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FROM STRUCTURAL ASSURANCES TO TRUSTING BELIEFS: VALIDATING PERSUASION PRINCIPLES IN THE CONTEXT OF ONLINE SHOPPING

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Abstract

The topic of shopping attitude has received long lasing attention in the context of e-commerce. Previous studies have elucidated the different facets of online shopping attitude and have overemphasized a prevalent assertion on the relationship between web design artifacts and consumers' psychological responses. However, the imitability of web design in practice makes no differentiation among a glut of shopping websites and probably leads to revenue declination due to the fact that the instability of attitude frequently leads to attitudinal ambivalence. Hence, understanding how to strengthen consumers' attitudes toward online shopping should be fruitful for remedying attitude inconsistency in e-commerce. The current study extended related research by examining the simultaneous effects of trusting beliefs on consumers' attitudes toward online shopping. We adopted the concept of structural assurance and the principles of persuasion as the theoretical underpinnings. The proposed model is expected to contribute to relevant literature by offering theoretical contributions and managerial implications that can help both researchers and online retailers to understand more clearly how consumers develop their attitudes toward shopping online.

Keywords: Shopping attitude, attitude inconsistency, trusting beliefs, structural assurance, principles of persuasion.

1. INTRODUCTION

The topic of shopping attitude has received long lasing attention in the context of e-commerce (e.g., Einwiller, 2003; Komiak and Benbasat, 2006; Shu and Cheng, 2012). Online shopping attitude is defined as a consumer's positive or negative willingness to buy something on the Internet (Shim et al., 2001); however, the instability of attitude frequently leads to attitudinal ambivalence (Kaplan, 1972). Consequently, there can be two strategies for online retailers achieving the goal of attitude consistency: (1) improving negative attitude or (2) strengthening positive attitude. The current study aims to elaborate the latter strategy because acquiring new consumers whose attitudes toward online shopping are negative may be as costly as strengthening the existing ones whose attitudes are positive (Peters, 1988). Although it is estimated that e-commerce retailing sales in the U.S. will reach US $256 billion by the end of 2013 and these sales have grown dramatically up from US $224 billion in 2012 (eMarketer 2012), the percentage of North American (USA) B2C e-commerce revenue compared to total global B2C e-commerce revenue is expected to decrease between 2010 and 2013 (yStats, 2012). Another survey indicates the possible reason for this revenue downgrade. Forrester (2012) reported that a majority of consumers shop online but lack of trust is the primary concern of their online transactions. Hence, understanding how to strengthen consumers' attitudes toward online shopping by trust promotions should be fruitful for remedying revenue degeneracy in e-commerce.

Studies on antecedents of online shopping attitude can be summarized into two general focuses: (1) technological factors of website design and (2) consumers' psychological responses after using a shopping website. In the first focus, DeLone and Mclean (2003) proposed the model of information system success to ascertain that information quality and system quality of a shopping website are two factors salient to consumers' attitudes toward online shopping. Similarly, Chen and Cheng (2009) identified that consumers are satisfied with the shopping website of high information quality and system quality. Satisfaction here is a special case of attitude resulting from the evaluations of subjects performed by consumers. Regarding to the second focus, Lin (2007) empirically tested the technology acceptance model proposed by Davis et al. (1989) and confirmed that perceived ease of use and perceived usefulness of a shopping website are two major factors affecting consumers' attitudes toward online shopping. Pavia (2009) reported the similar conclusion that perceived ease of use and perceived usefulness giving by the shopping website are positively related to consumers' attitudes toward using that website. Although these studies have elucidated the different facets of online shopping attitude, they overemphasize a prevalent assertion on the relationship between web design artifacts and consumers' psychological responses. The imitability of web design in practice makes no differentiation among a glut of shopping websites and probably leads to revenue decline as reported by the survey mentioned earlier. In other words, web design artifacts (e.g., information quality, system quality) and psychological responses (e.g., perceived ease of use, perceived usefulness) may be necessary but insufficient factors that engenders consumers' attitudes of online shopping. Moreover, studies on these two research streams have seldom focused on the effects of trusting beliefs on online shopping attitude. However, consumers should rely on trust to form their positive attitudes toward online shopping (Hassanein and Head, 2007). For example, consumers would trust more on the shopping website with trust assurance mechanisms (e.g., trustmark) than the one without having any security protection. Trust, therefore, serves as a persuader informing consumers that shopping online is trustworthy.

The current study extended related research by examining the simultaneous effects of trusting beliefs on consumers' attitudes toward online shopping. We adopted the concept of structural assurance (McKnight et al., 2002a) and the principles of persuasion (Cialdini, 1985) as the theoretical underpinnings. The former pertains to the assurance framework that the shopping website is in place both internally and externally to promote online transactions (McKnight et al., 2002b), while the latter describes how the persuasive principles can be applied to that of assurance framework. The proposed model is expected to contribute to relevant literature by offering theoretical contributions and managerial implications that can help both researchers and online retailers to understand more clearly how consumers develop their attitudes toward online shopping. To the best of our knowledge, the

current study is one of the first studies validating the applicability of persuasion principles in the context of e-commerce and thus the findings are beneficial to interested audiences.

This paper is organized as follows. The following section introduces the theoretical foundation of this study, followed by a discussion on the hypotheses in Section 3. The research method and data analysis are described in Section 4. Section 5 presents a discussion on the research findings, theoretical contributions, and managerial implications. Finally, the limitations of this study are discussed in Section 6.

2. THEORETICAL BACKGROUND

2.1. Structural assurance

Zucker (1986) identified that contracts, guarantees and legal protections are essential characteristics that constitute a trustworthy environment for people making deals with others. In the context of online shopping, McKnight et al. (2003b) argued that guarantees, contracts, regulations, promises, legal recourse, processes, or procedures are conductive to e-commerce success, so called structural assurance. In line with this assertion, Gefen et al. (2003) confirmed that structural assurances are the most influential antecedents to integrity of online trust. Although previous studies agree with the notion of structural assurance and have extensively applied it to predict consumers' trusting beliefs in online shopping, these applications are limited to the scope of transactional security. However, such a security concern may be just one of structural characteristics mentioned by consumers; additional structural characteristics have received minimal attention from researchers. Figure 1 illustrates four steps highlighting the consumer purchase process as a framework for the evaluation of shopping websites (Merwe and Bekker, 2003).
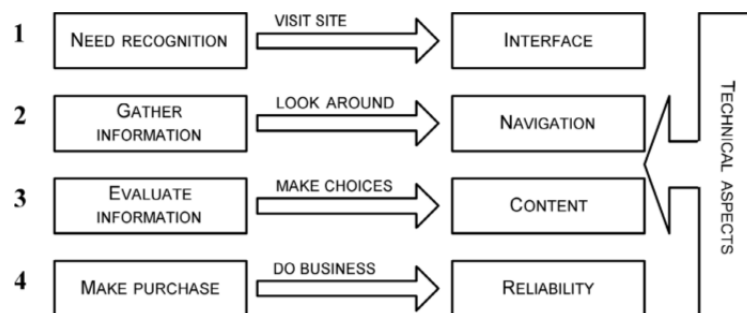

Figure 1. Steps of the consumer purchase process

Apparently, transactional security merely belongs to the fourth step and it does not cover the whole picture of the framework. In addition to security concern, the current study argues that structural assurance should contain other factors (e.g., interface, navigation, content, reliability, etc.) that might affect consumers' attitudes toward online shopping as well. Structural assurance is therefore extended to the two boarder areas that are applicable to shopping websites: internal assurance and external assurance.

2.2. Principles of persuasion

Cialdini (1985) proposed six principles that persuaders can use to improve the persuasiveness of their canvasses: reciprocity, commitment, scarcity, authority, social proof, and liking. These principles can be summarized as follows according to their externality and internality:

2.2.1 Internal assurance

Reciprocity refers to the feeling of indebtedness that comes from a persuader's generosity, manifested through vehicles such as gifts, concessions, and favors. In the context of online shopping, reciprocity can be seen as a consumer's motivation to repay generous or helpful actions (value-added service) of online retailers by adopting actions (making a purchase) that are beneficial to those generosity

providers (Cox, 2004). Since the buyer and the seller cannot meet with each other physically on the shopping website, reciprocity here does not require the same two participants ever to meet repeatedly.

Commitment is defined as a desire to maintain a valued relationship when a persuader and a recipient are committed to each other (Moorman et al., 1992). Referring to e-commerce, online retailers and consumers both have a strong desire to maintain commitments due to the fact that online retailers need revenues contributed by consumers and consumers need to stay with the website to avoid the potential losses (e.g., costs, risks) when they leave the committed relationship.

Scarcity refers to issues of persuasion that are both valuable and rare. It has been shown that objects and opportunities become more valuable as they become less available (Mazis 1975). There is an often seen marketing strategy that shopping websites offer special discounts to the promoted products within a limited period of time. In fact, consumers are very likely to be persuaded by this business gimmick, because they cannot enjoy the special price after the deadline of big sales.

2.2.2 External assurance

Authority is the extent to which a persuader has a certain level of prestige, reputation, or expertise. Individuals generally believe that accepting suggestions from a persuader with recognized authority decreases the possibility of making a wrong decision. Shu and Cheng's (2012) research draws the persuasiveness of authority that presenting a notable trustmark on shopping websites with proper explanations improves consumers' negative attitudes toward using credit card online.

Social proof means that individuals usually need to have the experiences of others to make difficult decisions. An example of social proof can be online consumer review. Inexperienced consumers who have no idea about an unknown product can reply on online reviews to know more about that product. If consumers receive the reviews that meet their requirements, they are able to judge the true value of the product (Olshavsky, 1995). Therefore, the more the experienced consumers praise the same product, the more likely the inexperienced consumers would decide to buy the reviewed product.

Liking denotes that individuals' decisions or behavior are more easily influenced by persuaders they are favorably disposed to than those they are unfavorably disposed to. In the field of advertisement, advertisers usually invite celebrities to be their spokesmen with an eminent image. Lefkoff-Hagius and Mason (1993) also confirmed that socialized information is individual relevant because it reveals how product use or ownership associates the consumer with a desire group, role or self-image. Consequently, shopping websites can apply such a liking strategy to attract consumers' attentions to the promoted products.

Corresponding above six principles to the concept of structural assurance, reciprocity, commitment, and scarcity can be categorize as internal assurances, whereas authority, social proof, and liking are allotted to external assurances. Despite the persuasiveness delivered by either internal or external assurance is controllable by the website owners (whether or not to present one of two assurances on the website), only the latter is generated by the subjects outside of the website and they are considered to be more objective by consumers in contrast to internal assurances. The current study attempts to specify and validate the persuasiveness of these competing principles.

2.3. Trusting beliefs

Although people have both cognitive and affective beliefs in mind, it would be more reasonable to evaluate beliefs on the same dimension (i.e., cognitive-cognitive or affective-affective) because cognitive and affective beliefs contain different explanations with each other (Trafimow and Sheeran, 1998). For example, cognitive beliefs can be seen as an individual's belief that the evaluated subject is beneficial to him/her performing a certain behavior, whereas affective beliefs represent how an individual feels about performing the behavior. In line with the definition proposed by McKnight et al. (2002b) that trusting beliefs are defined as consumers' believes that the shopping website has one or more characteristics beneficial to them, the current study makes a distinction between these two kinds of beliefs: diagnosticity, warranty, confidence, and competence are cognitive, while reliability and desirability are affective. The applicability of these beliefs is summarized as follows.

2.3.1. Cognitive beliefs

Consumers usually rely on any possible information sources to alleviate transactional uncertainties, such as consumer reviews (Lee et al., 2008), advertisements (Kempf and Smith, 1998), and third-party recommenders (Akdeniz et al., 2013). All these examples are perceived as diagnostic if they help consumers to understand more about a product or their online purchases. According to the accessibility－diagnosticity perspective, accessible information does not necessarily guarantee that the accessed information is diagnostic as well (Hoch and Deighton 1989). In other words, diagnostic information should provide a meaningful interpretation for the information recipients rather than providing them with ambiguous information that conveys multiple interpretations. Thus, diagnosticity of information is defined as the extent to which given information discriminates between alternative hypotheses, interpretations, or categorizations (Herr et al., 1991). In the area of e-commerce, diagnosticity is further extended to the extent to which consumers believe that the way of information presentation on the website is helpful for them to understand products (Jiang and Benbasat, 2007). The current study argues that structural assurances either internally or externally provided by the online retailer suggest an explicit interpretation of the reason why consumers cognitively believe that they should shop at a specific website but not others.

Perceived warranty is another cognitive belief that draws the extent to which consumers believe that warrant information of products proclaimed by the seller is trustworthy (Erevelles et al., 2001). Regarding to online shopping, the main purpose of providing warranty pronouncement is to persuade consumers that the shopping environment is free of risk (Häubl and Trifts, 2000). Kim and Benbasat (2003) suggested issues related to consumers' concerns about their online purchases, including privacy, security, price overcharging, product quality, and customer service. An example of a trust-promoting message found on the shopping website (www.coasttocoasttickets.com) is: "We provide a 100% safe transaction environment for our guests." Thus, if a shopping website designs the warranty pronouncement that connotes these concerns, consumers are expected to perceive a strong warranty and are likely to be persuaded to conduct their online transactions.

Consumer confidence, on the other hand, has two meanings that are theoretically different (Bennett and Harrell, 1975). Howard and Sheth (1969) stated that (1) consumer confidence can be seen as the degree of certainty a consumer perceives toward a brand, (2) it can also be defined as the extent to which a consumer believes that he/she is able to evaluate the reward from buying a given brand. Since the current study focuses on consumers' responses after receiving internal and external assurances, the two definitions of consumer confidence are applicable. We argue that consumer confidence in online shopping is a state of being certain either that internal assurances or external assurances are made ready for consumers. Internal assurances help consumers assure the self-declarations of websites, while external assurances assist them to validate those declarations by the sources outside of the websites. The more the assurances are well prepared, the more likely consumers are confident of their online purchases.

Finally, perceived competence is the degree with which consumers believe that a shopping website is qualified to its knowledge and skill of conducting online businesses (Coulter and Coulter, 2002). If a shopping website has the ability to fulfill its obligations as expected by consumers (Chiu et al., 2009), they will believe that the website has the ability to do what they want them to do. Thus, a well operated website generates an impression about the competence of doing online businesses and consequently consumers tend to trust that website (Kim, 2008). In our research context, we assert that consumers will believe the competence of the shopping website if it properly arranges its internal and external assurances and therefore consumers are expected to be persuaded into buying products out there.

2.3.2. Affective beliefs

Reliability refers to the degree to which a user believes that the information system will be operated consistently and accurately (Pitt et al., 1995). In the context of online shopping, consumer reliability is considered to be critical to whether or not a consumer would like to adopt a technology-based service, because reliability is a function of the system ability to maintain its operations that are worthy of reliance (Bobbitt and Dabholkar, 2001). Psychologically, the degree of reliance will be increased if a person relies on a psychoactive substance for the reinforcement it provides (Myers, 2010). Affective reliance appears after the initial trial which an individual then becomes familiar and satisfied and the contentment increases along with frequent uses (Hanson et al., 2009). Such an emotional response results in affective reinforcement which gradually leads to reliance (Chumbley and Griffiths, 2006). Accordingly, the current study defines reliability as a consumer's desire for structural assurances either internally or externally, because a reliable shopping website should cause enjoyable online shopping experiences.

Desirability is another affective belief that refers to the fact that people look for desirable incentives to provide acceptable answers to self-reported questions about happiness, well-being and attitudes (Lusk and Norwood, 2009). In the context of online shopping, the current study postulates that consumers will look for desirable advantages of shopping online to provide acceptable answers to their concerns of shopping enjoyment, fairness, and attitudes toward shopping at a specific website. For example, consumers may want to visit a shopping website without time limitation which is a distinguishing feature of online shopping in contrast to physical shopping and thus their shopping enjoyment will be induced because they can visit a specific website anytime they want. Another example can be that consumers may want to shop online because they can leave digitalized transaction records for the purpose of future examination if needed. However, encapsulating transaction records into digital data is unlikely to be done in the context of traditional shopping. Therefore, consumers will believe that shopping online is fairly acceptable and desirable.

3.   RESEARCH MODEL AND HYPOTHESES

Figure 2 illustrates our research model. Internal and external assurances are persuasion principles controlled by a shopping website. Cognitive and affective beliefs serve as ex post facto responses after consumers receiving persuasions, while a consumer's attitude towards shopping at a specific website is theorized as the dependent variable.
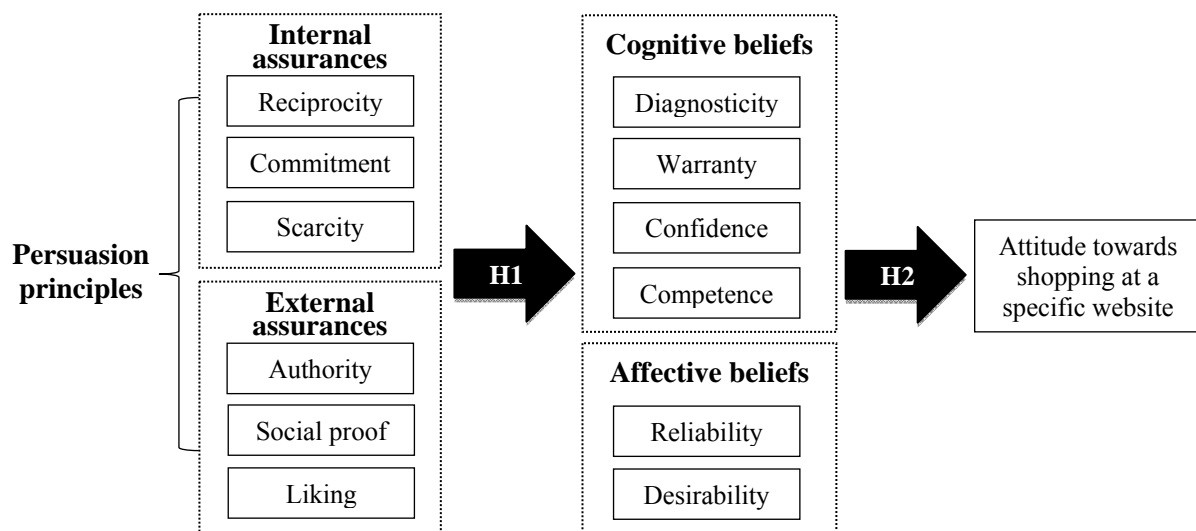

Figure 2. Research model

3.1. The relationship between website assurances and trusting beliefs

Media dependency theory (MDT) proposed by Ball-Rokeach (1985) purports to explain individuals' reliance on a certain medium. According to MDT, three types of needs are relevant to a medium being used by individuals, including (1) self/social understanding, (2) action/interaction orientation, and (3) solitary/social play. The more individuals rely on a medium to satisfy needs, the more necessary a medium will be in their daily lives and consequently the more impacts that medium will have on them (Loges, 1994). Essentially, media dependency describes a notable relationship where individuals' abilities to attain their goals, depends on the extent in which the information resources are conveyed by the medium (Ball-Rokeach et al., 1984). In other words, a medium with consultative information helps individuals attain their goals. Dependency on the medium's information resources may cause cognitive, affective and behavioral influences in individuals who are exposed to them (Grant et al., 1991). For example, in terms of behavioral influences, it is very likely that a consumer will buy a product when his/her medium dependency is high (Ball-Rokeach, 1989). Skumanich and Kintsfather (1998) have made a similar conclusion that audience dependency on TV advertisement is an important predictor of teleshopping behavior. Regarding our research context, we deliberate the second type of need because our research context focuses on consumers' actions on or interactions with a shopping website. We argue that whether or not consumers will shop at a shopping website depends on the extent in which internal and external assurances of that shopping website are accessible. If the assurances are available, the relationship between consumers and a shopping is expected to be established (either one-time purchase or repeated purchase) due to the fact that consumers frequently rely on them to make a purchase decision. A theoretical support of this assertion comes from the cost-benefit model proposed by Ratchford (1982) that consumers evaluate the costs and benefits of informational dependency and accept it when they perceive that the benefits (e.g., making a purchase decision with diverse information) are greater than the costs (e.g., making a purchase decision with monotonic information) that they receive. As a result, the more the information is disclosed on a shopping website, the less uncertainty consumers will perceive while shopping at that website. Accordingly, consumers can make purchase decisions by having to access internal and external assurances (i.e., persuasion principles) that are applicable by a shopping website and their cognitive beliefs, affective beliefs, and behavioral attitudes are expected to be affected (Grant et al., 1991). Because information recipients frequently exhibit varying preferences for different information sources (O'Reilly, 1982) and consumers perceive the third-party generated information as more trustworthy than the one generated by a shopping website itself (Senecal and Nantel, 2004), external assurances are therefore expected to be more persuasive than internal assurances do. We propose the following hypothesis:

H1. Website assurances significantly affect cognitive and affective beliefs when consumers consider shopping at a specific website. Specifically, persuasion principles that are characterized as external assurances create more positive influences on those beliefs than internal assurances do.

3.2. The relationship between trusting beliefs and trusting attitude

Trusting beliefs reflect cognitive and affective reactions after trustors having interactions with trustees (McKnight and Chervany, 2001-2002) and these reactions are expected to determine trusting attitude as well as trusting behavior (Kelley et al., 1983). In the context of online shopping, the manner of interaction between trustors and trustees has changed from human-human to human-website which leads to trusting beliefs are more situational and structural focused rather than the intersubjective focus. Thus, trusting beliefs and trusting attitude in our study are defined as institution-based trust in contrast to disposition-based trust. Johnson-George and Swap (1982) have identified situational familiarity as a contextual factor that affects the degree to which a trustor is dominated by institution-based trust over disposition-based trust or vice versa. For example, when the situation is known by a trustor (high familiarity), institution-based trust exerts a greater impact on trusting beliefs than disposition-based trust does, because the situation is clear and institution-based trust is situational specified. Conversely, when the situation is unknown by a trustor (low familiarity), institution-based trust manifests a lower impact on trusting beliefs than disposition-based trust does, because the situation is unclear and institution-based trust is not diagnostic enough. In this case, trustors propend

to rely on disposition-based trust which is innately specified. Since our study focuses on experienced consumers who are familiar with online shopping (attitude strengthening) rather than inexperienced consumers who are unfamiliar with online shopping (attitude elicitation), the situation of online shopping is anticipated to be known by the former. Speculating on this scenario, we postulate that a consumer's attitude towards shopping at a specific website can be conceptualized as institution-based trust and cognitive beliefs (utilitarian orientation) will have a higher influence on such an attitude than do affective beliefs (emotional orientation), because the situation of online shopping is identifiable by experienced consumers (Singh and Sirdeshmukh, 2000) and consumers mostly play as a rational decision maker conducting cost-benefit tradeoffs while shopping, even though in some respects they act as an irrational decision maker solely rely on feelings to shop (Mellers et al., 1998). We therefore propose the following hypothesis:

H2. Trusting beliefs significantly affect a consumer's attitude towards shopping at a specific website. Specifically, cognitive beliefs influence more on such an attitude than affective beliefs do under the context of institution-based trust.
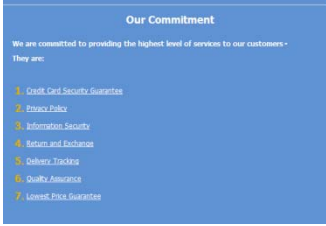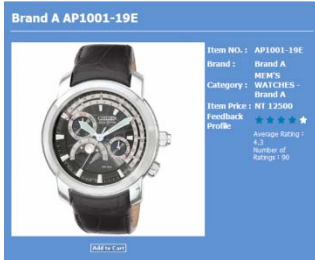
4.   RESEARCH PROCEDURE

4.1. Participant categorization

Since our goal is to find the way to increase or strengthen consumers' positive attitudes toward shopping at a specific website, it is necessary to screen ineligible participants who have not ever shopped online. We administered a preliminary questionnaire that was being promoted on two websites popular in Taiwan: PTT (a BBS forum) and Facebook. The questionnaire consisted of the following items: (1) Have you had any online shopping experience before? (2) When was your last online purchase? (3) What kind of merchandise have you purchased online? (4) Recently, are you planning to buy something on shopping websites? (5) What products are you most likely to buy online next time? (6) Are you familiar with the product which you are going to buy online next time? (7) Generally speaking, do you tend to trust someone or something even though you have little knowledge of it? Respondents who answered Question 1 with "No" or Question 1 with "Yes" but Question 2 with the period over half a year were disqualified because they either do not have online shopping experiences or their experiences are antiquated. In either case, they belonged to a population that is not within our research domain and were removed from our study with US $10 dollars rewards. Respondents who answered Question 1 with "Yes" and Question 2 with the period no more than half a year were qualified as the formal research sample and were invited to participate in the experiment subsequent to this filtering procedure. Questions 3 to 7 were only scored for the qualified respondents. Of the 546 respondents to the original survey, 124 stated that they had never shopped online and 47 stated that they had ever shopped online but such an experience went over by half a year. These 171 respondents (31.3%) were excluded from the study. Of the remaining 375, 360 (66%) stated that they had ever shopped online and their last online shopping experiences were fresh (no more than half a year). However, 15 (2.7%) of these did not want to participate further and were removed afterward.

4.2. Experimental design

We conducted a 6x2 factorial design experiment with six persuasion principles and two website visit orders (see Table 1). Seven experimental shopping websites were created, each of which contained information about the product, including pictures, prices, and brief descriptions of the product's functions. The website that contained no persuasion principles was treated as the baseline website, whereas the others that contained one of six persuasion principles were manipulated as the treatment website. Participants would request to visit these two kinds of websites with different orders one at a time, that is, half of the participants in each group visit "the baseline first and the treatment latter", while the other of half of the group visit "the treatment first and the baseline latter". The manner of building antithetic websites is to ascertain that the order of website visit would not bias our data analyses (Kim and Benbasat, 2009-2010). The experiment was conducted with one participant at a time in the university's laboratory. Participants were randomly assigned to one of twelve experimental

treatments and they were requested to complete the pre-persuasion questionnaire after they went to the first-visited website. What they were told would be used to check their beliefs and attitudes changes after they went to the second-visited website using the post-persuasion questionnaire. To ensure that the participants paid attention to the experiment, they were requested to complete a short questionnaire that asked them to choose the correct persuasion principle or product information (which they had just seen) in each of the twelve treatment conditions. They could not go to the next page until they did so. All participants received a US $10 reward for their participation. To further motivate them to concentrate on the experiment, they were told before the experiment that one of them would be selected by lottery to win a smartphone following fulfillment of the experimental requirements.

Persuasion principles
Website visit order   Baseline ⇔ Treatment

Reciprocity (video narration)   Commitment (hyperlinks)   Scarcity (limited edition)

Authority (trustmarks)   Social proof (star ratings)   Liking (celebrity)

*NOTE***:** The table shows only the treatment website to save the paper space.

Table 1. Experimental design

Watches were chosen as the target product based on three reasons. The first was the answers to Question 3 and 5 in the preliminary questionnaire. 52% of the respondents stated that they have purchased trendiness products (e.g., smartphones, costumes, accessories, etc.) on shopping websites and more than 68% of them stated that they would buy these products again if they are available on a shopping website. Second, we wanted a high-price product with complicated attributes, because we expected that the more participants had to pay for the product and the more cognitive efforts they needed for product scrutiny, the more susceptible they would be to the persuasion. Finally, watches are personally worn with charming features which are necessary to one of our experimental treatments (i.e., liking principle).

4.3. Measurement items

A pre-test and a pilot test were conducted to validate the measurement items. The pre-test involved four participants (two website designers and two online consumers) who were familiar with online shopping. They were asked to provide comments while eliminating redundant or unrelated items. In the pilot test, we invited 65 respondents from the population of the e-book online consumer review website to participate. Several minor modifications of the content and structure of the items were solicited before the formal application. The respondents were requested to rate each item on a six-point Likert scale, on which a score of 1 means strongly disagree and 6 means strongly agree. Table 2 lists all of the questionnaire items and their supporting literature.

Construct	Measure	Factor loading
Diagnosticity (DS) *reliability = 0.91*		
	Kempf and Smith (1998)	
DS1	The shopping website visit I just had in judging the performance of the watch is helpful?	0.87
DS2	I can know the performance of the watch before I actually buy it from this shopping website.	0.81
DS3	My visit with this shopping website enables me to decide whether to buy the watch or not	0.73
Warranty (WT) *reliability = 0.92*		
	Erevelles et al. (2001)	
WT1	The watch warranty of this shopping website is better than others websites	0.76
WT2	The warranty coverage of the watch is adequately provided by this shopping website	0.70
WT3	The watch warranty of this shopping website is well considered in every aspect I mentioned	0.69
Confidence (CF) *reliability = 0.93*		
	Hahn and Kim (2009)	
CF1	I feel certain receiving watch information from this shopping website	0.72
CF2	I feel confident browsing watches via this shopping website	0.72
CF3	I am convinced to buy a watch on this shopping website	0.66
Competence (CT) *reliability = 0.93*		
	Lee and Turban (2001)	
CT1	I believe that this shopping website has the ability to handle transactions on the Internet	0.76
CT2	I believe that this shopping website has sufficient expertise and resources to do business online	0.75
CT3	I feel certain that this shopping website has adequate knowledge to manage its businesses on the Internet	0.71
CT4	I think that this shopping website has a good reputation	0.57
Reliability (RB) *reliability = 0.97*		
	Ohanian (1990)	
RB1	I feel reliable that the watch introduction is professional	0.80
RB2	I feel reliable that the watch introduction addresses its usage experience well	0.79
RB3	I feel reliable that the watch introduction is knowledgeable	0.79
RB4	I feel reliable that the watch introduction comes from the qualified endorser	0.77
RB5	I feel reliable that the watch introduction is delivered by the skillful endorser	0.76
Desirability (DB) *reliability = 0.92*		
	Lynn (1989)	
DB1	I am attracted by the rare watch sold on this shopping website	0.92
DB2	I am likely to purchase a watch because it is rare	0.89
DB3	I enjoy owning something others do not	0.88
DB4	I like to try new products before others	0.83
DB5	I enjoy buying various types of watches from this shopping website	0.75
Attitude (AT) *reliability = 0.96*		

	Song and Zahedi (2001)	
AT1	Buying the product on this website makes me feel wonderful	0.72
AT2	If I buy the product on this website, I would feel that I am making a best choice	0.71
AT3	Buying the product on this website is a good idea	0.71
AT4	Buying the product on this website is a wise decision	0.71
AT5	Buying the product on this website would be joyful	0.70

Table 2. Summary of measurement items

5.   ANALYSIS AND RESULTS

5.1. Reliability and validity

Reliability was evaluated using Cronbach's α. Hair et al. (2006) recommended an acceptance level of 0.7 for the construct reliability. As summarized in Table 4, the reliability values of all constructs in our model are greater than 0.91 and meet this criterion. Exploratory confirmatory analysis (EFA) was conducted to test both convergent validity and discriminant validity. For convergent validity, Fornell and Larcker (1981) suggested that all of the factor loadings should not only be significant but also exceed 0.5. As listed in Table 4, all items exhibited loadings greater than 0.66 within their respective constructs. For testing discriminant validity, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were applied prior to EFA. The high values of the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy indicate that conducting factor analysis on the data is viable, while Bartlett's test of sphericity leads to reject the null hypothesis that the items are uncorrelated in the sample. As shown in Table 3, both tests are met for the criteria of conducting factor analysis (Hair et al., 2006). In addition, cross-loadings need to be lower than the within-construct item loadings as suggested by Fornell and Larcker (1981).

KMO sampling adequacy		0.95
Barflett's test of sphericity	Chi-square	11857.49
	df	378
	Significance	0.00***

$***P<0.001$

Table 3. KMO sampling adequacy and Bartlett sphericity tests

5.2. Test of hypotheses

To test the hypotheses, we performed two-way ANOVAs (See Table 4). The results revealed that structural assurance significantly affected both cognitive and affective beliefs except for desirability. The main effect of website visit order and its interaction with structural assurance were not significant, this demonstrates that the significant findings on structural assurance did not hindered from these two sources.

Source	Dependent variable	SS (Type III)	Mean Square	Degree of freedom	*F*-value	Significance
	Diagnosticity	26.00	5.20	5	7.10	0.000***
	Warranty	33.04	6.61	5	8.41	0.000***
Structural	Confidence	19.36	3.87	5	4.30	0.001***
assurance	Competence	20.42	4.08	5	7.60	0.000***
	Reliability	7.47	1.49	5	2.54	0.028**
	Desirability	1.56	0.31	5	1.08	0.373
	Diagnosticity	0.00	0.00	1	0.00	0.967
	Warranty	0.09	0.09	1	0.11	0.736
Website	Confidence	1.06	1.06	1	1.71	0.192
visit order	Competence	0.06	0.06	1	0.20	0.654
	Reliability	0.19	0.19	1	0.11	0.743

	Desirability	0.31	0.31	1	0.06	0.807
Structural assurance × Website visit order	Diagnosticity	1.73	0.35	5	0.47	0.798
	Warranty	3.95	0.79	5	1.01	0.414
	Confidence	5.01	1.00	5	1.45	0.207
	Competence	0.67	0.13	5	0.19	0.968
	Reliability	1.90	0.38	5	0.71	0.614
	Desirability	1.08	0.22	5	0.44	0.819

Table 4. Two-way ANOVA on dependent variables in all conditions

Multiple comparisons performed with the Tukey HSD test revealed that social proof and liking, these two external assurances exhibited no greater impacts on cognitive and affective beliefs than internal assurances did (See Table 5). Authority, however, was identified as the only external assurance that exerted higher influences on competence than reciprocity and scarcity did, but there was no significant difference between authority and commitment. Thus, H1 was partially supported. Although not hypothesized, the findings in Table 5 conversely revealed that internal assurances were of influential in some cases (e.g., diagnosticity) than external assurances did.

Dependent variables	Structural assurance (I)	Cognitive and affective beliefs (J)	Difference (I-J)	Significance	95% confidence interval	
					Lower bound	Upper bound
Diagnosticity	Reciprocity	Commitment	0.52	0.011**	7.69E-02	0.97
		Social proof	0.22	0.735	-0.23	0.66
		Authority	0.26	0.551	-0.18	0.71
		Liking	0.86	0.000***	0.41	1.30
		Scarcity	0.42	0.075*	-2.31E-02	0.87
Warranty	Commitment	Reciprocity	0.17	0.896	-0.29	0.63
		Social proof	0.24	0.680	-0.22	0.70
		Authority	-0.31	0.388	-0.77	0.15
		Liking	0.70*	0.000***	0.24	1.16
		Scarcity	0.24	0.680	-0.22	0.70
Confidence	Social proof	Reciprocity	0.11	0.989	-0.37	0.58
		Commitment	0.18	0.895	-0.30	0.65
		Authority	-4.44E-02	1.000	-0.52	0.43
		Liking	0.63	0.002***	0.16	1.11
		Scarcity	0.25	0.665	0.23	0.73
Competence	Authority	Reciprocity	0.60	0.000***	0.20	1.00
		Commitment	0.22	0.590	-0.17	0.62
		Social proof	0.32	0.206	-8.08E-02	0.71
		Liking	0.75	0.000***	0.35	1.14
		Scarcity	0.51	0.003***	0.12	0.91
Reliability	Liking	Reciprocity	-0.36	0.196	-0.82	8.784E-02
		Commitment	-0.29	0.459	-0.74	0.165
		Social proof	-0.54	0.008***	-0.99	-8.883E-02
		Authority	-0.39	0.142	-0.84	6.451E-02
		Scarcity	-0.28	0.486	-0.73	0.171
Desirability	Scarcity	Reciprocity	-8.000E-03	0.971	-0.37	0.212
		Commitment	-0.10	0.915	-0.40	0.189
		Social proof	3.333E-03	1.000	-0.29	0.295
		Authority	-6.667E-03	1.000	-0.30	0.285
		Liking	0.11	0.892	-0.18	0.402

Table 5. Multiple comparisons using Tukey HSD test

Figure 3 illustrates the path analysis of the comparison between cognitive beliefs and affective beliefs. Diagnosticity, warranty, confidence, competence, reliability and desirability all significantly affect consumers' attitudes toward shopping at a specific website and they concurrently explained 65.9% variance of the model. However, in terms of cognitive-affective categorization, cognitive beliefs exhibited higher influences on attitude than affective beliefs did. Therefore, H2 was supported.
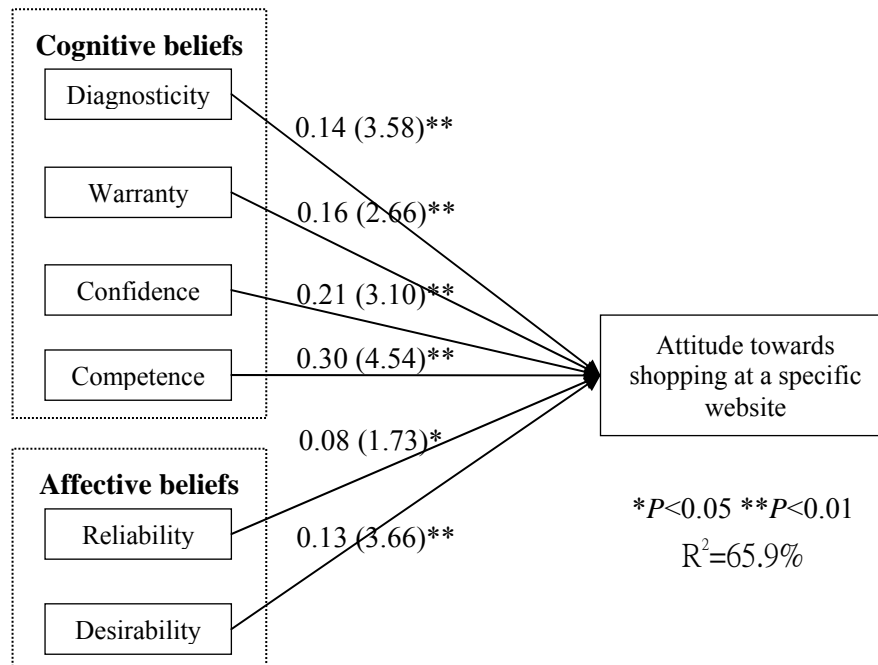

Figure 3. Path analysis

Figure 4 gives the analysis of the strengthening from pre-persuasion and post-persuasion attitudes for participants. The post-persuasion attitudes became significantly more positive than the pre-persuasion attitudes after participants visit the treatment website.
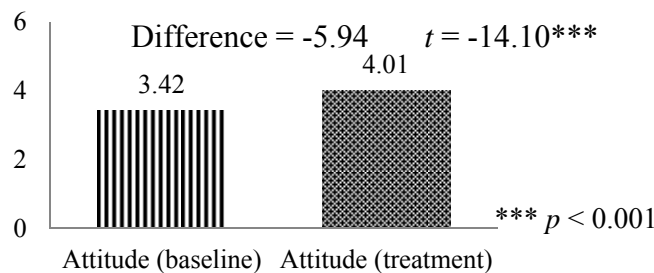

Figure 4. Mean attitude difference (pre-persuasion to post-persuasion)

6. DISCUSSION

Over the past few years, we have seen a tremendous change in the way consumers conduct their transactions online and the way shopping websites is emerged. It is unlikely to think of nearly all transactions executing successfully without online environment. Consumer's source of marketing information has changed from TV, billboards, advertisements, and word-of-mouth to pervasive online information, which has urged online sellers to make sure that their e-commerce facilities are persuasive to existing consumers or even potential consumers. The current study extended related research by investigating the effects of persuasion principles on consumers' attitudes toward shopping at a specific website. To the best of our knowledge, this study is one of the first to validate the

feasibility of including persuasion principles on the shopping website. We summarize the findings as follows.

We found that only two external assurances, social proof and authority were valid to encourage consumers' cognitive beliefs in confidence and competence. Social proof was confirmed to have higher influences on confidence than liking did, but it had no significant differences among the other five principles. This indicates that persuasion principles are crucial to the encouragement of confidence except for the liking principle. Indeed, consumers should simultaneously rely on internal and external assurances to build their confidence in shopping at a specific website, however, when they come across two persuasive principles with the same purpose, they are likely to choose the one with plenty of information sources, a concept that is similar to wisdom of the crowd. Consequently, the effect of the liking principle on confidence is diluted with its celebrity endorsement alone. Authority, on the other hand, was confirmed to have higher influences on competence than reciprocity, scarcity, and liking had, but it exhibited no significant differences compared to commitment and social proof principles. This finding is quite intuitive that the authority principle can be used to replace the principles of reciprocity, scarcity, and liking in forming consumers' beliefs that the shopping website is competent to handle online businesses, while it cannot play alone without the aids of commitment and social proof principles. Since competence of a shopping website is to do with how a website properly operates its facilities in serving online transactions, the self-proclaim assurance of commitment together with the third-party assurances of authority and social proof are confirmed here to be persuasive. Referring to internal assurances, the reciprocity principle was confirmed to have higher impacts on diagnosticity than the principles of commitment, liking and scarcity had. Because the purpose of diagnosticity is to securitize the performance of a product, providing consumers with a reciprocal function (e.g., video narration) as well as the third-party assurances of authority and social proof are considered to be more detective than commitment, liking and scarcity. As a result, commitment is about how a shopping website commits its online businesses, scarcity is related to the price and the stock of a product and liking may not be able to reflect the true condition of a product as celebrities are recruited by a shopping website. These principles are therefore less persuasive for product diagnosis. Commitment was another internal assurance found to affect warranty much higher than the linking principle. This demonstrates that celebrity endorsements are insufficient to guarantee the quality of a product. The commitment of a website itself is still required by consumers. Furthermore, scarcity does not necessarily engender the state of being desirable for a certain product. Within a perfect competitive market, online stores are unlikely to use the price strategy or limited edition strategy to attract consumers, because other competitors can apply the same strategy as well.

With regard to the right hand side of the model, competence is the most influential construct followed by the construct of confidence within cognitive beliefs that affect consumers' attitudes toward shopping at a specific website. This finding indicates that consumers form positive attitudes toward shopping at a website when the competence and confidence of that website can be confirmed by them. Diagnosticity and warranty of a shopping website, by contrast, produce nearly the same impact on consumers' attitudes toward shopping at a website. This finding implies that consumers consider both diagnosticity and warranty as the symbiotic factor, rather than the competitive factor. Consequently, a shopping website is less likely to succeed if it provides only diagnostic functions for consumers and its warranty policy is feeble. Similarly, consumers are unlikely to praise the website if it provides no diagnostic functions, regardless of whether its warranty policy is strong. Finally, as shown in Figure 3, the post-persuasion attitudes became significantly more positive than the pre-persuasion attitudes after consumers visit a website that contains persuasive principles. This result suggests that consumers with positive attitudes are persuaded only if they are provided with persuasive information. This improvement is essential to rescue the downgrade of e-commerce revenues.

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