How Does Social Identification Moderate the Repurchase Intention? From the Perspect of OGB

Shwu-Min Horng, National Chengchi University, Taiwan

<https://orcid.org/0000-0002-9781-2202>

ABSTRACT

This research studied user repurchase intentions on online group buying services. In the research model, satisfaction is hypothesized to have a positive relationship with trust that will have a positive impact on repurchase intention. Each of the three dimensions is divided into two constructs, one for the product and the other for the website. In addition, the moderating effects of social identification on the relationships between trust and repurchase intention, and between satisfaction and trust were tested. A survey collected 300 effective samples to test the research model. The results of PLS showed that all of the causal relationships were all significant while the moderating effects of social identification were significant for several relationships. When social identification is low, the influences of trust toward the product on repurchase intention for the product, satisfaction toward the product on trust toward the product, and satisfaction toward the website on trust toward the website, are stronger. Managerial implications and suggestions for future research were also discussed.

KEYWORDS

Online Group Buying, Social Identification, Satisfaction, Trust, Repurchase Intention

INTRODUCTION

The theory and practice of e-service are still in its infancy (Santos and Fernandes, 2011), but it indeed has brought about a dramatic revolution to the internet world. Retail e-commerce sales worldwide continue to post solid gains in 2017, rising 23.2% to \$2.290 trillion (eMarketer, 2017). This growth has come about primarily from the increase of internet and mobile users, advanced shipping and payment methods, and the desire to gain international markets by major companies. It has also been reported that worldwide digital buyer penetration, i.e., the percentage of global internet users who had purchased products online, had reached 41.3% in 2013, and is expected to reach 47.3% by 2018 (Statista, 2015). The data showed that different types of e-commerce have infiltrated into people's daily lives.

Yang (2011) surveyed online purchasing in Taiwan and reported that the most common methods of online purchase were online direct purchase (76.7%), online auction direct purchase (45.5%), and online group buying (32.5%). The major reasons for customers to purchase online are lower product price (68.9%), convenience (49.2%), and more discount promotions (43.3%). As customers' acceptance toward this new method of purchasing has increased, so has the prevalence of online group buying (OGB) websites, an e-commerce model that aims to provide discounted prices for customers. Group buying is a method of obtaining discounted prices from the selling parties by forming a group of

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customers who are willing to purchase the same item together. By gathering a group of customers who wish to purchase the same item, the volume of purchase can be increased, which in turn raises the bargaining power of the customers (Yen and Chang 2015).

While OGB will continue to be an important business model on the Internet, several issues remain unresolved requiring further studies. One of them is the role of the virtual community on OGB sites. Two well-known OGB websites in Taiwan, Groupon.com (Groupon, 2015) and Babyhome.com (Babyhome, 2015), employed two divergent strategies. When Babyhome.com relied heavily on the feedback of its members in the virtual community, Groupon.com of Taiwan removed the social networking function from its website and established its virtual community elsewhere (Lo, 2011). Therefore, one of the purposes in this research is to investigate if social identification of customers toward the virtual communities of OGB websites would have an impact on their repurchase intention. Specifically, this study will test the moderating effect of social identification on the relationships between trust and repurchase intentions of OGB users and between satisfaction and trust, given that they have the experience of purchasing products from OGB websites.

In addition, this study would also test the causal effects from satisfaction to trust that lead to the repurchase intention. All of the constructs of satisfaction, trust, and repurchase intention will be divided into two parts, one for the product and the other for the website. Separating products from OGB websites has important academic and practical contributions. Merchants usually consider OGB websites as channels, and most prior OGB studies focused primarily on users' behavior toward the websites or the group buying models, not on the products (Anand & Aron, 2003; Matsuo and Ito, 2004; Tsai et al., 2011). Based on Theory of Reasoned Action (TRA), a model to predict behavioral intentions and to comprehend the behaviors behind intentions (Fishbein and Ajzen, 1975), this is the first research attempting to understand how users' believe (satisfaction in this study) toward OGB websites and products can cross-influence their attitudes (trust in this study) toward OGB websites and products, and how their attitudes can finally lead to the two different repurchase intentions, products on the OGB website or the product itself.

Edelman et al. (2016) examined the profitability of online discount vouchers. Using Groupon, one of the major online group buy services, as an example to develop mathematical models, they found that online discount vouchers might increase firm profits only under narrow conditions. When selling products on Groupon, merchants can get pros and cons (Gupta et al., 2012). Benefits include no ad campaign cost, high awareness of customers, assistance for marketing campaigns from Groupon, and controllable and effective marketing tool. In general, merchants can find OGB services as a good resource for marketing to attract more customers. On the other hand, merchants might suffer from some negative effects. First, new customers who are attracted by the discounts do not become repeat customers. Second, price-sensitive customers might not purchase the same products at regular price. Third, the loyalty of regular price customers will be eroded. Fourth, service quality will be reduced because of significantly high traffic to small business with limited capacity or lower tips from Group users to further reducing the incentive of staff to serve them well. Last, the short-term high-volume sales do not guarantee long term profits. From the merchants' perspective, the key weakness of OGB services is the lack of repeat customers. If merchant considers OGB websites as sales channels, the customers' attitude toward the channel might affect their repurchase intention for the merchant's products. On the other hand, selling products on an OGB website might be just a promotion campaign to stimulate the sales, and users on the web site will not build enough trust to become loyal customers for the products. For merchants and OGB website operators, the results of this study provide a better understanding of users' behavior toward OGB websites as well as the products and can help them develop strategies that are more efficient.

This study was motivated by the observations toward the OGB web site operations, and Figure 1 depicts the research process. The multiple interviews of two OGB web site operators provide the information and suggestions to identify the problems and draw the conclusions, while literature review help to refine the problems and research framework. After developing the research framework, the

Figure 1. Research flowchart

questions used to represent the constructs were obtained from prior researches. Some revisions of the questions are necessary to better fit the research problems. The questionnaire was finalized after pilot tests and focus group interview (FGI). A market firm was hired to conduct the survey and collect the data from several popular OGB websites. When drawing the conclusions, I consider not only the results from data analysis and prior researches, but also the suggestions from OGB operators. The following section will review the past literature regarding social influences on OGB and virtual communities and social identification.

BACKGROUND

Social Influences on Online Group Buying (OGB)

The concept of group buying is to collect and leverage the consumer's bargaining power to obtain a lower price or an extra service of the products which they are interested in (Luo et al., 2014). When a batched request is created by an internet-based platform, the website claims that consumers will enjoy a lower price on their items of interest, and suppliers will benefit from saving the cost of recruiting customers. It is a win-win situation for both suppliers and consumers (Kauffman et al., 2010).

Since group buying is a process involving a group of consumers, social factors are widely applied in studying online buying behavior. Using Interpretive Structural Modeling (ISM), Xiao (2018) developed a context-specific hierarchical motive model to identify 17 factors to motivate consumer OGB behavior. These factors were organized into a hierarchical model using ISM in which socializing with other members is among one of the important motivations. The importance of social interaction in the context of group buying was also tested in the study of Jing and Xie (2011). They compared OGB to traditional individual selling strategies and other popular social interaction schemes. Their results showed that group buying is optimal when interpersonal communication is efficient, and when the product valuation of a less-informed consumer segment is high. To encourage group behavior, OGB website operators would establish virtual communities so that social factor could influence

the members more efficiently. Consequently, after interacting with others on the virtual community, the member will develop the sense of community that is defined as members' feelings of belonging and being important to each other as well as a shared faith that members' needs will be met by the commitment to be together (McMillan & Chavis, 1986). Tsai et al. (2011) integrated technology acceptance and sense of virtual community and all of them were tested significantly on their impacts on group buying intentions.

Based on the social influence theory by Kelman (2006), three social influences, normative, identification, and informational explain an individual's socially induced opinion formation and behavior change. Normative influence occurs when an individual accepts influence from another person or from a group. Value-expressive influence occurs through the identification process when an individual adopts a behavior because this individual wants to associate with another person or a group who represent desirable values. Information influence occurs through the internalization process when an individual accepts influence because the induced behavior is intrinsically rewarding (Zhao et al., 2018). Chen (2012) utilized netnography to better capture online cultural and social behaviors. The results of this study recognized the importance of social effects in that the members of an online group community are easier to be persuaded by group opinion leaders. In the context of online groups, an empirical study showed that social interaction has significant informational and normative influences on consumer trust (Zhang and Gu, 2015). All of the three influences are associated with online behaviors such as knowledge sharing (Hsu and Lin, 2008), user reviews (Zhao et al., 2018), online purchase (Hsieh and Tseng, 2018), and online group buying (Lim, 2014).

Virtual Communities and Social Identification

Rheingold (2000) defined virtual communities (VCs) as "social aggregations that emerge from the Net when enough people carry on public discussion long enough, with sufficient human feeling, to form webs of personal relationships in cyber-space". The importance of online virtual communities can be signified by their ever-increasing usage. The services they offer enable users to communicate and connect with each other, to build up a personal network whose members share common interests, allowing them to interact regularly in an organized way over the Internet. The VC is also the core element of social commerce that uses social media to assist in the online buying and selling of products and services (Liang et al., 2011-12; Shen and Eder, 2011). Therefore, VC becomes a suitable channel for merchants to promote their products by applying the OGB model. From this perspective, social identity theory, proposing that the functionality of groups shapes their members' social identity with these groups (Dholakia et al. 2004), is better suited than other two social influences, informational and normative, to prescribe and instigate group-oriented behavior. Furthermore, several prior studies have confirmed that both influences were positively associated with the intention to use OGB services (Hsieh and Tseng, 2018; Hsu and Lin, 2008; Kuan et al., 2014).

Identification is the process by means of which individuals see themselves as one with another person or group of people (Nahapiet and Ghoshal, 1998), and is also referred to as an individual's sense of belonging toward a virtual community, which is similar to emotional attachment to the community (Chiu et al., 2006). In addition, an emotionally-based social identity can foster loyalty to firms in marketing settings (Bhattacharya and Sen, 2003). Pentina et al. (2008) suggested that stronger motivations to join virtual communities for social interaction would lead to higher degrees of member identity with the group. Bergami and Bagozzi (2000) found that social identification led to the performance of organizational member behavior by firm employees, or higher levels of we-intentions, defined as the intentions to participate together as a group, to participate in the virtual community. Identification is one of the internal motivations for participation in open-source projects exemplifying knowledge sharing (Hars and Qu, 2002), and one of the important antecedent factors of participating in virtual communities (Hsu and Lin, 2008). In the absence of face-to-face interaction, the perception of oneself as belonging to a certain virtual group leads one to act in accordance with information obtained from this group while making purchasing decisions (Pentina et al., 2008).

However, to what extent the repurchase decision is primarily based on the product itself, without the effect of group behavior and unaffected by social identification, remains uncertain.

HYPOTHESES DEVELOPMENT

The Theory of Planned Behavior (TPB) (Ajzen, 1991) was derived and extended from the Theory of Reasoned Action (TRA), a model developed to predict behavioral intentions and to comprehend the human-specific behaviors behind intentions (Fishbein and Ajzen, 1975). Hellier et al. (2003) concluded from the TPB model and several other studies that satisfaction and attitude are the major antecedents of customer repurchase intention, and attitude is viewed as a post-purchase construct. Therefore, he proposed the following model:

Satisfaction → Attitude → Repurchase Intention

where attitude is the customers' learned disposition of a service, company, or brand as a result of past evaluative experiences, and it could be positive, neutral, or negative. In addition, Geyskens et al. (1999) found satisfaction to be an antecedent to trust in the meta-analysis of satisfaction in marketing channels. In this research, the research framework, based on TPB and Hellier's models, was constructed using satisfaction as the belief, trust as the attitude, and repurchase intention as the outcome. The proposed conceptual model would be:

Satisfaction → Trust → Repurchase Intention

This same model was adopted by Fang et al. (2014) in which they studied how satisfaction and trust toward the vendor of a product would affect the consumers' online repurchase intentions. The same relationships, satisfaction to trust and trust to repurchase intention, can also be found in the model developed by Ha et al. (2010). In this study, satisfaction and trust were divided into two constructs: satisfaction toward the product and satisfaction toward the website; trust toward the product and trust toward the website.

Figure 2. Research model (RI: Repurchase Intention)

Several studies have been found to examine the purchase intention for OGB, but few have investigated the repurchase intention for products on websites. When purchasing products on an OGB website, consumers enjoy discounts to a group of consumers and are affected by social influence (Kuan et al., 2014; Zhang and Gu, 2015). When these users with prior OGB purchase experience

were asked about their repurchase intentions regarding the same product or visiting the same website, they might not present the same level of intentions as their prior experience under the impact of social influence (Kaplan and Miller, 1987). Therefore, this study derived two types of repurchase intention, one for the same products traded on any websites and another one for any products traded on the same website. Lastly, the discussion will focus on how customers' social identification could influence the degree of relationships between trust and repurchase intention, and between satisfaction and trust. Figure 2 illustrates the conceptual model of this research and the following section will describe the development of the hypotheses in detail.

One of the earliest concepts of consumer satisfaction was proposed by Cardozo (1965). He stated that satisfaction would lead to repurchasing behavior of the customer and would also lead to other purchasing behaviors. His work also showed that customers' satisfaction toward a product would be influenced by the amount of effort required to acquire the product in terms of time and money. In addition to customer satisfaction toward products, satisfaction with the purchase channel has been researched as well. Devaraj et al. (2002) discussed customer satisfaction toward an e-commerce channel and proposed that satisfaction with an e-commerce channel can be predicted by such factors as usefulness, ease of use, time-savings, price savings, and assurance. Further, their study also found that satisfaction is a determinant of channel preference. Therefore, this study has divided the satisfaction derived from OGB experience into two constructs, satisfaction toward the product and satisfaction toward the website.

Consumer trust in internet purchasing has two dimensions: trust in the purchase site and in the internet as a whole (Chen and Dhillon, 2003). Lee and Turban (2001) have identified three key success factors of online shopping models: customers' trust toward the supplier, customers' trust toward the products provided by the supplier, and customers' trust toward the digital transaction system. The first factor is the brand of the product, not considered in this study; the other two factors, trust toward the product and trust toward the website, represent the two trust constructs used in the research model indicated in Figure 1. The following is a discussion of the development of hypotheses H1a, H1b, H2a, and H2b.

In a study of offline retail channels, consumer satisfaction is positively related to future attitudes and behaviors (Webster and Sundaram, 1998). Tax et al. (1998) conducted an investigation and found a significantly positive relationship between satisfaction and trust. In an online context, several studies have supported the positive influence of satisfaction on trust toward the transacted products (Casalo et al., 2008; Ribbink et al., 2004). When a customer perceives the performance of a product as satisfactory, his/her feelings of trust toward the product tend to be strengthened. therefore,

H1a: Satisfaction toward the product will positively influence the trust toward the product

The overall degree of satisfaction felt by consumers in previous exchanges is an important antecedent of consumer attitude. Oliver (1980) has proposed that satisfaction would influence attitude change and purchase intention. Abelson et al. (1968) examined halo/spill-over effects that enable retailers to exploit the popular brands they carry to their advantage. Boulding (1956) proposed that human behavior is directed more by the images perceived than by objective reality. The Internet is considered a sales channel (Devaraj et al., 2002), and satisfaction with a product will lead to trust in the retailer (Zboja and Voorhees, 2006). When a customer is satisfied with the product he/she purchased from the website, he/she will perceive that this sales channel is trustworthy. Thus,

H1b: Satisfaction toward the product will positively influence the trust toward the website

Satisfaction and trust in online contexts are essential to maintain relationships with consumers and satisfaction is an antecedent of trust (Garbarino and Johnson, 1999). Trust implies a willingness

on the part of the consumer to accept vulnerability in the transaction and the belief that the firm will fulfill its promises and will not exploit that vulnerability to its own benefit (Chouk and Perrien, 2004). Shankar et al. (2003) discussed how levels of customer satisfaction could relate to loyalty toward online and offline services. Since the Internet has become an important channel for commodity trading, trust in the purchase site is a key factor for further study. Satisfactory experiences with a specific online retailer inspire consumer trust in the virtual medium and evidence showed that consumers satisfied with online purchasing will have a higher level of trust toward the purchasing website (Santos and Fernandes, 2011). If one considers the website as the vendor of the product, Fang et al. (2014) hypothesized the same relationship between satisfaction and trust. When users visit a website, they have certain expectations with regard to the service the website provides. If they perceive that the expectations are met, they will feel satisfied and more confident that the website is trustworthy and capable of meeting its commitments. Based on this discussion,

H2a: Satisfaction toward the website will positively influence the trust toward the website

Signaling theory has been applied in an online context to investigate how traditional signals influence trust and perceived risk with an online retailer (Aiken and Boush, 2006). Wells et al. (2011) applied signaling theory and proposed a hypothesis stating that the perception of website quality positively correlated with a consumer's perception of product quality. Perceived website quality is a signaling cue to users' perception of the product. Many studies applied the theory of reasoned action (Ajzen and Fishbein, 1980) to predict online users' behavior whereas satisfaction toward a website usually represents an attitude for which website quality is an important antecedent. The buyer's overall satisfaction with the buying experience is proposed to have a positive impact on the trust in the manufacturer that will lead to the trust in their products (Lee and Turban, 2001). If OGB website can provide its users with a satisfying experience regarding their buying experience, they may build the trust toward the purchased products. Hence,

H2b: Satisfaction toward the website will positively influence the trust toward the product

According to Peppers and Rogers (1998), it takes businesses six to nine times of cost to gain new customers to generate repurchase behaviors from existing customers. Cronin and Taylor (1992) defined repurchase intention as the willingness to purchase a product again once the customer has prior experience with the product. Kotler (1997) further defined repurchase intention as the willingness to repurchase or recommend others to purchase the same product or service after being satisfied with the service provided. In the context of OGB, the repurchase intention from these studies represents the willingness to purchase the product online, though not restricted to any website. However, repurchase intention could also represent the willingness to purchase the product on the same channel such as a website. Chiu et al. (2009) studied the determinants of customer repurchase intention in online shopping in which the repurchase intention is focused on the website. Therefore, two types of repurchase intention were investigated in this study, the repurchase intention of the product traded on any websites, and the repurchase intention of any product traded on a particular website. The following will describe hypotheses H3a, H3b, and H4 in detail.

The results of Laroche et al. (1996) showed that consumers' familiarity with a brand influences their confidence in an attitude toward a specific brand, which in turn would affect their purchase intentions for that particular brand. Trust affects not only the purchase intention through perceived risk and satisfaction (Green and Pearson, 2011), but also the online repurchase intention (Wen et al., 2011). The empirical finding of Ha et al. (2010) indicated that trust has directly affected the repurchase intention. When an individual is confident that the product he/she purchased has met the requirements, it is very likely he/she will purchase the same product again whenever needed. Therefore,

H3a: Trust toward the product will positively influence the repurchase intention for the product traded on any website

Gefen et al. (2003) indicated trust as a determinant of online purchase intention. If online users feel secure about and have trust in web services, they will increase the probability of making future purchases online (Janda, 2008). Based on signaling theory (Rao et al., 1999), the attitude toward the product is considered a cue that a seller can use to convey information credibly about unobservable product quality to the buyer, and the signal outcome is the purchase intention from the website (Wells, 2011). When considering a traditional sales channel, a reward point promotion focused on specific items successfully increased the spending of consumers in stores (Zhang and Breugelmans, 2012). Trust toward the product will encourage the customer to participate OGB (Suki and Suki 2018) and to purchase the same product from the sellers (Wongkitrungrueng and Assarut, 2018). The Internet can be viewed as a sales channel in which customers come to this website to search what they need. When they had a good experience toward the product purchased on the website, they will expect the same experience on other products from this channel. Thus,

H3b: Trust toward the product will positively influence the repurchase intention for any product traded on this website

Horng (2012) identified ten variables influencing user online paying behavior and clustered them into three factors. Of the most influential factors, the variable of security concerns had the highest loading. In the context of the online transaction, security concerns were often considered equivalent to trust in the website. In addition, trust toward the website tested as the most significant factor in regard to the repurchase intention (Chiu et al., 2009) and participation of the OGB website (Suki and Suki 2018). The study by Fang et al. (2014) and Wang and Chou (2014) identified the same relationship between trust toward the website and the repurchase intention on the site. When users perceive trust toward the website, they will be confident that the products provided on the website are reliable, hence,

H4: Trust toward the website will positively influence the repurchase intention for any product traded on this website

Social identification is considered to be one of the social influence factors having an impact on users' virtual community participation (Dholakia et al., 2004). Kaplan and Miller (1987) found that individual opinions are always inclined to shift after group discussion due to informational and normative influences. Informational influence represents acceptance of others' responses as evidence about reality, and normative influence is defined as conformity to the expectations of others (Deutsch and Gerard, 1955). Informational influence leads to private acceptance, changes in attitudes and opinions in order to be supported by others (Turner and Oakes, 1986), and normative influence represents public compliance (Kelman, 1958) that is similar to the bandwagon effect, a social phenomenon that reflects one's tendency to follow the actions of others, even when one's private information suggests otherwise (Celen and Kariv, 2004). In other words, social identification influences consumers at group buying sites because of the pressure from group behavior, while they do not have a positive attitude toward the products to be purchased (Kuan et al., 2014). Therefore, the effects of trust on repurchase intention toward the product for those who present strong social identification will be less significant than those with weak social identification.

Wang et al. (2012) investigated individual-level tie strength and group-level identification as antecedents of product attitude and purchase decisions. They found that participants who have a stronger tie and identification with a peer group have a positive association with peer communication,

which in turn has a positive effect on product attitude and purchase intention. Consumers with a strong social tie with the other members of the community are more likely to replace their frequently seen friends with members of a virtual community as their primary reference group while making purchase decisions (Jepsen, 2006). Therefore, it is assumed that customers with higher levels of social identification make their purchase on an OGB website based on their desire to conform to the group instead of trusting the product or website. On the other hand, customers with lower levels of social identification make their purchase decisions because they trust the product and website, and therefore, are more likely to repurchase the product and to use the website to make purchases again. In addition, Venkatesh et al. (2012) found that experience moderates the effect of behavioral intention on use, such that the effect is stronger for consumers with less experience. Experience level is a strong antecedent of shared emotional connection that leads to a sense of virtual community (Blanchard and Markus, 2002), hence,

H5: The following three relationships are stronger when users' social identification is lower: trust toward the product and repurchase intention for the product traded on any website; trust toward the product and repurchase intention for any product traded on the website; trust toward the website and the repurchase intention for any product traded on this website.

In addition to behavioral intention, social influence might also moderate the influence toward attitude. Martin et al. (2011) offered two opposing proposals for the moderating effect of social involvement on the relationship of satisfaction to trust in online shopping and hypothesized it as insignificant. However, the context of this study is OGB and the social factor plays a more important role than it did in their study. In addition, Zhang and Gu (2015) provided empirical evidence that social interaction moderates consumers' trust in OGB contexts. Therefore, this study hypothesizes the existence of the moderating effects of social identification on the relationships between satisfaction and trust as follows.

H6: Users' social identification level will moderate the following relationships: satisfaction toward the product and trust toward the product; satisfaction toward the product and trust toward the website; satisfaction toward the website and trust toward the product; satisfaction toward the website and trust toward the website.

METHODOLOGY AND RESULTS

To conduct a survey on the behavior of online users with experience of group buying, a marketing firm, Eastern Online, was hired. A list comprising the most popular 11 group buying websites in Taiwan was used for the survey. An exercise was conducted in a class with 40 MBA students to survey the OGB web services used, and these 11 sites were among the most frequently visited OGB sites. Prior to distributing the questionnaires, a Focus Group Interview (FGI) was conducted, and the comments from the participants provided a basis for questionnaire revisions. It should be noted that some of the group buying websites did not run online virtual communities, and most of them operated accounts on Facebook.com to function as virtual communities. Therefore, the FGI participants who visited the sites without virtual communities still exhibited the trait of belongingness to the virtual groups related to the sites.

A pre-test with 300 samples collected by the marketing firm was used to revise the questions and three items were removed due to low loadings and cross-loadings. Another 300 effective samples used to test the research model were collected followed by the first survey. The survey forms were administrated so that only effective samples with prior group buying experience and acknowledging the existence of OGB virtual communities were reported. Each of the 11 websites had at least five

samples. In summary, most of the samples were married (55.7%) and experienced (with more than two years of group buying experience 60.3%). Male samples accounted for 50.7 percent, and most of them, 60.3 percent, used desktop computers to conduct group buying. Out of the 11 websites, the smallest number of respondents was 8 and the largest was 39. Two of the 11 websites run their virtual communities on their websites accounting for 47 samples while the other websites have their virtual communities established at other social network sites such as Facebook.com. In the survey, the products purchased on OGB websites were categorized by restaurant (98, 32.7%), food (85, 28.3%), traveling (54, 18.0%), clothing (33, 11.0%), baby products (23, 7.7%), and others (7, 2.3%).

Table 1 provides the sources of the constructs used in this study while the questions are listed in Table 2. Where available, these constructs were measured using questions adapted and revised from prior studies to enhance validity (Stone, 1978). All items were measured using seven-point Likert scales anchored from “strongly disagree” to “strongly agree”.

Table 1. Research constructs and their references

Construct	References
Satisfaction toward the website (Sat_W)	Choi, Sohn, and Lee (2010); Hume and Mort (2008); Martin, Camarero, and Jose (2011); Wen, Prybutok, and Xu (2011)
Satisfaction toward the product (Sat_P)	Ha et al. (2010); Hume and Mort (2008); Kauffman, Lai, and Ho (2010)
Trust toward the website (Trust_W)	Cheng Yang, and Chen (2011); Green and Pearson (2011); Martin, Camarero, and Jose (2011);
Trust toward the product (Trust_P)	Ha et al. (2010); Van der Heiden et al. (2003)
Repurchase intention for any product on the website (RI_W)	Choi, Sohn, and Lee (2010); Van der Heijden, Verhagen, and Greemers (2003); Hung, Cheng, and Chen (2012); Wen, Prybutok, and Xu (2011)
Repurchase intention for the product on any website (RI_P)	Wen, Prybutok, and Xu (2011)
Social identification (SI)	Dholakia, Bagozzi, and Pearo (2004)

Since this study relied on data collected from a survey, common method variance (CMV) may become a potential problem (Podsakoff et al. 2003). A commonly used remedy was Harman’s single-factor test (Harman 1976). This test examines whether the majority of the variance can be explained by a single factor, and the variance explained by one factor accounts for 27.96% of the model in this study. Therefore, the data did not show a significant CMV problem and were available for further analysis.

The reliability and validity of the data were tested and are shown in Table 3. The items have standardized loadings ranging from 0.642 to 0.881. According to the suggested guideline (Comrey 1973), all of the loadings are larger than 0.63 and are considered very good or excellent (larger than 0.7).

Average variance extracted (AVE) estimates the amount of variance captured by a construct’s measure relative to random measurement error. In Table 4, estimates of Cronbach alpha above 0.7 and AVE above 0.5 are considered supportive of internal consistency (Bagozzi and Yi, 1988; Fornell and Larcker, 1981). The square root of the AVE for each construct is also compared and is greater than the correlation shared between the construct and other constructs in the model. Thus, the discriminant validity is verified. The high correlation among constructs ranges from .54 to .83 showing the potential problem of multicollinearity. However, product satisfaction has the highest VIF of 3.233 not exceeding the threshold of five suggested by Hair et al. (2010), and the loadings shown in Table 3 do not exhibit any sign of cross-loadings problem. Therefore, the data are suitable for further analysis.

Table 2. Items in the questionnaire

Item	Questions
Each respondent was asked to read the following statement before answering the questions: Please answer the following questions based on one of your group buying experiences. Suppose you purchased product X from website Y*.	
Sat_W1	I am satisfied with my decision to purchase products from website Y
Sat_W2	I believe that purchasing products from website Y was a wise choice
Sat_W3	I was happy with my purchasing experience at website Y
Sat_W4	Taking everything into consideration, I feel satisfied with website Y
Sat_P1	I am happy with my ownership of product X
Sat_P2	I am very satisfied with my decision to purchase products X
Sat_P3	I believe that purchasing product X was a wise choice
Sat_P4	Taking everything into consideration, I feel satisfied with product X
Trust_W1	Website Y keeps its promises and commitments.
Trust_W2	Website Y can be counted on to do what they say they will do.
Trust_W3	Website Y seems to be trustworthy.
Trust_W4	Taking everything into consideration, website Y is reliable
Trust_P1	The product X I have purchased works as promised.
Trust_P2	The product X I have purchased fulfills the customer's expectation.
Trust_P3	I believe that the product X I have purchased would work as promised
Trust_P4	Taking everything into consideration, product X is reliable
RI_W1	I intend to make future purchases from website Y
RI_W2	I am willing to continue purchasing products from website Y.
RI_W3	It is very likely I will continue purchasing products from website Y
RI_W4	I will consider purchasing products from website Y, again
RI_P1	I intend to make future purchases of product X.
RI_P2	I wish to purchase product X again.
RI_P3	It is very likely I will purchase product X again.
RI_P4	I will consider purchasing product X when I have a similar need for it.
<i>The respondent was asked to read the following statement before answering the questions: Answer the following questions considering your purchase experience on website Y, Online Group Buy (OGB) community represents the virtual communities for website Y.</i>	
SI1	I feel as if I belong to OGB communities.
SI2	I am well known as a member of OGB communities.
SI3	I am a valuable member of the OGB community
SI4	I feel a strong sense of belongingness toward the OGB community

*Note: The survey first screened the respondents based on their purchase experience from one of the 11 OGB websites. All of the "Y" on the following questions will then be replaced by the name of the OGB website they have selected. When answering questions regarding product X, a small window will pop up to remind the respondent that product X represent the same product he/she just purchased in response to the first question.

This study used Partial Least Squares (PLS) to test the causal effects of the research model and applied SmartPLS 2.0 to analyze the structure model. PLS aims to comprehend the relationships within

Table 3. Summary of factor loadings, average, and standard deviation of items, and Cronbach's alpha

Item	Factor loadings							Average	Standard Deviation	Cronbach's Alpha
Sat_W1	.212	.237	.192	.755	.329	.168	.161	5.10	1.02	.895
Sat_W2	.235	.272	.208	.745	.273	.196	.217	4.99	1.06	
Sat_W3	.265	.279	.207	.698	.271	.314	.171	5.19	1.08	
Sat_W4	.215	.313	.252	.730	.250	.272	.177	5.17	1.02	
Sat_P1	.234	.252	.192	.373	.722	.200	.280	5.11	1.09	.915
Sat_P2	.303	.228	.168	.419	.681	.229	.272	5.12	1.13	
Sat_P3	.311	.215	.185	.383	.676	.237	.318	5.10	1.17	
Sat_P4	.324	.256	.186	.372	.677	.213	.298	5.07	1.11	
Trust_W1	.178	.816	.212	.248	.168	.192	.206	5.21	1.12	.905
Trust_W2	.179	.826	.213	.255	.143	.205	.174	5.20	1.15	
Trust_W3	.173	.770	.249	.211	.197	.282	.205	5.23	1.17	
Trust_W4	.184	.766	.240	.226	.204	.320	.237	5.26	1.12	
Trust_P1	.289	.330	.248	.223	.299	.228	.680	5.22	1.13	.911
Trust_P2	.316	.294	.238	.246	.301	.245	.680	5.18	1.10	
Trust_P3	.323	.313	.253	.245	.338	.269	.642	5.16	1.16	
Trust_P4	.321	.329	.248	.248	.330	.251	.657	5.16	1.16	
RI_W1	.216	.359	.276	.297	.195	.702	.252	5.52	1.14	.916
RI_W2	.234	.359	.294	.280	.210	.717	.238	5.53	1.14	
RI_W3	.259	.339	.321	.266	.242	.668	.206	5.48	1.22	
RI_W4	.223	.383	.294	.280	.221	.704	.214	5.64	1.12	
RI_P1	.879	.165	.209	.187	.144	.159	.151	4.98	1.39	.916
RI_P2	.870	.179	.223	.181	.179	.134	.194	4.87	1.40	
RI_P3	.881	.138	.223	.178	.165	.124	.165	4.84	1.49	
RI_P4	.816	.161	.214	.181	.229	.199	.195	5.06	1.44	
SI1	.183	.216	.841	.173	.138	.223	.142	5.00	1.32	.902
SI2	.195	.207	.834	.164	.109	.211	.166	4.98	1.24	
SI3	.211	.163	.872	.122	.140	.148	.149	4.81	1.31	
SI4	.238	.183	.868	.184	.100	.121	.113	4.61	1.37	

All of the loadings are significant at $p < 0.01$.

a model (Fornell & Bookstein, 1982). Compared to other SEM software such as LISREL or AMOS that use maximum likelihood estimation (MLE) to gauge the model fit between a theoretical model and covariance matrix of the observed data, PLS assesses the relationships between constructs and their measurement items so that the error variance is reduced (Hong-Youl et al., 2010; Ranganathan et al., 2004). In addition, PLS is a multivariate data analysis based on the hypotheses of a linear relationship to construct the research structure, and simultaneously to test a measurement model and a structure model (Hair et al., 2010). The measurement model tests the relationship between observed and latent variables while the structure model, based on certain assumptions, explores the

Table 4. CR, AVE, and discriminant validity of questionnaire constructs (the construct names are simplified and will be used in the remaining sections of the paper)

Construct	CR	AVE	1	2	3	4	5	6	7
1. Product Satisfaction	0.98	0.93	0.97						
2. Product Trust	0.98	0.92	0.83	0.96					
3. Repurchase Intention for Product	0.98	0.94	0.65	0.68	0.97				
4. Repurchase Intention for Website	0.98	0.94	0.73	0.78	0.60	0.97			
5. Website Satisfaction	0.97	0.88	0.83	0.73	0.60	0.76	0.94		
6. Website Trust	0.98	0.91	0.66	0.74	0.52	0.78	0.70	0.95	
7. Social Identification	0.97	0.90	0.53	0.61	0.54	0.65	0.57	0.57	0.95

CR: composite reliability; AVE: average variance extracted; Diagonal numbers: root squares of AVE; Numbers under the diagonal: correlation of the vertical and horizontal constructs

causal effects of latent variables. Therefore, PLS is better for analyzing research models to explain the desirability of every construct interrelationship for the research model (Ranganathan et al., 2004).

Results in Figure 3 indicate that all of the hypotheses of causal effects are significantly positive. Due to the small number of samples, only p -value less than 0.05 is considered significant. Except for H2b that is significant at the 0.05 level, all of the other hypotheses are significant at the 0.01 level. Although the relationship between website trust and repurchase intention for product was not hypothesized, it was tested and the results showed insignificance. The f^2 in the figure measures the strength of each predictor variable in explaining endogenous variables. According to Chin (1998), f^2 values of 0.02, 0.15, and 0.35 for the significant independent variables represent weak, moderate and strong effect sizes, respectively. Hypotheses H1b and H2b show weak effects; hypotheses H2a and H3b are moderate effects; and hypotheses H1a, H3a, and H4 present strong effects.

Figure 3. Path coefficients and R2 results of the research model (**: $\alpha=0.01$; *: $\alpha=0.05$; the numbers within the parentheses after path coefficients are f^2 to measure the effect sizes)

Two measures are calculated to evaluate the model fit. Henseler et al. (2014) introduced Standardized Root Mean Square Residual (SRMR), defined as the standardized difference between the observed correlation and the predicted correlation, as a goodness of fit measure for PLS that can be used to avoid model misspecification. The SRMR of the research model in this study is 0.024 that is less than 0.08, the cut-off value suggested by Hu and Bentler (1999) and is considered a good fit. Another commonly used measure to determine the model-fit for the estimated PLS model is the goodness of fit (GoF) (Henseler et al., 2016). The criteria for GoF is 0.1, 0.25, and 0.36 for small, medium, and large effect sizes, respectively (Wetzels et al., 2009). The GoF for the PLS model in this study is 0.58 exceeding the strictest criteria. Therefore, the causal relationships of the research model are sustainable for further analysis.

To test the moderating effects of social identification on the relationship between trust and repurchase intention, a multi-group analytical procedure (Keil 2000) was used to compare the corresponding path coefficients in the structural models. To generate two groups for social identification, 40 observations equal to the median value (5 in this case) were removed and the remaining observations, 134 samples with measures smaller than 5 and 126 samples with measures larger than 5, were used to generate groups (Hair et al., 2010).

According to Figure 4, lower social identification has a stronger relationship on two of the three relationships tested. Results of the moderating effect are shown in Table 5, and only the relationship of product trust to repurchase intention for product is significantly moderated by social identification.

Figure 4. Results of the moderating effect of social identification (S.I.: social identification)

For the moderating effects of social identification on the relationship between satisfaction and trust, the results obtained based on the procedure mentioned previously are shown in Table 6. The moderating effects are significant on H1a and H2a.

To further validate the results, factor scores were used to create a first-order construct of social identification as suggested by Jiang et al. (2013). By following the similar procedure, as mentioned previously, to remove the samples with factor scores around the mean value, the results for H5 and H6 remained the same.

CONCLUSION

The results of this research are summarized in Table 7. All of the causal effects are significant, and H5 and H6 are partially supported. Whereas most studies examine the purchase intention on the group

Table 5. Results for the moderating effect of social identification on repurchase intention

Relationship	Coefficient for Social Identification		Coefficient Difference (<i>t</i> -value)	Results
H3a: Trust_P → RI_P	Low	.70**	.26** (2.55)	Stronger for low social identification
	High	.45**		
H3b: Trust_P → RI_W	Low	.43**	.17 (1.35)	Insignificant
	High	.26**		
H4: Trust_W → RI_W	Low	.44**	-.05 (-0.37)	Insignificant
	High	.49**		

** $\alpha = 0.01$; * $\alpha = 0.05$

Table 6. Results for the moderating effect of social identification on satisfaction to trust

Relationship	Coefficient for Low and High Social Identification		Coefficient Difference	Results
H1a: Sat_P → Trust_P	Low	.78**	.24**	Stronger for low social identification
	High	.54**		
H1b: Sat_P → Trust_W	Low	.21**	.08	Insignificant
	High	.13		
H2a: Sat_W → Trust_W	Low	.66**	.25**	Stronger for low social identification
	High	.41**		
H2b: Sat_W → Trust_P	Low	.08	.03	Insignificant
	High	.05		

** $\alpha = 0.01$; * $\alpha = 0.05$

Table 7. Summary of research results

Hypotheses		Results	Effect Size
H1a	Product Satisfaction → Product Trust	Supported	Large
H1b	Product Satisfaction → Website Trust	Supported	Small
H2a	Website Satisfaction → Website Trust	Supported	Medium
H2b	Website Satisfaction → Product Trust	Supported	Small
H3a	Product Trust → Repurchase Intention for Product	Supported	Large
H3b	Product Trust → Repurchase Intention for Website	Supported	Medium
H4	Website Trust → Repurchase Intention for Website	Supported	Large
*	Website Trust → Repurchase Intention for Product	Insignificant	No
H5	Moderating Effect on H3a	Supported	n/a
	Moderating Effect on H3b	Not Supported	n/a
	Moderating Effect on H4	Not Supported	n/a
H6	Moderating Effect on H1a	Stronger for low social identification	n/a
	Moderating Effect on H1b	Not Supported	n/a
	Moderating Effect on H2a	Stronger for low social identification	n/a
	Moderating Effect on H2b	Not Supported	n/a

*Note: this relationship is not hypothesized and is presented for the purpose of comparison.

buying target, this study investigated the repurchase intention of respondents with prior purchase experience with the same product. OGB requires the product merchant and the channel, OGB websites, to work cooperatively. This study is the first to include the constructs based on product and website, and to investigate their direct (product to product and website to website) and cross (product to website and website to product) relationships. Furthermore, OGB involves group behavior and therefore social identification plays an important role in the decision process of consumers. Understanding the moderating effect of social identification in the decision process provides a significant contribution academically as well as practically.

Theoretical Implications

The causal effects between satisfaction and trust, H1a, H1b, H2a, and H2b, are significant for all four relationships as expected. The significance of two cross-relationships, H1b and H2b, product satisfaction to website trust and website satisfaction to product trust, had lower coefficients (.25 and .12, respectively) than those of two direct relationships, product satisfaction to product trust and website satisfaction to website trust (.74 and .55, respectively). It is also interesting to note that the coefficient for H1a (.74) is greater than H2a (.55), and the coefficient for H1b (.25) is greater than for H2b (.12). The effect sizes show similar results in which H1a is large compared with H1b of small and H2a is medium compared with H2b of small. It indicates that in terms of either direct effects or cross effects, product satisfaction shows a stronger influence than website satisfaction on trust. The measures of effect sizes show similar results. When considering the impact of trust on repurchase intention, both direct relationships have strong effects. However, trust on product has a moderate effect on repurchase intention for website while trust on website does not show any effect on repurchase intention for product. This shows that in the OGB model, website operators need to focus more on building customers' trust toward the website than toward the product. For product merchants, customers repurchase intention relies on the trust toward the product, not on the website.

Two direct effects, H1a and H2a, tested significantly as expected. However, H2b is probably not entirely supported by the expected theoretical foundations. H1b was developed based on the halo and spillover effects and H2b was based on signaling theory in which website satisfaction is clearly the peripheral cue for product trust. As discussed previously, users with low social identification are less involved in the community and should be inclined to take a peripheral route. The results of H6 indicate that signaling theory might be inappropriate for H2b. Therefore, the two significant cross effects, H1b of product satisfaction to website trust and H2b of website satisfaction to product trust, are supported most likely by the halo and spillover effects.

Although the influence of satisfaction on trust tested significantly as hypothesized based on prior studies regarding the influence of trust on users' behavior, it might have a different meaning according to signaling theory (Richardson et al., 1994). A signal is a cue that a seller can use to transfer information credibly about unobservable product quality to the buyer (Rao et al., 1999). Extrinsic cues are product-related features that are inessential to the product being evaluated and intrinsic cues are product features any alteration of which will change the fundamental nature of the product (Richardson et al., 1994). When consumers apply both cues to assess product quality, extrinsic cues are more confidently evaluated and more influential in certain contexts, such as when extrinsic cues are more readily available or more easily understood than intrinsic cues (Dawar & Parker, 1994).

Consumers with a lower need for recognition are more likely to rely on extrinsic cues (Zeithaml 1988). The influence of satisfaction on trust toward both product and website (H1a and H2a, respectively) is stronger for low social identification, indicating that product satisfaction and website satisfaction are extrinsic cues for product trust and website trust, respectively. When an individual has low social identification, indicating low involvement with the issue, the consequence is a low motivation to elaborate information and to rely heavily on extrinsic signals. The same concept can also explain why respondents with lower social identification strengthen the relationship between product trust and repurchase intention for product. In addition, an individual with a higher social identification will tend to have a higher we-intention (Dholakia et al., 2004) to conform to the group behavior, when in fact this person might hold a negative attitude toward the purchased products. This is why social identification can moderate the influence of product trust on repurchase intention for product in which the influence is stronger when the social identification is lower. However, social identification did not moderate the impact of website trust on repurchase intention for website with two possible explanations. First, it is likely that after forming the attitude toward the website that is represented as trust in this study, the respondents did not feel the pressure of public compliance and then answered the question according to their own intention. As a result, in the OGB model social identification moderates the repurchase intention for the product, and not for the website. Second, most

of the websites surveyed in this study specialize in OGB, and it is likely the respondents will assume the OGB model to purchase any products on the site. Therefore, intention remains insignificantly changed and consequently will not be moderated by social identification. Some managerial implications will be discussed in the next section.

Managerial Implications

Based on the findings of this research and interviews with two of the 11 OGB website founders, several conclusions are drawn for potential merchants and OGB website operators.

First, compared to satisfaction toward the website, satisfaction toward the product is a more significant antecedent influencing trust toward the product. Trust toward the product was a strong antecedent to loyalty in many studies (Porter and Donthu, 2008; Pizzutti and Fernandes, 2010). OGB websites control the channel for potential buyers and may significantly increase the customer bases. However, their importance might be overstated, and merchants should not rely too much on temporary success. Focusing on how satisfied their customers feel toward the products they offer is more effective to build loyal customers.

Second, although satisfaction with the website is a significant factor affecting the repurchase intention of products traded on any website, mediated by the trust toward the product, its coefficient (.12) is the least among the four relationships between satisfaction and trust (.25, .55, and .74). In other words, the long-term sales of the product will not be affected significantly by the selected OGB website to sell the product.

Third, interviews with OGB founders indicated that at least 30 percent of the sales were charged by the OGB websites, in addition to offering a large discount on a product or service. The merchants might pay too much to the OGB websites, since trust toward the website does not lead to repurchase intention for product, as mentioned previously, and trust toward the product will influence the repurchase intention for website. When merchants apply the OGB model, it is efficient to increase their market share within a short time. However, OGB might not be an effective model for a long-term solution because the profit margin is low and the increased demand might hurt the regular sales. In addition, using the OGB model too often will bring the anticipation of a discount to customers and consequently increase demand uncertainty and erode profitability.

Fourth, group buying website operators should select products to be traded on their site carefully, since online consumers care more about the product than the website, they use to make the OGB purchase. Satisfaction toward product is a stronger indicator than satisfaction toward website in the relationship between satisfaction and trust. For the repurchase intention toward the website, two predictors, product trust and website trust, are almost equally important. OGB website operators should not accept any proposal simply to increase their sales, because customers' perception of the products will affect their attitude and repurchase intention toward the website.

Last, virtual communities can influence their members' shopping choices through the mechanism of social identification (Pentina et al., 2008), and enhance members' loyalty toward the brand (Casalo et al. 2008). However, the results of this research indicated that social identification showed no moderating effect on the repurchase intention for website, and the relationship between website satisfaction and website trust is stronger for low social identification. Therefore, it may not be cost effective for OGB websites to maintain virtual communities on their websites.

LIMITATIONS AND FUTURE WORK

Several limitations of this study indicate the need for further studies. First, although a wide range of OGB websites was included in this study in order to have generalized results, the different features among them were not considered. For example, one of them, PTT, was established as not for profit, while the others are commercial websites. A study of knowledge sharing focusing on non-profit virtual communities suggests investigating for-profit communities implying different users' behavior

at commercial websites (Koh and Kim, 2004). Chea and Luo (2008) surveyed online services and found that users behaved differently with regard to free e-service and paid e-service. Based on optimal arousal theories (Berlyne, 1971), different service settings such as nonprofit and commercial websites may require different levels of arousal to be satisfied because users have various expectations toward the services offered (Wirtz et al., 2000). A study focusing on this factor should provide useful information regarding users' OGB behavior.

Another feature not considered is the proprietary aspect of the virtual communities the OGB websites operated. As mentioned previously, all but two of the 11 websites had their own virtual communities on their sites; most of the websites ran their virtual communities at Facebook.com. Whether or not the members' attitude and behavior toward the initiators are affected by a third party, Facebook.com in this case, was not considered for the purposes of this study. Therefore, a further study is essential to confirm and possibly find new evidence concerning the nature of users' attitudinal and behavioral change.

The coefficient of product trust to repurchase intention for product (.70) is greater than product trust to repurchase intention for website (.42) as well as website trust to repurchase intention for website (.48). Although no statistical evidence can support that product plays a more important role than website in the decision process of consumers for the OGB model, it will be interesting to investigate this issue further.

Last, other social influences such as informational and normative were not included in this study. A model integrating various social influences could help understand how these factors impact users' behavior on the OGB website.

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S.M. Horng received a Ph.D. degree in Industrial Engineering from Arizona State University, Tempe, AZ, in 1998. Prior to the academic services, he had several years of working experience in supply chain management. He is currently an Associate Professor in the Department of Business Administration at National Chengchi University, Taiwan, ROC. His research interests include electronic commerce, supply chain management, and applications of operations research.