

UNITY IS STRENGTH: UNDERSTANDING USERS' GROUP BUYING BEHAVIOR IN TAIWAN FROM A COLLECTIVISM PERSPECTIVE

Chiahui Yen¹

Department of International Business
Ming Chuan University
250 Zhong Shan N. Rd., Sec. 5, Taipei 111, Taiwan
chyen@mail.mcu.edu.tw

Chun-Ming Chang

Department of Tourism Information
Aletheia University
No.32, Chen-Li St., Tamsui, Taipei County, 251, Taiwan
cmchang@mail.au.edu.tw

ABSTRACT

This study proposes a theoretical model from a collectivism perspective to examine the factors affecting buyers' motivation to engage in auctions through online group-buying websites. The model was tested using the data collected from 218 buyers participating in a Taiwan online group-buying website. The results show that the intention to participate in online group-buying auctions significantly affected group-buying behavior, while conformity, attitude, and collective efficacy had significant influences on the intention to participate in online group-buying auctions. The results also indicate that trust in websites, trust in auction initiators, and trust in buyers are the antecedents of attitudes toward online group-buying auctions. Implications for theory and practice and suggestions for future research are discussed.

Keywords: Online group-buying auctions; Collective efficacy; Trust; Conformity; Theory of planned behavior (TPB)

1. Introduction

Recent e-commerce developments have created new opportunities for marketers to develop innovative selling strategies [Jing and Xie 2011] and provide a diverse range of transaction types for consumers as well. Among the various types of business models emerging, online group-buying constitutes a substantial proportion of the online customer market. Group-buying auctions, such as Groupon, are transaction mechanisms in which buyers are recruited in order to generate volume orders, so as to create a basis for lower transaction prices [Kauffman et al. 2010a]. By the end of 2012, Groupon had 41 million active customers. Moreover, according to the China E-Business Research Center, an independent research institute, the transaction value of the group buying market in China reached US\$5.5 billion in 2012 [Statista 2013]. Because online group-buying is a unique phenomenon and more complex than traditional e-commerce models (e.g. business to customers (B2C) or customers to customers (C2C)), group-buying auctions provide interesting and novel opportunities for both practitioners and researchers.

Prior information systems (IS) and marketing researchers have discussed online group-buying in different ways. Some studies have stressed the functionality and usability of group buying systems [Zhu et al. 2010; Tsai et al. 2011]. Their findings show that technological factors such as navigation functionality, communication support and systems quality can enhance the buyers' perceptions of shopping experiences. Some studies have concentrated on determining the basic antecedent variables for group-buying arising from psychological factors [Chen 2012; Shiau and Luo 2012; Cheng and Huang 2013; Wang and Chou 2014]. For example, the reciprocity and reputation of a buying group, the relational and structural embeddedness of initiators, as well as the price consciousness and price sensitivity of buyers have all been analyzed. Other studies have focused on the important role trust plays in affecting group-buying intention [Ku 2012; Shiau and Luo 2012]. Although a substantial number of studies have been carried out to explore the critical factors that affect buyers' purchasing behavior, the present study attempts to address two research gaps by proposing a novel model and empirically testing buyers' purchasing behavior in terms of the group nature of action.

¹ Corresponding author

First, since B2C and C2C are characterized as individualistic in nature, whereas group buying auctions are collectivistic [Bin and Sun 2004; Wei et al. 2011; Noh et al. 2013], relatively few studies have examined online group-buying auctions in terms of social and psychological factors from a collectivism perspectives. Online group-buying auctions can be viewed as buyer-driven sites, where buyers can form buying groups by their own initiative to generate volume orders to purchase the products they want. Once enough buyers are recruited to purchase a minimum quantity of products, the auction initiators will negotiate with vendors over prices to get volume discounts [Kauffman et al. 2010a]. Since buyers can leverage their collective bargaining power to lower the prices at which they buy the products, there is no guarantee that all buyers will purchase goods at the lowest prices available in the online group-buying auction [Kauffman et al. 2010a]. Compared with individual intention, collective intention highlights the individual commitment in collectivity and the social nature of group action [Cheung et al. 2011]. However, in prior studies exploring the antecedents of online group-buying behavior [Tsai et al. 2011; Chen 2012; Ku 2012; Shiau and Luo 2012; Cheng and Huang 2013], the construction of an online group-buying model based on the nature of group action has been for the most part neglected. Thus, the present study attempts to address this gap by proposing a model and empirically testing buyers' purchasing behavior from a collectivism perspective.

Furthermore, while past studies have indicated that there is a strong link between trust and purchasing behavior in e-commerce settings, little empirical evidence has been provided in terms of decomposing trust as a multidimensional construct in group-buying environments. Online group-buying auctions generally create buyer uncertainty during the transaction process, while dynamic pricing mechanisms for group-buying cannot ensure that all buyers will continue with their participation [Kauffman and Wang 2002]. Without enough buyers, a group purchasing transaction will not succeed. Previous research has found that a lack of trust is one of the most significant reasons why consumers hesitate to make internet purchases or avoid making them altogether [Gefen 2000]. For instance, B2C hinges on the importance of trust in websites, while C2C emphasizes trustworthiness between buyer and seller. In contrast, online group-buying auctions highlight the role of trust in other buyers within the buying group. Thus, online group-buying auctions involve three players with distinctive roles, i.e. the website, the initiators, and buyers. However, to date, there has been no attempt by researchers to explore the multidimensional effect of trust on group-buying auctions. Therefore, it becomes critical to examine the factors that motivate all buyers to trust online group-buying auctions from the divergent perspectives of those three roles.

Explaining user acceptance of new technology is often described as one of the most mature research areas in the contemporary IS literature [Venkatesh et al. 2003]. Several theories have been developed to explain user behavior across a broad range of end-user information technologies (IT). The Technology acceptance model (TAM) postulates that attitude toward a particular object depends on the direct effects of beliefs about the object, and that attitude also have a direct positive impact on behavioral intention toward the object [Davis et al. 1989]. The Unified Theory of Acceptance and Use of Technology (UTAUT) [Venkatesh et al. 2003] is another parsimonious model of individual acceptance of new IT in the workplace. In addition, the Theory of planned behavior (TPB) has been shown to be a robust model that can be used to explain most human behaviors [Ajzen 1991]. TPB asserts that an individual's behavior is determined by his or her intention to perform a specific behavior, which in turn is determined by subjective norms, attitudes, and perceived behavioral control (PBC). Consequently, TPB has been applied to conceptualize extended models to predict individuals' behavior in various settings, including B2C e-commerce [Bhattacharjee 2000; Lim and Dubinsky 2005; Hsu et al. 2006; Pavlou and Fygenson 2006] and IS usage continuance [Mathieson 1991; Hsieh et al. 2008; Lee 2010; Sun et al. 2013]. Therefore, we specifically reconceptualize the TPB model to identify the constructs that can be applied in the context of online-group buying from a collectivism perspective.

There are at least two reasons for adopting a TPB-based model to understand buyers' purchasing behavior in online group-buying auctions in the current study. First, TPB provides a fuller understanding of usage intention and behavior compared to other IT acceptance models [Taylor and Todd 1995]. TAM makes it easier to predict usage, but only supplies very general information on users' opinions about a IT system. TPB, in comparison, provides more specific information that can better guide development of IT/website implementation [Mathieson 1991]. Second, compared to UTAUT constructs, TPB constructs are more compatible with the online group-buying auction context. Some of the UTAUT constructs, i.e. social influence, and facilitating conditions are significant in mandatory contexts, but less so in voluntary contexts. Hence, a TPB based model is suitable to recognize buyers' intentions and behavior in a group-buying auction environment.

In this study, the research questions to be addressed are: 1) How do influences from other buyers affect a buyer's behavioral intention and attitude? 2) How does users' behavior control play a vital role in shaping a buyer's intention to participate in group-buying auctions and online group-buying behavior? 3) How do the different types of trust affect a buyer's attitude toward online group-buying auctions? The organization of this paper is described as follows. The next section presents the literature review on TPB, conformity, collective efficacy, and trust. A

discussion of the research model and hypotheses follows. We then describe the data collection, analysis, and model testing. Finally, this paper ends with a conclusion giving implications of the findings and suggestions for possible future research.

2. Theoretical background and research model

This study reconceptualizes TPB from a collectivism perspective. The remainder of this section describes the logic and empirical support for each hypothesis of the research model shown as Figure 1. Constructs of collectivism are contained within the dotted line square, while TPB constructs are presented as gray ovals.

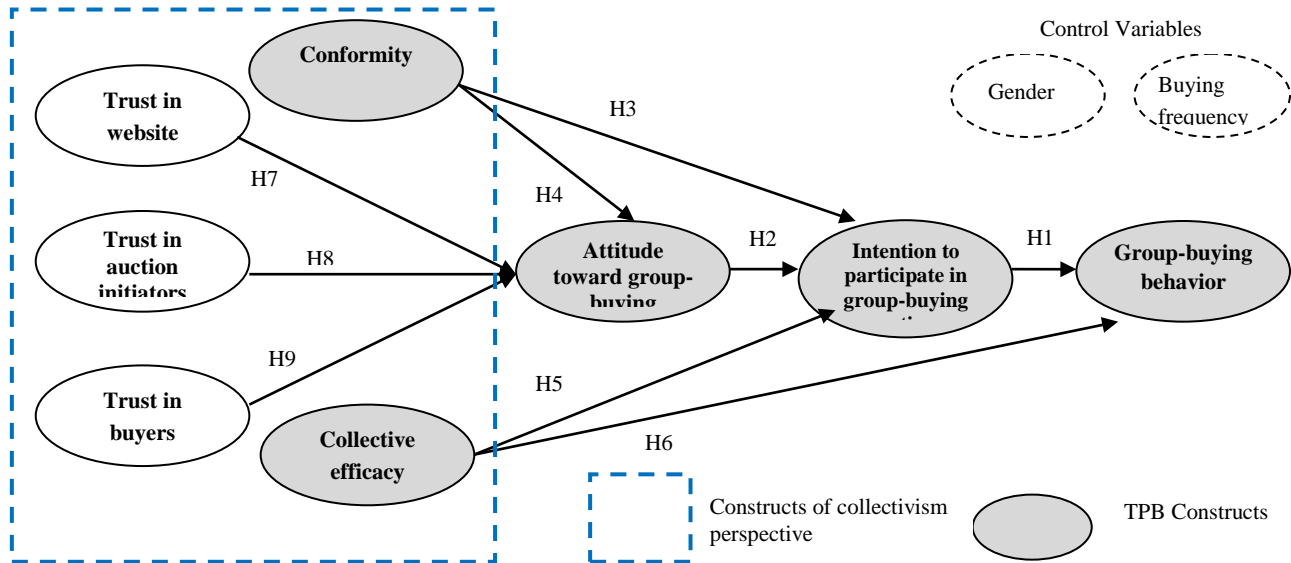


Figure 1: Research Model

2.1 Theory of planned behavior (TPB)

TPB views individual behavior as being primarily determined by behavioral intention. Behavioral intention refers to how hard people are willing to try to perform a behavior [Ajzen 1991; Bhattacharjee 2000; Pavlou and Fygenon 2006]. The link between behavioral intention and actual behavior has been investigated in a wide variety of contexts. For instance, Hsu and Chiu [2004] found that a user’s behavioral intention to use e-service is a significant determinant of his or her actual use of that service. Previous e-commerce research also found that a buyer’s behavioral intention to use a virtual store is a strong predictor of his or her actual use of that store [Pavlou and Fygenon 2006]. Therefore, the following hypothesis is proposed.

H1: *Buyers’ intention to participate in group-buying auctions is positively associated with use of group-buying websites.*

Attitude refers to one’s overall evaluation of performing a specific behavior. Attitude toward a specific behavior refers to the degree to which a person holds a favorable or unfavorable evaluation or appraisal of the behavior in question [Ajzen 1991]. In this study, attitude toward online group-buying auctions represents the degree to which a person holds positive feelings toward participation in online group-buying auctions. In accordance with TPB, a favorable attitude toward an act or event should give rise to a positive intention to perform the act or participate in the event. Several marketing and IS studies have found that attitude has a positive impact on behavioral intention [Jarvenpaa et al. 2000; Chen and Dibb 2010]. Hence,

H2: *Buyers’ attitudes toward group-buying auctions are positively associated with their intention to participate in group-buying auctions.*

2.2 Conformity

Conformity is represented by the TPB construct of subjective norm in this study. According to Ajzen [1991], subjective norm reflects a person’s perception of the expectations of others about a specific behavior. Conformity refers to the degree to which a person will change his behavior in order to match or imitate the beliefs or behavior of others [Cialdini and Trost 1998], and has been identified as an important factor that will affect an individual’s behavior [Kim and Park 2011]. Lee [1990] suggests that conformity is a stronger social pressure construct that can substitute for the subjective norm construct of TPB. Researchers also report that consumers will purchase products

due to overt conformity pressures from peer groups [Calder and Burnkrant 1977; Bearden and Rose 1990; Lascu et al. 1995]. In the online group-buying context, prices of products will decrease as more buyers join auctions. Buyers in this sense tend to participate in group-buying auctions to obtain lower prices when the numbers of buyers of a given product increase [Kauffman et al. 2010b]. This implies that influences from other buyers will affect all buyers' purchase intention. Hence, conformity is considered as a social pressure factor and is used to capture buyer perceptions of whether participating in online group-buying auctions is encouraged and affected by other buyers [Pavlou and Fygenson 2006].

Prior literature has suggested a positive link between conformity and behavioral intention [Calder and Burnkrant 1977; Bearden and Rose 1990; Lascu et al. 1995]. Tajfel and Turner [1986] assert that individuals will engage in a pro-social behavior, such as online group-buying auctions, since they want to be perceived positively and accepted by group members [Ma and Agarwal 2007; Kim and Park 2011]. Building on the preceding theoretical literature, the following hypothesis is proposed.

H3: *Conformity is positively associated with buyers' intentions to participate in group-buying auctions.*

Previous literature posits that an individual perceiving others' consensus on her identity can develop a sense of understanding, which in turn promotes positive attitudes [Ma and Agarwal 2007]. In addition, researchers have argued that individuals' attitudes tend to be group-determined, rather than individually-determined, when they are motivated to engage in a pro-social behavior by social influence [Lee 1990; Bock et al. 2005]. In this sense, it seems reasonable to posit that conformity will influence buyers' attitudes toward online group-buying auctions. Bock et al. [2005] reveal that social influence positively affects attitude toward knowledge sharing, which is similar to the findings of Lee et al. [2008] in the context of online shopping. Therefore,

H4: *Conformity is positively associated with buyers' attitudes toward group-buying auctions.*

2.3 Collective efficacy

In order to fit the context of online group-buying auction, collective efficacy was used to substitute for the TPB construct of PBC. Ajzen [1991] argued that PBC refers to an individual's perception of the ease or difficulty of performing a specific behavior. According to Social Cognitive Theory [Bandura 2000], collective efficacy is an extension of the concept of perceived self-efficacy. Collective efficacy refers to a group's shared belief in the conjoint capability to attain goals and accomplish tasks as a group [Illia et al. 2011]. Moreover, the formation of collective efficacy by team members is influenced by that team's past performance [Gibson 1999]. Prior literature argues that collective efficacy is stored in the minds of the individuals in the group [Hannah et al. 2008]. Bandura [2000] further posits that collective efficacy operates within individuals in a similar way to the process of self-efficacy. Some literature also reports that collective efficacy exerts greater influence in group-level settings. It has been suggested that a lack of confidence in group capability restrains collective actions [Illia et al. 2011].

Since the goal of group-buying auctions is to augment the power of buyers to negotiate lower prices, buyers believe that buying as a group will help them achieve their desired outcomes. Accordingly, it is reasonable to use collective efficacy to reflect a buyer's perception of the ease or difficulty of putting online-group buying intention into action. In this regard, the current study proposes that collective efficacy plays a vital role in determining buyers' intention and use of group-buying websites. This leads to the following hypotheses:

H5: *Collective efficacy is positively associated with buyers' intentions to participate in group-buying auctions.*

H6: *Collective efficacy is positively associated with the use of group-buying websites.*

2.4 Trust

Trust refers to "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" [Mayer et al. 1995]. Considered as a pivotal mechanism governing social exchange relationships in e-commerce, trust creates positive expectations that vendors will fulfill obligations set forth in the exchange [Panteli and Sockalingam 2005]. In this sense, trust serves as a driving force for buyers' positive attitudes toward shopping online [Jarvenpaa et al. 2000; Pavlou and Fygenson 2006; Qureshi et al. 2009; Komiak and Benbasat 2010]. Heretofore, prior research on trust has treated it as a multidimensional concept [Chen and Dibb 2010], which, depending on the targets of trust in online settings, can be divided into system trust and interpersonal trust [Hsu et al. 2011]. System trust, a belief that proper impersonal structures have been put into place to support the likelihood of successful social exchanges [Pennington et al. 2003], reflects the willingness of the trustor to behaviorally count on an information system to perform a task [Hsu et al. 2011]. As online group-buying auctions are supported by information technology and technical infrastructure with sufficient security procedures and protection mechanisms, this will provide buyers with a sense of security to alleviate their concerns [Pavlou et al. 2007]. Accordingly,

H7: *Trust in websites is positively associated with buyers' attitude toward group group-buying auctions.*

Interpersonal trust, defined as "one party's willingness to depend on the other party with a feeling of security

even when negative consequences are possible” [Pennington et al. 2003], is found in the context of interpersonal relationships [Li et al. 2008; Hsu and Chang 2012]. Scholars have identified numerous forms of interpersonal trust based on the targets in the exchange relationships. For instance, Morgan and Hunt [1994] categorize trust into trust in the salesperson and trust in the seller organization, while Mach et al. [2010] classify trust into trust in players, trust in coaches, and trust in top managers. A successful online-group-buying transaction is not only the result of the auction initiator taking the initiative, but also relies on other buyers’ participation. Thus, interpersonal trust can be classified into two types: trust in auction initiators and trust in buyers. Kauffman et al. [2010b] assert that trust in auction initiators reduces buyers’ uncertainty and affects buyers’ attitudes toward group-buying. In addition, trust in other buyers forming the transaction group leads to one’s expectation that other buyers who participate in group-buying auctions will not drop out from group-buying auctions. Thus,

H8: *Trust in auction initiators is positively associated with buyers holding favorable attitudes toward group-buying auctions.*

H9: *Trust in buyers is positively associated with buyers holding favorable attitudes toward group-buying auctions.*

Control variables were included in our model to rule out the possibility that empirical results were due to covariance with other variables. Prior studies have shown that demographics variables such as gender play a significant impact on customer acceptance of technology [Venkatesh et al. 2003]. Therefore, we suppose buyers’ gender may have influence on group-buying behavior. As studies have shown that online experience is a key factor in online behavior [Hoffman et al. 1999], this study controls for the role of buying frequency on group-buying behavior.

3. Research methodology

3.1 Measurement development

Measurement items in the study were adapted from relevant literature wherever possible. Attitude and intention were developed based on Pavlou and Fygenon [2006] and Lim et al. [2006]. The items for measuring group-buying behavior were adapted from Hsu et al. [2007]. Items for measuring conformity were developed following Bearden et al. [1990] and Cialdini and Trost [1998]. Collective efficacy was adapted from Jung and Sosik [2002]. Trust in websites was based on Ba [2001] and Pennington et al. [2003]. The items measuring trust in auction initiators were taken from Doney and Cannon [1997] and McKnight et al. [1998]. The items for trust in buyers were adapted from Jarvenpaa et al. [2000] and Staples and Webster [2008]. Table 2 shows the items used in this study. All the items were measured using a five-point Likert scale with anchors ranging from strongly disagree (1) to strongly agree (5).

3.2 Data collection

The research model was tested using data collected from members of an online group-buying site called ihergo (www.ihergo.com). Opened in March, 2007, ihergo is one of the best-known group-buying sites in Taiwan. Its annual sales volume has exceeded US\$17 million, with the highest sales in a single month exceeding US\$2.3 million as of 2013. The research questionnaire was posted on the front page of ihergo, and members were cordially invited to support this survey. With an aim to encouraging participation, 33 randomly selected respondents were offered an incentive in the form of gift certificates in amounts ranging from US\$5 to \$30 dollars, respectively. In order to minimize social desirability bias, the first page of the questionnaire explained the purpose of this study and ensured participant confidentiality. The questionnaire also assured respondents that there were no right or wrong answers and encouraged them to answer the questions as honestly as possible, following Podsakoff et al. [2003]. By the time this survey was completed, 261 questionnaires had been collected. The exclusion of 43 invalid questionnaires resulted in a total of 218 complete and valid returns for data analysis.

Of the 218 respondents, 207 (95.9%) were female, 127 (58.3%) were between 25 and 35 years of age, and about 155 (71.2%) reported having completed a college degree. The demographics of the respondents are similar those reported in a recent survey conducted by the Market Intelligence & Consulting Institute [Market-Intelligence-Consulting-Institute 2013], a well-known research institute that provides market information about information technologies in Taiwan, in that most of the online group-buying buyers were females with ages ranging from 20 to 29, indicating that the sample in the study can be seen as a representative sample of the larger population of all online group-buying auction users. In addition, most respondents reported that they went to shop at this website frequently, indicating that respondents possessed sufficient experience to answer the questions posed by the questionnaire used in this study. Table 1 lists the demographic characteristics of the respondents.

Table 1: Demographic Information of Respondents

Measures	Items	Frequency	Percentage
Gender	Male	9	4.1%
	Female	209	95.9%
Age	19<24	33	15.1%
	24-35	127	58.3%
	35-45	47	21.6%
	>45	11	5.0%
Education	Senior high school or below	49	22.5%
	College	44	20.3%
	University	111	50.9%
	Graduate school	14	6.4%
Shopping frequency (per month)	1-2	60	27.6%
	3-4	73	33.5%
	5-6	62	28.4%
	Above 7	23	10.6%

4. Data analysis

Partial Least Squares (PLS) was conducted to perform data analyses for both measurement and structural models due to its minimal demands in terms of sample size, measurement scale, and residual distribution [Chin 1998]. We began by assessing the measurement model to ensure the reliability, convergent validity, and discriminant validity. Then, following the two-step approach recommended by Anderson and Gerbing [1988], we tested the structural relationships among latent constructs.

4.1 Measurement model

The adequacy of the measurement model was evaluated based on the criteria of reliability, convergent validity, and discriminant validity. Composite reliability (CR) was employed to assess the internal consistency of each construct. As shown in Table 2, all composite reliabilities of the constructs had a value higher than 0.85, which exceeds the benchmark of 0.7 for being considered adequate [Fornell and Larcker 1981].

Convergent validity testing was performed through factor loadings and average variance extracted (AVE). According to Fornell and Larcker [Fornell and Larcker 1981], (1) all indicator loadings should be significant and exceed 0.7, (2) construct reliabilities should exceed 0.8 and (3) average variance extracted (AVE) by each construct should exceed the variance due to measurement error for that construct (i.e. AVE should exceed 0.50). As noted in Table 2, all loadings were above the 0.7 threshold, the composite reliabilities of the constructs ranged between 0.85 and 0.96, and the AVE ranged from 0.65 to 0.86. Hence, the results demonstrate a reasonable level of convergent validity for the measured items.

Moreover, if the square root of the AVE of each construct is larger than its correlations with other constructs, discriminant validity is present [Chin 1998]. Table 3 indicates that all the diagonal values exceeded the inter-construct correlations, which satisfies the criteria needed to establish discriminant validity. In addition, the cross-loadings for the items were calculated and presented in Table 4.

Table 2: Measurement items

Construct	Item	Factor Loading
Group-buying behavior (BE) CR=0.92 AVE=0.78	I frequently make a purchase from this site.	0.86
	I frequently visit this site for product information.	0.91
	I spend a lot of time viewing product information whenever I visit this site.	0.85
Intention to participate in group-buying auctions (INT) CR=0.96 AVE=0.86	I will consider purchasing goods from this site in the future	0.90
	I will seriously contemplate purchasing goods from this site.	0.92
	It is possible that I will purchase goods from this site.	0.96
	I am likely to make future purchases from this site.	0.93
Attitude toward group-buying auctions (ATT) CR=0.87 AVE=0.68	Searching for product information from this site is a good idea.	0.77
	Purchasing goods from this site is a wise decision.	0.83
	Purchasing goods with other buyers from this site is an enjoyable experience.	0.87
Conformity (CON) CR=0.90 AVE=0.70	Other buyers expect me to comply with their purchase decisions.	0.87
	Other buyers purchase the same goods will influence my purchase decisions.	0.88
	Other buyers' feedbacks influence my purchase decisions.	0.87
	Other buyers' suggestions influence my purchase decisions.	0.73
Collective efficacy (CE) CR=0.93 AVE=0.74	We are confident that we have greater power to bargain with vendors.	0.80
	We are confident that we can purchase goods at lower prices.	0.90
	We are confident of our ability to avoid deceptions in online shopping.	0.91
	We are confident of our ability to avoid disputes in online shopping.	0.85
Trust in website (TRW) CR=0.85 AVE=0.65	We are confident of our ability to complete transactions successfully.	0.83
	On this site, I believe proper technology has been put into place.	0.80
	On this site, I believe appropriate safeguards have been put into place.	0.82
Trust in auction initiators (TRA) CR=0.91 AVE=0.77	There is enough information on this site to assure me that the vendors are legitimate.	0.81
	The auction initiators keep their promises.	0.87
	The auction initiators keep buyers' best interests in mind.	0.89
Trust in buyers (TRB) CR=0.86 AVE=0.61	The auction initiators are trustworthy.	0.87
	I feel comfortable to make transactions with other buyers.	0.80
	I believe other buyers will not drop out from group-buying auctions.	0.79
	Other buyers will complete group-buying tasks without reminders.	0.77
	Other buyers will do everything to help me complete transactions when I encounter difficulties.	0.77

Note: CR= composite reliability; AVE= average variance extracted

Table 3: Correlation among constructs and the square root of the AVE

Construct	ATT	BE	CE	CON	INT	TRA	TRB	TR
Attitude toward group-buying auctions	0.82							
Group-buying behavior	0.59	0.88						
Collective efficacy	0.65	0.51	0.86					
Conformity	0.41	0.40	0.43	0.84				
Intention to participate in group-buying auctions	0.69	0.72	0.63	0.35	0.93			
Trust in auction initiators	0.49	0.36	0.57	0.33	0.48	0.88		
Trust in buyers	0.50	0.22	0.53	0.38	0.37	0.53	0.78	
Trust in website	0.54	0.36	0.45	0.22	0.44	0.48	0.41	0.81

Note:

*Diagonal elements (shaded) are the square root of the average variance extracted (AVE). Off-diagonal elements are the correlations among constructs. For discriminant validity, diagonal elements should be larger than off-diagonal elements.

Table 4: Correlation among constructs and the square root of the AVE

	AT	CON	CE	INT	BE	TRB	TRA	TRW
AT1	0.773	0.352	0.466	0.616	0.623	0.311	0.386	0.404
AT2	0.829	0.271	0.571	0.522	0.405	0.462	0.408	0.449
AT3	0.874	0.381	0.568	0.578	0.441	0.460	0.430	0.490
CON1	0.312	0.869	0.341	0.253	0.304	0.321	0.316	0.156
CON2	0.343	0.875	0.366	0.284	0.317	0.333	0.299	0.173
CON3	0.410	0.866	0.416	0.408	0.418	0.338	0.273	0.258
CON4	0.266	0.729	0.282	0.173	0.275	0.275	0.224	0.110
CE1	0.608	0.344	0.803	0.563	0.445	0.415	0.448	0.322
CE2	0.534	0.369	0.899	0.517	0.440	0.463	0.481	0.351
CE3	0.533	0.355	0.906	0.514	0.440	0.481	0.510	0.340
CE4	0.563	0.391	0.850	0.543	0.436	0.452	0.482	0.483
CE5	0.532	0.373	0.826	0.544	0.432	0.463	0.526	0.431
INT1	0.679	0.314	0.590	0.899	0.632	0.417	0.466	0.436
INT2	0.625	0.372	0.555	0.921	0.657	0.332	0.426	0.401
INT3	0.648	0.338	0.609	0.960	0.719	0.329	0.460	0.405
INT4	0.624	0.285	0.571	0.932	0.664	0.303	0.445	0.404
BE1	0.566	0.373	0.428	0.653	0.912	0.158	0.275	0.311
BE2	0.407	0.310	0.426	0.529	0.839	0.164	0.299	0.250
BE3	0.579	0.378	0.500	0.709	0.901	0.258	0.374	0.388
TRB1	0.504	0.342	0.481	0.396	0.292	0.803	0.467	0.377
TRB2	0.350	0.302	0.364	0.258	0.135	0.789	0.402	0.288
TRB3	0.353	0.267	0.354	0.204	0.046	0.769	0.345	0.278
TRB4	0.291	0.262	0.448	0.261	0.176	0.774	0.448	0.305
TRA1	0.480	0.345	0.523	0.421	0.296	0.474	0.869	0.373
TRA2	0.376	0.300	0.484	0.402	0.285	0.459	0.892	0.450
TRA3	0.429	0.223	0.490	0.447	0.361	0.467	0.870	0.444
TRW1	0.452	0.144	0.351	0.408	0.387	0.279	0.324	0.797
TRW2	0.458	0.226	0.398	0.370	0.275	0.358	0.423	0.816
TRW3	0.398	0.160	0.336	0.284	0.207	0.346	0.415	0.806

4.2 Structural model

With an adequate measurement model, the theoretical model and hypothesized relationships were tested with PLS. Buyers' attitudes toward group-buying auctions affect intention to participate in group-buying auctions ($\beta=0.66$, $t=11.26$), and, in turn, influence group-buying behavior ($\beta=0.50$, $t= 7.17$). Thus, H1 and H2 were supported. Contrary to our expectations, the path from conformity to intention to participate in online group-buying auctions is not significant, with a path coefficient of 0.03 ($t= 0.44$). As a result, H3 was not supported. As anticipated, conformity is positively associated with attitude toward online group-buying auctions ($\beta=0.21$, $t= 3.41$), supporting H4. In addition, collective efficacy is positively associated with intention to participate in online group-buying auctions ($\beta=0.30$, $t= 4.30$), supporting H5. Collective efficacy does not have a significant influence on group-buying behavior ($\beta=0.10$, $t= 1.72$), indicating that H6 is not supported. Trust in website, trust in auction initiators, and trust in buyers are positively associated with attitude toward group-buying auctions ($\beta=0.34$, 0.16, 0.20, $t= 5.49$, 2.25, 3.20 respectively), supporting H7, H8 and H9. The control variables were also modeled as one-item constructs with zero error variance. Finally, the path coefficients indicated that buyers' gender and buying frequency do not impact on group-buying behavior.

The explanatory power of the research model is shown in Figure 2. The predictive quality of a model can be assessed by the percentage of total variance it explains (R^2). The results show that trust in websites, trust in auction initiators, trust in buyers, and conformity accounted for 45% of the variance of attitude toward group buying auctions. Moreover, R^2 was 54% when conformity, attitude toward group-buying auctions and collective efficacy were used to predict intention to participate in online group-buying auctions. Finally, the R^2 value shows that conformity, intention to participate in online group-buying auctions, and collective efficacy accounted for 53% of variance in terms of group-buying behavior. All the R^2 values exceeded 10%, indicating acceptable explanatory power.

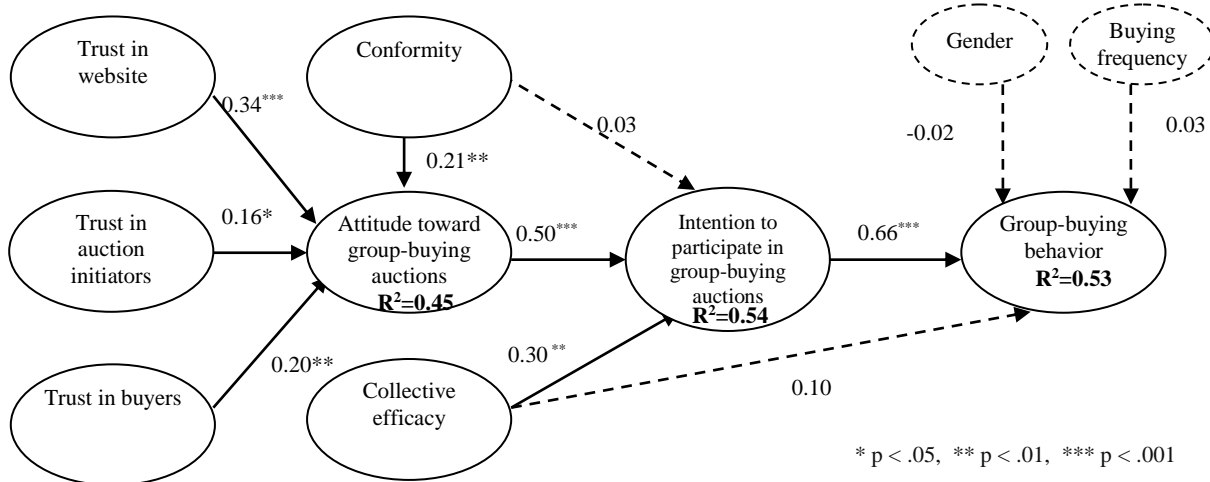


Figure 2 Results of the structural model

5. Discussion

5.1 Key findings

The results largely support the proposed model, and a number of findings are worth discussing. First, the study shows that attitude toward group-buying auctions significantly affects intention to participate in group-buying auctions, which in turn positively influences use of the group-buying website. These findings are in line with the assertions of TPB and the findings of some earlier studies.

Second, the results show that conformity is positively associated with attitude toward online group-buying, which is in line with prior literature [Lee et al. 2008]. However, the findings also indicate that conformity does not have a positive influence on intention to participate in group-buying auctions. This finding is similar to Pavlou and Fygenson [2006], providing an additional support for the argument that normative influences will not affect buyer intention to participate in online group-buying auctions. Prior research has argued that normative pressure will be enhanced when the size of the reference group increases [Lascu et al. 1995]. Van Slyke et al. [2007] also find that perceived critical mass has a positive influence on the subjective norm. In this sense, a plausible explanation for the

insignificance of the link between conformity and intention is that buyers will not form the intention to take part in auctions when they feel certain products available for purchase have not attracted enough buyers. Future studies should test whether the perceived size of the buyer bloc will moderate the influence of collective efficacy on the use of group-buying websites.

Third, although collective efficacy was not found to be significantly related to use of the group-buying website, it does have an indirect effect on use of the group-buying website through its influence on intention to join group-buying auctions. The absence of a significant direct relationship may be due to the fact that the dimension of perceived behavioral control used in the current study dealt solely with collective efficacy. Perceived behavioral control can be divided into two different dimensions, namely perceived controllability and efficacy beliefs. Further studies may employ those two dimensions to test their respective influences on behavioral intention and actual behavior in online group-buying auctions. Finally, in congruence with previous literature [Chen and Dibb 2010], trust in website, trust in auction initiators, and trust in buyers are found to have a positive impact on attitude.

5.2 Implications for theory

The findings of this study have several implications for research. First, although prior literature has integrated self-efficacy into the TPB model to explain the influence of perceived behavioral control on purchase intention in the e-commerce context, few studies have been conducted to investigate the effect of collective efficacy on behavioral intention. Thus, by incorporating collective efficacy into the extended TPB model to test its effect on behavioral intention in the group-buying auction setting, this study offers a basic blueprint for further studies using TPB to examine the link between perceived behavioral control and behavioral intention in the context of people within a group who need to execute courses of action to accomplish tasks together.

Second, while researchers have found that influences from friends, colleagues, and classmates will impact individuals' attitudes [Brock et al. 2005], little research has been done to test the relationship between the influences from other users and attitudes. In examining the effect of conformity on buyers' attitudes toward online group-buying, this study contributes to the previous literature by revealing that a buyer's attitude is determined by information obtained from reference groups and also by the expectations of other users. In addition, the results show that conformity does not have a significant effect on the intention to participate in online-group buying auctions. Prior literature also suggests that the effects of social influences on behavioral intention may vary, depending on the IS usage stage [Hsu and Chiu 2004]. Further studies should use a longitudinal perspective to test the roles of informative conformity and normative conformity in initial-adoption and post-adoption stages.

Third, this study extends the earlier study of Pavlou and Fygenon [2006] by examining the impact of a variety of types of trust on attitude toward online purchasing. The results of this study indicate that trust in the website, auction initiators, and buyers can influence actual usage behavior by affecting buyers' attitudes toward online-group buying. This constitutes another significant contribution of this study.

5.3 Implications for practice

The present study has some implications for practice as well. First, the results indicate that conformity significantly affects buyers' attitudes toward a group-buying auction. Thus, website managers should attempt to attract opinion leaders who can affect others and encourage them to purchase online through exerting a normative influence [Hsu and Lu 2004]. Furthermore, managers can also bolster buyers' perception of critical mass through mass advertisements and word-of-mouth communication [Hsu and Lu 2004].

Second, the results show that buyers with higher collective efficacy are more likely to form the intention to participate in online group-buying auctions. Researchers suggest that a person's efficacy beliefs can be enhanced by past experience [Bandura 1997]. Thus, website managers should provide information exchange mechanisms that allow buyers to report their successful transaction experiences. This may increase buyers' confidence that they are capable of conducting a transaction successfully as a group.

Third, the results also demonstrate that trust in buyers significantly affects attitude toward group-buying auctions. Several scholars also indicate that trust can be built through interactions over time [Panteli and Sockalingam 2005], since ongoing social interactions increase shared understanding and identification between buyers [Hsu et al. 2007]. A recommended approach is to invite buyers to share their experiences by means of face-to-face meetings or seminars. In addition, prior literature suggests that people prefer to interact with others whose identities can be verified in online settings. Hence, managers may provide appropriate communication technologies, such as buyers' rating systems, to facilitate efficient and effective identity communications [Ma and Agarwal 2007].

Finally, our research proves that trust in a website is the most salient determinant of attitude, implying that buyers highly regard group-buying sites as a channel through which to gather product information and conduct transactions. Prior literature reports that information quality and system quality are the predictors of trust in a website [Hsu et al. 2011]. Hence, in order to increase buyers' trust in a website, the product information presented on a group-buying site must be up to date, sufficient, accurate, applicable, and believable [De Wulf et al. 2006].

Furthermore, the technologies provided should allow buyers to navigate web pages with ease in their search for products, which will save buyers time and effort in making purchase decisions [Lin and Sun 2009].

5.4 Limitations

Although our findings yield valuable insights and offer an impetus for future research, several limitations should be recognized. First, data collection in this study was constrained to members of a particular group-buying site, while most members are female. Whether our findings could be generalized to all types of group-buying sites is therefore unclear. A promising avenue for future research is to replicate this study across a wide variety of group-buying sites to verify the generalizability of our findings. Another possible criticism of this study is that our sample is only comprised of the active members of a group-buying site, and therefore exclusive of those who had already ceased participating for unknown reasons, which will lead to sample selection bias [Heckman 1979]. As a result, this study should be regarded as only explaining the purchasing behavior of current members of a specific group-buying site. Further research is necessary to examine whether the results can be generalized to nonparticipants.

Acknowledgment

This study was supported by grants from the Ministry of Science and Technology under project number NSC100-2410-H-130-012-MY2.

REFERENCES

- Ajzen, I., "The Theory of Planned Behavior," *Organizational Behavior and Human Decision Processes*, Vol. 50, No. 2: 179-211, 1991.
- Anderson, J.C. and D.W. Gerbing, "Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach," *Psychological Bulletin*, Vol. 103, No. 3: 411-423, 1988.
- Ba, S., "Establishing Online Trust through a Community Responsibility System," *Decision Support Systems*, Vol. 31, No. 4: 323-336, 2001.
- Bandura, A., *Self-Efficacy: The Exercise of Control*. New York, NY, Freeman, 1997.
- Bandura, A., "Exercise of Human Agency through Collective Efficacy," *Current Directions in Psychological Science*, Vol. 9, No. 3: 75-78, 2000.
- Bearden, W.O. and R.L. Rose, "Attention to Social Comparison Information: An Individual Difference Factor Affecting Consumer Conformity," *Journal of Consumer Research*, Vol. 16, No. 4: 461-471, 1990.
- Bhattacharjee, A., "Acceptance of E-Commerce Services: The Case of Electronic Brokerages," *Systems, Man and Cybernetics, Part A: Systems and Humans, IEEE Transactions on*, Vol. 30, No. 4: 411-420, 2000.
- Bin, Q. and S.Q. Sun, Cultural Differences in E-Commerce: A Comparison between U.S. And China. in *Advanced Topics in Global Information Management*. M. G. Hunter and B. T. Felix edited. Hershey, PA, USA, IGI Global. 3: 19-26, 2004.
- Bock, G.W., R.W. Zmud and Y.G. Kim, "Behavioral Intention Formation in Knowledge Sharing: Examining the Roles of Extrinsic Motivators, Social-Psychology Forces, and Organizational Climate," *MIS Quarterly*, Vol. 29, No. 1: 87-111, 2005.
- Calder, B.J. and R.E. Burnkrant, "Interpersonal Influence in Consumer Behavior: An Attribution Theory Approach," *Journal of Consumer Research*, Vol. 4, No. 1: 29-38, 1977.
- Chen, C.-P., "Online Group Buying Behavior in Cc2b E-Commerce: Understanding Consumer Motivations," *Journal of Internet Commerce*, Vol. 11, No. 3: 254-270, 2012.
- Chen, J. and S. Dibb, "Consumer Trust in the Online Retail Context: Exploring the Antecedents and Consequences," *Psychology & Marketing*, Vol. 27, No. 4: 323-346, 2010.
- Cheng, H.-H. and S.-W. Huang, "Exploring Antecedents and Consequence of Online Group-Buying Intention: An Extended Perspective on Theory of Planned Behavior," *International Journal of Information Management*, Vol. 33, No. 1: 185-198, 2013.
- Cheung, C.M.K., P.-Y. Chiu and M.K.O. Lee, "Online Social Networks: Why Do Students Use Facebook?," *Computers in Human Behavior*, Vol. 27, No. 4: 1337-1343, 2011.
- Chin, W.W., "Issues and Opinion on Structural Equation Modeling," *MIS Quarterly*, Vol. 22, No. 1: 7-16, 1998.
- Cialdini, R.B. and M.R. Trost, *Social Influence: Social Norms, Conformity and Compliance*. in *The Handbook of Social Psychology*. D. T. Gilbert, S. T. Fiske and G. Lindzey edited. Boston, MA, McGraw-Hill: 151-192, 1998.
- Davis, F.D., R.P. Bagozzi and P.R. Warshaw, "User Acceptance of Computer Technology: A Comparison of Two Theoretical Models," *Management Science*, Vol. 35, No. 8: 982-1003, 1989.
- De Wulf, K., N. Schillewaert, S. Muylle and C. Rangarajan, "The Role of Pleasure in Web Site Success," *Information & Management*, Vol. 43, No. 4: 434-446, 2006.

- Doney, P.M. and J.P. Cannon, "An Examination of the Nature of Trust in Buyer-Seller Relationships," *Journal of Marketing*, Vol. 61, No. 2: 35-51, 1997.
- Fornell, C. and D.F. Larcker, "Structural Equation Models with Unobservable Variables and Measurement Errors," *Journal of Marketing Research*, Vol. 18, No. 1: 39-50, 1981.
- Gefen, D., "E-Commerce: The Roles of Familiarity and Trust," *Omega*, Vol. 28, No. 6: 725-737, 2000.
- Gibson, C.B., "Do They Do What They Believe They Can? Group Efficacy and Group Effectiveness across Tasks and Cultures," *Academy of Management Journal*, Vol. 42, No. 2: 138-152, 1999.
- Hannah, S.T., B.J. Avolio, F. Luthans and P.D. Harms, "Leadership Efficacy: Review and Future Directions," *The Leadership Quarterly* Vol. 19, No. 6: 669-692, 2008.
- Heckman, J.J., "Sample Select Bias as a Specification Error," *Econometrica*, Vol. 47, No. 1: 153-162, 1979.
- Hoffman, D.L., T.P. Novak and M. Peralta, "Building Consumer Trust Online," *Communications of the ACM*, Vol. 42, No. 4: 80-85, 1999.
- Hsieh, P.A., A. Rai and M. Keil, "Understanding Digital Inequality: Comparing Continued Use Behavioral Models of the Socio-Economically Advantaged and Disadvantaged," *MIS Quarterly*, Vol. 32, No. 1: 97-126, 2008.
- Hsu, C.L. and C.P. Lu, "Why Do People Play on-Line Games? An Extended Tam with Social Influences and Flow Experience," *Information & Management*, Vol. 41, No. 7: 853-868, 2004.
- Hsu, M.H. and C.M. Chang, "Examining Interpersonal Trust as a Facilitator and Uncertainty as an Inhibitor of Intra-Organisational Knowledge Sharing," *Information systems Journal*, Vol. 24, No. 2: 119-142, 2012.
- Hsu, M.H., C.M. Chang and C.H. Yen, "Exploring the Antecedents of Trust in Virtual Communities," *Behaviour & Information Technology*, Vol. 30, No. 5: 587-601, 2011.
- Hsu, M.H. and C.M. Chiu, "Internet Self-Efficacy and Electronic Service Acceptance," *Decision Support Systems*, Vol. 56, No. 3: 369-381, 2004.
- Hsu, M.H., L. Ju, C.H. Yen and C.M. Chang, "Knowledge Sharing Behavior in Virtual Communities: The Relationship between Trust, Self-Efficacy, and Outcome Expectations," *International Journal of Human-Computer Studies*, Vol. 65, No. 3: 153-169, 2007.
- Hsu, M.H., C.H. Yen, C.M. Chiu and C.M. Chang, "A Longitudinal Investigation of Continued Online Shopping Behavior: An Extension of the Theory of Planned Behavior," *International Journal of Human-Computer Studies*, Vol. 64, No. 9: 889-904, 2006.
- Illia, L., M. Bonaiuto, E. Pugliese and J. van Rekom, "Managing Membership Threats through Collective Efficacy," *Journal of Business Research*, Vol. 64, No. 6: 631-639, 2011.
- Jarvenpaa, S.L., N. Tractinsky and M. Vitale, "Consumer Trust in an Internet Store," *Information Technology and Management*, Vol. 1, No. 1-2: 45-71, 2000.
- Jing, X. and J. Xie, "Group Buying: A New Mechanism for Selling through Social Interactions," *Management Science*, Vol. 57, No. 8: 1354-1372, 2011.
- Jung, D.I. and J. Sosik, "Transformational Leadership in Work Groups: The Role of Empowerment, Cohesiveness, and Collective-Efficacy on Perceived Group Performance," *Small Group Research*, Vol. 33, No. 3: 313-336, 2002.
- Kauffman, R.J., H.C. Lai and C.T. Ho, "Incentive Mechanisms, Fairness and Participation in Online Group-Buying Auctions," *Electronic Commerce Research and Applications*, Vol. 9, No. 3: 249-262, 2010a.
- Kauffman, R.J., H.C. Lai and H.C. Lin, "Consumer Adoption of Group-Buying Auctions: An Experimental Study," *Information Technology and Management*, Vol. 11, No. 4: 191-211, 2010b.
- Kauffman, R.J. and B. Wang, Big Together, Buy Together: On the Efficacy of Group-Buying Business Models in Internet-Based Selling. in *Handbook of Electronic Commerce in Business and Society*. L. J. O. Cherrington and R. R. Watson edited. FL: CRC Press, Boca Raton: 99-137, 2002.
- Kim, J. and H.S. Park, "The Effect of Uniform Virtual Appearance on Conformity Intention: Social Identity Model of Deindividuation Effects and Optimal Distinctiveness Theory," *Computers in Human Behavior*, Vol. 27, No. 3: 1223-1230, 2011.
- Komiak, S.X. and I. Benbasat, "Understanding Customer Trust in Agent-Mediated Electronic Commerce, Web-Mediated Electronic Commerce, and Traditional Commerce," *Information Technology and Management*, Vol. 5, No. 1-2: 181-207, 2010.
- Ku, E.C.S., "Beyond Price: How Does Trust Encourage Online Group's Buying Intention?," *Internet Research*, Vol. 22, No. 5: 569 - 590, 2012.
- Lascu, D.N., W.O. Bearden and R.L. Rose, "Norm Extremity and Personal Influences on Consumer Conformity," *Journal of Business Research*, Vol. 32, No. 3: 201-213, 1995.

- Lee, C., "Modifying an American Consumer Behavior Model for Consumers in Confucian Culture: The Case of the Fishbein Behavioral Intention Mode," *Journal of International Consumer Marketing*, Vol. 3, No. 1: 27-50, 1990.
- Lee, J., D.H. Park and I. Han, "The Effect of Negative Online Consumer Reviews on Product Attitude: An Information Processing View," *Electronic Commerce Research and Applications* Vol. 7, No. 3: 341-352, 2008.
- Lee, M.C., "Explaining and Predicting Users' Continuance Intention toward E-Learning: An Extension of the Expectation-Confirmation Model," *Computers & Education*, Vol. 54, No. 2: 506-516, 2010.
- Li, X., T.J. Hess and J.S. Valacich, "Why Do We Trust New Technology? A Study of Initial Trust Formation with Organizational Information Systems," *Journal of Strategic Information Systems* Vol. 17, No. 1: 39-71, 2008.
- Lim, H. and A.J. Dubinsky, "The Theory of Planned Behavior in E-Commerce: Making a Case for Interdependencies between Salient Beliefs," *Psychology and Marketing*, Vol. 22, No. 10: 833-855, 2005.
- Lim, K.H., C.L. Sia, M.K.O. Lee and I. Benebasat, "Do I Trust You Online, and If So, Will I Buy? An Empirical Study of Two Trust-Building Strategies," *Journal of Management Information Systems*, Vol. 23, No. 2: 233-266, 2006.
- Lin, G.T.R. and C.C. Sun, "Factors Influencing Satisfaction and Loyalty in Online Shopping: An Integrated Model," *Online Information Review*, Vol. 33, No. 3: 458-475, 2009.
- Ma, M. and R. Agarwal, "Through a Glass Darkly: Information Technology Design, Identity Verification, and Knowledge Contribution in Online Communities," *Information Systems Research*, Vol. 18, No. 1: 42-67, 2007.
- Mach, M., S. Dolan and S. Tzafirir, "The Differential Effect of Team Members' Trust on Team Performance: The Mediation Role of Team Cohesion," *Journal of Occupational and Organizational Psychology*, Vol. 83, No. 3: 771-794, 2010.
- Market-Intelligence-Consulting-Institute, "The Customer Behavior of Group-Buying Auctions Sites in 2010," Institute for Information Industry, 2013.
- Mathieson, K., "Predicting User Intentions: Comparing the Technology Acceptance Model with the Theory of Planned Behavior," *Information Systems Research*, Vol. 2, No. 3: 173-191, 1991.
- Mayer, R.C., J.H. Davis and F.D. Schoorman, "An Integrative Model of Organizational Trust," *Academy of Management Review*, Vol. 20, No. 3: 709-734, 1995.
- McKnight, D.H., L.L. Cummings and N.L. Chervany, "Initial Trust Formation in New Organizational Relationships," *Academy of Management Review*, Vol. 23, No. 3: 473-490, 1998.
- Morgan, R.M. and S.D. Hunt, "The Commitment-Trust Theory of Relationship Marketing," *Journal of Marketing*, Vol. 58, No. 3: 20-38, 1994.
- Noh, M., K. Lee, S. Kim and G. Garrison, "Effects of Collectivism on Actual S-Commerce Use and the Moderating Effect of Price Consciousness," *Journal of Electronic Commerce Research*, Vol. 14, No. 3: 244-260, 2013.
- Panteli, N. and S. Sockalingam, "Trust and Conflict within Virtual Inter-Organizational Alliances: A Framework for Facilitating Knowledge Sharing," *Decision Support Systems*, Vol. 39, No. 4: 599-617, 2005.
- Pavlou, P.A. and M. Fygenon, "Understanding and Predicting Electronic Commerce Adoption: An Extension of the Theory of Planned Behavior," *MIS Quarterly*, Vol. 30, No. 1: 115-143, 2006.
- Pavlou, P.A., H. Liang and Y. Xue, "Understanding and Mitigating Uncertainty in Online Exchange Relationships: A Principal-Agent Perspective," *MIS Quarterly*, Vol. 31, No. 1: 105-136, 2007.
- Pennington, R., H.D. Wilcox and V. Grover, "The Role of System Trust in Business-Consumer Transactions," *Journal of Management Information Systems*, Vol. 20, No. 3: 197-226, 2003.
- Podsakoff, P.M., S.B. MacKenzie, J.Y. Lee and N.P. Podsakoff, "Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies," *Journal of Applied Psychology*, Vol. 88, No. 5: 879-903, 2003.
- Qureshi, I., Y. Fang, E. Ramsey, P. McCole, P. Ibbotson and D. Compeau, "Understanding Online Customer Repurchasing Intention and the Mediating Role of Trust: An Empirical Investigation in Two Developed Countries," *European Journal of Information Systems*, Vol. 18, No. 3: 205-222, 2009.
- Shiau, W.-L. and M.M. Luo, "Factors Affecting Online Group Buying Intention and Satisfaction: A Social Exchange Theory Perspective," *Computers in Human Behavior*, Vol. 28, No. 6: 2431-2444, 2012.
- Staples, D.S. and J. Webster, "Exploring the Effects of Trust, Task Interdependence and Virtualness on Knowledge Sharing in Teams," *Information systems Journal*, Vol. 18, No. 6: 617-640, 2008.
- Statista, "Statistics and Data on Group Buying in China," from <http://www.statista.com/topics/1396/group-buying-in-china/>, 2013.
- Sun, Y., N. Wang, X. Guo and Z. Peng, "Understanding the Acceptance of Mobile Health Services: A Comparison and Integration of Alternative Models," *Journal of Electronic Commerce Research*, Vol. 14, No. 2: 183-200, 2013.

- Tajfel, H. and J.C. Turner, The Social Identity Theory of Intergroup Behavior. in *The Psychology of Intergroup Relations*. S. Worchel and W. G. Austin edited. Chicago,IL, Nelson-Hall: 7-24, 1986.
- Taylor, S. and P.A. Todd, "Understanding Information Technology Usage: A Test of Competing Models," *Information Systems Research*, Vol. 6, No. 2: 144-176, 1995.
- Tsai, M.-T., N.-C. Cheng and K.-S. Chen, "Understanding Online Group Buying Intention: The Roles of Sense of Virtual Community and Technology Acceptance Factors," *Total Quality Management & Business Excellence*, Vol. 22, No. 10: 1091-1104, 2011.
- Van Slyke, C., V. Ilie, H. Lou and T. Stafford, "Perceived Critical Mass and the Adoption of a Communication Technology " *European Journal of Information Systems*, Vol. 16, No. 3: 270-283, 2007.
- Venkatesh, V., M.G. Morris, G.B. Davis and F.D. Davis, "User Acceptance of Information Technology: Toward a Unified View," *MIS Quarterly*, Vol. 27, No. 3: 425-478, 2003.
- Wang, E.S.-T. and N.P.-Y. Chou, "Consumer Characteristics, Social Influence, and System Factors on Online Group-Buying Repurchasing Intention," *Journal of Electronic Commerce Research*, Vol. 15, No. 2: 119-132, 2014.
- Wei, Y., D.W. Straub and A. Poddar, "The Power of Many: An Assessment of Managing Internet Group Purchasing," *Journal of Electronic Commerce Research*, Vol. 12, No. 1: 19-43, 2011.
- Zhu, L., I. Benbasat and Z. Jiang, "Let's Shop Online Together: An Empirical Investigation of Collaborative Online Shopping Support," *Information Systems Research*, Vol. 21, No. 4: 872-891, 2010.