Effects of Trusting Beliefs, Perceived Benefit Factors, Observed Benefit Factors and Demographics on Consumers' Online Purchase Behavior

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Abstract

This study developed an extended model to predict consumer's usage of B2C websites for purchase, including perceived benefit factors, observed benefit factors, and trusting beliefs as predictors. The model was tested using data collected from 347 respondents online. The correlation results show that individual attitude towards using a B2C website for purchase strongly and positively related to frequency of purchase and time spent on browsing on the site. Trusting belief-competence and trusting belief-integrity significantly affected attitude, while trusting belief-benevolence was linked to actual purchasing time. The empirical results confirmed that perceived usefulness (PU) strongly influenced trusting beliefs, attitude, and frequency of purchase; and perceived ease of use (PEOU) affected actual purchase through PU. Additionally, perceived information quality (PIQ), especially in relevancy and in free of error, affect PU, and PIQ-free of error also influenced attitude and behaviors. Overall, the proposed model could be used to predict consumer's purchase frequency and attitudes toward purchasing from a B2C website.

Word count: 157

Key words: B2C website; perceived benefit factors; observed benefit factors; attitude

Introduction

E-commerce generally refers to business or commercial transactions that involve the transfer of information across the Internet. Technology developments are now allowing users to order goods or services over the web and make payments online. Nowadays, firms frequently use the internet to present their supply of products and services. From consumer's perspective, an online shopping site offers a number of advantages. It allows consumers to carry out the purchase activities more efficiently by making information about a much wider range of products available (Alba, 1997), and offering greater convenience and flexibility in the purchase decision processes (Bhatnagar, 2000), saving them from having to travel to real shop and allowing them to purchase at any time. However, for some consumers, shopping and buying online have become part of their daily life, while for others, may try it occasionally, without adopting it as the major consuming pattern.

The long-term profitability and survival of business to consumer electronic commerce depend on the continued online buyers rather than the first-time users (Liao, 2009). Previous studies on e-commerce have uncovered many facets of why a consumer may wish to engage in online purchasing and factors affect consumer behavior. Factors including consumer's perception of convenience, product offering, production information, site design, and security are found influential to consumer's satisfaction with online shopping (Gefen, 2003; Liang & Huang, 1998; Szymanski & Hise, 2000; Vatanasombut, 2004). Factors

such as online trust, perceived risk, perceived benefit, issue of privacy have been shown to influence willingness to purchase (Gefen, 2000; Kim, 2009; Pavlou, 2003). The technology acceptance model (TAM) suggests that perceived usefulness and perceived ease of use are beliefs about a new technology that influence an individual's attitude toward and use of that technology (Davis, 1989).

In this research initiative, we address the issues of accepting purchase from business-to-customer website, in which we integrate trust, perceived benefit factors, observed benefit factors, and demographics into a holistic model, and sought to examine their effects on predicting attitude towards making online purchases on a website and actual purchasing behavior.

Literature Review and Research Hypothesis

From attitude to actual behaviors

Attitude toward an innovation is a critical intervening variable in the innovation adoption decision (Rogers, 1995). Thus, attitude toward a specific information technology is conceptualized as a potential user's assessment of the desirability of using that technology (Davis, 1989). As proposed in Theory of Reasoned Action (TRA) (Fishbein, 1975) and Technology Acceptance Model (TAM) (Davis, 1989), attitude was expected to influence behavioral intention in using an information system. Fishbein and Ajzen (1975) draw the

distinction between two attitude constructs: attitude toward the object (A_O), which refers to a person's affective evaluation of a specified attitude object, and attitude toward the behavior (A_B), which refers to a person's evaluation of a specified behavior involving the object. It is shown that A_B predicts more accurately than A_O does. Given this, attitude toward using a B2C website will be employed in this study. Adapting the general A_B definition, attitude toward using a B2C website is defined as the degree of evaluative affect that an individual associates with using the website in his/her purchase tasks/needs. We proposed in this study, actual purchase from a B2C website is determined by attitude toward using the B2C website.

H_1: Attitude towards purchasing from a B2C website will positively and significantly correlate with actual purchase from the website.

Trusting beliefs

Trust is likely to play a major role in the e-business environment. Drawing upon the rich trust literature and the conceptualizations of the trusting in the use of technology (McKight, 2001, 2002) in business relationships in e-commerce context, we explicitly view consumer's trust as institution-based trust (perception of the internet environment) and trusting beliefs (perceptions of specific web vendor attributes). In this study, we will focus on consumer's perceptions of specific web vendor. Trusting beliefs was defined as a secure conviction that

the other party has favorable attributes (McKnight, 2005). Applied in this study's context, trusting beliefs on a B2C website refer to the consumers' perception that a particular B2C website has attributes that are beneficial to them.

We employ the three most often utilized trusting beliefs (McKight, 2001, 2002): competence (ability of the trustee to do what the truster needs), benevolence (trustee caring and motivation to act in the truster's interests), and integrity (trustee honesty and promise keeping). In this study, trusting belief-competence means consumers believe a web vendor has the ability or power to do what consumers want done; trusting belief-benevolence means one believes a web vendor cares about consumer and is motivated to act in consumer's interest, for example, a benevolent web vendor would not be perceived to act opportunistically by taking advantage of the trustor. Benevolence reflects the specific relationship between trustor and trustee, not trustee kindness to all (McKnight, 2001-2002). Trusting belief-integrity means one believes that the other party makes good-faith agreements, tells the truth, acts ethically, and fulfills promises (Bromiley, 1995). This reflects the belief that an internet vendor will come through on its promises and ethical obligations, such as to deliver goods or services or to keep private information secure. Therefore, integrity is more about the character of the trustee rather than about the trustor-trustee relationship (McKnight, 2001-2002).

Researchers have shown a direct relationship between trust and willingness to buy online

from Internet vendors (Kim, 2008), and trusting beliefs are linked to trust-related behaviors (McKight, 2001, 2002). Therefore, we expect that increases in trusting beliefs to a certain B2C website will directly and positively affect attitude towards purchasing from the site, as well as frequency of purchase from website.

H_{2a}: Trusting beliefs on a certain B2C website positively affect attitude toward purchasing from the website.

H_{2b}: Trusting beliefs on a certain B2C website positively affect frequency of purchase from the site.

Perceived benefit factors

Perceived Usefulness

Perceived usefulness was adapted from TAM, the original PU refers to the degree to which a person believes that using a particular system would enhance his or her job performance. A system high in PU is one for which a user believes in the existence of a positive use-performance relationship (Davis, 1989). After revising Davis's definition of PU, we define PU in this study as the degree to which a consumer believes that buying from a certain B2C website would enhance the effectiveness of his or her purchase task.

According to TAM, PU is positively correlated with attitude toward using and its use. In this study, a B2C website can be viewed as an information system, providing information and

service to its users. Thus, it may influence consumers' attitude towards using it if the website effectively assists them in completing transactions. Because PU reflects the perceived effectiveness of using a certain website, and trusting beliefs include such positive traits such as competency, we argue that PU should influence the trusting beliefs in the website. Based on the argument above, we propose:

H_{3a}: Perceived usefulness of a B2C website positively affects attitude towards purchasing from this website.

H_{3b}: Perceived usefulness of a B2C website positively affects trusting beliefs in this website.

Perceived Ease of Use (PEOU)

Perceived Ease of Use was also adapted from TAM, which was defined as the degree to which a person believes that using a particular system would be free of effort (Davis, 1989). PEOU measures user assessments of ease of use and ease of learning, and it deals with user motivation that is based on the assessment of the intrinsic aspect of using information technology, such as its interface and the process involved in using it (Gefen , 2000). In this study considering the task nature of online purchase, we propose perceived ease of use of a B2C website as ease of learning, browsing and trading when manipulating it for purchase.

There is extensive empirical evidence accumulated over a decade that PEOU has a positive, indirect effect on system usage through PU (Davis, 1989; Venkatesh, 2000). Therefore, we

propose:

H_{4a}: Perceived ease of use of a B2C website positively affects attitude towards purchasing from this website.

H_{4b}: Perceived ease of use of a B2C website positively affects perceived usefulness of this website.

Perceived Information Quality

Information quality was considered to be the output quality of information system, and used to represent information characteristics (Shih, 2004). Many research have been done on exploring and measuring dimensions of information quality. Bailey and Pearson (1983) developed scales for measuring information system satisfaction, including accuracy, precision, currency, timeliness, etc, to evaluate information quality. Wand and Wang (1996) took an ontological approach and formally defines four information quality dimensions: correctness, unambiguous, completeness, and meaningfulness. Lee and Strong (2002) grouped the information quality dimensions into four categories, intrinsic (e.g., accuracy), contextual (e.g., relevancy, timeliness, completeness), representational and accessibility.

Early research (Bailey and Pearson, 1983) defines Perceived Information Quality (PIQ) represents a user's reaction to the characteristics of output information versus the user's information requirement. In this study, perceived information quality of a B2C website was

defined as the cognitive beliefs with three distinct factors: (1) relevancy, which indicates that the information provided by the site is relevant with consumer's target information, (2) appropriate amount, which means the quantity of information are in appropriate amount, and (3) free of error, which represents the information were correct, accurate, and reliable.

As PIQ reflects information relevancy, which is the initial characteristics that user perceived from the response of information request, it affects whether the information searching progress is successfully and smoothly conducted. Therefore, PIQ is assumed to influence PU and PEOU. PIQ also reflects information that is complete and enough, on satisfying the consumer's purchase needs. Therefore, PIQ should positively related to trusting belief-competence and produces trusting beliefs-benevolence. Also, because PIQ include free of error, it should influence trusting beliefs-integrity in the exchange provider. Based on the auguments above, we propose:

H_{5a}: PIQ of a B2C website positively affects TB on this website.

H_{5b}: PIQ of a B2C website positively affects PU of this website.

H_{5c}: PIQ of a B2C website positively affects PEOU of this website.

Observed benefit factors

Rogers (1995) suggested that some related advantage of an innovation is another predictor of adoption. The degree of relative advantage can be "expressed as economic profitability,

social prestige, and/or other benefits" (p.212). Benefits such as economics, time saved , and overall convenience were found to be significant predictors in the adoption of telephone and cable service (LaRose, 1992). Economic advantage and overall convenience are important components in e-commerce participation (GVU-10th survey, 1998). Prior study also have stressed the importance of providing high quality of service as the key to successful e-commerce. In this study, from a consumer's perspective toward the transaction on a B2C website, we address economic benefit, delivery time, and return mechanism as the three important tangible observed benefit factors when considering online purchase. As PU deals with the perceived effectness of the purchase, we assume that it can be positively influenced by thses three factors. And as TB include such positive factor as competency, it may also be affected by the three factors.

H_{6a}: Economic benefit of the purchase positively affects attitude towards purchasing from a B2C website.

H_{6b}: Economic benefit of the purchase positively affects PU.

H_{6c}: Economic benefit of the purchase positively affects TB.

H_{7a}: Delivery time positively affects attitude towards purchasing from a B2C website.

H_{7b}: Delivery time positively affects TB.

H_{7c}: Delivery time positively affects PU.

H_{8a}: Return mechanism positively affects attitude towards purchasing from a B2C website.

H_{8b}: Return mechanism positively affects TB.

H_{8c}: Return mechanism positively affects PU.

In addition to testing the hypothesis above, this study also seeks predictors for consumers' usage behaviors, attitudes towards using, trusting beliefs and perceived usefulness of a B2C website, and to explain usage pattern of a B2C website. Therefore, the following research questions are posed as:

RQ_1: How can demographics, PEOU, PIQ, and observed benefit factors predict PU?

RQ_2: How can demographics, perceived benefit factors, and observed benefit factors predict trusting beliefs?

RQ_3: How can demographics, trusting beliefs, perceived benefit factors, and observed benefit factors predict attitude towards purchasing from a B2C website?

RQ_4: How can demographics, attitude towards using, trusting beliefs, perceived benefit factors, and observed benefit factors predict actual use of a B2C website?

An extended model

Based on the belief-attitude-intention-behavior relationship in the TRA, this study proposes a model (Fig.1) extending TAM to predict consumer online shopping behavior. The model not only includes PU, PEOU, attitude toward online shopping and usage behaviors, but also adopts trusting beliefs, perceived information quality and factors such as perceived economic benefit, perceived delivery time, and perceived return protection.

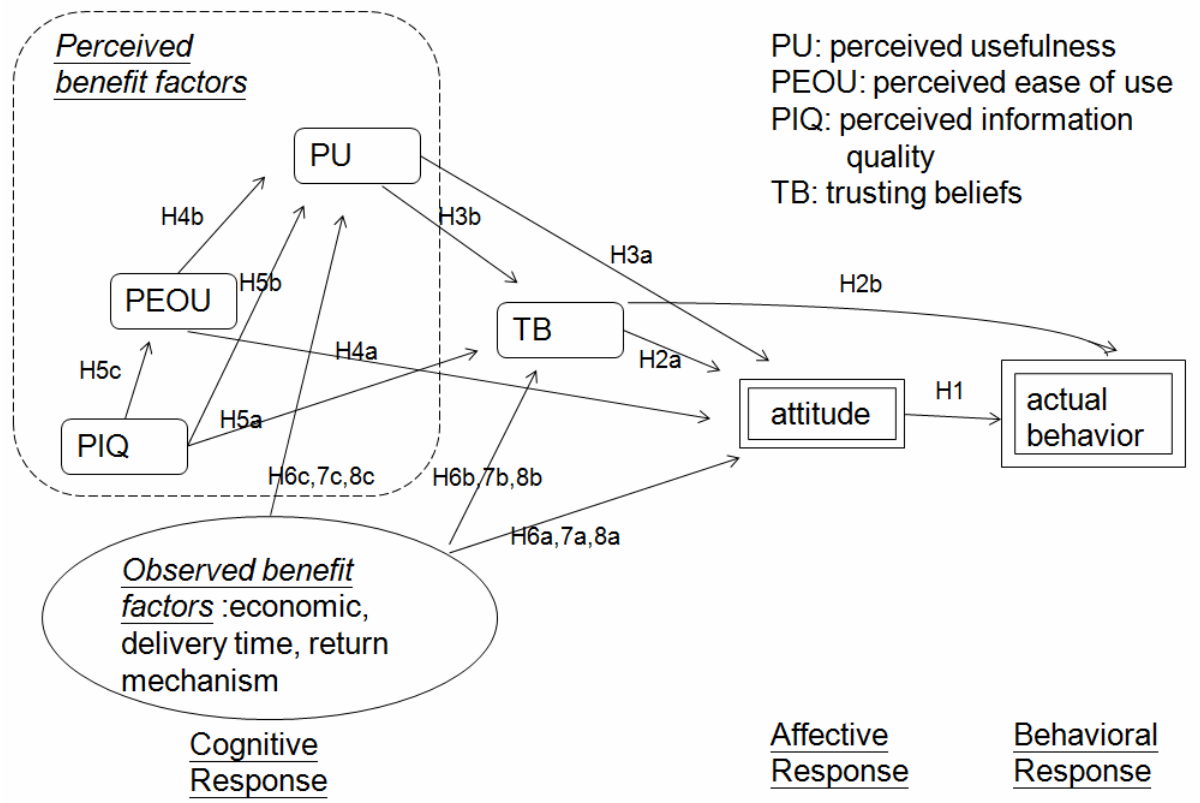

Fig 1. Theoretical Framework

Methodology

Sampling and procedure

Data for the formal study were collected from survey both online and offline. An online questionnaire was created on www.my3q.com, with a snow ball sampling method, collecting data from April 10 to May 1, 2011. Participants were asked about whether they have experience of buying from a B2C website, the one who reported "yes" would be invited to participate in the survey. For each participant, he/she was asked to report the name of a B2C websites he/she has ever used for purchase, and required to keep the B2C website he/she reported in mind as a reference while responding to the questions listed on the

questionnaire.

A total of 347 valid questionnaires were collected. Among the respondents, 44.1% were male. In terms of highest education level, 45.6% of the respondents were undergraduates, 44.9% were holders or candidates of Master degrees. 79.3% aged between 21~25. 44.4% of the respondents do not have personal income and totally supported by family, 26.2% had monthly income but lower than 3000 RMB, and 22.7% of the respondents have monthly personal income between 3000~8000 RMB, and only 6.8% had monthly income more than 8000 RMB. All of the respondents reported they had at least one time of experience of using a B2C website purchase items, such as books, electronic products and clothes.

Measurement

***Actual purchase behaviors*.** Respondents were asked about the frequency they had made purchases on a particular B2C website, and the time they spent on browsing information on the site with items "I use the site quite often for purchase" (Mean=3.33, SD=1.125) and "I spend a lot of time on the site for browsing product/service information"(Mean=3.22, SD=1.102), using 5-point Likert scale with "1"=strongly disagree, and "5"=strongly agree.

***Attitude towards using B2C website behaviors*.** Three items were adapted from Davis and Davis et al. (1989): "I am positive toward this site" (Mean=4.09, SD=0.618), "It make sense to use this site" (Mean=3.79, SD=0.786), and "People should adopt the site" (Mean=3.63, SD=0.810). Respondents answered on a 5-point scale where "1"= strongly disagree, and

"5"=strongly agree. Reliability alpha was 0.743.

***Trusting Beliefs*.** Nine items representing benevolence, integrity, and competence were adapted from McKnight et al. (2002a). Respondents were asked to give an evaluation of the website they referred at the beginning of the task, in terms of response with agreement using a 5-point scale with "1"= strongly disagree, and "5"=strongly agree. Table 1 shows that factor analysis of the 3-dimension Trusting Beliefs structure. All factors yielded acceptable reliability scores ranging from 0.75 to 0.83.

(* Insert Table 1 here *)

***Perceived benefit factors*.** Scales of perceived usefulness (PU), perceived ease of use (PEOU) were measured using items adapted from Davis and Davis et al. (1989). Additionally, we adopted 9 items (Lee et al. 1999) on three dimensions (relevancy with the purchase needs, appropriate amount, and free of error) of PIQ and suit them to the context of individual online purchase. Respondents were asked to give a evaluation of the website they referred at the beginning of the task, in terms of response with agreement using a 5-point scale with "1"= strongly disagree, and "5"=strongly agree. Table 2 shows mean and standard deviation of the items for measuring PU, PEOU, and PIQ. Reliability alpha ranged from 0.68 to 0.88.

(* Insert Table 2 here *)

***Observed benefit factors*.** For observed benefit, respondents were asked to rate the following items: "Purchase from this B2C website saves me money" for economic benefit,

"The delivery time is quite on for the product I purchase" for delivery time; and "The site's return protection frees me from worrying" for return mechanism. A 5-point scale with "1"= strongly disagree, and "5"=strongly agree was used for these evaluations.

***Demographics*.** Social demographic variables were included in the present study as control variables: gender (male=1), age, education, and monthly personal income.

Results

Hypothesis Testing

Attitude and usage behaviors. The results from the bivariate correlation in Table 3 show that attitude towards using a B2C website is significantly linked to the website usage behaviors: frequency of purchase (r= .47, $p < .001$), and time spent on browsing (r= 0.21, $p < .001$). Specifically, regression analysis shows that attitude towards using is the significant predictor for both frequency of purchase and time spent on browsing. This indicates the more positive users' attitude toward a B2C website, the more frequent they purchase from it and longer time will be spent on browsing the website. Thus, H1 was supported.

Trusting beliefs (TB) and attitude. Trusting belief-competence (r= .58, $p < .001$), trusting belief-integrity (r= .54, $p < .001$), and trusting belief-benevolence (r= .44, $p < .001$) were found to significantly related to attitude towards using, which indicates that the higher people having trust belief-competence, integrity or benevolence on a web vendor, the more

positive people's attitude towards using the website will be. Thus, H2a was supported.

***TB and usage behaviors*.** Trusting belief-competence was found significantly related with frequency of purchase (r= .34, $p < .001$) and time spent on browsing (r= .24, $p < .001$). Trusting belief-integrity was also found significantly linked with frequency of purchase (r= .29, $p < .001$) and time spent on browsing (r= .11, $p < .05$). And trusting belief- benevolence was significantly linked with frequency of purchase (r= .29, $p < .001$) and time spent on browsing (r= .13, $p < .05$). These relationships indicate that the higher people having trusting beliefs in competence, integrity and benevolence on a web vendor, the more frequent people would make purchase from it, and longer time will be spent on browsing the website. Therefore, H2b was supported.

***PU and attitude*.** PU was found significantly linked to attitude towards using (r= .59, $p < .001$), which indicated that the more usefulness a website was perceived, the more positive people's attitude towards using it will be, supporting H3a.

PU and TB. PU was also significantly related with trusting belief-competence (r= .53, $p< .001$), trusting belief-integrity (r= 0.48, $p\leq 0.001$), and trusting belief-benevolence (r= .42, $p< .001$). This result indicates that the more usefulness a website was perceived, the higher people having trust belief-competence, integrity or benevolence on the web vendor. Thus, H3b was largely supported.

***PEOU and attitude*.** H4a predicted that there are significant relationship between PEOU and

attitude. Data in Table 3 shows that PEOU was significantly related to attitude towards using (r= .53, $p < .001$). H4a was largely supported.

***PEOU and PU*.** PEOU was also significantly related to PU (r= .53, $p < .001$), which indicates that the easier of using the website for purchase, the more usefulness it will be perceived by users, supporting H4b.

***Perceived information quality (PIQ) and trusting beliefs (TB)*.** Also shown in Table 3, significant relationships were found between dimensions of Perceived information quality (PIQ) and trusting beliefs (TB). Relevancy of perceived information quality was found to significantly related with trusting belief-competence (r= .38, $p < .001$), trusting belief-integrity (r=.38, $p < .001$), and trusting belief-benevolence (r= .31, $p < .001$). Appropriate amount of PIQ was also found to significantly linked to trusting belief-competence (r= .29, $p < .001$), trusting belief-integrity (r= .23, $p < .001$), and trusting belief-benevolence (r= .26, $p < .001$), and free of error of PIQ, was showed to related with trusting belief-competence (r=.39, $p < .001$), trusting belief-integrity (r=.48, $p < .001$), and trusting belief-benevolence (r= .33, $p < .001$). These relationships indicated that PIQ and trusting beliefs were positively related with each other, supporting H5a.

***PIQ and PU*.** Relevancy (r= .49, $p < .001$), appropriate amount (r= .32, $p< .001$), and free of error (r= .42, $p < .001$) of PIQ were all found to significantly related with PU, which suggesting that the more user relevancy, appropriate amount, and free of error in the

perceived quality of information, the more usefulness of a website can be perceived. Thus, this supported H5b.

***PIQ and PEOU*.** Besides, PEOU was also found significantly linked to the three dimensions of PIQ: relevancy (r= .38, $p < .001$), appropriate amount (r= .25, $p < .001$), and free of error (r= .36, $p < .001$). This indicates that the more relevancy, appropriate amount, and free of error in the perceived quality of information, the easier of using the website for purchase will be perceived by users. Thus, H5c was supported.

***Observed benefit factors and attitude*.** Economic benefit (r= .44, $p < .001$), delivery time (r= .19, $p < .001$), and return mechanism (r= .28, $p < .001$) were found to significantly linked to attitude towards using the website. This indicates that the more competitive price, just-in-time delivery and guaranteed return mechanism provided by a website, the more positive the consumers' attitude towards purchasing from it. Therefore, H6a, H7a, H8a were supported.

***Observed benefit factors and TB*.** Data also shows that economic benefit was significantly linked to the three dimensions of trusting beliefs, competence (r= .35, $p < .001$), integrity (r= .24, $p < .001$), and benevolence (r= .25, $p < .001$). Delivery time was also found to significantly linked to the three dimensions of trusting beliefs, competence (r= .26, $p < .001$), integrity (r= .24, $p < .001$), and benevolence (r= .14, $p < .001$). Also, return mechanism was found to significantly linked to the three dimensions of trusting beliefs, competence (r= .36,

p < .001), integrity (r= .37, *p* < .001), and benevolence (r= .38, *p* < .001). Therefore, H6b, H7b, H8b were supported.

***Observed benefit factors and PU*.** Economic benefit (r= .37, *p* < .001), delivery time (r= .30, *p* < .001), and return mechanism (r= .32, p < .001) were found to significantly linked to PU, which indicates that the more competitive price, just-in-time delivery and guaranteed return mechanism provided by a website, the more usefulness it will be perceived by consumers. Therefore, H6c, H7c, H8c were supported.

(* Insert Table 3 here *)

Predicting PU

To examine the relative influence of demographics, perceived information quality, PEOU, and observed benefit factors on PU, a hierarchical regression was run. The results in Table 4 show that people who perceived highest usefulness of a B2C website tended to be those who perceived highest information quality of the website, specifically, high in perceived information relevancy (β=.27, *p* < .001), and information free-of-error (β= .15, *p* < .001). Perceived information quality explained most of the variance at 29 percent. PEOU (β= .27, *p* < .001) also found to significantly and positively affected, explained PU at 9 percent as the second powerful predictor of PU. When variables from observed benefit factors entered into the equation in the last block, economic benefit (β=.18, *p* < .001), and delivery time (β=.12, *p*

< .001) were found to be significant predictors. The observed benefit factors explained 5% of the variance. The hierarchical regression explained 42% of the variance in total.

(* Insert Table 4 here *)

Explaining Trusting Beliefs

To examine how demographics, perceived benefit factors, and observed benefit factors predict dimensions of trusting beliefs on a B2C website, three parallel hierarchical regression analyses were run, as in Table 5 shows. For trusting belief-competence, none of the variables from demographics block was found to be significant predictors. However, when variables from perceived benefit factors entered into the equation, we found that the more usefulness (β=.26, $p < .001$) and ease of use (β=.17, $p < .001$) a website was perceived, the higher trusting belief-competence people perceived of it. And the more relevancy (β=.10, $p < .05$) and free of error (β=.10, $p < .05$) in the perceived quality of information, the higher trusting-competence the website would be perceived. Block of perceived benefit factors explained most of the variance at 34%. When variables from observed benefit factors entered into the equation, economic benefit (β=.13, $p < .01$) and return mechanism (β=.16, $p < .001$) were found to be significant predictors. This block explained 4% of the variance. The hierarchical regression explained 38% of the variance in trusting belief-competence.

For trusting belief-integrity, as showed in Table 5, none of the variables from demographics block was found to be significant predictors. However, when variables from

perceived benefit factors entered into the equation, we found that the more free-of-error (β=.29, $p < .001$) people perceived of the information that a website provides, the more trusting belief-integrity they have on the site vender, perceived usefulness (β= .21, $p < .001$) and perceived ease of use (β=.20, $p < .001$) are also found significantly influence trusting belief-integrity. Block of perceived benefit factors explained most of the variance at 38%. When variables from observed benefit factors entered into the equation, return mechanism (β=.17, $p < .001$) were found to be significant predictors. This block explained 3% of the variance. The hierarchical regression explained 40% of the variance in trusting belief-integrity.

For trusting belief-benevolence, the result indicates that people who reported to have a higher trusting belief-benevolence tended to be those who are younger (β= -.14, $p < .01$). The demographics block explained 2% of the variance. PU (β=.25, $p < .001$) and perceived information free-or-error (β=.15, $p < .01$) were also found to be significant positive predictors. The perceived benefit factors block explained most of the variance at 22%. Besides, when variables from observed benefit factors entered into the equation, return mechanism (β= .25, $p < .001$) and economic benefit (β=.18, $p < .01$) were found to be significant positive predictors. This block explained 7% of the variance. The hierarchical regression explained 29% of the variance in trusting belief-benevolence.

(* Insert Table 5 here *)

Predicting attitude towards purchase from a B2C website

To examine how demographics, trusting beliefs, perceived benefit factors, and observed benefit factors predict attitude towards using a B2C website for purchasing, a hierarchical regression analyses was conducted, as in Table 6 shows. None of the variables from demographics block was found to be significant predictors. As the second block of predictors, trusting belief-competence (β=.22, $p < .001$), and trusting belief-integrity (β=.14, $p < .001$) were found to significantly affect the attitude toward using a B2C website, this trusting beliefs block explained the most variance at 41%. When variables from perceived benefit factor entered into the equation, PU (β= .21, $p < .001$), PEOU (β=.16, $p < .001$), and PIQ-free of error (β=.17, $p < .001$) were found to be significant positive predictors. This block explained 11 percent of the variance.

In the last block, economic benefit (β= .17, $p < .001$) and delivery time (β= -.08, $p < .05$) were found to be significant predictors. This indicates that offering economic benefit will enhance consumers' positive attitude towards purchasing from it, in contrast, attitude towards using a B2C website was negatively affected by delivery time. This observed benefit factors block explained 3% of the variance. It is interesting to note that both delivery time (r= .19, $p < .001$) and return mechanism (r= .28, $p < .001$) were found to significantly related with attitude towards using in a bivariate relationship, however, when put in a multivariate

context, delivery time was negatively linked to attitude, while no significant relationship was found between return mechanism and attitude. The hierarchical regression explained 53% of the variance in attitude towards using a B2C website for purchase.

(* Insert Table 6 here *)

Predicting Actual Usage of a B2C website

To examine how demographics, attitude towards using, trusting beliefs, perceived benefit factors, and observed benefit factors predict actual usage behaviors, we conduct another hierarchical regression analyses, as in Table 7 shows. Age (β= .14, $p < .001$) was found to be a significant predictor, which indicates older users are tended to make more purchases from a B2C website. As the second block of predictor, attitude towards using a website for purchase (β= .34, $p < .001$) was found to significantly influence the actual using behavior of the site, and explained 22% of the variance. For the block of trusting beliefs, only trusting belief-benevolence (β= .10, $p < .05$) has significantly affect frequency of purchase. And for the perceived benefit factors block, perceived usefulness (β= .23, $p < .001$) and perceived information quality-free of error (β= .10, $p < .05$) were found to be significant predictors. This block explained 3% of the variance. For the last block-observed benefit factors, none variables was found to have significant affect on frequency of purchase. The hierarchical regression explained 27% of the variance in frequency of purchase on a B2C website.

We also examine the effect on using a B2C website for browsing information with the same predictors, as in Table 7. The result shows that people who spend more time on browsing information on a B2C website tended to be the ones with high personal income (β= .16, $p < .01$), this explained 3% of the variance. Attitude towards using a website for purchase (β= .14, $p < .05$), also significantly affect browsing time, which explained the variance at 4%. When variables of trusting beliefs entered the equation, trusting belief-competence (β= .20, $p < .001$), was found to have a significant effect on browsing time, which indicates the higher people have trusting belief-competence on a web vendor, the more time people would spend on browsing the site. Trusting beliefs block explained 3% of the variance. For the perceived benefit factors, we found perceived information-free of error (β= -.12, $p < .05$), has a significant effect on browsing information, which indicates that more time people spend on browsing the information from a certain B2C website, the lower they perceived the information quality is free-of-error. This block explained 1% of the variance. For the observed benefits variables, none was found to have significant effect on browsing time. The hierarchical regression explained 10% of the variance in browsing time of a B2C website.

(* Insert Table 7 here *)

Discussions

This paper attempts to identify the factors that predict a consumer's attitude and purchase

behaviors from B2C website, and proposed a model including perceived benefit factors, observed benefit factors, trusting beliefs based on TAM. We also address how these variables related to each other. Data were collected from 347 participants, who have reported to have at least one time of experience of purchasing from a B2C website. In the extended model, we found that attitudes toward using the website for purchase significantly and positively affect usage behaviors, which confirms the theoretical postulation of TAM.

Second, exploratory factor analysis successfully confirmed the notion that trusting beliefs is a multi-dimensional construct similar to the one proposed by Mcknight (2001). By adding trusting beliefs into this extended model, we have several interesting findings: First, among the three dimensions we examine, items on trusting belief-competence (mean ranged from 4.01 to 4.06) and trusting belief-integrity (mean ranged from 3.82 to 4.09) tended to have higher score than trusting belief-benevolence (mean ranged from 3.50 to 3.63), which indicates that in general, consumers believe a web vendor has the ability or power to satisfy the consumers' needs and keep its promises and ethical obligations, higher than the web vendor cares about a consumer's interest. Second, these three dimensions play different roles in affecting attitude and actual behavior. In determining attitude toward usage, trusting belief-competence and trusting belief-integrity were found to be significant predictors, while trusting-belief benevolence was found to be a significant positive predictor of frequency of purchase. This result indicates that, a web vendor's relationship with

consumers is directly affect consumers' actual purchase. Vendor's ability/ power, promises and ethical obligations keeping don't have direct effect on actual usage, but they affect consumers' attitude towards purchasing from a certain vendor, which may also influence the actual purchase behavior.

Third, for perceived benefit factors, we proposed three factors which are perceived usefulness (PU), perceived ease of use (PEOU) and perceived information quality (PIQ). PEOU emphasizes the system using aspect, PIQ deals with the content of the website which has three dimensions, and PU refers to the effectiveness of using the website. PU and PEOU were drawn from TAM, PIQ was proposed and added into this model intuitively, but also based on literature. This study investigated the inter-relationship among the three perceived benefit factors, and their effects on actual usage behavior, attitude, and trusting beliefs. The results show that 1) PEOU affects PU, which indicates that when a website is designed more easy to use, the more it will be perceived useful; 2) PU is a direct predictor and PEOU serves as a secondary predictor of actual usage, which influencing frequency of purchase through PU, confirming the theoretical postulation of TAM. Besides; 3) PU also affects consumer's trusting beliefs of a web vendor's competence, integrity and benevolence; 4) Whether an online purchase system is easy to operate, affects consumer's trusting beliefs of the vendor's competence and character, but doesn't affect the vendor-consumer's relationship; 5) Information is free of error, can enhance consumer's perceived usefulness and ease of use of

a B2C website, and also increase individual purchase times; 6) Information is relevant with users needs does not predict attitude and actual purchase directly, but it influenced consumer's perception of usefulness and ease of use of the site; 7) Whether the information are in appropriate amount would not affect PU, PEOU and trusting beliefs, as well as attitude and actual purchase, the results indicate that the information amount would not be a prime factor, compared with the relevancy and free of error, as in purchase context. Consumers' first concerns are whether they can find what they want, and whether the information are accurate and reliable, rather than consider whether the information amount is too much or too little.

Besides, we also add three observed benefit factors into the model, these factors were also proposed intuitively, based on literature and observation. The findings suggest that 1) when consumers consider whether an online purchase is effective, saving money and time are the important factors, rather than the product can be returned smoothly; 2) A good mechanism does not affect perceived usefulness direct, but it can help web vendors to establish trusting belief-competence, trusting belief- integrity and trusting belief-benevolence among consumers; 3) Among the three benefit factor proposed in this model, economic benefit is the most powerful one in predicting consumer attitudes toward purchase from a website.

Limitation

This research study has certain weakness. First, the study employed self-report measurement, which could be subjective and not objective.

Second, some multi-items scales seem to be less reliable than was expected. This study adopts several items to measure difference variables, while the reliability coefficients are not as high as those of the previous research. The problem may partly due to lacking enough precision of translation from English to Chinese.

Third, despite there being 9 perceived information quality items applied to this study, the failure to include 8 gathered in five dimensions from the literature (Lee, 2002) may due to the dimensions we collected are not representative enough in e-commerce context or to describe a B2C website. For example, it is hard for consumers to differentiate "quantity" and "completeness" when they search for product information. Rather than pay attention to the amount of information, they care more about whether the information meet their need and whether they are accurate and reliable. We eliminate some items and clustered them into three dimensions, however, the dimension "appropriate amount" seems to has little effect on predicting other proposed dependents. Therefore, dimensions of perceived information quality should be considered carefully in further research. Besides, we consider social and culture differences between China and the West. For example, the dimension of reputation in describing information quality is can hardly understood by participants. Therefore, in

future research, the items should be developed locally and are reflective of the characteristics of consumer in their native culture.

Finally, variables in observed benefit factors are proposed intuitively, researcher believe that, as the changing and development of business model, there should be more observed factors that influence consumer's attitude and actual purchase. Future research should further explore them and measure them.

Reference

Alba, J. L. (1997). Interactive home shopping: consumer, retailer, and manufacturer incentives to participate in electronic marketplaces. *Journal of Marketing, 61*(3), 38-53.

Bailey, J. S. (1983). Development of a tool for measuring and analyzing computer user satisfaction. *Management Science 29*, 530-545.

Bhatnagar, A. M. (2000). On risk, convenience, and Internet shopping behavior. *Communication of the ACM, 43*(11), 98-105.

Bromiley, P. a. (1995). Transactions costs in organizations with trust. *Research on Negotiations in Organizations, 5*, 219-247.

Butler, J. (1991). Toward understanding and measuring conditions of trust: Evolution of a conditions of trust inventory. *Journal of Management, 17*(3), 643-663.

Choudhury, V. K. (2001). *The Relative Advantage of Electronic Channels: A Conceptual and Operational Definition.* Cincinnati, OH: University of Cincinnati Press.

Corritorea, C. L., Kracher, B., & Wiedenbeck, S. (2003). On-line trust: concepts, evolving themes, a model. *Int. J. Human-Computer Studies* , *58*(1), 737–758.

Dan, J. & Kim, D. L. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk and their antecedents. *Decision Support System, 44* , 544-564.

Davis, F. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technologies. *MIS Quarterly, 3*(13), 319-340.

Fishbein, M. A. (1975). *Belief, Attitude, Intention and Behavior.* Reading, MA: Addison-Wesley.

Gefen, D. (2000). The relative importance of perceived ease of use in IS adoption: A study of

e-commerce adoption. *Journal of the Association of Information Systems, 1*(8), 1-30.

Gefen, D. A. (2002). Reflections on the Dimensions of Trust and Trust-worthiness among Online Consumers. *DataBase for Advances in Information Systems, 33*(3), 38-53.

I. Ajzen, M. F. (1980). *Understanding Attitudes and Predicting Social Behavior.* Englewood Cliffs, NJ: Prentice-Hall.

Kim, D. F. (2009). Trust and satisfaction, two stepping stones for successful e-commerce relationships: A longitudinal exploration. *Information System Research, 20*(2), 237-257.

Koehn, D. (1996). Should we trust in trust? *American Business Law Journal, 34*(2), 183-203.

LaRose, R. A. (1992). Audiotext and the re-invention of the telephone as a mass medium. *Journalism Quarterly, 69*(2), 413-421.

Legris, P. I. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & Management, 40*(3), 191-204.

Liao, Q. L. (2009). Rebuild post-violation trust in B2C electronic commerce. *Journal of organizational and end user computing, 21*(1), 60-74.

McKight, D. C. (2001). Developing and Validating Trust Measures for e-Commerce: An Integrative Tepylogy. *Information Systems Research, 3*(13), 334-359.

McKnight, D. C. (2002). What trust means in e-commerce customer relationships: an interdisciplinary conceptual typology. *International Journal of Electronic Commerce 6(2)*, 35-53.

McKnight, D. H. (2005). Trust in Information Technology. In G. B. Davis (Ed.), *The Blackwell Encyclopedia of Management*. Vol. 7 Management Information Systems (pp. 329-331). Malden, MA: Blackwell.

Nicolaou, A. M. (2006). Perceived information quality in data exchanges: Effects on risk, trust and intention to use. *Information Systems Research, 4*(17), 332-351.

Olson, J. S. (2000). I to I trust in e-commerce. *Communications of the ACM, 43*(12), 41-44.

P.A. Pavlou, M. F. (2006). Understanding and predicting electronic commerce adoption: an extension of the theory of planned behavior. *MIS Quarterly, 30*(1), 115-143.

Parasuraman, V. X. (1988). SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing, 64*(1), 12-40.

Pavlou, P. T. (2002). Institutional Trust in Interorganizational Exchange Relationships: The Role of Electronic B2B Marketplaces. *Journal of Strategic Information System, 11*(4), 215-243.

Pavlou, P. T. (2003). The transitional role of institutional trust in online interorganizational relationships. *36th Annual Hawaii International Conference on System Sciences,* Hawaii, USA.

Peter, P. T. (1975). A comparative analysis of three consumer decision strategies. *Journal of Consumer Research, 2*(1), 29-37.

Plank, R. R. (1999). Perceived trust in business-to-business sales: a new measure. *The Journal of Personal Selling& Sales Management, 19*(3), 61-71.

Rogers, E. (1995). *Diffusion of Innovation. Fourth Edition.* New York, NY: Free Press.

Shih, H. (2004). An Empirical Study on Predicting User Acceptance of e-shopping on the Web. *Information & Management, 41*, 351-368.

Tan, Y. A. (2000-2001). Toward a Generic Model of Trust for Electronic Commerce. *International Journal of Electronic Commerce, 5*(2), 61-74.

Venkatesh, V. A. (2000). A theoretical extension of the technology acceptance model: four longitudinal field studies. *Management Science, 46*(2), 186-204.

Y. Wand, R. W. (1996). Anchoring data quality dimensions in ontological foundation. *Communications of the ACM, 39*(11), 86-95.

Yang, W. & Lee, D. M. (2002). AIMQ: a methodology for information quality assessment. *Information & Management, 40*, 133-146.

Z. Liao, M. C. (2001). Internet-based e-shopping and consumer attitude: an empirical study. *Information and Management, 38*(5), 299-306.

Zucker, L. (1986). Production of trust: institutional source of economic structure 1840-1920. *Research in Organization Behavior, 8*(1), 53-111.

Table 1 Factor analysis of the Trusting Beliefs (TB)

	Factors			Mean	SD
	1	2	3		
Competence					
1. This site is competent and effective in providing online shopping service	.77			4.01	.72
2. This site performs its role of providing online shopping service very well	.77			4.01	.68
3. In general, this site is expert at online shopping service	.83			4.06	.68
Integrity					
4. This site is truthful in its dealing with me		.81		3.82	.86
5. I would characterize this site as honest		.75		4.09	.72
6. This site would keep its commitments		.78		3.86	.77
Benevolence					
7. I believe this site would act in my best interest.			.70	3.63	.83
8. If I required help, this site would do its best to help me			.77	3.50	.87
9. This site is interested in my well-being, not just its own			.78	3.63	.81
Eigenvalues	4.78	.92	.86		
Percent of explained variance	53.13	10.20	9.52		
Cronbach's alpha	.83	.83	.75		

Notes: *Reverse-scored items;
scale used: 1= Strong disagree and 5=Strong agree; N=347

Table 2 Measurement Items for perceived benefit factors

Constructs	Measurement items	Mean	SD	Alpha
Perceived Information Quality (PIQ)	Relevancy			.70
	1. The information is relevant to my purchase	3.97	.63	
	2. The information is pretty much what I need	3.46	.86	
	3. The information is useful for my purchase	3.61	.87	
	Appropriate Amount			.68
	1. The amount of information is neither too much nor too little.	3.29	.98	
	2. The information is of sufficient volume for my purchase needs.	3.22	1.01	
	3. The amount of information is not sufficient for my purchase needs*	3.10	1.02	
	Free of error			.88
	1. The information is true	3.74	.72	
	2. The informationn is accurate	3.65	.74	
	3. The information is reliable	3.73	.73	
Perceived Usefulness (PU)	1. The site enables me to accomplish tasks more quickly.	3.95	.68	.85
	2. The site makes it easier for me to purchase.	3.95	.75	
	3. The site has improved my efficiency.	3.82	.86	
	4. I am satisfied with the effectiveness of the purchase	3.81	.79	
Perceived Ease of Use (PEOU)	1. Overall, this website is easy to use.	4.06	.60	.80
	2. Learning to operate this website was easy for me.	4.15	.65	

*Reverse-scored items

Notes: scale used: 1= Strong disagree, and 5=Strong agree; N=347

Table 3. Correlations among all key variables.

	2	3	4	5	6	7	8	9	10	11	12	13	14
Using behaviors													
1. Frequency of purchase	.44***	.47***	.34***	.29***	.29***	.29***	.20***	.18***	.42***	.27***	.23***	.07	.22***
3. Time spent on browsing		.21***	.24***	.11*	.13**	.12*	.07	.03	.12*	.10	.12*	-.05	.12*
4. Attitude towards using			.58***	.54***	.44***	.46***	.32***	.49***	.59***	.53***	.44***	.19***	.28***
Trusting beliefs (TB)													
5. Competence				.63***	.58***	.38***	.29***	.39***	.53***	.47***	.35***	.26***	.36***
6. Integrity					.58***	.38***	.23***	.48***	.48***	.44***	.24***	.24***	.37***
7. Benevolence						.31***	.26***	.33***	.42***	.29***	.25***	.14**	.38***
Perceived benefit factors							.68***	.43***	.49***	.38***	.18***	.15**	.25***
8. Relevance-PIQ								.33***	.32***	.25***	.10	.16***	.18***
9. Amount-PIQ									.42***	.36***	.18***	.27***	.34***
10. Free of error-PIQ										.53***	.37***	.30***	.32***
11. PU											.33***	.27***	.29***
12. PEOU													
Observed benefit factors													
13. Economic												.15**	.16**
14. Delivery time													.26***
15. Return mechanism													

Note: * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$; N = 347

Table 4. Hierarchical Regression Results on Predicting Perceived Usefulness (PU)

Predictors	PU β	R^2
Block 1: Demographics		.00
Gender (male=1)	.03	
Age	.00	
Education	-.02	
Income	.02	
Block 2: Perceived benefit factors		.29
Perceived information quality (PIQ)		
Relevance	.27***	
Amount	-.04	
Free of error	.15***	
Block 3: Perceived ease of ues (PEOU)	.27***	.09
Block 4: Observed benefit factors		.05
Economic	.18***	
Delivery time	.12**	
Return mechanism	.09	
R^2		.43
Adjusted R^2		.42

Notes: * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$; N = 347

Table 5. Hierarchical Regression results on Predicting Trusting Beliefs on a Website

Predictors	Trusting Beliefs on a B2C website					
	Competence β	$\triangle R^2$	Integrity β	$\triangle R^2$	Benevolence β	$\triangle R^2$
Block 1: Demographics		.00		.00		.02
Gender (male=1)	.03		-.18		-.01	
Age	-.01		.00		(-.14)**	
Education	.06		-.02		-.08	
Income	-.01		-.02		.03	
Block 2: Perceived benefit factors		.34		.38		.22
Perceived information quality (PIQ)						
Relevance	.10*		.09		.09	
Amount	.03		-.01		.08	
Free of error	.10*		.29***		.15**	
Perceived usefulness (PU)	.26***		.21***		.25***	
Perceived ease of use (PEOU)	.17***		.20***		.03	
Block 3: Observed benefit factors		.04		.03		.07
Economic	.13**		.07		.18**	
Delivery time	.07		.01		-.06	
Return mechanism	.16***		.17***		.25***	
R^2		.39		.42		.31
Adjusted R^2		.38		.40		.29

Notes: * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$; N = 347

Table 6. Hierarchical Regression Results on Predicting Attitude towards Purchasing from a B2C Website

Predictors	**Attitude** β	$\triangle R^2$
Block 1: Demographics		.00
Gender (male=1)	-.03	
Age	.26	
Education	-.11	
Income	.24	
Block 2: Trusting beliefs (TB)		.41
Competence	.22***	
Integrity	.14***	
Benevolence	.03	
Block 3: Perceived benefit factors		.11
Perceived information quality (PIQ)		
Relevance	.09	
Amount	.07	
Free of error	.17***	
Perceived usefulness (PU)	.21***	
Perceived ease of ues (PEOU)	.16***	
Block 4: Observed benefit factors		.03
Economic	.17***	
Delivery time	-.08*	
Return mechanism	-.03	
R^2		.54
Adjusted R^2		.53

Notes: $^{*}p \leq .05$; $^{**}p \leq .01$; $^{***}p \leq .001$; N = 347

Table 7. Hierarchical Regression Results on Predicting Actual Use of a B2C Website

Predictors	Actual use of a B2C website			
	Frequency of purchase		Time spent on browsing	
	β	$\triangle R^2$	β	$\triangle R^2$
Block 1: Demographics				
Gender (male=1)	.02		-.06	
Age	.14*		.10	
Education	-.05		-.06	
Income	.08	.02	.16**	.03
Block 2: Attitude toward using	.34***	.22	.14*	.04
Block 3: Trusting beliefs (TB)				
Competence	.07		.20***	
Integrity	.01		-.08	
Benevolence	.10*	.01	-.02	.03
Block 4: Perceived benefit factors				
Perceived information quality (PIQ)				
Relevance	.05		.02	
Amount	.04		.00	
Free of error	.10*		-.12*	
Perceived usefulness (PU)	.23***		-.04	
Perceived ease of uses (PEOU)	-.01	.03	-.04	.01
Block 5: Observed benefit factors				
Economic	.01		.03	
Delivery time	-.02		-.06	
Return mechanism	.05	.01	.04	.01
R^2		.28		.11
Adjusted R^2		.27		.10

Notes: * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$; N = 347