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The Relationships among Trust, E-satisfaction, E-loyalty, and Customer Online Behaviors

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Abstract

This paper develops a general model of customer online purchasing behavior using the technology acceptance model. One key contribution of this paper is to conceptualize and incorporate trust, customer e-satisfaction, and customer e-loyalty into an integrated technology acceptance model. In total, 1,258 valid questionnaires were gathered from online customers who engaged in e-shopping in Taiwan. The empirical analysis found that the integrated model was partially supported in online purchasing contexts. This study finds that trust is the major indicator of E-satisfaction and online purchasing attitudes; it appears to be more important than perceived usefulness and perceived ease of use. Interestingly, the empirical study indicates that a customer's E-satisfaction has no significant effect on online purchasing intentions, and higher E-loyalty does not necessarily increase the amount or frequency of online purchasing.

1. Introduction

Electronic commerce (e-commerce) has grown rapidly, and an increasing number of customers are spending more time shopping electronically (Horrigan and Lee, 2002). These online shopping trends indicate remarkable potential and an alternative to traditional brick-and-mortar shopping. However, research indicates that 80%-85% of those that browse websites for goods and services do not engage in online purchases (Talor Nelson Sofres, 2002). Additionally, while many web users are motivated to begin an online purchase transaction, 75% discontinue the transaction or abandon their shopping cart (BizRate, 2000). This implies that online shopping cannot be equated with online purchasing because even when customers identify attractive shopping opportunities on the web, there are barriers and other concerns that prevent these transactions from being completed. The technology acceptance model (TAM) is the most widely applied model for predicting individuals' intentions and behaviors with information technology (IT), and this model has been tested with various applications. TAM proposes that users' beliefs about an IT determine their attitudes, which then affect their intentions to use and accept the IT. There are a number of studies that investigate online behavior and trust in online shopping using TAM (Bhattacherjee, 2002; Gefen et al. 2003; Pavlou, 2003). However, there are few that identify the role of trust from a psychological perspective. This study considers trust a "belief" held by the truster that the trustee will behave ethically (McKnight and Chervany, 2002) and adds trust to the TAM as a third brief variable in order to explore the effects of trust in online behavior.

In online environments, it is more difficult for a company to build customer loyalty when consumers can leave with just a mouse click (Srinivasan, Anderson, and Ponnavolu, 2002). Customer satisfaction and loyalty are other important issues in online shopping studies. There are two theoretical perspectives on satisfaction. In the marketing perspective, customer satisfaction is an individual's subjectively derived favorable evaluation about his or her consumption experiences. Otherwise, IT studies focus on end-user satisfaction from an IT perspective. This article merges marketing and IT perspectives on satisfaction and defines them as "E-satisfaction" to explore customer satisfaction when using websites to make purchases. Based on a literature review, this study identifies E-satisfaction as an attitude variable for determining future behavior. There are a few studies that explore loyalty from a psychological perspective. Gremler (1995) and Baldinger & Rubinson (1996) suggested that both attitudinal and behavioral dimensions must be incorporated when measuring loyalty. Oliver (1997) further proposed that loyalty involves four stages: cognitive, affective, conative, and behavioral. This study explores e-loyalty from a psychological and marketing perspective, and defines e-loyalty as an attitudinal-intentional variable, which involves feeling and intention to purchase action.

Recently, there have been a number of researchers investigating online customer satisfaction or trust in the specific context of online shopping. However, there is still a lack of understanding about the relationships between trust, customer satisfaction, customer loyalty, and consumer online purchasing behaviors with a theoretical base. This study applies the TAM model and expands the application to online environments to analyze customer online purchasing behaviors. The objective of this paper is to explore the factors affecting online purchasing intentions and behavior. Elucidating online consumer behavior will benefit e-vendors in their efforts to sell products and services online in the future.

2. Literature Review

2.1. Technology Acceptance Model

The theory of reasoned action (TRA), the theory of planned behavior (TPB), and the technology acceptance model (TAM) are the most famous models for predicting individuals' intentions and behaviors. TRA, developed by Fishbein & Ajzen (1975), was the first theoretical model to predict behaviors from beliefs, attitudes, and intentions. TPB, extended TRA by Ajzen (1985), added "perceived behavioral controls" as a determinant of intentions and behaviors. TAM and the extended TRA by Davis (1989) focus on IT usage and propose that users' beliefs, such as perceived ease of use (PEOU) and perceived usefulness (PU) of an IT, determine attitudes, which then affect intentions to use and acceptance of IT. In addition, PEOU has positive effect on PU.

While TRA and TPB can explore IT usage, TAM is more appropriate for online contexts because of several advantages. First, TAM is specific to IT usage in its application of two specific beliefs regarding PEOU and PU. In addition, TAM is more parsimonious. Finally, TAM is more robust across various IT applications. Numerous empirical tests have indicated that TAM is a robust model for technology acceptance behaviors in a wide variety of IT contexts and countries (Gefen, Karahanna, & Straub, 2003). Therefore, TAM was applied in order to investigate consumer online purchasing behaviors in an online shop, and the following hypotheses were derived and tested:

$H1_a$: Consumers' online purchasing PEOU positively affects online purchasing PU.

$H1_b$: Consumers' online purchasing PEOU positively affects online purchasing attitudes.

$H1_c$: Consumers' online purchasing PU positively affects online purchasing attitudes.

$H1_d$: Consumers' online purchasing attitudes positively affect online purchasing intentions.

$H1_e$: Consumers' online purchasing intentions positively affect actual online purchasing behavior.

2.2. Trust in Virtual Environments

In the marketing literature, trust is related to the customer's experience with the salesperson (Koufaris & Hampton-Sosa, 2002). Characteristics of the salesperson, such as expertise and likeability, are positively associated with the customer's trust in that salesperson, which, in turn, has an association with trust in the company (Koufaris & Hampton-Sosa, 2002).

Trust studies in psychology and organizational behavior focus on "interpersonal relationships." Trust studies in economics and the strategy field focus on "inter-organizational relationships." The analysis of trust in this study is based on a firm or online shop as an object of trust (Shankar, Urban, & Sultan, 2002). In a social psychological sense, trust is the belief that other people will react in predictable ways and one can rely upon a promise made by another (Pavlou, 2003). In the e-commerce context, trust includes online consumers' beliefs and expectations about the trust-related characteristics of an online seller (McKnight & Chervany, 2002). Online consumers want the e-vendor to be willing and able to act on the consumers' interests, to be honest in transactions (e.g., not divulge personal information to other vendors), and to be capable of delivering ordered goods as promised.

There are several studies that theoretically and empirically integrate trust with TAM variables or investigate the impacts of customer satisfaction and customer loyalty in online setting. (Shown as Table 1). Most studies agree that PEOU, PU, and trust are important antecedents of IS/IT acceptance (Gefen & Straub, 2003; Gefen et al., 2003; Jarvenpaa, Tractinsky, & Vitale, 2000; Koufaris & Hampton-Sosa, 2002; Pavlou, 2003; Suh & Han, 2003). However, no consistent conclusions have been drawn about the relationships between PU, PEOU, and trust.

Table 1. *Overview of reviewed articles*

Authors	Constructs	Relationships wiih Satisfaction
Al-Gahtani & King (1999)	Relative Advantage, Enjoyment, PEOU, Attitude, Satisfaction, IS Usage	Relative Advantage, Enjoyment, PEOU ➔Attitude, E-Satisfaction Trust➔Purchase Intention E-Satisfaction➔ Purchase Intention Website Trust ←➔Website Satisfaction
Anderson & Srinivasan (2003)	E-satisfaction, Trust, E-loyalty	E-satisfaction➔E-loyalty E-satisfaction➔Trust➔E-loyalty
Akhlaq & Ahmed (2013)	Intrinsic(e.g. PEOU), Extrinsic, Trust➔ Intention	Intrinsic ➔ trust; Extrinsic➔ Trust ; Trust ➔ Intention
Bhattacherjee (2000)	Confirmation, PU, Satisfaction, Loyalty Incentives, IS Continuance Intention	Confirmation➔ PU, Satisfaction PU, Satisfaction, Loyalty Incentives ➔ IS Continuance Intention
Bhattacherjee (2002)	Confirmation, Satisfaction, Repurchase Intention	Satisfaction➔Repurchase Intention
Cronin, Brady, & Hult (2000)	Service Quality, Satisfaction, Behavior Intentions, Service Value	Service Quality➔ Satisfaction and Behavior Intention Satisfaction ➔ Behavior Intention
Fang et al. (2014)	Satisfaction, Trust, Repurchasing Intention, Effectiveness of EC institutional mechanisms	Satisfaction➔Trust➔Repurchasing Intention
Hellier et al. (2002)	Perceived Quality, Customer Satisfaction, Customer Loyalty, Repurchased Intentions	Perceived Quality ➔ Customer Satisfaction Customer Satisfaction ➔ Customer Loyalty, Repurchased Intentions
Landrum & Prybutok (2004)	System Quality, Information Quality, Service Quality, PU, User Satisfaction	System Quality, Information Quality, Service Quality➔PU and User Satisfaction PU ➔ User Satisfaction
Lin (2013)	Trust, Satisfaction, and Loyalty	Online Trust➔ Satisfaction and Loyalty
Molla & Licker (2001)	Trust, Content Quality, EC System Quality, Support and Service, User Satisfaction, IS Use	Trust➔ E-satisfaction and IS Use Content Quality and EC System Quality➔ User Satisfaction and IS Use Support and Service➔ User Satisfaction and IS Use User Satisfaction➔ IS Use
Ranaweera & Prabhu (2003)	Customer Satisfaction, Trust, Customer Retention, Positive Word of Mouth (POW)	Satisfaction, Trust ➔ Customer Retention Satisfaction, Trust ➔ POW (Satisfaction will be more significant than Trust) User Satisfaction←➔ IS Use
Shankar et al. (2002)	Website Characteristics, Online Trust, Intention to Act, Satisfaction and Loyalty	Website Characteristics➔ Online Trust Online Trust➔ Intention to Act Online Trust➔ Satisfaction and Loyalty

➔: Has a positive effect on

Chircu, Davis, & Kauffman (2000) and Pavlou (2003) stated that trust has a positive effect on PEOU and PU because trust reduces consumers' need to monitor Internet retailers' actions and check every detail, thus making online transactions easier (Chircu et al., 2000). On the contrary, in the marketing literature, the salesperson is replaced by companies' websites, and customers' perceptions of the website (e.g., PEOU and PU) have a positive influence on the customer's trust in the company (Tan & Thoen, 2002).

This study considers trust a belief, based on the customer's prior experience, about the interaction with an online shop, an interaction in which PEOU and PU are involved. Therefore, the assumption of Chircu et al. (2000) and Pavlou (2003) was adopted, i.e., that PEOU and PU have effects on trust. Based on TAM, this study tests whether trust affects attitudes directly. Accordingly, the following hypotheses were tested in this study:

H2: Consumers' online purchasing PEOU positively affects trust in the online shop.

H3: Consumers' online purchasing PU positively affects trust in the online shop.

H4: Customers' trust in an online shop positively affects online purchasing attitudes.

2.3. Customer Satisfaction in Virtual Environment

Satisfaction is usually defined as a customer's favorable or unfavorable feelings about a prior experience. According to Oliver (1997), satisfaction is "the summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with a consumer's prior feelings about

the prior experience." Customer satisfaction is an important issue because most researchers believe that higher customer satisfaction can bring greater profits to companies: a satisfied customer is more likely to return to a store and purchase from there, while a dissatisfied customer is more likely to search for information on alternatives (Anderson & Srinivasan, 2003).

Many studies investigate customer satisfaction as a predictor of purchase intentions in physical contexts. Consumer behaviors in e-commerce contexts are essentially the same as those in a physical environment; however, technology still has an impact on consumer decision-making (Koivumäki, 2001). For example, online users have access to several benefits in terms of information-search stages, which are achieved by reducing search costs and increasing shopping convenience and the richness of information. But customers also have the disadvantages of the lack of physical checking in at the evaluating and ordering stages, as well as security problems when they purchase online. Therefore, customer satisfaction in e-commerce contexts is more complicated than traditionally thought.

In the traditional marketing prospective, customer satisfaction is an individual's subjectively derived favorable evaluation about the customer's experiences of purchasing (Kotler, 1997). Otherwise, IT studies focus on "user satisfaction" with IT, with user satisfaction considered a significant factor in measuring IT success and IS use (Aladwani, 2003; Bharati & Chaudhury, 2004; Doll & Torkzadeh, 1988). Doll & Torkzadeh (1988) propose that PEOU toward IT has an effect on user satisfaction towards IS. Seddon & Yip (1992) investigate the predictors of IT success and find that PU determines user satisfaction, which later affects IS use.

In e-commerce contexts, customer satisfaction toward online purchasing is composed of satisfaction toward the purchasing process and user satisfaction in using IT (e.g., the website). This study merges customer satisfaction from a marketing perspective with user satisfaction from an IT perspective into a single "E-satisfaction" construct in order to explore customer satisfaction toward online purchasing. In this study, E-satisfaction is defined as the customer's pleasurable fulfillment of his or her prior online experience with a given e-commerce website.

When integrating E-satisfaction into a TAM model, the role of E-satisfaction within TAM must be identified. Satisfaction represents favorable or unfavorable feelings related to judgments. Therefore, E-satisfaction is operationally an attitudinal variable that determines future behavior (Clarke 2002). As an attitudinal variable in TAM, E-satisfaction plays an intervening role between intentions and PEOU beliefs, and between PU beliefs and trust. Hence, the *following hypotheses* are tested:

H5: Consumers' online purchasing PEOU positively affects E-satisfaction.

H6: Consumers' online purchasing PU positively affects E-satisfaction.

H7: Consumers' trust toward online shop positively affects E-satisfaction.

H8: E-satisfaction positively affects online purchasing intentions.

2.4. Customer Loyalty in Virtual Environment

Customer loyalty is defined as the intention to repeat purchase the same brand. Keller (1993) indicated that "loyalty is present when favorable attitudes for a brand are manifested in repeat behavior." Customer loyalty is an important indicator for predicting the strength of purchase intentions (Niren, McLaughlin, & Wittink, 1998); loyalty can also create profitability for the company (Anderson & Srinivasan, 2003).

Most studies explore the positive effect of customer satisfaction on customer loyalty in physical environments (Taylor & Baker,1994). Propositions from these studies are still efficient in the e-commerce context (Hellier, Geursen, Carr, & Rickard, 2002; Anderson & Srinivasan, 2003). Customer loyalty is also linked to purchase intentions. Many studies indicate that the stronger the customer loyalty, the more customers will tend to purchase from a company (Clerfeuille & Poubanne, 2003; Niren et al., 1998). However, few empirical studies explore the relationship between loyalty and purchase intentions. Some studies even indicate that customer loyalty may replace behavior intentions (e.g., Lu & Lin, 2002). While customer loyalty has been mentioned in several studies, its conceptualization and empirical validation in an e-commerce context has seldom been addressed (Luarn & Lin, 2003).

In an online environment, although customers increase their interactions with the company through websites, there are plenty of online shops offering similar products or services, and customers can switch their purchasing decision more easily in online environments than in physical environments. Therefore, it is more difficult for a company to build customer loyalty when consumers can leave with a click of the mouse (Srinivasan et al., 2002). In this study, "E-loyalty" is used to highlight the role of loyalty in e-commerce contexts when a customer is purchasing online.

There are very few studies that explore the effects of E-loyalty on online behavior using TAM. The major problem with integrating E-loyalty into TAM is that there is still no consistent psychological definition of loyalty. Keller (1993) views loyalty as an attitudinal variable because of the belief that loyalty is a favorable attitude toward a brand that results in consistent purchasing. Jacoby (1971) investigated loyalty in the behavioral purchase process and indicated that loyalty is a behavioral intention variable. Baldinger & Rubinson (1996) argue that attitudinal and behavioral intention loyalties are spurious and do not represent true loyalty. They suggest that both attitudinal and intentional dimensions must be incorporated when measuring loyalty.

Another barrier to integrating E-loyalty into TAM is figuring out the difference between "E-Loyalty" and "purchase intentions." This study identifies individuals purchasing intentions as referring to "the strength of one's intentions to purchase in an online shop," which focuses on purchasing behavior only. Otherwise, E-Loyalty refers to "Customers' favorable attitudes and intentions toward an

E-business, resulting in repeat buying behavior" which involves a customer's various interactions with the online shop, such as browsing and purchasing. It implied that E-loyalty and intentions are different concepts, and that E-loyalty cannot replace online purchasing intentions.

Oliver (1997) proposed a comprehensive model to explore the four stages of loyalty formation: cognitive, affective, conative, and behavioral. Oliver's loyalty formation model represents a concept similar to that of TAM. Both indicate cognitive beliefs first, then an affective (attitudinal) component, followed by a conative (intentional) component, and finally an action (behavioral) component. However, in Oliver's model, the definition of the cognitive dimension is far from the definition of loyalty found in the marketing literature. In addition, the behavioral dimension in Oliver's loyalty model is basically equivalent to the reflective behavior concept in TAM. Only the affective (belief) and cognitive (intention) dimensions match the definition of loyalty in marketing studies; this is reflected in the statement of Baldinger & Rubinson (1996). Therefore, this study proposes that E-loyalty is an attitudinal-intentional variable in the TAM framework and hypothesizes that E-loyalty intervenes between attitudes (such as consumers' online purchasing attitudes and E-satisfaction), intentions, and actual behavior.

H9: Consumers' online purchasing attitudes positively affect E-loyalty.

H10: E-satisfaction positively affects E-loyalty.

H11: Consumers' E-loyalty positively affects online purchasing intentions.

H12: Consumers' E-loyalty positively affects actual online purchasing behavior.

3. Research Methods

3.1. Research Model

This study adopts the concept of TAM, but transforms ITIS use behavior to online purchasing behavior. Based on the belief–attitude–intention–behavior framework in TAM, this study integrates trust, E-satisfaction, and E-loyalty to predict consumers' online purchasing intention and behavior in an extended model.

The relationships between PEOU, PU, attitude, intention, and actual behavior in online purchasing are similar to the original TAM: PEOU and PU affect attitudes, which further affect intentions, which then finally affect actual online purchasing behavior. Additionally, PU is determined by PEOU. There are three belief variables (PEOU, PU, and Trust), two attitudinal variables (attitude toward using the online shop and E-satisfaction), and an attitudinal-intentional variable (E-loyalty). All of these constructs have direct or indirect effects on customer intentions and actual online purchasing behavior.

3.2. Sample

With a purposive sampling method, a total of 3,360 questionnaires were distributed to Executive MBA students and lecturers at National Dong Hwa University in Taiwan. Questionnaires were returned by 2,035 questionnaires. A critical standard was set in this study to define a "valid questionnaire." A questionnaire with more than ten in a row having the same score was considered invalid. Although the critical standard reduced the number of questionnaires, it may still improve the quality of the valid remaining questionnaires. In total, 689 respondents claimed to never have bought online and 88 questionnaires were declared invalid. This left 1,258 valid questionnaires. The net response rate is 37.8%. The sample in this study consisted of 1,258 online customers with e-shopping experience from various occupations (Student = 19%, Service trades = 20%, Financial = 15%, Government/Military = 14%, Business = 12%, Industry = 9%), age groups (under 20 = 11%, 21-25 = 23%, 26-30 = 26.1%, 31-35 = 20%, 36-40 =11%, above 41= 8%), and websites, and of both genders (male = 46% and female = 54%). This suggests that our results are generalizable to various types of customers and websites.

3.3. Measure Development

The constructs in this study were developed based on existing scales. Rather than devising a new scale for the dependent variable, this convention makes it possible to measure the dependent variable with extant scales that have proven measurement properties. Measures for PEOU and PU were adapted from studies on TAM (Davis, 1989) and online shopping (Geffen & Straub, 2003; Pavlou, 2003) and then modified for use in purchasing contexts. Measures of purchasing attitudes and intentions were adapted from studies of consumer acceptance of e-commerce (Suh & Han, 2003;). The measures of purchase behaviors were adapted from Pavlou (2003)'s study of online shopping.

Measures for trust are adapted from Bhattacherjee (2002), Suh & Han (2003), and Pavlou (2003). Measures of E-satisfaction and E-loyalty are adapted from Anderson and Srinivasan (2003) and their study exploring the relationship between E-satisfaction and E-loyalty. Their measures were based on the customer satisfaction study by Oliver (1997) and customer loyalty studies by Gremler (1995) and Zeithaml, Berry, & Parasuraman (1996). All items were measured on a seven-point scale ranging from 1 = strongly disagree to 7 = strongly agree. Higher values indicate a higher degree of PEOU, PU, attitude, intention, and behavior toward online purchasing, as well as a higher degree of trust, E-satisfaction, and E-loyalty. The measurements are shown in Table 2.

Table 2. *Definition and Measurement*

Constructs	Measurement Items	Literature Based
PEOU toward purchasing	1. It is easy to purchase at this website 2. Purchasing from this website does not require a lot of mental effort to learn the process. 3. It is easy to get the information I want from this website	Davis (1989), Geffen & Straub (2003), Pavlou (2003)
PU toward purchasing	1. This website makes purchases more convenient. 2. This website makes purchasing more efficient to save time and money. 3. This website is useful for purchasing.	Davis (1989), Geffen & Straub (2003), Pavlou (2003)
Attitude toward purchasing	1. I like to purchase from this website. 2. This website is appealing for purchases. 3. I have a positive opinion of this website after purchasing.	Suh & Han (2003)
Intention toward purchasing	1. I will frequently purchase from this site in the future. 2. I am glad to provide my personal consumption information to this website so it can provide me with better service.	Suh & Han(2003)
Purchasing behavior	1. How many times have you purchased from this site during the last six months? 2. How much money have you spent on this site during the last six months?	Pavlou (2003)
Trust	1. I believe the information provided from this website. 2. The product I received matched the description on the website. 3. The delivery service I received matched the description on the website. 4. The website is professional to make transactions successfully. 5. This website is fair in its use of private user data collected during a transaction. 6. Overall, this website is worthy of trust	BhattachErjee(2002) Jarvenpaa,et al. (2000) Pavlou (2003)
E-Satisfaction	1. I am satisfied with my decision to purchase from this website. 2. If I had to purchase again, I would feel differently about buying from this website. 3. My choice to purchase from this website was a wise one. 4. I feel badly regarding my decision to buy from this website. 5. I think did the right thing by buying from this website. 6. I am unhappy that I purchased from this website	Anderson & Srinivasan (2003)
E-loyalty	*Attitudinal Loyalty* 1. I seldom consider switching to another website. 2. As long as the present service continues, I won't switch websites. 3. I believe that this is my favorite retail website. 4. I like using this website. *Behavioral Intention Loyalty* 5. I try to use this website whenever I need to make a purchase. 6. When I need to make a purchase, this website is my first choice. 7. To me, this site is the best retail website to do business with.	Anderson & Srinivasan (2003)

3.4. Measure Validation

Before analyzing the path model with SEM, we use several analyses to test the reliability and validity of the measures this study. The Kaiser Meyer Olkin Test (KMO Test) and Bartlett's Test were first applied to confirm whether the data were suitable to conduct factor and reliability analyses. The results are shown in Table 3. The KMO value of each construct was above 0.70, and the $\chi 2$ values of the Bartlett's Test are high enough and significant ($P < 0.001$). This indicates that the scales of each construct are suitable for conducting factor analysis because of the high correlation between items. Table 3 presents the results of the reliability alpha and factor analyses for each construct.

Table 3. *Reliability analysis results*

Constructs	KMO	Bartlett's Test ($\chi 2$ Value)	Scale Reliability (alpha)	Variance Extracted
PEOU toward online purchasing	0.71	53 ***	0.87	61.20%
PU toward online purchasing	0.85	75 ***	0.88	63.29%
Online purchasing attitudes	0.82	66 ***	0.89	72.69%
Online purchasing intentions	0.74	133 ***	0.87	85.87%
Online purchasing behavior	0.71	45***	0.76	58.88%
Trust	0.76	147***	0.90	69.90%
E-Satisfaction	0.82	153***	0.90	63.15%
E-loyalty	0.81	143 ***	0.84	65.87%

As Table 3 shows, Cronbach's alpha values for each construct ranged from 0.76 to 0.90, indicating a level above 0.70, the threshold recommended by Nunnally (1978). Additionally, the variance-extracted values ranged from 61% to 85%, indicating that the measures in this study exhibit strong internal reliability.

4. Results

Amos-based structural equation modeling with a maximum likelihood (ML) technique was used to test the hypotheses and overall fit of the path model. Estimating the structural model indicated that fit indices provided evidence of adequate fit with the sample data. The results of structural equation modeling showed the following statistics: Goodness-of-fit index (GFI) = 0.94, adjusted goodness-of-fit index (AGFI) = 0.92, normed fit index (NFI) = 0.96, comparative fit index (CFI) = 0.97, Tucker-Lewis index (TLI) = 0.97, root mean square of approximation (RMSEA) = 0.05, and Chi-square normalized by degrees of freedoms (χ^2/df) = 5.17. All indices met the recommended values for good fit; in fact, some reach the requirements for excellent fit. GFI, AGFI, and NFI, values greater than 0.80 indicate a good fit, and values greater than 0.90 indicate an excellent fit; Bentler, 1988); for TLI and CFI, values greater than 0.9 indicate a good fit and values greater than 0.95 indicate an excellent fit (Hair et al., 1998); for RMSEA, values lower than 0.08 indicate a good fit and values lower than 0.05 indicate an excellent fit (Browne & Cudeck, 1993). For χ^2 /df, values above 5 are considered better (Bentler, 1989).

The hypothesized relationships and path coefficients in the conceptual model are shown in Figure 1. The results indicate that the TAM model is partially support for online purchasing contexts. Individual PEOU toward online purchasing has a significant positive effect on PU toward online purchasing (β=0.82, supporting $H1_a$), and PU later significantly and positively affects online purchasing attitudes (β=0.31, supporting $H1_c$). In turn, attitudes significantly and positively affect online purchasing intentions (β=0.78, supporting $H1_d$), and intentions finally significantly and positively affect actual online purchasing behavior (β=0.71, supporting $H1_e$). Only the effects of PEOU toward online purchasing attitudes are insignificant (β=0.05, $H1_b$ was not supported).

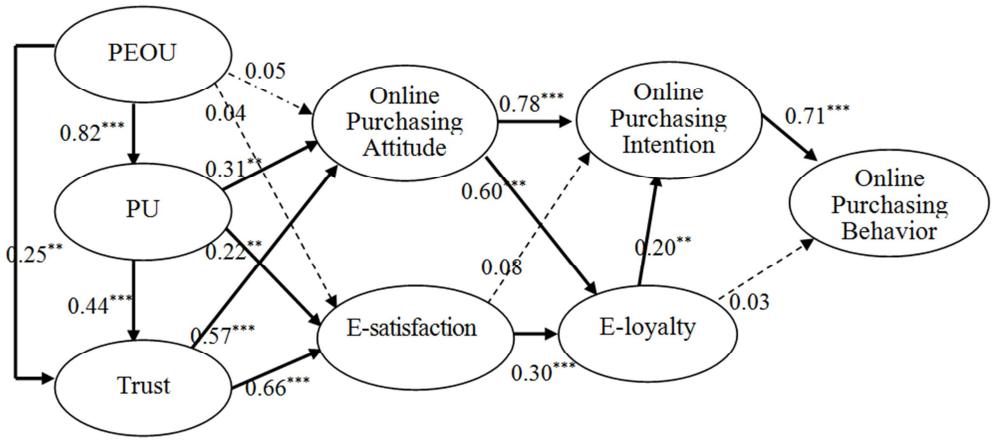

Figure 1. *Detailed conceptual model with hypothesized relationships*

The results indicate that the hypotheses about trust are supported. PEOU and PU toward online purchasing have significant positive effects on trust (β=0.25 and β=0.44, supporting H2 and H3, respectively), and trust further significantly and positively affects online purchasing attitudes and E-satisfaction (β=0.57 and β=0.66, supporting H4 and H7, respectively).

The hypotheses about the antecedents and consequences of E-satisfaction are shown in Figure 1. In addition to trust, PU toward online purchasing has positive effects on E-satisfaction (β=0.22, supporting H6). However, there is no significant effect of PEOU on E-satisfaction (β=0.05, H5 was not supported). In terms of the consequences of E-satisfaction, higher E-satisfaction brings greater E-loyalty (β=0.30, supporting H10). It is interesting that E-satisfaction has no significant effect on online purchasing intentions.

In Figure 1, in addition to E-satisfaction, online purchasing attitudes also have a significant positive effect on E-loyalty (β=0.60, supporting H9), and E-loyalty significantly leads to higher levels of online purchasing intentions (β=0.20, supporting H11). However, E-loyalty has no significant effect on actual online purchasing behavior (β=0.03, H12 was not supported). In summary, most of the hypotheses were supported, and only the effects of PEOU on attitudes ($H1_b$), PEOU on E-satisfaction (H5), E-satisfaction on intentions (H8), and E-loyalty on actual behavior (H12) were not supported.

5. Discussion

The purpose of this study was to develop a general model of customers' online purchasing behavior with TAM and to conceptualize and incorporate trust, customer E-satisfaction, and customer E-loyalty into TAM. In the conceptual model

of this study, there were three belief variables (PEOU, PU, Trust), two attitudinal variables (online purchasing attitude and E-satisfaction), an attitude-intentional variable (E-loyalty), one intention variable, and one behavioral variable. The empirical results indicate that most of the hypotheses of the conceptual model are supported. The findings provide substantial support for the conceptual model of this study.

The results indicated that PEOU toward online purchasing has no positive effect on online purchasing attitudes. This implies that TAM is partially supported in online purchasing contexts. The behavioral model for people using IT and the behavioral model for using websites to make purchases are slightly different. PEOU plays a less important role when customers use websites to purchase, where PU dominates the online purchasing attitude. In online shopping environments, there was only a one-way relationship found between constructs: PEOU → PU → Attitude → Intention → Behavior. Moreover, PEOU toward online purchasing had no significant effects, on either online purchasing attitudes or on E-satisfaction. This implies that e-vendors have already exhibited a friendly approach to customers doing their shopping. There is not much difference in purchasing functions between online shops. For customers with online shopping experience, using a website to make a purchase is a common sense exercise; they do not have to expend effort in order to make their purchases in an online shop. Therefore, PEOU has only a very slight effect on attitudes and E-satisfaction. For an e-vendor, instead of making the existing purchasing function easier to use, providing more services that make the online shop useful and efficient for purchasing will bring greater benefits. For example, an e-vendor can provide a price check function to compare the price to other shops, offer more information and feedback about products, or make comparisons between the features and advantages of similar products.

Furthermore, this study suggests that trust and PU are better indicators of online purchasing attitudes and E-satisfaction than PEOU. It is noteworthy that consumer trust had a stronger effect on attitudes and E-satisfaction than PU. This is similar to the results of Gefen & Straub (2003) and implies that online shopping services depend not only on the operational characteristics of the online shop (e.g., PU and PEOU), but also on a greater degree of consumer trust in the website. Managers need to take this into account when they build their online shop.

It is noteworthy that consumer trust has a stronger effect on attitudes than PU, which again corresponds to the results of Gefen & Straub (2003). Consumer trust also has a stronger effect on E-satisfaction than PU. This implies that online shopping services depend not only on the operational characteristics of a website and its PU and PEOU, but also, and possibly to a greater degree, on consumer trust in the website. Therefore, managers need to take this into account in their website planning efforts (Gefen & Straub, 2003).

As predicted, E-satisfaction influences E-loyalty. Online purchasing attitudes influence both online purchasing intentions and E-loyalty. This study finds an interesting result: online purchasing attitudes have a much stronger effect on online purchasing intentions and E-Loyalty than E-satisfaction. This implies that managers could put more effort into making the online experience more appealing in order to improve the customer's evaluation of the purchasing process. Furthermore, this study finds that higher E-loyalty does not necessarily lead to actual online purchasing behavior, including the frequency or amount of purchasing. This implies that a loyal customer does not necessarily yield more profits. A loyal customer still might switch to another online shop when consumers can leave simply by clicking a mouse. Future research could explore additional indicators of actual purchasing behavior.

6. Limitation

This study focused on the customers with online shopping experience. Therefore, this study is unable to predict the online purchasing behavior of customers who have never shopped online. Furthermore, most empirical studies that apply TAM in the online shopping context study only the constructs of PEOU, PU, attitudes, and intentions. Few test the effects of these constructs on "actual purchasing behaviors" because it is hard to measure actual behavior. This study used frequency and amount of purchasing during the past six months to measure online purchasing behavior. However, the reliability of this behavioral construct did not perform as well as other constructs. Unlike the other perceived constructs, which could be measured with a seven-point scale, frequency and amount of purchasing were not appropriate for such a scale. This resulted in lower reliability that might have further affected the results of the research models. Future studies can develop better measures of purchasing behavior in IT contexts.

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