on the expert feedback were subsequently distributed to six doctoral students who had considerable online shopping experience. They were explicitly asked to provide feedback on the appropriateness and clarity of the measurement items. We then made a number of revisions



**FIGURE 1:**  
**Research framework**



on the questionnaire to refine the instructions and address any measurement wording issues that were identified. This instrument testing process was finalized after a follow-up interview with those participants indicating that no further improvement in the questionnaire was needed.

The final questionnaire was sent to a large sample that consisted of 230 college students from a large southwestern university in the U.S. Most of these students were enrolled in a basic business statistics course, which is mandatory for all students in the College of Business and also available to non-business students as part of the university core. The use of university students as sample subjects is common in e-commerce studies [9, 17, 20, 21, 27, 31, 34]. Walczuch and Lundgren [45] argued that students are appropriate and representative sample subjects in e-retailing research because (1) they have free access to the Internet and have the opportunity to use this medium for communication and commercial transactions; and (2) they have rich experience and strong incentives for online shopping. In addition, there is a large body of work that suggests that college students represent

a large portion of web users and are appropriate subjects for web evaluation [17, 27, 31, 34].

Our demographic analysis showed that the selected sample subjects had an adequate amount of online shopping experience, thus qualifying as post-adoption customers. We deemed this a better option than prior research that had examined students' behavioral intentions using a virtual experimental website or by asking them to imagine what they would do under a specified condition [9, 20, 21].

## 5. RESULTS

### 5.1 Demographics of the respondents

Twelve of the responses were considered unusable. Among the 218 usable responses, only four students had never shopped online before. Almost one half of these students spend more than 15 minutes per week shopping online. 42.1% will spend 50-200 dollars per year while shopping online, and 44.4% will spend

**TABLE 1: Sources of questionnaire items**

Construct/Measures	Sources
<i>Perceived Usefulness (PU)</i>	
PU1. Using the Internet enables me to finish my shopping tasks more quickly	Davis (1989) & Enrique et al. (2008).
PU2. Using the Internet for shopping helps me to make better purchase decisions	
PU3. Using the Internet makes it easier to make purchases	
PU4. Using the Internet for shopping saves me money	
PU5. Overall, I find using the Internet for shopping useful	
<i>Perceived Ease of Use (PEOU)</i>	
PEOU1. The online shopping website is easy to use	Davis (1989); Gefen et al. (2003) & Enrique et al. (2008)
PEOU2. The online shopping website is flexible to interact with	
PEOU3. It is easier to use the Internet to find products that I want to buy	
<i>Trust (TRUST)</i>	
TRUST1. I feel safe in my transactions with the website/online store	Gefen et al. (2003) & Hassanein and Head (2007)
TRUST2. I believe the website can protect my privacy	
TRUST3. I select online stores, which I believe are honest	
TRUST4. I feel that this online vendor would provide me with good service	
TRUST5. I feel that the online vendor is trustworthy	
<i>Confirmation (CONF)</i>	
CONF1. My experience with shopping online was better than what I expected	Hong et al. (2006), (modified for online shopping)
CONF2. The service level provided by the website was better than what I expected	
CONF3. Overall, most of my expectations from shopping online were confirmed	
<i>Perceived Enjoyment (EN)</i>	
EN1. I found my visit to this website interesting	Van der Heijden et al. (2003) & Hassanein and Head (2007)
EN2. I found my visit to this website entertaining	
EN3. I found my visit to this website enjoyable	
EN4. I found my visit to this website pleasant	
<i>Satisfaction (SAT)</i>	
SAT1. I was very satisfied with my overall online shopping experience	Hong et al. (2006), (modified for online shopping)
SAT2. I was very pleased with my overall online shopping experience	
SAT3. I was very contented with my overall online shopping experience	
SAT4. I was absolutely delighted with my overall online shopping experience	
<i>Online Repurchase Intention (INT)</i>	
INT1. I intend to continue using online shopping rather than discontinue its use	Bhattacharjee (2001b), (modified for online shopping) & Devaraj et al. (2002)
INT2. My intention is to continue using online shopping rather than use traditional shopping	
INT3. If I could, I would like to continue shopping online as much as possible	

more than 200 dollars. This paper used PASW/SPSS (version-17.02) to analyze the demographic data that is summarized in Table 2.

## 5.2 Scale validation

A Confirmatory Factor Analysis (CFA) using LISREL 8.72, a structural equation analysis package, was conducted to validate the research model (Table 3). Rather than using Exploratory Factor Analysis (EFA), CFA was used in this study because all of the latent constructs and corresponding measurements are derived from previous research and their reliability and validity were shown to be acceptable in prior papers.

The reliability of constructs was examined using both Cronbach's  $\alpha$  and Composite Reliability. Composite Reliability (CR) is computed from squared lambda values and the sum of the error variance terms. A CR value of 0.7 or higher suggests good reliability [6, 19]. Table 3 shows that all of the CR values for the latent factors in this model are above 0.7. Also, all of the Cronbach's  $\alpha$  values are above the recommended value of 0.7 [6, 19], so we can conclude that the reliability of this model is supported.

To examine construct validity, the following four rules of thumb [19] are used. First, convergent validity requires factor

loading of all items, as well as the Average Variance Extracted (AVE) values, to be above certain cutoff values. All of the factor loadings in this model are higher than the cutoff value .5 (ideally higher than .7), except for one item from the scale of perceived ease of use: PEOU3 (0.45). Second, the Average Variance Extracted of 0.5 or larger is considered a good rule of thumb, suggesting adequate convergent validity [19]. In Table 3, except for enjoyment (0.47) and perceived usefulness (0.46), the AVE values for perceived ease of use, satisfaction, trust, confirmation and online repurchase intention are above the cutoff value 0.5. Third, to test discriminant validity, we compare the AVE values with the shared variance (square of the correlation) between these two constructs. Good discriminant validity requires that the two AVE values are both larger than the shared variances. In Table 4, we show the discriminant validity for this model. The bottom off-diagonal values are the correlations between factors, and the top off-diagonal values are the square of correlations. We starred those values that meet the rules for discriminant validity. Fourth, all of the Composite Reliability (CR) values in Table 4 are higher than the benchmark value of 0.7, indicating adequate convergence or internal consistency.

We used several general model-fit measurements to check the Goodness-of-Fit of the research model. The rule that the  $\chi^2/df$  ratio 3.17 ( $\chi^2=881.13$ ;  $df=278$ ) should be less than 5 is used to adjust the sensitivity of chi-square to a large sample size [2]. The standardized root of mean square residual (SRMR) is 0.08, below the cutoff value of 0.10 when the sample size is smaller than 250 [38]. And the PNFI is examined and its value is 0.79, which is larger than the benchmark value 0.75 [38]. The Normed Fit Index (NFI), Non-Normed Fit Index (NNFI), and Comparative Fit Index (CFI) are frequently used to indicate the goodness of model fit. Researchers suggest that these values should be higher than 0.9 to indicate a model with good fit [2]. Based on the output of the CFA analysis (Table 4), NFI, NNFI and CFI are all higher than the benchmark value 0.90. Therefore, we can conclude that the model is of adequate fit.

## 5.3 The structural model path analysis

This study attempted to identify the essential antecedents of repurchase intention through e-commerce websites, and to determine how these antecedents influence online repurchase intention. The Structural Equation Modeling path analysis results are shown in Figure 2 and the hypothesis testing results are summarized in Table 5. Only Hypothesis 9 is not supported and all of the other 10 hypotheses are statistically significant. The support of hypotheses 1, 3, 4 and 7, was consistent with the study by Hong et al. [22] and validated the indirect impact of perceived ease of use and confirmation on repurchase intention through perceived usefulness and satisfaction. The support of Hypotheses 2, 6 and 10 validated our argument that the utilitarian function (perceived usefulness) and hedonic function (perceived enjoyment) of an e-commerce website are both positively related to customer repurchase intention. Furthermore, the relationship between satisfaction and repurchase intention was also confirmed. These results also provided a strong motivation for online vendors to improve the design of their shopping websites, which can increase online customers' perceptions of the sites' usefulness, enjoyment and satisfaction. Since the effect of perceived usefulness on repurchase intention (0.33 [direct effect] +0.49\*0.28 [indirect effect] = 0.467) was stronger than the effect of perceived enjoyment on repurchase intention (0.26), hypothesis

**TABLE 2: Participants demographics**

Item	Characteristics	Percentage (%)
<b>Gender</b>	Male	56.1
	Female	43.9
<b>Reasons for shopping online (more than one choice)</b>	Convenience	60.7
	Product/Service not available offline	27.1
	Better price	57.0
	Time-saving	37.9
<b>Concerns for shopping online (more than one choice)</b>	Lack of trust	28.0
	Privacy concerns	21.5
	Security concerns	35.5
	Delivery time concerns	27.6
	Difficult to evaluate products online	34.1
	After-sale service concerns	18.6
<b>Online shopping experience</b>	Just once	3.30
	2 - 5 times	31.3
	6 - 20 times	37.9
	21 - 50 times	13.6
	More than 50 times	12.2
<b>Age</b>	Between 18 and 22	52.6
	Between 23 and 28	33.3
	Between 29 and 35	9.40
	Above 35	4.70
<b>Time spent on online shopping per week</b>	0-15 minutes	48.1
	16-60 minutes	32.2
	1-3 hours	15.9
	More than 3 hours	3.70
<b>Money spent on online shopping per year</b>	Less than \$50	13.6
	\$ 50 - \$ 200	42.1
	\$200 - \$ 500	28.0
	More than \$ 500	16.4

11 was also supported, which sustains our viewpoint that online customers still are concerned more about the utilitarian function of the e-commerce website in the post-adoption stage. Hypothesis

9, ( $\beta = 0.09$ ,  $p > 0.05$ ) regarding the positive influence of trust on online repurchase intention, was non-significant at 0.05 level. One possible reason might be that trust is less important and

**TABLE 3: Confirmatory factor analysis of measurement model**

Items	Factor Loading	t-values	Variance Extract (AVE)	Composite Reliability	Standardized Cronbach's $\alpha$
Perceived Usefulness (PU)			0.46	0.810	0.806
PU1	0.65	8.61**			
PU2	0.63	8.38**			
PU3	0.7	X			
PU4	0.59	7.92**			
PU5	0.81	10.47**			
Perceived Ease of Use (PEOU)			0.53	0.761	0.766
PEOU1	0.86	X			
PEOU2	0.81	10.92**			
PEOU3	0.45	6.20**			
Satisfaction (SAT)			0.68	0.891	0.901
SAT1	0.73	12.77**			
SAT2	0.86	16.78**			
SAT3	0.88	X			
SAT4	0.81	15.02**			
Trust (TRUST)			0.53	0.845	0.832
TRUST1	0.82	13.85**			
TRUST2	0.75	12.36**			
TRUST3	0.85	X			
TRUST4	0.58	8.76**			
TRUST5	0.6	9.22**			
Confirmation (CON)			0.72	0.888	0.827
CONF1	0.86	14.98**			
CONF2	0.84	X			
CONF3	0.85	14.61**			
Perceived Enjoyment (EN)			0.47	0.767	0.914
EN1	0.69	8.96**			
EN2	0.82	10.44**			
EN3	0.53	6.55**			
EN4	0.67	X			
Online Repurchase Intention (INT)			0.53	0.768	0.783
INT1	0.81	X			
INT2	0.71	9.98**			
INT3	0.65	9.07**			

**Note:** t-values are from unstandardized solution. \*\* Significant at the .01 level. Some t values are unavailable because the loadings are fixed at 1.00 for scaling purposes

**TABLE 4: Correlation matrix for latent constructs**

	PU	PEOU	SAT	TRUST	CONF	EN	INT	AVE	CR
<b>PU</b>	1	0.45	0.69	0.61	0.52	0.88	0.62	0.46	0.81
<b>PEOU</b>	0.2025*	1	0.48	0.66	0.25	0.55	0.42	0.53	0.76
<b>SAT</b>	0.4761	0.2304*	1	0.73	0.76	0.83	0.68	0.68	0.89
<b>TRUST</b>	0.3721*	0.4356*	0.5329	1	0.52	0.69	0.68	0.53	0.85
<b>CONF</b>	0.2704*	0.0625*	0.5776*	0.2704*	1	0.64	0.68	0.72	0.89
<b>EN</b>	0.7744	0.3025*	0.6889	0.4761	0.4096*	1	0.71	0.46	0.77
<b>INT</b>	0.3844*	0.1764*	0.4624*	0.4624*	0.4624	0.5041	1	0.53	0.77

**Note:** \* the two AVE values are both larger than the squared correlations. Goodness of fit indices: Chi-Square (df) = 881.13 (278); SRMR = 0.08; PNFI = 0.079; Normed Fit Index (NFI) = 0.93; Non-Normed Fit Index (NNFI) = 0.94; Comparative Fit Index (CFI) = 0.95;



usually shows a lower effect in previous research, when compared with other determinants of behavioral intention [28]. Based on the demographic questions from the survey, the main reasons for shopping online are convenience, better price and saving time. However, the reasons for not shopping online or negative concerns related to shopping online are lack of trust and security concerns. Therefore, trust might not be the main reason that customers want to continue shopping online. However, lack of trust could be the main reason customers decide not to shop online or why they have negative concerns related to shopping online. That could be another explanation for why the direct relationship between trust and online repurchase intention was not statistically supported in this study. The third reason could be that trust has an indirect influence on online repurchase intention through PU, and the direct influence is not significant under mediation.

The standardized structural path coefficients are shown in figure 2. The squared multiple correlations from the LISREL output are as follows: online repurchase intention 0.63; customer satisfaction 0.71; trust 0.42; and perceived usefulness 0.49. Our research model explained 63% of the variance in online repurchase intention, which is consistent with the results of other proposed models about continued IT usage. Prior models showed 63% of the squared multiple correlations for continued IT usage intention in TAM (and 67% for the EECM-IT model [22]. Yet another previous model by Li et al. showed 63% of stickiness intention [28]. Still other models had lower variance with about 41% of IS continuance intention variance explained by satisfaction and PU [3], 50% in an ECM-IT model [22], and 55% by PU, PEOU and constructs from flow theory [26]. The summary of the hypotheses test results for our model are shown in Table 5.

## 6. DISCUSSION

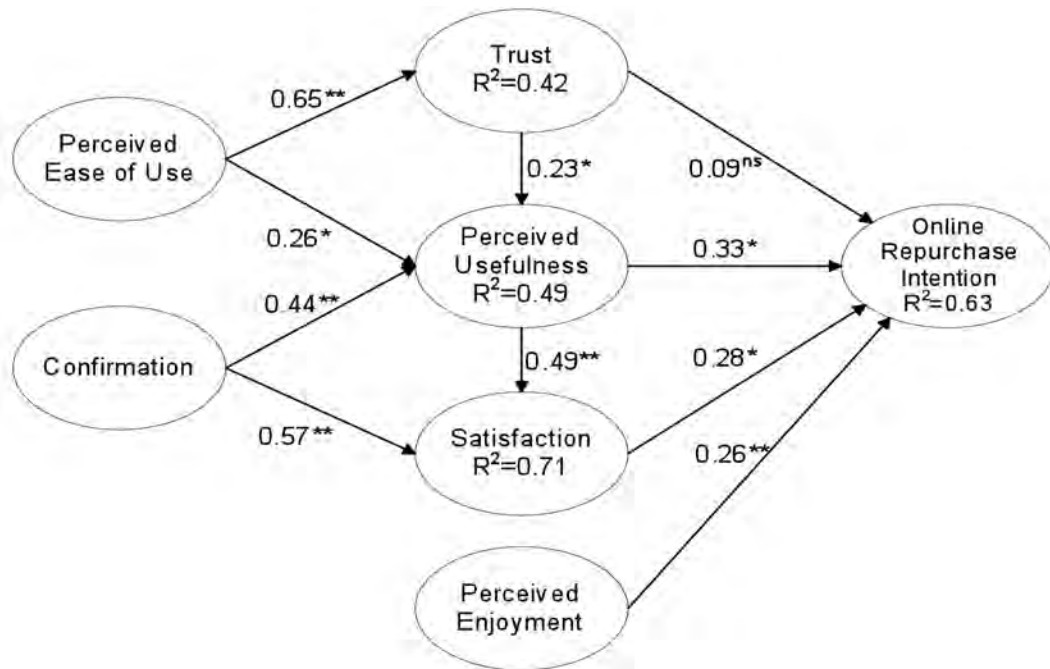
Online repurchase intention is currently a critical research topic because most of the online population has online shopping

experience and the customer segment has moved from initial adoption to post-adoption. According to Van der Heijden's definition of utilitarian and hedonic information systems [44], and our research results, we classified e-commerce websites into the utilitarian category even in the post-purchase stage. Consumers are mainly concerned with the functionalities of the website to purchase products in an efficient and effective way. However, the nonfunctional perspective is also important to customers since perceived enjoyment is a significant factor determining customers' repurchase intention. Therefore, while giving priority to the functionalities of their websites, online vendors should also take into consideration how to fulfill customers' hedonic needs.

The chief contribution of this paper is the proposition of an integrated theoretical framework, and the use of survey data to validate the direct and indirect influences of perceived ease of

**TABLE 5: Summary of hypotheses tests**

Hypotheses	Support
H1: PEOU -> PU	YES
H2: PU -> INT	YES
H3: CONF -> PU	YES
H4: CONF -> SAT	YES
H5: PU -> SAT	YES
H6: SAT -> INT	YES
H7: PEOU -> TRUST	YES
H8: TRUST -> PU	YES
H9: TRUST -> INT	NO
H10: EN -> INT	YES
H11: PU -> INT greater than EN -> INT	YES



**FIGURE 2: Structural path coefficients**

**Note:** \*\*\* Significant at  $p < 0.001$  level, \*\* Significant at  $p < 0.01$  level, \* Significant at  $p < 0.05$  level, ns not significant at  $p < 0.05$  level.

use, perceived usefulness, confirmation, satisfaction, trust and enjoyment on online repurchase intention. The framework proposed in this study gave us a comprehensive idea of how the exogenous factors in IS, marketing, and social psychology influence the endogenous factor, online repurchase intention, when we viewed the subject as both a customer and a web user. Though complex, the proposed framework provides strong exploratory power and the precedents can explain 63 percent of the variance in online repurchase intention.

Second, this study primarily focused on customers' perception at the post-purchase stage. Most prior studies concentrated on the pre-purchase stage of IT adoption in e-commerce. This research also proves that the TAM model is a parsimonious model that can be used in both IT adoption and IT continuance usage. PEOU indirectly influences online repurchase intention through the mediation of PU and trust, and trust has an indirect impact through PU. PU directly influences repurchase intention. This study suggested that customers' perceptions of PEOU and the confirmation of post-adoption positively affect PU, and customers' perceived satisfaction is due to the perception of usefulness and confirmation, which validated some of the relationships in the ECM model [3, 22].

This study not only contributes to future theoretical research, but also guides practitioners in the development of their e-commerce models. Through empirical study, the research results can help e-commerce companies or online vendors to fully understand the crucial factors that determine the customer's repurchase intention behavior, which will allow them to improve their managerial and IT strategies, and increase profits. Specifically, the present paper lays a solid theoretical foundation for how to adopt different website features to further encourage customers to buy. At the core of the integrated model are four constructs: trust, perceived usefulness, satisfaction, and perceived enjoyment. Though we did not find a direct relationship between trust and online repurchase intention, trust influences repurchase intention with the mediation of PU. E-commerce companies, therefore, are advised to incorporate trust-inducing features into their websites. These design elements include graphic design elements (e.g., well-chosen, well-shot pictures), structural design elements (e.g., navigation bars), content design elements (e.g., relevant domain names), and social-cue design elements (e.g., representative photographs) [46]. In order to improve customer satisfaction and the perception of website usefulness, online vendors may add features that give rise to high levels of website interactivity, which include online chat, online forum, and so on [40]. In addition, the integrated model shows that an enjoyable shopping experience contributes to repurchase intention. Similarly, online vendors should work to satisfy customers' utilitarian needs when they shop online. This might also be achieved by using appropriate website elements such as socially-rich pictures and text to describe products [21]. While prior research pointed out that e-commerce had not reached its potential and that e-commerce websites were not configured appropriately to attract customers [18, 21] our integrated model, with the four identified core direct and indirect antecedents of repurchase intention, offers guidelines for practitioners to select optimal website elements to retain customers.

## 7. LIMITATIONS AND FUTURE RESEARCH

There are several limitations of this work. First, the respondents are college students and conclusions from a study about this population may not generalize well to the entire online shopping

population. Although college students are the major users of the Internet, and most of them have online shopping experience, the possibility exists that their perceptions differ from other online customers. Second, respondents answered these questions based on various e-commerce websites, rather than responding to questions about a specific website, the business type of the website (B2C or C2C), and the distinctive designs that may affect customers' experience and perceptions of online shopping. Further research could consider the effect of various types of websites and the impact of different website designs. Third, all of the research results in this study are based on the data collected from a traditional paper-based survey. Duplicating this research using an Internet-based survey would allow testing the difference between the paper-based survey and the Internet-based survey. Fourth, the online shopping customers may have different cultural backgrounds and different shopping intention. To investigate such cultural differences, future research might consider customers living outside of the United States and compare the impact of culture on our model and online repurchase intention.

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