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The mediation of cognitive attitude for online shopping

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Abstract

Purpose – The purpose of this paper is to explore the relationships among intrinsic motivation, extrinsic motivation, flow, cognitive attitudes, perceived satisfaction, and purchase intention of consumers' online shopping from a cognitive attitudes perspective. This study collected data from consumers having bought goods on the e-shopping platform.

Design/methodology/approach – This study adopted online questionnaire through my3q (www.my3q.com) for data collection. This research collected and analyzed 866 samples by using the structural equation modeling for validation of the proposed model.

Findings – The results indicated that hedonic value, utilitarian value, security, and privacy significantly affected cognitive attitudes (i.e. cognitive trust and perceived risk). Cognitive attitudes significantly affected perceived satisfaction and purchase intention, respectively. Flow significantly and positively influenced cognitive trust and purchase intentions, respectively. Cognitive trust is the mediators between motivations/flow and perceived satisfaction/purchase intention.

Research limitations/implications – Both of intrinsic motivation and extrinsic motivation can reflect the cognitive and conscious plan of an individual for a particular task. The cognitive trust and perceived risk are partial mediator and full mediator in the model, respectively. Hedonic value, utilitarian value, security, privacy, and flow all affect the individual's perceived satisfaction and purchase intention through cognitive trust and perceived risk in the context of online shopping. Cognitive trust is a full mediator of the effects of privacy on purchase intention. It indicates that consumers must fully trust the website to ensure that the information provided by consumers in the transaction will not spread out for the protection of personal privacy.

Practical implications – This study aimed to assist the marketing personnel of the EC industry to examine the key influential factors of consumers' purchase satisfactions and purchase intentions. The results of this study indicated that cognitive trust is the foundation for gaining and retaining customers. The classification of consumer motivations facilitates the understanding of consumers' demands and accurate interpretation of consumers' needs. The main influential factor of cognitive trust is utilitarian value. Therefore, this study states that the primary intrinsic motivation of online shopping for most consumers is utilitarian value (e.g. saving time, the cost of searching for the appropriate products, and increasing purchasing efficiency).

Social implications – Websites should strengthen the quality and quantity of product information. In addition, websites should provide a dynamic presentation of the product by presenting in various forms (multimedia and text description) about product-related information in order to increase consumers' hedonic value. For the aspects of security and privacy, websites should provide consumers with reliable safety features, such as secure socket layer or digital signature, smooth communication channel (specific phone services and e-mail address), and consumer's privacy statements. Finally, web

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design should meet with the consumer experience model in order to make the website easy to use and order the purchase from the website directly. Websites should also increase the fluency and positive experience of consumers and improve the interaction of a website. Meanwhile, websites need to feedback the consumer problem instantly and provide customized information in order to increase the chance of interaction between the consumers and the website.

Originality/value – Relevant studies have explored online shopping from various perspectives, but few studies have examined consumers' cognitive attitudes toward websites from the consumer motivation perspective. Thus, this study focussed on the influences of consumers' intrinsic and extrinsic motivations (e.g. hedonic value, utilitarian value, security, and privacy) on their cognitive attitudes toward websites. In addition, with the rapid development of the internet in recent years, internet users' online flow experiences have gained increased attention. The creation of attractive consumption conditions is vital for website managers to provide consumers with flow experiences. Therefore, this study included consumers' flow in the proposed model.

Keywords E-marketing, Consumer behaviour/choice/demand/empowerment/reviews/consumerism, E-science, Customer satisfaction/service

Paper type Research paper

Introduction

Internet is widely applied in economic activities with the increase of people's dependence on the internet. Internet has changed people's lifestyles and living patterns in contemporary society. The emergence of electronic commerce (EC) initiated a global commerce and operation revolution, which has gradually developed into a vital commerce model. According to the report from the Organization for Economic Co-operation and Development, internet is reshaping the way individual's live, bringing higher consumer welfare through a larger variety of digital goods and services, lower prices, better information gathering, more distribution channels and so forth (OECD, 2012). Hence, participating in EC can help enterprises expand business opportunities and maintain sustainability.

The online shopping market still has a large potential, with the rate of annual sales increasing by over 7 percent per annum. In addition, the proportion of consumers who participate in online shopping activities is increasing (Forrester, 2013). The rapid growth of business to consumer EC relies on the development of internet technologies and more importantly, consumers' confidence on the reliability of online transactions. Numerous studies have indicated that EC can be successful only when consumers trust online stores (Ba *et al.*, 2003; Keat and Mohan, 2004; Kim and Benbasat, 2003; Salo and Karjaluoto, 2007). However, uncertainties regarding online transactions (e.g. consumers concern about disclosing personal information or that products might not live up to expectations) caused by the nature of internet shopping have increased consumers' perceived risks. Online stores must establish consumers' trust through certain behaviors to reduce consumers' concerns and uncertainty (Njite and Parsa, 2005). Consumers' cognitive attitudes (i.e. cognitive trust and perceived risk) toward EC are extremely influential. Past researches indicated that the components of cognitive attitudes were the belief, knowledge, and thought to the subject (Breckler, 1984; Zanna and Rempel, 1988), which were mainly related to rational trust to the subject (Frost-Arnold, 2014). Trust and risk interacted to each other (McAllister, 1995). Therefore, this study adopted cognitive trust and perceived risk as the main components of cognitive attitudes. Cognitive attitudes are the key factors of this study to explore the antecedents of purchase intention for consumers' online shopping preferences.

Both online and physical stores should be knowledgeable of the behavioral motivations of consumers that explain why consumers engage in purchasing activities (i.e. the main driving force for consumers' purchasing behaviors). There are several

motivations, such as consumers' intrinsic and extrinsic motivations, that result in consumers' purchasing behaviors (Blackwell *et al.*, 2006). The desires to satisfy personal demands initiate consumers' motives regarding intrinsic motivations. There are two categories of these demands: first, utilitarian demands guide consumers to consider the fulfillment of a purpose (e.g. the functional attributes of products); and second, hedonic, or experience-related demands, guide consumers to consider subjective perceptions (e.g. the comfort and aesthetics associated with products). For consumers, the advantages of online shopping include convenience, the ease of comparing prices, and the availability of abundant product information (Chen and Dubinsky, 2003), which enhances the utilitarian value (Alba *et al.*, 1997) of shopping websites. In addition, researchers should pay more attention on the sensory and emotional satisfaction gained through shopping experiences. Hedonic consumers might increase their purchase intentions because the pleasure obtained in product browsing experiences satisfied their curiosities (Childers *et al.*, 2001). On the intrinsic motivation, utilitarian value or hedonic value mainly came from the judgment of the benefits after consumption experience (Wang *et al.*, 2007). The main purpose of intrinsic motivation was to meet consumer's demands, and the value was the price evaluation of the perception of consumers' payment and obtainment (Zeithaml, 1988). The results of its assessment will affect cognitive attitudes. Past research indicated that utilitarian value and hedonic value affected consumers' attitudes (Im *et al.*, 2015). Therefore, it is worthy to investigate the influences of consumers' intrinsic motivations on their cognitive attitudes of online shopping.

Although online shopping is set with numerous advantages, risks also exist. Previous research indicated that the extrinsic factors preventing consumers from shopping online primarily involved transaction security and privacy concerns (Salo and Karjaluoto, 2007). Most online transactions require consumers' personal information (e.g. name and address) during online payments. Consumers must provide their credit card information, thereby raising concerns about whether their personal information will be hacked or inappropriately used. Hence, consumers' concerns regarding website security and privacy protection influenced their cognitive attitudes toward online shopping (Chen and Barnes, 2007; Koufaris and Hampton-Sosa, 2004; Salo and Karjaluoto, 2007). Therefore, extrinsic motivations also play an essential part in consumers' cognitive attitudes toward online shopping.

Relevant studies have explored online shopping from various perspectives. However, recent studies did not investigate online shopping behavior of the basic needs from consumers point of view, but explored online shopping behavior of consumers from other perspectives, such as e-service quality and environment (Hsiao *et al.*, 2015; White *et al.*, 2013; Xu *et al.*, 2013), online communication mechanism (Shih *et al.*, 2013), social identification (Amblee and Bui, 2011), community identification (Pai and Tsai, 2011), signaling theory (Mavlanova *et al.*, 2012). Human beings are born with their basic needs. The generation of online shopping behavior is to meet human basic needs. Therefore, it creates the motivation of online shopping. The satisfaction of motivation would affect the cognitive attitudes of consumers to the store. Cognitive attitudes were the cognitive evaluations of individual to the object (Shih *et al.*, 2013; Zajonc and Markus, 1982) and cognitive attitudes would affect consumers' shopping behavior. However, few studies have examined consumers' cognitive attitudes toward websites from the perspectives of consumers' motivation. Kim and Lennon (2008) validated the influence of visual and verbal information on cognitive attitudes of online consumers. Kim and Lennon (2008) focussed on the imagery and discursive information processing

without exploring the consumers' motivation for the online shopping. Hasan (2010) studied the differences in online cognitive attitudes between female and male and indicated that the cognitive attitudes of female is lower than male in the context of online shopping. However, Hasan (2010) did not further explain the differences in cognitive attitudes between female and male. Lee *et al.* (2011) found the influence of high-tech product attributes on consumers' cognitive attitudes by stimulus-organism-response framework. Lee *et al.* (2011) divided high-tech product attributes into performance, appearance, and communication from the perspectives of product without including the motivation of consumers. There were few researches to investigate cognitive attitudes from the perspectives of consumers' motivations especially in the context of online shopping. Thus, this study focussed on the influences of consumers' intrinsic and extrinsic motivations (e.g. hedonic value, utilitarian value, security, and privacy) on their cognitive attitudes toward websites.

This research adopted the self-determination theory (SDT) proposed by Deci and Ryan (1985) to distinguish the type of motivation based on the amount of self-determination. Motivation could be divided into intrinsic motivation and extrinsic motivation depending on the degree of self-determination (Deci and Ryan, 1985, 2000, Ryan and Deci, 2002). Individual inclines to intrinsic motivation when he perceives higher level of self-determination in the activities. On the other hand, individual inclines to extrinsic motivation when he perceives lower level of self-determination. Intrinsic motivation referred to the causes of individual behavior for the interest, pleasure, or satisfaction of the activity itself and followed his own interest and chose or decided which activities with the relevant of the individual will and characteristics (Deci and Ryan, 2000). This study proposed hedonic value and utilitarian value as the intrinsic motivation. Extrinsic motivation was the situation of individual behavior influencing by external events related to the influence of external resources on personal motivation (Deci and Ryan, 2000, Ryan and Deci, 2002). Deci and Ryan (1985) explained the extrinsic motivation with identified regulation. Identified regulation refers to the individual behavior influenced by self-regulating and carries out by self-determination on behalf of himself under this behavior. This research regarded the security and privacy provided by website as extrinsic motivation.

In addition, with the rapid development of internet in recent years, internet users' online flow experiences have gained increased attention (Skadberg and Kimmel, 2004). Csikszentmihalyi (1990) described flow experiences as states of intense concentration or absolute absorption in an activity and blocking out irrelevant cognition. The creation of attractive consumption conditions is vital for website managers to provide consumers with flow experiences. Therefore, this study included consumers' flow in the proposed model.

Theoretical background and hypotheses

Hedonic value and utilitarian value

Motivation could be divided into intrinsic motivation and extrinsic motivation from the degree of autonomy based on the point of view of SDT, which emphasized autonomy (Deci and Ryan, 2000). SDT regarded human as organism that the basic human needs should be met, thus creating intrinsic motivation. Extrinsic motivation is reinforced by external stimuli in order to obtain the desired results, which is not from inner behavior. This study regarded the pursuit of hedonic value and utilitarian value as intrinsic motivation and the related factors of the influence of external resources on personal motives, such as security and privacy of website as extrinsic motivation.

Deci and Ryan (1985) stated that a series of motivations generated all human behaviors. For example, intrinsic and extrinsic motivations decided whether people participated in certain activities or executed certain tasks. Past research indicated that intrinsic motivation was related to personal will and characteristics. The reason of generating behavior was because of some kinds of value or performance (Deci and Ryan, 2000). Previous studies often divided consumption value into hedonic value and utilitarian value (Babin *et al.*, 1994; Childers *et al.*, 2001; Wang *et al.*, 2007). Utilitarian value, typically considered task oriented and rational, refers to purchases made because of certain consumption needs. In other words, consumers purchase products efficiently after careful considerations. More precisely, the pursuit of utilitarian value to consumers was through online shopping sites to achieve utilitarian benefits, such as convenience, broad product offerings, rich product information, and monetary savings (Chiu *et al.*, 2014). Utilitarian value closely relates to the effectiveness and efficiency that result from the use of the system. Previous study pointed out that utilitarian value was customers making rational, calculated assessments of the functional benefits and sacrifices of using information system (Kim and Han, 2011). By contrast, hedonic value is subjective and self-oriented, where purchase is made for entertainment and pleasure-seeking purposes instead of completing tasks. Hedonic value was derived from customers' feelings (Kim and Han, 2009). Compared to utilitarian value, hedonic value was more subjective and personal, and resulted from the fun derived rather than task completion (Kim and Han, 2011). Hence, hedonic value reflects the implicit entertainment and emotional value on shopping. In other words, consumers purchase goods for the pleasure of shopping instead of shopping for necessary goods. Therefore, this study defined consumers' intrinsic motivation in terms of utilitarian value and hedonic value.

Relevant studies stated that consumers' hedonic and utilitarian values were crucial influencing factors for their cognitive attitudes toward vendors (Monroe and Guiltinan, 1975; Wang *et al.*, 2007). Previous research also indicated that consumers' hedonic and utilitarian values had positive influences on their cognitive attitudes toward online shopping (Jarvenpaa and Todd, 1997). Additionally, previous studies demonstrated that the extent of entertainment, which websites could provide, was the key predictor of users' attitudes toward websites. Hedonic value influences users' perceptions on cognitive information processing. For example, hedonic value positively influenced users' cognitive trust in websites (Hwang and Kim, 2007). Gefen and Straub (2004) also advocated that hedonic value had positive influence on users' cognitive trust in websites. Ghose and Dou (1998) claimed that when a website's interactivity increased, a website's attractiveness and users' perceived quality of a website was also enhanced, indicating that when websites could provide consumers with increasing hedonic value, it could decrease consumers' perceived risks. In addition, researchers asserted that the utilitarian value gained from online shopping (e.g. time, money, and convenience) could effectively increase customers' satisfactions and improve the relationship between online stores and customers (Keeney, 1999; Wolfinbarger and Gilly, 2001). Katerattanakul (2002) declared that excellent customer relations increased consumers' cognitive trust toward sellers. Urban (2000) found that websites promoted consumers' utilitarian value and trust toward websites if websites could provide users with customized services aside from regular information. Koufaris (2002) mentioned in an online shopping environment study that consumers' perceived risks originated from uncertainties and potential losses. High degrees of consumer-perceived usefulness toward websites (e.g. product information provided by websites and third

party recommendations) decreased their perceived risks toward websites. Hence, this study proposed the following hypotheses:

H1. Consumers' hedonic value regarding websites (a) significantly and positively affects cognitive trust and (b) significantly and negatively affects perceived risk.

H2. Consumers' utilitarian value on websites (a) significantly and positively affects cognitive trust and (b) significantly and negatively affects perceived risk.

Security and privacy

The combination of various human intrinsic and extrinsic motivations jointly decided the initiation, execution, and extension of behaviors (Deci and Ryan, 1985). Extrinsic motivation was related to the effect of external resources on personal motivation (Deci and Ryan, 2000; Ryan and Deci, 2002). Various social or environmental factors triggered extrinsic motivation. Concerns regarding external environments (e.g. consumers consider internet environment as dangerous and worry that their information may be stolen; the media has been widely reporting the negative aspects of internet usage such as problems concerning privacy disclosures, security, and fraudulence) hinder consumers from purchasing products online. Many previous studies in the past made the conclusion of the effect of external resources on the motivation of individuals using the internet. The motivation included security and privacy (Chen and Barnes, 2007; Koufaris and Hampton-Sosa, 2004; Salo and Karjaluoto, 2007). Both Flavián *et al.* (2006) and Miyazaki and Fernandez (2001) indicated that security and privacy were the most concerns for consumers shopping on the internet. Therefore, this study defined the extrinsic motivation as security and privacy.

Security threats refer to conditions where potential problems or conditions cause information or internet resource damage or alteration, leading to fraudulence, abuse, and loss. Privacy protection referred to the condition where consumers had the ability to control whether to disclose information during market transactions or consumption behaviors to others, and the ability to ensure the information provided in transactions was not released to others (Chen and Barnes, 2007). Thus, when online agents implement technologies for protecting websites, consumers' data theft concerns and uncertainties regarding new transaction environments could be reduced (Pavlou, 2003). Previous study indicated that when shopping online, consumers were most concerned about website security and privacy (Miyazaki and Fernandez, 2001). Websites could decrease consumers' perceived risks of the internet environment by promoting security features (Koufaris and Hampton-Sosa, 2004), such as explicitly explaining security and privacy policies and regulations (Chen and Barnes, 2007). Solving customers' problems assists consumers to establish cognitive trust toward websites and effectively decreases perceived risks. Therefore, this study proposed the following hypotheses:

H3. Consumers' perceived security regarding websites (a) significantly and positively affects cognitive trust and (b) significantly and negatively affects perceived risk.

H4. Consumers' perceived privacy regarding websites (a) significantly and positively affects cognitive trust and (b) significantly and negatively affects perceived risk.

Flow

Csikszentmihalyi (1975) proposed the concept of flow and defined flow as a state of absolute absorption in an activity where unrelated cognition was blocked-out. The flow

state was a pleasant experience for which people were willing to pay a price (Csikszentmihalyi, 1990). In other words, it achieves the state of flow when people can focus their attention on the activities they engage in, immerse in the activities, and block out irrelevant perceptions. The difference between flow and intrinsic motivation was that intrinsic motivation referred to personal will and characteristics and met the satisfaction of demand and the pursuit of certain value (Babin *et al.*, 1994; Deci and Ryan, 1985, 2000). However, flow state was a state of mind, which was usually characterized by a loss of a sense of time passing, when a person's perceived skill closely matched the perceived demand or challenge of that task (Csikszentmihalyi, 1997). Csikszentmihalyi (1997) pointed out that flow state had eight features: a clear goal, a challenge that matched an individual's skill, control over the task, immediate and efficient feedback, concentration and focus, loss of self-consciousness, loss of a sense of time, and an activity that became autotelic (i.e. a task was perceived worthy for its own sake). Once in the flow state, people became absorbed in their activities, lost their self-consciousness, and were unable to recognize changes in their surroundings (Lee and Tsai, 2010).

In recent years, numerous studies indicated that the flow theory could explain the interaction between people and information systems (Finneran and Zhang, 2005; Hoffman and Novak, 1996; Koufaris, 2002; Saxena *et al.*, 2004); for example, by gaining insights into consumers' website browsing behaviors (Skadberg and Kimmel, 2004). In computer-mediated environments, flow was a seamless sequence of responses facilitated by machine interactivity (Novak *et al.*, 2000). When consumers were in a state of flow, they felt satisfied and pleased, lowering their negative attitudes and repulsion toward websites (Csikszentmihalyi, 1990). In other words, consumers enhance their cognitive sensitivity regarding websites (e.g. the enhancement of cognitive trust in websites) when they are in the state of flow. Compared with consumers not in a state of flow, consumers spent more time on internet and considered the experiences gained from the internet that was more enjoyable in a state of flow (Hoffman and Novak, 1996). Koufaris (2002) declared that consumers' online flow experiences increased their willingness to visit the websites again. Consumers obtain the satisfactions of sense and emotion from their focus on browsing websites. Consumers' online flow experiences influenced their cognitive attitudes toward websites and their willingness to visit the same websites again (Hoffman and Novak, 1996; Koufaris, 2002). In addition, consumers' flow experiences enhanced their purchasing behaviors (Smith and Sivakumar, 2004). Therefore, this study proposed the following hypothesis:

H5. Consumers' states of flow significantly and positively affect (a) cognitive trust and (b) purchase intention.

Cognitive trust and perceived risk

Consumer attitude could be divided into cognitive and affective attitude (Bagozzi and Burnkrant, 1979; Crites *et al.*, 1994; Shih *et al.*, 2013). Cognitive attitudes referred to the degree to which an individual developed specific beliefs related to an attitude object, while affective attitude referred to the degree of emotional attraction toward an attitude object (Bagozzi and Burnkrant, 1979). Previous researches suggested that the cognitive attitudes represented the deliberate, conscious, and propositional process of thought, whereas the affective attitude represented immediate evaluation and emotional response to the attitude of object (Crites *et al.*, 1994; Kim and Lennon, 2008; Millar and

Tesser, 1989). This study included the antecedents such as utilitarian value, security, and privacy by the attitude of knowledge base, which was the recognition, evaluation, and tendency to a target object. As mentioned above, comparing with affective attitude, cognitive attitudes emphasized specific beliefs to the object (Bagozzi and Burnkrant, 1979), which was the view of things and ideas. This study included the antecedents such as utilitarian value, security, and privacy, which related to the individual evaluation to website. Therefore, this study focussed on cognitive attitudes.

Various fields such as sociology, social psychology, anthropology, economics, marketing, and organizational behaviors broadly discussed the concept of trust. In recent years, trust has been a topic in EC as well. Various scholars defined trust differently. Hence, Mayer *et al.* (1995) proposed an integrated definition for trust: the trustor was willing to believe that the trustee would perform behavior that met trustor's expectation regardless of whether trustor was able to supervise or control trustee. Generally, trust was a necessary element in all interactions, especially interactions with EC background (Ba and Pavlou, 2002). Therefore, trust was the foundation of EC and consumer cognitive attitudes that online stores could yield performances that fulfilled consumers' expectations (Pavlou and Gefen, 2004). In the EC environment, trust referred to consumers' cognitive beliefs regarding the characteristics of online stores (Pennington *et al.*, 2004), in other words, consumers' beliefs in the ability, benevolence, and integrity of shopping websites (Bhattacherjee, 2002). Cognitive trust referred to consumers' confidence or willingness to rely on service providers' abilities and reliabilities (Kim and Tadisina, 2007).

Trust and risk were interactive and were both based on cognition (McAllister, 1995). Hence, some extent of risk will always be present when trusting something. In the buyer-seller relationship, it defines trust as the condition where buyers expect that sellers will not engage in speculative behaviors. Thus, trust decreased consumers' perceived risks regarding sellers' speculative behaviors (Jarvenpaa *et al.*, 2000). Relevant studies indicated that increased consumer trust toward websites could effectively decrease consumer-perceived risk regarding shopping online (Lee and Turban, 2001; McKnight and Chervany, 2002). Accordingly, this study proposed the following hypothesis:

H6. Consumers' cognitive trust in websites significantly and negatively affects perceived risk.

For a long time, most researchers considered trust as a key factor in successful transactions. Trust was especially essential in establishing consumers' satisfactions in online transactions (Gefen and Straub, 2004; Pavlou, 2003) and a crucial behavioral belief in online transactions. Consumers were willing to conduct transactions with online retailers because of their positive attitudes toward the websites (Pavlou, 2003). Hence, trust can effectively promote consumers' purchase intentions. In addition, trust can decrease the uncertainty during online transactions and enhance consumers' perceived control of the uncertainty factors of online transactions. Studies demonstrated that consumers' overall sense of control in online transactions positively affected consumers' purchase intentions (Pavlou, 2003). In other words, consumers increase their willingness to purchase online when they can control the entire transaction situation. Therefore, this study proposed the following hypothesis:

H7. Consumers' cognitive trust in websites significantly and positively affects (a) perceived satisfaction and (b) purchase intention.

Perceived risk refers to the uncertainty factors in purchasing environments. Consumers might consider, if they made an incorrect or inappropriate decision, whether the consequences caused by the purchase was within their affordable capabilities (Hunter *et al.*, 2004). Perceived risk is the most obstacles in attracting consumers to shop online since the development of EC. Perceived risk negatively correlated with consumer satisfaction as indicated in a previous study (Doolin *et al.*, 2005) aside from lowering consumers' purchase intentions (McKnight *et al.*, 2002). In other words, high consumer-perceived risk toward online stores reduces consumers' perceived satisfactions. The decrease of consumers' perceived risks toward online shopping increased consumers' purchase intentions (Pires *et al.*, 2004). Additionally, in most online transactions, perceived satisfaction and purchase intention were interactive (McKnight and Chervany, 2002; Pavlou, 2003). Consumers' satisfactions refer to consumers' overall evaluations of the perceived value of websites. Previous studies indicated that consumer satisfaction positively affected purchase intention (Chen and Dubinsky, 2003; Flavián *et al.*, 2006; Yang and Peterson, 2004). Therefore, this study proposed the following hypotheses:

H8. Consumers' perceived risks regarding websites significantly and negatively affect (a) perceived satisfaction and (b) purchase intention.

H9. Consumers' perceived satisfactions of websites significantly and positively affect purchase intention.

Methodology

Sample and data collection

This study investigated the antecedents and consequences of consumers' cognitive attitudes of website. The uncertainty of online shopping caused perceived risk and would affect consumers' willingness of shopping online, so trust and risk played important key factors (Doolin *et al.*, 2005; Keat and Mohan, 2004; Kim and Benbasat, 2003). This study based on cognitive attitudes such as cognitive trust and perceived risk as the critical factors of research framework.

This study investigated the antecedents and consequences of consumers' cognitive attitudes. These antecedents included intrinsic motivation (such as hedonic value and utilitarian value) and extrinsic motivation (such as security and privacy). Perceived satisfactions and purchase intentions were the consequences of consumers' cognitive attitudes. Flow (Saxena *et al.*, 2004; Skadberg and Kimmel, 2004) had the impacts on consumers' cognitive trust and purchase intention, respectively. Figure 1 showed the research framework.

The respondents of this research were those who consumed on the online shopping platform before. Therefore, this research not only adopted the paper-based survey for the data collection but also used web-based survey. This research adopted online survey through my3q (www.my3q.com) for data collection and applied stratified random sampling to obtain the samples of online shopping consumers. The internet survey could target certain group for certain issues and emphasized the analysis of individual's point of view. Internet survey was an appropriate alternative to the traditional random sampling method (Hewson *et al.*, 2003). This research focussed on the use of online shopping and was suitable for adopting internet survey to collect data. For the empirical study, this research adopted the SPSS and AMOS statistical software to perform the hypotheses verification.

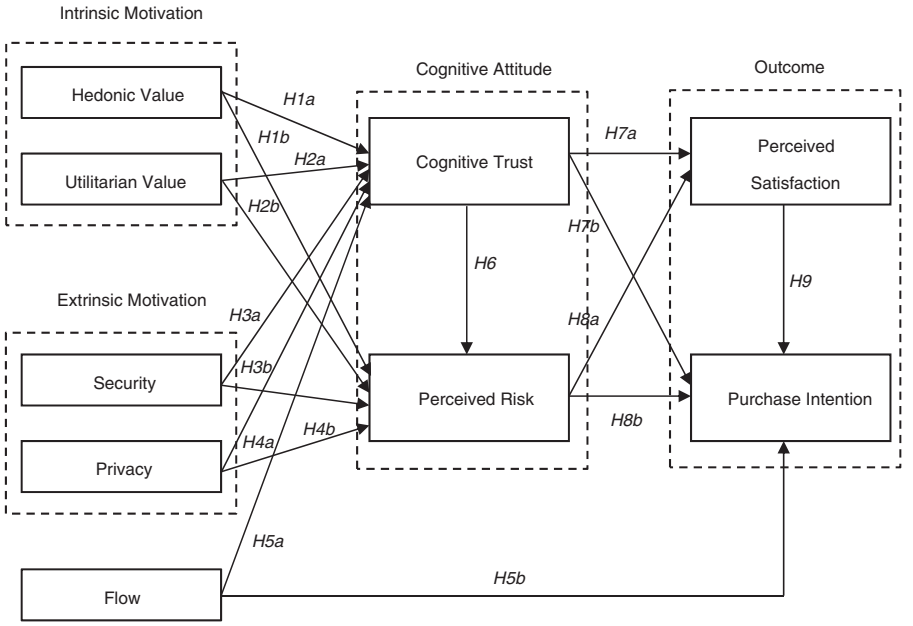

Figure 1.
Integrating model for consumers' online shopping

The population of this study was those consumers who had shopped online. This study adopted the stratified random sampling based on the percentages of living region for data collection. Accordance with the report of Market Intelligence & Consulting Institute (2008), the percentages of living region in Taiwan for internet shoppers was 53.6, 20.9, 23.2, 2.0, and 0.3 percent for North, Center, South, East, and remote islands, respectively. Therefore, this research used these percentages for stratified random sampling for paper-based survey. This research distributed 430, 168, 186, and 16 samples in each region of Taiwan (Northern, Central, Southern, and Eastern region) according to the percentages of living region, totally issued 800 samples. This study collected 649 samples and the respondent rate was 81.13 percent with 551 valid samples, the effective respondent rate was 84.90 percent. This study collected 183, 79, 93, and 12 samples for northern, central, southern, and eastern region, respectively, from the web-based survey. This research received 367 samples with 315 valid samples from the web-based survey. Therefore, the total number of valid sample was 866 for analysis. Respondents comprised 39.38 percent male and 60.62 percent female. The percentage of age between 21 and 30 years old was 59.70 percent, followed by 31-40 years old (23.90 percent). The percentage of college and university degree was 65.82 percent, followed by postgraduates (26.67 percent). The majority of the monthly income was between NTD 5,001~10,000 (29.45 percent). The percentage of weekly use of the internet above 30 hours was 30.14 percent. Shoppers with more than three years online shopping experience was the most (50.81 percent), followed by between one to two years (19.17 percent). Yahoo!Mail was the most commonly used online shopping platform (44.80 percent), followed by books.com (18.24 percent) and PChome Online shopping (14.32 percent), respectively. The payment mechanism was online payment or ATM transfer. Customers needed to provide personal information on internet in order to go through the transaction for most online shopping platforms such as Yahoo!Mail,

books.com, or PChome. Such trading patterns generated worry with consumers about security and privacy. Clothes were the most commonly online purchases for consumers based on past research (Seock and Bailey, 2008). The most important risk was that consumers could not try clothes on while purchasing clothes online at home (Kim and Lennon, 2000; Park *et al.*, 2005). Apparel merchandise needed to be returned or changed, thereby increasing the complexity and perceived risk of transactions. The consumers' online security and privacy was more important on returning/changing and payment mechanism for online shopping. Therefore, this study focussed on those online shopping sites, which asked their customers to fill in personal information and had online shopping payments mechanism during the data collection in order to fulfill the relevant concepts and purposed of this research.

Measures

This research adopted previous literature for the questionnaire and furbished the questionnaire through expert review. This study validated the wordings via a convenience sample with 30 respondents. This research conducted a pilot test with 200 samples to revise the measurement items before finalizing the formal survey content. The Appendix showed the questionnaire for each construct and source. This study used a seven-point Likert scale from 1 (very unlikely) to 7 (very likely) to measure purchase intention and used a seven-point Likert scale from 1 (strongly disagree) to 7 (strongly agree) to measure remaining constructs. This study adopted multi-item scales from previous studies with high reliability and validity for all of the constructs. The items for hedonic value and utilitarian value (Cronbach's $\alpha = 0.887$, 0.933) were adapted from Wang *et al.* (2007). The items for security and privacy (Cronbach's $\alpha = 0.913$, 0.880) were adapted from Chen and Barnes (2007). The items for cognitive trust and perceived risk (Cronbach's $\alpha = 0.876$, 0.913) were adapted from Bhattacherjee (2002) and McKnight *et al.* (2002), respectively. Perceived satisfaction and purchase intention (Cronbach's $\alpha = 0.881$, 0.944) were derived from Flavián *et al.* (2006) and Jarvenpaa *et al.* (2000), respectively. The items for flow (Cronbach's $\alpha = 0.825$) was adapted from Saxena *et al.* (2004).

Analysis and results

Measurement model

Following procedures recommended by Anderson and Gerbing (1988), this research conducted two analysis phases. First, this study applied confirmatory factor analysis (CFA) to test reliabilities and validities for the measurement model of the research constructs. Then, this study adopted the structural model to test the strength and direction of the proposed relationships among research constructs.

The measurement model assessed the reliability, convergent validity, and discriminant validity of this study. This study applied factor loading, squared multiple correlations (SMC), and Cronbach's α (Bagozzi and Yi, 1988) to validate item and construct reliability. Table I showed the factor loading, SMC, composite reliability, average variance extracted (AVE), and construct reliability. As shown in Table I, all factor loadings, SMCs, and Cronbach's α were above 0.5, 0.2, and 0.8, respectively; indicating good reliability for both items and constructs (Bentler and Wu, 1993; Jöreskog and Sörbom, 1993; Nunnally, 1978). The composite reliability of each construct was greater than 0.7, implying internal consistency of constructs (Hulland, 1999); the value of AVE of privacy, cognitive trust, and flow constructs

Constructs	MLE estimates Factor loading (λ_x/λ_y)	Measurement error (δ/ε)	Squared multiple correlation (SMC)	Composite reliability (CR)	Average of variance extracted (AVE)	Cronbach's α
Hedonic value				0.854	0.539	0.887
HV1	0.764***	0.481	0.583			
HV2	0.760***	0.621	0.578			
HV3	0.831***	0.386	0.691			
HV4	0.839***	0.418	0.705			
HV5	0.723***	0.723	0.522			
Utilitarian value				0.900	0.644	0.933
UA1	0.873***	0.345	0.763			
UA2	0.870***	0.382	0.756			
UA3	0.842***	0.454	0.709			
UA4	0.826***	0.545	0.682			
UA5	0.886***	0.321	0.786			
Security				0.857	0.546	0.913
SE1	0.857***	0.486	0.734			
SE2	0.773***	0.759	0.598			
SE3	0.845***	0.484	0.714			
SE4	0.844***	0.460	0.712			
SE5	0.801***	0.639	0.642			
Privacy				0.811	0.462	0.880
PV1	0.757***	0.773	0.572			
PV2	0.726***	0.892	0.527			
PV3	0.828***	0.495	0.686			
PV4	0.747***	0.764	0.559			
PV5	0.809***	0.562	0.654			
Flow				0.789	0.435	0.825
FL1	0.825***	0.463	0.681			
FL2	0.813***	0.493	0.661			
FL3	0.506***	0.781	0.256			
FL4	0.623***	0.678	0.389			
FL5	0.707***	0.808	0.500			
Cognitive trust				0.840	0.429	0.876
CT1	0.721***	0.649	0.520			
CT2	0.701***	0.642	0.491			
CT3	0.661***	0.767	0.438			
CT4	0.696***	0.672	0.484			
CT5	0.650***	0.791	0.422			
CT6	0.694***	0.696	0.482			
CT7	0.821***	0.454	0.675			
Perceived risk				0.863	0.513	0.913
PR1	0.784***	0.750	0.614			
PR2	0.826***	0.775	0.682			
PR3	0.822***	0.711	0.676			
PR4	0.866***	0.509	0.749			
PR5	0.853***	0.599	0.727			
PR6	0.847***	0.614	0.717			

(*continued*)

Table I.
Analysis of measurement model

Constructs	MLE estimates: Factor loading (λ_x/λ_y)	MLE estimates: Measurement error (δ/ε)	Squared multiple correlation (SMC)	Composite reliability (CR)	Average of variance extracted (AVE)	Cronbach's α
Perceived satisfaction				0.849	0.585	0.881
PS1	0.755***	0.563	0.570			
PS2	0.819***	0.435	0.670			
PS3	0.804***	0.459	0.646			
PS4	0.846***	0.390	0.715			
Purchase intention				0.924	0.751	0.944
PI1	0.855***	0.354	0.731			
PI2	0.907***	0.276	0.823			
PI3	0.931***	0.211	0.868			
PI4	0.908***	0.233	0.824			

Notes: HV, hedonic value; UV, utilitarian value; SE, security; PV, privacy; FL, flow; CT, cognitive trust; PR, perceived risk; PS, perceived satisfaction; PI, purchase intention. $\chi^2 = 2{,}590.227$, df = 953, $p < 0.001$, $\chi^2/\text{df} = 2.718$, GFI = 0.878, TLI = 0.936, CFI = 0.941, and RMSEA = 0.045. All factor loading are significant at ***$p < 0.001$

Table I.

was less than 0.5, respectively. However, some scholars pointed out that if the composite reliability was more than 0.6, and then there was valid convergent validity (Fornell and Larcker, 1981).

For the discriminant validity, Gaski and Nevin (1985) proposed that the correlation coefficient of any two constructs was less than the square root of AVE of each construct, indicating discriminant validity. This study met the criteria for discriminant validity (Hair *et al.*, 2010), indicating good discriminant validity (see Table II).

This study adopted Harman's one-factor-test with exploratory factor analysis to examine whether common method variance problem existed in the sample data. This study extracted nine factors and the explained variance proportion by the first factor was 32.757 percent, which was lower than 50 percent. Therefore, the sample data of this study did not have common method variance problem (Podsakoff and Organ, 1986). Moreover, this study conducted CFA to analyze all the measurement items into single factor, and the results indicated that not all the factor loading of measurement items were all above 0.5. In addition, the model fit ($\chi^2 = 16{,}360.491$, df = 989, $\chi^2/\text{df} = 16.542$, GFI = 0.421, AGFI = 0.367, IFI = 0.451, CFI = 0.450, RMSR = 0.192, and RMSEA = 0.192) of one factor model was worse than the proposed model fit ($\chi^2 = 2{,}687.575$, df = 963, $\chi^2/\text{df} = 2.791$, GFI = 0.874, AGFI = 0.859, IFI = 0.938, CFI = 0.938, RMSR = 0.078, and RMSEA = 0.046). According to the criteria proposed by Mossholder *et al.* (1998), common method variance problem should not be a concern in this study.

Structural model

The overall goodness-of-fit ($\chi^2 = 2{,}687.575$, df = 963, $\chi^2/\text{df} = 2.791$, GFI = 0.874, AGFI = 0.859, IFI = 0.938, CFI = 0.938, RMSR = 0.078, and RMSEA = 0.046) indicated an acceptable level. Table III presented the results of the hypotheses tests and Figure 2 provided a graphic representation of the path diagram. Both of hedonic value and utilitarian value had a significant and positive influence on cognitive trust ($\gamma_{11} = 0.104$, $t = 2.614$, $p < 0.01$; $\gamma_{12} = 0.282$, $t = 8.478$, $p < 0.001$) but had a significant

	HV	UV	SE	PV	FL	CT	PR	PS	PI	FL	CR	AVE
HV	0.734										0.854	0.539
UV	0.336**	0.802									0.900	0.644
SE	0.264**	0.388**	0.739								0.857	0.546
PV	0.325**	0.299**	0.541**	0.680							0.811	0.462
FL	0.526**	0.293**	0.153**	0.160**	0.660						0.789	0.435
CT	0.387**	0.483**	0.554**	0.480**	0.311**	0.655					0.840	0.429
PR	−0.312**	−0.347**	−0.469**	−0.497**	−0.157**	−0.451**	0.716				0.863	0.513
PS	0.322**	0.515**	0.424**	0.355**	0.286**	0.554**	−0.398**	0.765			0.849	0.585
PI	0.338**	0.463**	0.366**	0.270**	0.293**	0.514**	−0.364**	0.550**	0.867		0.924	0.751
α	0.887	0.933	0.913	0.880	0.825	0.876	0.913	0.881	0.944			

Notes: HV, hedonic value; UV, utilitarian value; SE, security; PV, privacy; FL, flow; CT, cognitive trust; PR, perceived risk; PS, perceived satisfaction; PI, purchase intention. Diagonal elements are the square root of the average variance extracted of each construct. Pearson correlations are shown below the diagonal. $^{**}p < 0.001$

Table II.
Correlation matrix for measurement scales

Paths		Path coefficients	Hypotheses	Test results
γ_{11}	Hedonic value→cognitive trust	0.104**	*H1a*	Supported
γ_{21}	Hedonic value→perceived risk	−0.082*	*H1b*	Supported
γ_{12}	Utilitarian value→cognitive trust	0.282***	*H2a*	Supported
γ_{22}	Utilitarian value→perceived risk	−0.094*	*H2b*	Supported
γ_{13}	Security→cognitive trust	0.359***	*H3a*	Supported
γ_{23}	Security→perceived risk	−0.167***	*H3b*	Supported
γ_{14}	Privacy→cognitive trust	0.191***	*H4a*	Supported
γ_{24}	Privacy→perceived risk	−0.319***	*H4b*	Supported
γ_{15}	Flow→cognitive trust	0.110**	*H5a*	Supported
γ_{45}	Flow→purchase intention	0.126***	*H5b*	Supported
β_{21}	Cognitive trust→perceived risk	−0.130*	*H6*	Supported
β_{31}	Cognitive trust→perceived satisfaction	0.597***	*H7a*	Supported
β_{41}	Cognitive trust→purchase intention	0.259***	*H7b*	Supported
β_{32}	Perceived risk→perceived satisfaction	−0.140***	*H8a*	Supported
β_{42}	Perceived risk→purchase intention	−0.083*	*H8b*	Supported
β_{43}	Perceived satisfaction→purchase intention	0.357***	*H9*	Supported

Notes: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table III.
Results of proposed model

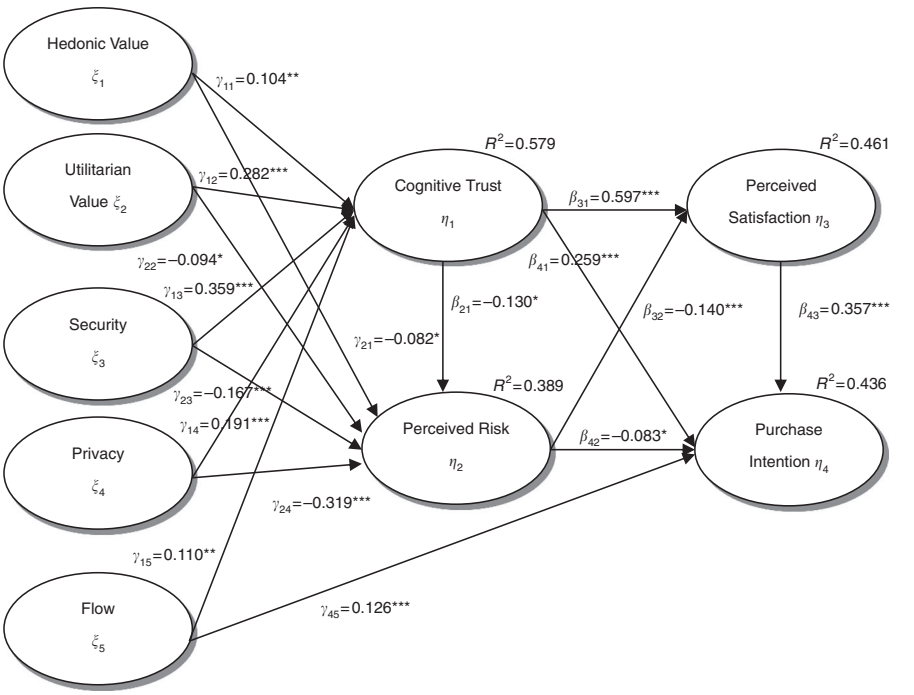

Figure 2.
Hypothesized model

Notes: χ^2=2,687.575; df=963; p<0.001; χ^2/df=2.791; GFI=0.874; TLI=0.934; CFI=0.938; RMSEA=0.046. *p<0.05; **p<0.01; ***p<0.001

and negative influence on perceived risk ($\gamma_{21} = -0.082$, $t = -2.310$, $p < 0.05$; $\gamma_{22} = -0.094$, $t = -2.490$, $p < 0.05$), supporting *H1* and *H2*.

In addition, both of security and privacy had a significant and positive influence on cognitive trust ($\gamma_{13} = 0.359$, $t = 9.017$, $p < 0.001$; $\gamma_{14} = 0.191$, $t = 4.969$, $p < 0.001$) but had a significant and negative influence on perceived risk ($\gamma_{23} = -0.167$, $t = -3.676$, $p < 0.001$; $\gamma_{24} = -0.319$, $t = -7.341$, $p < 0.001$), supporting *H3* and *H4*. Besides, cognitive trust had a significant and negative influence on perceived risk ($\beta_{21} = -0.130$, $t = -2.535$, $p < 0.05$) but had a significant and positive influence on perceived satisfaction ($\beta_{31} = 0.597$, $t = 13.291$, $p < 0.001$) and purchase intention ($\beta_{41} = 0.259$, $t = 5.456$, $p < 0.001$), respectively, supporting *H5* and *H6*. Perceived risk had a significant and negative influence on perceived satisfaction ($\beta_{32} = -0.140$, $t = -3.889$, $p < 0.001$) and purchase intention ($\beta_{42} = -0.083$, $t = -2.420$, $p < 0.05$), respectively, supporting *H7*. Furthermore, perceived satisfaction had a significant and positive influence on purchase intention ($\beta_{43} = 0.357$, $t = 8.004$, $p < 0.001$), supporting *H8*. Flow had a positive and significant influence on cognitive trust ($\gamma_{15} = 0.110$, $t = 2.912$, $p < 0.01$) and purchase intention ($\gamma_{45} = 0.126$, $t = 3.912$, $p < 0.001$), respectively, supporting *H9*.

Mediation effects of cognitive trust and perceived risk

This study further explored the mediating effects of cognitive attitudes between intrinsic motivation (hedonic value and utilitarian value), extrinsic motivation (security, privacy), flow, perceived satisfaction, and purchase intention. Table IV displayed the test results, showing that the statistics of Sobel tests were all significant (greater than 1.96), and the 95 percent confidence intervals of 2,000 simulations of bootstrapping did

				Bootstrapping 95% confidence intervals			
				Percentile CI		Bias CI	
IV	M	DV	Sobel test	Lower	Upper	Lower	Upper
HV	CT	PS	9.822***	0.152	0.254	0.153	0.256
UV	CT	PS	10.828***	0.127	0.223	0.129	0.225
SE	CT	PS	12.055***	0.169	0.278	0.172	0.283
PV	CT	PS	11.015***	0.269	0.277	0.170	0.278
FL	CT	PS	8.611***	0.127	0.236	0.130	0.239
HV	CT	PI	8.766***	0.150	0.261	0.151	0.261
UV	CT	PI	9.631***	0.134	0.236	0.136	0.239
SE	CT	PI	10.734***	0.183	0.307	0.183	0.306
PV	CT	PI	9.807***	0.192	0.305	0.193	0.306
FL	CT	PI	7.686***	0.131	0.245	0.132	0.247
HV	PR	PS	7.079***	0.076	0.138	0.077	0.142
UV	PR	PS	6.700***	0.054	0.102	0.056	0.105
SE	PR	PS	6.890***	0.072	0.137	0.075	0.140
PV	PR	PS	7.561***	0.093	0.181	0.097	0.186
HV	PR	PI	6.603***	0.070	0.138	0.072	0.141
UV	PR	PI	6.191***	0.053	0.110	0.056	0.113
SE	PR	PI	6.377***	0.074	0.154	0.077	0.156
PV	PR	PI	7.463***	0.111	0.207	0.113	0.210

Notes: IV, independent variable; M, mediator; DV, dependent variable; HV, hedonic value; UV, utilitarian value; SE, security; PV, privacy; FL, flow; CT, cognitive trust; PR, perceived risk; PS, perceived satisfaction; PI, purchase intention. ***$p < 0.001$

Table IV.
Sobel test and bootstrapping confidence interval

not contain 0, indicating that cognitive trust had mediating effects between hedonic value, utilitarian value, security, privacy, flow, perceived satisfaction, and purchase intention, respectively (Efron and Tibshirani, 1993; Sobel, 1982). The perceived risk was the mediators between hedonic value, utilitarian value, security, privacy, perceived satisfaction, and purchase intention. Furthermore, the regression analyses of Table V showed that cognitive trust had a fully mediating effect on the relationship between privacy and purchase intention (PV-CT-PI path) and partially mediating effects in the rest of the path relationships (Baron and Kenny, 1986). However, perceived risk showed partially mediating effects in all paths.

General discussion

Research in the area of investigating online shopping for consumers through motivation theory was quite scarce. However, the initiating point of online shopping of consumers was to meet their needs (Murray *et al.*, 2006). Therefore, it was necessary to investigate the online shopping of consumers from the perspectives of motivation. In addition, motivation influenced the strength and direction of behavior by the driving forces of intrinsic and extrinsic factors (Deci and Ryan, 1985; Maslow, 1954). Intrinsic motivation relates to personal will and characteristics (e.g. hedonic value and utilitarian value). However, extrinsic motivation related to the influence of external resources on personal motivation (Deci and Ryan, 2000).

Ryan and Deci (2002) used internalized extrinsic motivation to explain the impact of external resources on personal motive. They noted that internalized extrinsic motivation referred to the motivation, which came from external influences at first and then internalized as one's own. One can internalize the process of external resources

			IV→DV		IV→M		IV+M→DV			
							IV		M	
IV	M	DV	β	SE	β	SE	β	SE	β	SE
HV	CT	PS	0.329***	0.033	0.350***	0.028	0.129***	0.031	0.570***	0.034
UV	CT	PS	0.459***	0.026	0.381***	0.024	0.288***	0.027	0.449***	0.034
SE	CT	PS	0.367***	0.027	0.426***	0.022	0.146***	0.029	0.519***	0.038
PV	CT	PS	0.325***	0.029	0.389***	0.024	0.106***	0.029	0.562***	0.036
FL	CT	PS	0.318***	0.036	0.307***	0.032	0.139***	0.033	0.581***	0.033
HV	CT	PI	0.389***	0.037	0.350***	0.028	0.188***	0.036	0.572***	0.040
UV	CT	PI	0.465***	0.030	0.381***	0.024	0.282***	0.032	0.480***	0.041
SE	CT	PI	0.357***	0.031	0.426***	0.022	0.114**	0.034	0.570***	0.044
PV	CT	PI	0.279***	0.034	0.389***	0.024	0.032	0.034	0.634***	0.042
FL	CT	PI	0.367***	0.041	0.307***	0.032	0.185***	0.038	0.594***	0.039
HV	PR	PS	0.329***	0.033	−0.410***	0.042	0.223***	0.033	−0.257***	0.025
UV	PR	PS	0.459***	0.026	−0.397***	0.036	0.382***	0.027	−0.194***	0.023
SE	PR	PS	0.367***	0.027	−0.522***	0.033	0.264***	0.029	−0.199***	0.026
PV	PR	PS	0.325***	0.029	−0.584***	0.035	0.191***	0.032	−0.229***	0.027
HV	PR	PI	0.389***	0.037	−0.410***	0.042	0.286***	0.037	−0.251***	0.028
UV	PR	PI	0.465***	0.030	−0.397***	0.036	0.385***	0.031	−0.202***	0.027
SE	PR	PI	0.357***	0.031	−0.522***	0.033	0.244***	0.034	−0.216***	0.031
PV	PR	PI	0.279***	0.034	−0.584***	0.035	0.123**	0.037	−0.267***	0.032

Table V.
The stepwise regression for mediator effect of cognition attitude

Notes: IV, independent variable; M, mediator; DV, dependent variable; HV, hedonic value; UV, utilitarian value; SE, security; PV, privacy; FL, flow; CT, cognitive trust; PR, perceived risk; PS, perceived satisfaction; PI, purchase intention. $^{**}p < 0.01$; $^{***}p < 0.001$

into the extrinsic motivation when individual generates the identification of the security and privacy of website. Deci and Ryan (2000) considered the internalization processes of extrinsic motivation relevant to identification, and identification had direct effect on cognitive trust (Ho *et al.*, 2012; Yeh and Choi, 2011). Riegelsberger *et al.* (2005) proposed the overall framework of trust mechanism. They assumed that it would generate cognitive trust when the trustee met the needs of the trustor. Demand will internalize the motivation. Therefore, this study considered intrinsic motivation and extrinsic motivation as the necessary antecedents when exploring the cognitive trust.

Intrinsic motivation and extrinsic motivation will form the cognitive attitudes of individual and reflect to the attitudes and the conscious plan of an individual. However, the attitudes and the willingness of human beings for a specific task are quite complicated. This research focussed on cognitive components rather than affective components. Previous literature pointed out that the development of affective responses to an object was based on the properties and attributes of the object by individual's cognitive appraisal (Shih *et al.*, 2013; Zajonc and Markus, 1982). Olson and Zanna (1993) considered that cognitive component of attitude was stored in memory as an evaluation judgments. They considered that affective component of attitude was a psychological processes and could be impelled to behavioral intention. This study validated that intrinsic motivation (hedonic value and utilitarian value) and extrinsic motivation (security and privacy) had effects on cognitive attitudes. The results of this study indicated that security had the most substantial effect on cognitive trust and privacy had the most significant effect on perceived risk. Extrinsic motivation had a higher effect on both cognitive trust and perceived risk. Shih *et al.* (2013) considered that the perspective of economic focussed on the cognitive responses, whereas the perspective of psychology focussed on the affective responses. The extrinsic motivation of this paper focussed on the effect of identified regulation of external resources on the relevant to individual motivation (Deci and Ryan, 1985, 2000, Ryan and Deci, 2002), which related with economical and rational perspective. Therefore, extrinsic motivation had higher influence on cognitive attitudes.

For the importance of cognitive attitudes on online shopping, online shopping had higher uncertainty and risk compared with traditional store shopping. Therefore, the cognitive attitudes of consumers on the website were even more important. Cognitive attitudes referred to an individual's specific belief related to the object (Bagozzi and Burnkrant, 1979) and consisted of the evaluation, judgment, reception, or perception of the thought based on values (Chaiken and Stangor, 1987). Cognitive attitudes were evaluative belief (Thompson and Hunt, 1996). Users could form beliefs about hedonic value, utilitarian value, security, and privacy of the website. Such evaluative beliefs (i.e. cognitive attitudes) in turn developed into users' perceived satisfactions and purchase intentions. Thus, cognitive attitudes played an important role in explaining information system use, which would affect the subsequent emotional state or intention to use of the users (Yang and Yoo, 2004).

Regarding purchase intention, consumer motivation affected purchase intention through their cognitive attitudes toward websites. Perceived satisfaction was the most influential factor of purchase intention. The most crucial antecedent that affected perceived satisfaction was cognitive trust, indicating the importance of cognitive trust in the context of online shopping. In the current competitive online shopping market, maintaining long-term satisfactory relationship with customers was the key to success. The number of internet safety issues (e.g. customer information disclosure and fraudulence) is increasing. Consumers' attitudes determined whether they were willing

to shop online, among which trust was the key factor (Gefen and Straub, 2004; Pavlou, 2003; Pavlou and Gefen, 2004). To increase consumers' cognitive trust, strengthening consumer motivation to use internet was a factor that should pay more attention.

Regarding the verification of mediating effects, empirical results indicated that intrinsic motivation (i.e. hedonic value and utilitarian value), extrinsic motivation (i.e. security and privacy), and flow all influenced perceived satisfaction and purchase intention through cognitive trust, which was indispensable in EC environments (Kim and Tadisina, 2007; Pavlou and Gefen, 2004; Pennington *et al.*, 2004). Websites could not trigger consumers' perceived satisfactions and purchase intentions without consumer trust toward websites. Consumers' intrinsic motivation (e.g. hedonic value and utilitarian value), extrinsic motivation (e.g. websites' security and privacy), and consumers' flow experiences all affected cognitive trust. Besides, this study adopted the mediating effect method to verify cognitive trust as a mediator between intrinsic motivation (e.g. hedonic value and utilitarian value), extrinsic motivation (e.g. security and privacy), consumers' flow and perceived satisfactions/purchase intentions.

Just like cognitive trust, perceived risk played the mediating roles between the intrinsic motivation, extrinsic motivation, flow, and perceived satisfaction/purchase intention. It indicated that consumers would concern the perceived risk of the website no matter what the motivations of consumers possessed for internet consumption (Hunter *et al.*, 2004; Pavlou, 2003; Pires *et al.*, 2004). Internet shopping represented a fundamentally different environment for retailing than traditional retailing media. Consumers could not actually touch the merchandise, and they played the bill on internet. Perceived risk has become important factor for online shopping. Therefore, security and privacy caused perceived risk. It also illustrated that the perceived risk of consumers was primarily from the rational model of judgment (Pavlou and Gefen, 2004). The analysis of perceived risk has been an important factor in economic decisions for a long time (Chiles and McMackin, 1996). Therefore, it became one of the important challenges for the online shopping industry to communicate the protection mechanisms for consumers through the clear transactions security and privacy policies properly in order to reduce the perceived risk.

Unlike previous studies of motivation and consumer behavior (Babin *et al.*, 1994; Blackwell *et al.*, 2006; Childers *et al.*, 2001; Deci and Ryan, 1985; Gefen and Straub, 2004; Wang *et al.*, 2007), this study incorporated another irrational factor, flow, as well as the rational factors of intrinsic motivation and extrinsic motivation in the model. This study found that the state of flow further strengthened cognitive trust and purchase intention. Consumers felt contented, delighted, and generated positive cognition when they fully absorbed in a state of flow. Websites promoted consumers' cognitive trust when it lowered their negative attitudes and repulsion toward websites. In addition, websites enhanced consumers' online purchasing intentions and generated positive cognition when consumers immersed in a state of flow.

Theoretical contribution

Regarding theoretical contributions, previous researches mostly explored consumers motivation for online shopping from the perspective of consumers value and function provided by website (Childers *et al.*, 2001; Lee and Overby, 2004; Wolfinbarger and Gilly, 2001). Some studies divided consumers into different motive groups from the perspective of functionality attribute provided by e-store (Ganesh *et al.*, 2010). However, these studies ignored the freedom of behavior choice by consumers. Individual tended to participate in activity because of his interest. On the other hand, individuals

participated in activity was controlled by extrinsic reasons and wanted to get desired results or avoided any punishment not because of individual's intrinsic interest generated from their own for this activity. This paper divided consumer motivation into intrinsic motivation and extrinsic motivation with the theory of self-determination according to human behavior of autonomy or self-determination dividing individual motivation into different types of motivation. Moreover, directly examining the relationship between intrinsic/extrinsic motivations and perceived satisfaction/purchase intention without concerning cognitive attitudes (i.e. cognitive trust and perceived risk) could not yield comprehensive causal relationships. Therefore, this study investigated whether consumer's intrinsic motivation and extrinsic motivation affected cognitive attitudes (cognitive trust and perceived risk) of the website and cognitive attitudes affected consumers' perceived satisfaction and purchase intention.

Moreover, this study adopted flow in the framework in order to investigate the effects of consumer's motivation and flow on cognitive attitudes. Previous studies applied flow theory to the field of human-computer interaction (Finneran and Zhang, 2005; Hoffman and Novak, 1996; Koufaris, 2002; Saxena *et al.*, 2004). However, it was still scarce in the past to investigate the effect of motivation and flow on cognitive trust by combining the theory of motivation and flow. Furthermore, the rational motivations (i.e. intrinsic and extrinsic motivations) and irrational motivation (i.e. flow perspective) were the antecedents of cognitive trust in this study. There were few studies where the explored consumers' cognitive trust toward shopping websites from both rational and irrational perspectives was explored.

Research implications

This study selected five antecedents of cognitive attitudes and verified the mediating effects of cognitive attitudes. The reason of consumers shopping was to meet their needs (Murray *et al.*, 2006). Therefore, this study integrated intrinsic motivation and extrinsic motivation in the proposed model. Different needs form different shopping motivations. The driving force of shopping could divide into intrinsic motivation and extrinsic motivation (Deci and Ryan, 1985, 2000, Ryan and Deci, 2002). Intrinsic motivation relates to personal will and personal characteristics. A variety of social or environmental factors triggers extrinsic motivation. The concerns for internet environment were mainly on transaction security and personal privacy (Miyazaki and Fernandez, 2001; Salo and Karjaluoto, 2007). Therefore, this study included security and privacy for extrinsic motivation in the proposed model.

In addition, both of intrinsic motivation and extrinsic motivation could reflect the cognitive and conscious plan of an individual for a particular task. However, not only intrinsic motivation and extrinsic motivation had impacts on human behavior but also the irrational factor of flow had impact on human behavior. This study included flow in the model to explore the antecedents of cognitive attitudes for consumers online shopping was more suitable. The cognitive trust and perceived risk were partial mediator and full mediator in the model, respectively. Cognitive trust and perceived risk played important roles in the online shopping. Hedonic value, utilitarian value, security, privacy, and flow all affected the individual's perceived satisfaction and purchase intention through cognitive trust and perceived risk in the context of online shopping. Cognitive trust was a full mediator of the effects of privacy on purchase intention. It indicated that consumers must fully trust the website to ensure that the information provided by consumers in the transaction would not spread out for the protection of personal privacy. Then, it generated purchase intention. It showed that

the current consumers concerned about the issues of personal information protection for online shopping. Consumers paid more attention on the sense of trust for the protection of personal data by website for the issue of the transaction security.

Strategic implications

The results of this study indicated that cognitive trust was the foundation for gaining and retaining customers. The classification of consumer motivations facilitated the understanding of consumers' demands and accurate interpretation of consumers' needs. The main influential factor of cognitive trust was utilitarian value. Therefore, this study stated that the primary intrinsic motivation of online shopping for most consumers was utilitarian value (e.g. saving time, the cost of searching for the appropriate products, and increasing purchasing efficiency). Hence, shopping websites could add functions for triggering consumers' motivations for utilitarian value. In addition, because the primary element of extrinsic motivations was security, shopping websites should strengthen their transaction security by appropriately using various available resources and new information technologies. The establishment of website functions and the promotion of website security enhance consumers' online shopping experiences and desires.

How to enhance the hedonic value, utilitarian value, security, and privacy as well as increase consumer flow experience in order to strengthen the cognitive trust and reduce the perceived risk was the core concept of online shopping. Websites should strengthen the quality and quantity of product information, such as a complete presentation of the product, a detailed description for the contents, a clear explanation of service scope, providing purchase recommendations of similar products to increase consumers' hedonic value, and utilitarian value. In addition, websites should provide a dynamic presentation of the product by presenting in various forms (multimedia and text description) about product-related information in order to increase consumers' hedonic value. For the aspects of security and privacy, websites should provide consumers with reliable safety features, such as secure socket layer or digital signature, smooth communication channel (specific phone services and e-mail address), and consumer's privacy statements. Finally, in terms of enhancing flow experience, web design should meet with the consumer experience model in order to make the website easy to use and order the purchase from the website directly. Websites should also increase the fluency and positive experience of consumers and improve the interaction of a website. Meanwhile, websites need to feedback the consumer problem instantly and provide customized information in order to increase the chance of interaction between the consumers and the website. Novak *et al.* (2000) found that members of the virtual community generated flow or addictive behavior very easily by contacting each other through the daily online model. Websites should create a unique style of online shopping and forum to establish a distinctive image of consumers' inside mind. Furthermore, websites should enhance the sense of identification through information exchanges between members to offer a special forum for customers to use in the era of emphasis on personalization.

Limitations and future research directions

First, this study was constrained by the work force, resources, and time to use cross-sectional data. Therefore, it could not fully understand the subsequent internal change and even generated the actual behaviors of consumers. Moreover, the rapid change of online information may cause the measurement bias by time acceleration. Therefore,

this study suggests that future researchers use longitudinal study to investigate the causal relationship among constructs and incorporate the actual purchase behavior as the consequence in order to obtain a more effective and rational result under the premise of time and money permission. Second, this study did not collect the cognition and purchase intention of other countries' consumers. This study mainly focussed on the consumer online shopping experience in Taiwan. This study suggests that future research investigates the consumer purchase intention of other countries to learn about the purchase intention of different cultures. Finally, this study did not include the website design in the framework. Website design variables (such as customization settings, easy-to-search, and so on) may have the effect on the cognitive attitudes of the website for consumers. This study suggests that future research explores the relationship between website design and cognitive attitudes.

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Appendix. Scale items

Construct/items.

Hedonic value (Wang *et al.*, 2007):

(1) during the navigating process, I felt the excitement of the hunt;

(2) while navigating on this website, I felt a sense of adventure;

(3) I enjoyed being immersed in exciting new information on this website;

(4) compared to other things I could have done, the time spent shopping online at this website was truly enjoyable; and

(5) I enjoyed this online shopping trip for its own sake, not just for the services that I might need for a trip.

Utilitarian value (Wang *et al.*, 2007):

(1) if I want to make reservations for a trip, I could accomplish just what I might need on this website;

(2) shopping from this website would make my life easier;

(3) I think of this website as an expert in the services (products) it offers;

(4) shopping from this website would fit with my schedule; and

(5) if I want to make reservations for a trip, the information and services on this website would be what I would look for on website.

Security (Chen and Barnes, 2007):

(1) this website presents enough online security;

(2) purchasing on this website will not cause financial risks;

(3) it is believed that online transactions on this website are protected by the latest know-how;

(4) online payment on this website is safe; and

(5) this website has the ability to solve problems from hackers.

Privacy (Chen and Barnes, 2007):

(1) the personal information that I provide on this website is secure;

(2) the monetary information that I provide on this website is well protected;

(3) this website will not use unsuitable methods to collect my personal data;

(4) this website does not ask for irrelevant personal information; and

(5) this website does not apply my personal information for other purposes.

Flow (Saxena *et al.*, 2004):

(1) I feel totally immersed and engrossed in the website activities and lose track of time;

(2) time seems to go by quickly and swiftly while using the website;

(3) the website usage increases my learning;

(4) the website usage enhances my exploring abilities; and

(5) I cannot keep a check on time while using the website.

Cognitive trust (Bhattacherjee, 2002):

(1) this website has the skills and expertise to perform transactions in an expected manner;

(2) this website has access to the information needed to handle transactions appropriately;

(3) this website is fair in its conduct of customer transactions;

(4) this website is fair in its customer service policies following a transaction;

(5) this website is open and receptive to customer needs;

(6) this website makes good-faith efforts to address most customer concerns; and

(7) overall, this website site is trustworthy.

Perceived risk (McKnight *et al.*, 2002):

(1) entering credit card information over the website is unsafe;

(2) I think it is risky to provide one's credit card information to web-based vendors;

(3) I hesitate to enter my credit card information on the website;

(4) entering personal information over the website is unsafe;

(5) I think it is risky to provide one's social security number to web-based vendors; and

(6) I would hesitate to enter personal information like my name, address, and phone number on the website.

Perceived satisfaction (Flavián *et al.*, 2006):

(1) I think that I made the correct decision to use this website;

(2) the experience that I have had with this website has been satisfactory;

(3) in general terms, I am satisfied with the way that this website has carried out transactions; and

(4) in general, I am satisfied with the service I have received from the website.

Purchase intention (Jarvenpaa *et al.*, 2000):

(1) How likely is it that you would return to this website?

(2) How likely is that you would consider purchasing from this website in the next three months?

(3) How likely is it that you would consider purchasing from this website in the next year?

(4) For this purchase, how likely is it that you buy from this website?

(5) I cannot keep a check on time while using the website.

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