

Understanding moderating effects of involvement on information disclosure and online group-buying intention

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Abstract

Applying the Elaboration Likelihood Model (ELM), this study investigated the moderating effects of involvement with an online group-buying (OGB) website in relation to the effects of information disclosure on customers' OGB intentions. This study collected data consisting of a total of 142 responses from individuals with previous experience with purchasing products from OGB websites, and applied the PLS (partial least squares) method to analyze it. The results indicate that the information disclosure of an OGB website positively influences customers' OGB intention, but this influence is diminished by increasing the level of involvement with the OGB websites. On the basis of the results, this study will offer concrete suggestions to enhance consumers' OGB intentions.

Keywords: *Information Disclosure, Elaboration Likelihood Model, Involvement, Online Group-buying Intention*

1. Introduction

Online group-buying (OGB) is a type of business model that allows buyers to pool their buying power in order to get lower prices (Che et al. 2015). However, the rapid growth of OGB has caused a growing number of disputes that have generated uncertainties among consumers regarding this business model. Taking an OGB website called Gomaji, which sells meal vouchers, as an example, buyers are usually attracted by the low prices and hence they continue looking at the contents given on the meal voucher (e.g., pictures and introduction of the restaurant). At the same time, consumers would also search for more information about the restaurant (e.g., user ratings for the restaurant), and finally they will decide whether to buy the meal voucher or not based on all information that they have gathered (Wang et al. 2012). What is worth paying attention to here is that after consumers buy the meal vouchers they must bring them to the restaurants for redemption. Therefore, in order to make sure that the product displayed on the website conforms to the experience provided in the restaurant, the OGB website should describe the offer very clearly, such as the contents, expiry dates, whether it can be used during weekdays or holidays, if a reservation is needed, whether an additional service charge will be applied, and so on. In other words, consumers cannot experience the real product and can only browse the pictures and texts displayed on the OGB website, thus making the information provided here even

more important, so as to avoid information asymmetry that could negatively influence consumers' re-purchase intentions.

Therefore, this study proposed that various factors have different impacts on individuals' acceptance of OGB based on their involvement with the OGB websites. As such, an individual difference (i.e., level of involvement with the OGB websites) should be considered as an important factor in this context, because it may put a different complexion on the information that is found on the websites. Following the logic of the ELM, this study proposed that the level of individual involvement with an OGB website is the most influential factor in a person's willingness to participate in the OGB. Even though there is a growing body of studies related to OGB, they mostly focus on the price discounts (Liao et al. 2012; Zhang et al. 2013), the technology acceptance model (TAM) (Lim and Ting 2014; Tsai et al. 2011), website quality (Cheng and Huang 2013; Hsu et al. 2014; Tsai et al. 2011), trust (Hsu et al. 2014; Shiao and Luo 2012; Tsai et al. 2011), perceived risk (Lim and Ting 2014; Nepomuceno et al., 2014.) or electronic word of mouth (Cheng and Huang 2013) as antecedent variables to investigate consumers' OGB motivation, satisfaction, intention and behavior. Few studies have focused on the relationships among information disclosure, OGB website involvement, and OGB intention. Therefore, this study used the OGB website involvement as the moderating variable to investigate its influence on the relationship between information disclosure and OGB intention.

2. Literature Review and Hypotheses

First, this study explored the effect of information disclosure on the OGB intention. Second, this study used OGB website involvement as the moderating variable to investigate its influence on the relationship between information disclosure and OGB intention. Finally, this study provides valuable suggestions that will help OGB websites to enhance customers' OGB intention and develop more effective marketing strategies. The impact of OGB website involvement on these relationships is modeled and the hypotheses are defined as shown in Fig. 1.

Furthermore, each concept and research hypotheses is elaborated on below.

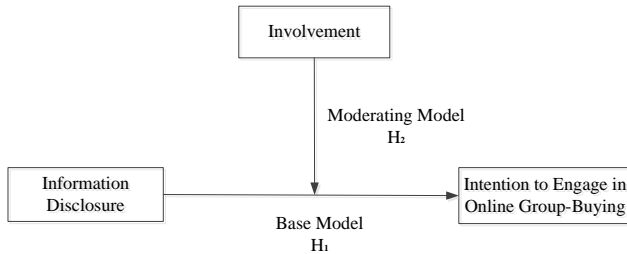


Fig. 1. Research model.

2.1 Online Group-buying Intention

Group-buying is also called “collective bargaining,” which is designed to aggregate the power of buyers to gain volume discounts. According to the idea to “locate, persuade and allow,” all buyers who have similar wish lists to purchase the same product or service during a specific period of time can pool their buying power to acquire the desired purchase (Chen et al. 2007). Group-buying is consumers’ demonstration of their group strength against the seller, as well as giving them more bargaining power towards the manufacturer in order to have better purchasing conditions (Li et al. 2004). Cheng and Huang (2013) defined OGB as when a particular number of consumers gather together through the Internet so that they can purchase a product or service they desire at a certain discount. This means that OGB organizes customers in different locations via the Internet, allowing them to increase their bargaining power and thus gain a lower price. Different from direct online shopping, OGB allows a group of consumers to get a special discount (Kauffman and Wang 2002). Purchase intention refers to consumers’ probability or subjective tendency to consider buying a certain product or service, and this is the key factor in predicting consumer behavior (Dodds et al. 1991; Fishbein and Ajzen 1975). The OGB intention thus refers to consumers’ intention and subjective tendency to purchase an item on a group-buying website (Schiffman and Kanuk 2009).

2.2 Information Disclosure

The basic concept of information disclosure comes from Akerlof (1970), who proposed the concept of asymmetric information. Due to the fact that information disclosure is crucial for operating securities markets in an effective and efficient way, there is an increased concern from regulators regarding the quality of both the financial and non-financial information disclosure of firms. In order to have meaningful disclosure, the information that is released must be accurate, informative, and timely. Such

meaningful disclosure will help investment decisions, protect investors from harm due to insider information, and decrease the effects of market rumors, thus increasing overall market confidence (Abdelkarim et al. 2009). Hurme (2005) pointed out that when purchasing unfamiliar or high-value products in an online shopping environment, customers will collect information about the focal item and related recommendations to help their purchase decisions. Information disclosure is thus aimed at increasing the transparency of the market and helping buyers make informed decisions, so minimizing mistakes due to information asymmetry. Due to the nature of the online-buying environment, consumers’ tend to have greater information demands than seen in an offline context. Therefore, OGB websites should be more proactive at disclosing effective, clear and accurate information (Lincoln 1989). Li et al. (2011) made a comprehensive study of the antecedents of information disclosure in online transactions, and found significant relationships between perceived fairness, perceived privacy risks and benefits and intention to disclose personal information. Sharma and Crossler (2014) further stated that the popularity of social commerce, such as Facebook or Pinterest, has been positively influenced by the increasing usage of social networking. People trade products and services through social networks, and this phenomenon has generated more attention towards privacy issues such as identity theft, credit card fraud, unauthorized sharing and the use of customer’s purchase history and personal information.

Daft and Lengel (1984) posited that information with rich contents can resolve and reduce uncertainty, as well as decrease consumers’ search costs and time. Liao and Chang (2004) pointed out that if a real estate buyer is willing to invest more capital on the search cost, then not only is it possible to find a better property, but also he/she would be able to have an information advantage to increase his/her bargaining power during the negotiation process. They also further explained that the same products are often sold at different prices, which also induces information search behavior from both parties. Therefore, as long as consumers have more effective search behavior, their bargaining power will be higher than those who have less information (Liao and Chang 2008). Lee (2008) investigated consumer intentions to engage with the real estate brokerage industry, and found that information disclosure has a significant and positive impact on search costs, while the indirect effect of information disclosure on the consumers’ intention through search costs was also validated. Chen et al. (2012) claimed that most consumers will make their purchase decisions based on the product information displayed on a group-buying website, for example: how to use the product, limitations, picture of the product, and so on. Therefore, the more detailed the

product description is, the more attracted the consumers will usually be to purchase that product. Gong and Marsden (2014) further stated that a greater level of information disclosure should improve market fairness for all investors, and reduce the level of information asymmetry between informed and uninformed investors. Berry et al. (2015) stated that the information disclosed regarding the country of origin for meat products has an influence on purchase intentions. For example, consumers have higher purchase intentions when the meat is labeled as “born, raised, and slaughtered in the U.S.” in comparison with meat without any label or labeled as “born, raised and slaughtered in Mexico”. Therefore, this study assumed that if OGB websites can disclose rich information to satisfy consumer needs with regard to the products or services of interest, then it is possible to decrease the additional costs due to this information search, which will help raise group-buying intentions. This is restated in the following hypothesis:

H₁: A higher level of information disclosure on the OGB website has a significantly positive influence on customers’ OGB intentions.

2.3 Involvement

Zaichkowsky (1985) defined involvement as “a person’s perceived relevance of the object based on inherent needs, value, and interests,” and the antecedents of involvement might be classified into three areas: involvement with advertising, products and purchase decisions. Within the advertising industry, creating ad “relevance” is a way to manipulate involvement, meaning that the ad viewer would become influenced in a personal way and therefore become motivated to react towards the ad. When researching the product class, the main consideration is the product relevance towards the needs and values of the consumer. In studies on purchase decisions, the main goal is to have a relevant decision so that the consumer will be encouraged to make a decision to purchase the product with certain level of caution. Involvement is thus related to an individual’s subjective sense of the degree of concern, care, importance, personal relevance, and significance attached to an attitude (Machado-León et al. 2016). Consequently, involvement is the perceived personal importance and interest stimulated from a certain impulse within a particular environment, or the degree of perceived personal relevance that a certain item has. In the process of purchasing a particular product, consumers will usually express more effort and interest in high involvement situations. In contrast, a low level of involvement will make customers receive information in a more passive way (Kim et al. 2010).

High involvement means that consumers have strong beliefs about a product’s attributes, and can only be

affected by strong and high quality arguments. In contrast, low involvement refers to consumers who do not hold strong beliefs and therefore are more easily influenced. As such, high-involvement products are less vulnerable to changes in evaluation if there is an information discrepancy than are low-involvement products (Petty and Cacioppo 1979; Zaichkowsky 1986). Murray (1991) also pointed out that consumers with the higher product involvement will usually have certain knowledge about the focal product, and thus have a greater preference for evaluating items based on prior experience. Warrington et al. (2000) explained that the level of involvement towards a product will influence the amount of quality of information that consumers gather about a potential purchase. Kukar-Kinney and Grewal (2006) further elaborated that consumers with high price awareness have higher involvement in the product prices, and thus will spend more time paying attention to the price information. Therefore, when a particular scenario and individual are highly correlated, the subsequent degree of involvement will be higher, and more focus will be put on the object of interest. Based on the above argument and the results of these empirical studies, this study assumed that individuals with higher involvement would more actively search for information about the products and combine their previous experiences or knowledge in order to make an evaluation and decision. In contrast, those with lower involvement usually have a mediocre knowledge of the products and would not engage in any further information processing. ELM suggests that the likelihood of elaboration can be affected by an individual’s ability to process information in a message, and that is impacted by their level of involvement (Petty and Cacioppo 1986). They proposed two routes of information processing: central and peripheral. In the central path, the higher the level of involvement with the message, the more critical a person will be when reviewing the message and examining the usefulness of information it contains, thus applying more cognitive effort. On the other hand, the peripheral route is when individuals put less cognitive effort and do not focus on the usefulness of a message, although they are still impacted by affective cues (e.g., characteristics of source, attractiveness) based on their low level of involvement with the message (Chun and Lee 2016). By applying ELM in the OGB context, this study predicts that consumers with higher involvement in the OGB website will more actively seek information related to a particular product, and put more effort into comparing products. In other words, they would make an evaluation and decision based on their previous experiences and the knowledge they have. As such, information disclosure on the group-buying website has limited influence on customers’ OGB intention. In contrast, consumers with lower involvement in the OGB

website will usually be more passive in accepting information disclosed on the OGB website, and more reliant on it. In other words, consumers with low involvement in the OGB website may be more influenced by information disclosure on the website. This study thus assumes that lower involvement with an OGB website has more influence on the relationship between information disclosure and customers’ OGB intention, whereas a higher involvement with an OGB website has less influence on the relationship between information disclosure and customers’ OGB intention. This research thus proposes the following hypothesis:

H₂: Consumer involvement in the group-buying website has a moderating effect on information disclosure and OGB intention.

3. Methodology

3.1 Data collection

Before sending the questionnaire, a pretest validation of the design was carried out with some experts and scholars in Taiwan. The questionnaire was subsequently revised to improve the clarity of its content. The integrity of survey data can be affected by the low willingness of respondents to participate. Therefore, purposive sampling was used in order to ensure that the respondents had a high willingness to participate in this research. The target respondents were those individuals who had made purchases on OGB websites. The questionnaire was distributed to the target respondents via e-mail, social networks, and links on websites. The questionnaire was distributed to the respondents at the beginning of April 2015, with 230 questionnaires returned by May 2015. Of these, 88 were invalid because the respondents had never engaged in any OGB activities, leaving a total of 142 valid questionnaires. Table 1 shows the demographic details of the sample, which includes data on the respondents’ gender, marital status, age, education level, occupation and length of OGB experience.

Table 1: Demographic characteristics of the respondents (n= 142)

	Percentage of respondents	Percentage of respondents
Gender		
Male	49.3	7.7
Female	50.7	27.5
Marital Status		
Single	43.7	30.3
Married	55.6	
Other	.7	
Occupation		
Student	19.7	40.8
Government sector	43.0	45.8
Service industry	12.7	
Manufacturing industry	7.7	11.3
High tech industry	7.0	20.4
Other	9.9	8.5
		59.8

3.2 Measures Instruments

The research constructs were operationalized based on the related studies and a pilot test. With regard to the OGB website involvement, this study defined it as a person’s feelings about the relevance or importance of the OGB website based on their inherent needs, values, and interests (Machado-León et al. 2016; Teng and Lu 2016). This research designed the eight questionnaire items based on the revised PII proposed by Zaichkowsky (1985, 1986) and Zaichkowsky (1994). This study defined information disclosure on an OGB website as all the information revealed on the site (Lee 2008; Tseng and Lee 2017). The seven questionnaire items for this are based on Lee (2008) and Tseng and Lee (2017). This research defines OGB intention as consumers’ subjective probability, intention, and prospects to purchase a product or a service from an OGB website (Schiffman and Kanuk 2009), and the three items used to assess this are based on Fishbein and Ajzen (1975) and Tsai et al. (2011). The final questionnaire items and related references are presented in Table 2. Items in the questionnaire were measured using a seven-point Likert scale ranging from (1) strongly disagree to (7) strongly agree.

Table 2: The questionnaire items and related references

Research variables	Items	Items	References
Involvement	INV1	The group-buying website is very important for me.	Zaichkowsky (1985, 1986); Zaichkowsky (1994)
	INV2	The group-buying website is very useful for me.	
	INV3	The group-buying website is very valuable for me.	
	INV4	The group-buying website is very interesting for me.	
	INV5	The group-buying website is very attractive for me.	
	INV6	The group-buying website is very fascinating for me.	
	INV7	The group-buying website can satisfy my personal needs.	
	INV8	Using a group-buying website can make me feel excited.	
Information Disclosure	ID1	The group-buying website honestly and accurately discloses information about goods or services (e.g., goods photos, restaurant locations, details of atmosphere, etc.).	Hsu et al. (2015); Joslin (2005); Lee (2008)
	ID2	The group-buying website honestly and accurately discloses information about the transaction process.	
	ID3	The group-buying website honestly and accurately discloses the additional fees related to the goods or services (e.g., service fee, administration fee or installation fee, etc.).	
	ID4	The group-buying website honestly and accurately discloses information about the good or service warranties.	
	ID5	The group-buying website honestly and accurately discloses information related to the changes in the details of a sale.	
	ID6	The group-buying website honestly and accurately discloses information regarding the difference between the original prices and discounted ones (i.e., information about how much money you can save).	
	ID7	The group-buying website honestly and accurately discloses information regarding the number of transactions in real time.	
Intention to use OGB	ITI1	I intend to carry out online group-buying in the future.	Fishbein and Ajzen (1975); Tsai et al. (2011)
	ITI2	I predict I will carry out online group-buying in the future.	
	ITI3	I will frequently return to a group-buying website to carry out group-buying in the future.	

3.3 Data analysis procedures

First, this study uses SPSS statistical software to conduct the descriptive data analysis. Second, this study uses the Partial Least Squares (PLS) path modelling (variance based structural equation modelling) to conduct the model analysis. This technique is less stringent with regard to the data distribution and sample size requirements compared to covariance-based structural equation modeling. The minimal demands on distributional assumptions and sample size make PLS an appropriate analysis technique for this study (Fornell and Cha 1994; Chin 1998).

4. Results

This study applied PLS modeling to validate the constructs of information disclosure on OGB website, OGB website involvement, and OGB intention, and to test the hypotheses. The psychometric properties of the constructs were tested using confirmatory factor analysis (CFA) and using Smart PLS 2.0 M3 (Ringle et al. 2005). This process had two stages: (1) assessment of the measurement model; and (2) testing of the structural model.

4.1 The Measurement Model

Due to the fact that unidimensionality cannot be directly measured with PLS, but can be assessed using exploratory factor analysis (EFA), this study applied EFA to establish whether the measurement items converge to the corresponding constructs (factors), whether each item loads with a high coefficient on only one factor, and whether this factor is the same for all items that are supposed to measure it. The OGB websites involvement items IV2 and IV7 were omitted due to factor loadings that were not be classified into “OGB websites involvement” dimensions. As for the information disclosure on OGB websites, ID5 was omitted due to a factor loading below 0.6. Finally, the measurement model of this study achieved good uni-dimensionality (Gefen and Straub 2005).

This study assessed the quality of the measurement model by examining the construct reliability, convergent validity, discriminant validity, and standardized factor loadings of the latent variables (Henseler et al. 2009). Reliability is used to evaluate the internal consistency of a construct. CFA analysis of PLS provides the values for Cronbach’s alpha and composite reliability (CR) for each construct. As can be seen from Table 3, all the constructs in the model possessed adequate internal reliability, as the Cronbach’s alpha and CR values of each construct are greater than 0.70 (Nunnally and Bernstein 1994). The three scales thus demonstrate adequate reliability. In addition, the analysis of the factor loadings of each item for all the constructs in

the model shows that all the measurement items are significant at $p < 0.001$ (Hair Jr. et al. 1998; Bradley et al. 2006). Furthermore, this study found that the average variance extracted (AVE) value for all the latent variables in the model is greater than 0.5 (Chin 1998), which demonstrates that the constructs possess adequate convergent validity. Assessment of discriminant validity of the constructs was done by calculating the square root value of the AVE for each construct. The values on the diagonal in Table 4 show that all the square root values are greater than the correlation values with all other constructs, which confirms the constructs possess adequate discriminant validity (Fornell and Larcker 1981).

Table 3: Assessment of the measurement model (n = 142).

Constructs	Items	Loading	CA	CR	AVE
Information Disclosure	ID1	0.86977	0.928	0.943	0.736
	ID2	0.906806			
	ID3	0.852364			
	ID4	0.882567			
	ID6	0.811261			
	ID7	0.819504			
	ID5	0.857303			
Involvement	IV1	0.857303	0.941	0.953	0.773
	IV3	0.869054			
	IV4	0.900715			
	IV5	0.855845			
	IV6	0.928986			
	IV8	0.861514			
	IV7	0.957369			
OGB Intention	GBI2	0.96147	0.944	0.964	0.899
	GBI3	0.924881			
	GBI1	0.924881			

†CA = Cronbach’s alpha; CR = Composite reliability; AVE = Average Variance Extracted

** All standardized factor loadings are significant at $p < 0.001$.

Table 4: Mean, S.D., and discriminant validity (intercorrelations) of variable constructs.

Constructs	Mean	S.D.	Information Disclosure	Involvement	OGB Intention
Information Disclosure	5.118	1.169	0.858		
Involvement	5.139	1.182	0.630	0.879	
OGB Intention	5.467	1.260	0.608	0.745	0.948

†Square root of the AVE on the diagonal.

4.2 The Structural Model

Fig. 2 shows the structural model results omitting the influence of the interacting moderator variables. In other words, that base model presents a direct path from information disclosure to the OGB intention. R2 measures the relationship of a latent variable’s explained variance to its total variance. Values of approximately 0.670 are considered substantial, while those around 0.333 are considered average, and those around 0.190 are considered weak (Chin 1998). Fig. 2 shows a moderate level of 0.376 for the OGB intention, and the base model accounted for 37.6% of the variation in the OGB intention construct.

The significance of the path coefficients can also be seen in Fig. 2, showing the results of the standard path analysis, which indicates that information disclosure has a very

significant and positive influence on the OGB intention, the standard beta path coefficient of which is 0.613. In summary, hypothesis H1 is supported by the results of the empirical analysis (the t-value for the path coefficient is statistically significant at the $\alpha = 0.05$ level).

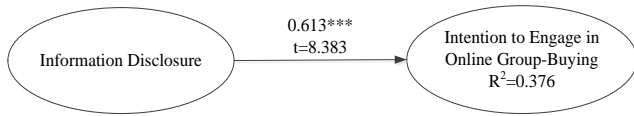


Fig. 2. PLS analysis of the base model.
*** $p < 0.001$

This study followed Chin et al. (2003) to model the interaction effects. Interaction terms were formulated by multiplying the corresponding indicators of the predictor and moderator constructs. Furthermore, this study followed the hierarchical process that they recommended to construct and compared models with and without the respective interacting constructs. Figure 3 shows the results of the structural model with interaction effects. The standardized beta of the direct path was 0.613 in the base model, and 0.219 after the involvement was introduced as a moderator. For the moderator (interacting) variables, statistically significant beta path coefficients were found. Involvement had a negative (beta = -0.153, $p < 0.01$) interacting effect with information disclosure on the OGB intention. As a basis of this comparison, the (direct only) model explains 37.6% of the variance in OGB intention. In contrast, by including the effects of the interacting variables, a larger proportion of the respective variances in OGB intention ($R^2 = 0.610$) are accounted for. In summary, hypothesis H2 was thus supported, and this means that involvement plays a moderating role between information disclosure and OGB intention.

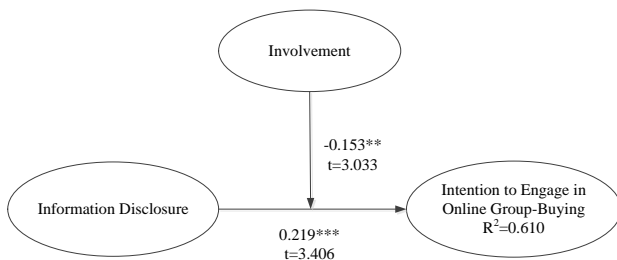


Fig. 3. PLS analysis of the moderating model.
*** $p < 0.001$; ** $p < 0.01$

5. Discussion

5.1. Summary

Due to the fact that the OGB websites should bring their consumers from the website to the physical store (i.e., online-to-offline, O2O) and make consumers have good impression towards the stores. The details of information disclosure related to the products on the OGB website thus are very crucial for the consumers. This study provides valuable findings regarding the possible causal relationships among the information disclosure on an OGB website, OGB website involvement, and OGB intention. The results support the major predictions of ELM, and also indicate that the information disclosure on an OGB website positively influences customers' OGB intention, but this influence is diminished by increasing OGB website involvement.

5.2. Implications for practice and research

As the hypothesized antecedent of OGB intention, the information disclosure on an OGB website has a significant path coefficient with regard to OGB intention. This implies that the level of information disclosure on an OGB website has a significantly positive influence on OGB intention (beta = 0.613), and similar findings have been reported by Chen and Lee (2012) and Tseng and Lee (2017). Therefore, if OGB websites can provide a high level of information disclosure for their customers, then this may help online customers to make better decisions and enhance their OGB intention. This research thus suggests that OGB websites should honestly and accurately disclose information about the goods or services on offer (e.g., photos, restaurant locations, details of atmosphere, and so on), transaction process, and good or service warranties for their customers. Furthermore, the OGB website should honestly and accurately disclose all the information regarding the differences between the original prices and discounted ones (i.e., information about how much money users can save), the additional fees related to the goods or services (e.g., service fee, administration fee or installation fee, and so on) and the number of transactions in real time (Lee 2008; Hsu et al. 2015).

Based on the results of testing the moderating effects of OGB website involvement (in Fig. 3), it was found that the information disclosure of an OGB website positively influences customers' OGB intention (beta = 0.219, $p < 0.001$), but negatively interacts with the effects of increasing levels of OGB website involvement on OGB intention (beta = -0.153, $p < 0.01$). It means that the information disclosure of an OGB website positively influences customers' OGB intention, but this influence is diminished by increasing the level involvement with the

OGB websites. As suggested by ELM (Petty and Cacioppo 1981; Petty and Cacioppo 1986), this study found a significantly negative interaction between information disclosure and involvement with OGB websites, highlighting the process of using central route. That is, for highly involved customers, the effect of information disclosure on OGB intention was lower than for low-involved customers. This revealed individuals' different processes in using information on the OGB website, in accordance with their level of enduring involvement with the website. As suggested by Chen et al. (2015), the findings demonstrated that if consumers with greater OGB website involvement, they tended to be actively participate in gaining access to products information via the OGB websites, such access allows consumers to go across various resources to find what they truly need. In other words, consumers may have already expended time and effort in personalizing their location and preferences to reduce unrelated product information, as well as have gained some experience with a certain OGB website that minimizes the threat of information asymmetry (e.g., low quality concerns) (Che et al. 2015). Therefore, the higher the involvement level of OGB website, the better opportunity they have to acquire products information, resolve uncertainties regarding products buying and obtain merchandises at low prices or great discounts through the OGB platform. Moreover, consumers with greater OGB website involvement tended to be more trust the OGB websites (Kim et al. 2010), where they do not need to obtain more information for the products/services (e.g., the information of transaction process, products/services warranties, return/replacement of goods), and thus the level of the information disclosure on the OGB website will not influence the customers' OGB intention than the consumers with lower OGB website involvement. Conversely, consumers with low group-buying website involvement will need to collect rich and useful information regarding specific products/services information over the OGB website, and thus their purchase decision will depend on the level of the information disclosure of OGB website. Wang et al. (2016) further stated that OGB activities tend to face risk- and trust-related issues that significantly affect online consumers' participation intention to, so operators of OGB websites shall emphasize on the level of information disclosure on the OGB website and make customers experience more service related benefit and less risk cost in practical experience. Moreover, operators of OGB websites shall enhance customer involvement of OGB website and the customer loyalty can be raised, as well as enhance customers' OGB intention (Zhang et al. 2016 In Press).

5.3. Limitations and further research

Although the findings of this study have a number of meaningful implications for practitioners, there are also certain limitations, as follows. First, this research applied a purposive sampling method and obtained a slightly inadequate number of respondents. Therefore, it is suggested that future research should apply a random sampling method to collect more responses and increase the generalizability of the findings. Second, the sample used in the survey was limited to the Taiwanese context that may create limited generalizability. Therefore, it is suggested to do future research in other or larger contexts and/or to investigate further regarding impacts of regional or cultural factors.

6. Conclusions

Due to the fact that OGB has experienced rapid growth and OGB websites remain relatively unknown to many potential customers (Che et al. 2015), the question of how to enhance customers' OGB intention has become a critical concern for both practitioners and scholars (Chen et al. 2015). This study thus investigates the relationships among the level of information disclosure on OGB website, customers' OGB website involvement and OGB intention. For this, a review of related works in the field of information disclosure, involvement, and OGB intention was first conducted. The initial findings of academic research related to this topic have proven that it is possible to construct the proposed nomological model (see Fig. 1). The direct relationship between the information disclosure of OGB website and OGB intention was presented, and a moderating relationship was proposed between the information disclosure of OGB website and OGB intention, with OGB website involvement acting as the moderator. The results provide insightful practical implications for OGB operators. First, this study argues that practitioners should consider strategies to increase the level of information disclosure on the OGB website to enhance the potential consumers' OGB intention. Second, OGB websites should work to carefully design their websites to provide specific and personalized service and thus reduce transaction costs, especially for current consumers. Finally, operators of OGB websites shall enhance customers' involvement of OGB website and the customer loyalty can be raised, as well as enhance customers' OGB intention

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References

- [1] Abdelkarim, N., Shahin, Y.A., Arqawi, B.M. 2009. Investor perception of information disclosed in financial reports of Palestine securities exchange listed companies. *Accounting & Taxation* 1 (1), 45-61.
- [2] Akerlof, G.A. 1970. The market for 'Lemons': Quality uncertainty and the market mechanism. *Quarterly Journal of Economics* 84 (3), 448-500.
- [3] Berry, C., Mukherjee, A., Burton, S., Howlett, E. 2015. A COOL Effect: The Direct and Indirect Impact of Country-of-Origin Disclosures on Purchase Intentions for Retail Food Products. *Journal of Retailing* 91 (3), 533-542.
- [4] Bradley, R.V., Pridmore, J.L., Byrd, T.A. 2006. Information systems success in the context of different corporate cultural types: an empirical investigation. *Journal of Management Information Systems* 23 (2), 267-294.
- [5] Che, T., Peng, Z., Lim, K.H., Hua, Z. 2015. Antecedents of consumers' intention to revisit an online group-buying website: A transaction cost perspective. *Information & Management* 52 (5), 588-598.
- [6] Chen, H.J., Hsu, H.P., Chang, H.I., Liang, C.T. 2012. Social marketing employed by group-buying sites. *Information and Communication (in Chinese)* 3 (1), 23-41.
- [7] Chen, J., Chen, X., Song, X. 2007. Comparison of the group-buying auction and the fixed pricing mechanism. *Decision Support Systems* 43 (2), 445-459.
- [8] Chen, K.H., Lee, H.M. 2012. Effect of dining blog information disclosure on information transmission and purchase intention. *Journal of Tourism and Travel Research (in Chinese)* 7 (2), 21-40.
- [9] Chen, Y.C., Wu, J.H., Peng, L., Yeh, R.C. 2015. Consumer benefit creation in online group buying: The social capital and platform synergy effect and the mediating role of participation. *Electronic Commerce Research and Applications* 14 (6), 499-513.
- [10] Cheng, H.H., Huang, S.W. 2013. Exploring antecedents and consequence of online group-buying intention: An extended perspective on theory of planned behavior. *International Journal of Information Management* 33 (1), 185-198.
- [11] Chin, W.W. 1998. The partial least squares approach for structural equation modeling. In *Modern methods for business research*, edited by G. A. Marcoulides. Mahwah, NJ: Lawrence Erlbaum Associates, 295-336
- [12] Chin, W.W., Marcolin, B.L., Newsted, P.R. 2003. A partial least squares latent variable modeling approach for measuring interaction effects: results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. *Information Systems Research* 14 (2), 189-217.
- [13] Chun, J.W., Lee, M.J. 2016. Increasing individuals' involvement and WOM intention on Social Networking Sites: Content matters! *Computers in Human Behavior* 60, 223-232.
- [14] Daft, R.L., Lengel, R.H. 1984. Information richness: A new approach to managerial behavior and organizational design. In *Research in organizational behavior*, edited by L. L. Cummings and B. M. Staw. Homewood, IL: JAI Press, 191-233.
- [15] Dodds, W.B., Momoe, K.B., Grewal, D. 1991. The effects of price, brand, and store information on buyers' product evaluations. *Journal of Marketing Research* 28 (3), 307-319.
- [16] Fishbein, M., Ajzen, I. 1975. *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.
- [17] Fornell, C., Cha, J. 1994. Partial Least Squares. In *Advanced Methods of Marketing Research*, edited by R. P. Bagozzi. Cambridge, MA: Blackwell.
- [18] Fornell, C., Larcker, D.F. 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research* 18 (1), 39-50.
- [19] Gefen, D., Straub, D. 2005. A practical guide to factorial validity using PLS-Graph: Tutorial and annotated example. *Communications of the AIS* 16 (1), 91-109.
- [20] Gong, R., Marsden, A. 2014. The impact of the 2007 reforms on the level of information disclosure by the Chinese A-share market. *China Economic Review* 30, 221-234.
- [21] Hair Jr., J.F., Anderson, R.E., Tatham, R.L., Black, W.C. 1998. *Multivariate Data Analysis*. 5 ed. Englewood Cliffs, NJ: Prentice Hall.
- [22] Henseler, J., Ringle, C., Sinkovics, R. 2009. The use of partial least squares path modeling in international marketing. *Advances in International Marketing* 20, 277-319.
- [23] Hsu, M.H., Chang, C.M., Chu, K.K., Lee, Y.J. 2014. Determinants of repurchase intention in online group-buying: The perspectives of DeLone & McLean IS success model and trust. *Computers in Human Behavior* 36, 234-245.
- [24] Hsu, M.H., Chang, C.M., Chuang, L.W. 2015. Understanding the determinants of online repeat purchase intention and moderating role of habit: The case of online group-buying in Taiwan. *International Journal of Information Management* 35 (1), 45-56.
- [25] Hurme, P. 2005. Mobile communication and work practices in knowledge-based organizations. *An Interdisciplinary Journal on Humans in ICT Environments* 1 (1), 101-108.
- [26] Joslin, A. 2005. An investigation into the expression of uncertainty in property valuations. *Journal of Property Investment and Finance* 23 (3), 269-285.
- [27] Kim, J.U., Kim, W.J., Park, S.C. 2010. Consumer perceptions on web advertisements and motivation factors to purchase in the online shopping. *Computers in Human Behavior* 26 (5), 1208-1222.
- [28] Kukar-Kinney, M., Grewal, D. 2006. Consumer willingness to claim a price-matching refund: A look into the process. *Journal of Business Research* 59 (1), 11-18.
- [29] Lee, C.C. 2008. An empirical study on the effects of information disclosure, trust and search cost on consumers' intention to authorize the real estate brokerage industry - the example of Kaohsiung city. *Journal of Housing Studies (in Chinese)* 17 (1), 71-104.

- [30] Li, C., Chawla, S., Rajan, U., Sycara, K. 2004. Mechanism design for coalition formation and cost sharing in group-buying markets. *Electronic Commerce Research and Applications* 3 (4), 341-354.
- [31] Li, H., Sarathy, R., Xu, H. 2011. The role of affect and cognition on online consumers' decision to disclose personal information to unfamiliar online vendors. *Decision Support Systems* 51 (3), 434-445.
- [32] Liao, C.J., Chang, C.O. 2004. The effect of search cost and anchoring behavior on price premium for homebuyers. *Journal of Housing Studies (in Chinese)* 13 (2), 47-62.
- [33] Liao, C.J., Chang, C.O. 2008. Brokerage services and residential price search. *Journal of City and Planning (in Chinese)* 35 (2), 155-173.
- [34] Liao, S.h., Chu, P.h., Chen, Y.j., Chang, C.C. 2012. Mining customer knowledge for exploring online group buying behavior. *Expert Systems with Applications* 39 (3), 3708-3716.
- [35] Lim, W.M., Ting, D.H. 2014. Consumer acceptance and continuance of online group buying. *The Journal of Computer Information Systems* 54 (3), 87-96.
- [36] Lincoln, P.C. 1989. Investor relation: the use's perspective. In *The Handbook of Investor Relations*, edited by D. R. Nichols. Illinois: Dow Jones and Company, Inc.
- [37] Machado-León, J.L., de Oña, R., de Oña, J. 2016. The role of involvement in regards to public transit riders' perceptions of the service. *Transport Policy* 48, 34-44.
- [38] Murray, K.B. 1991. A Test of Services Marketing Theory: Consumer Information Acquisition Activities. *Journal of Marketing* 55 (1), 10-25.
- [39] Nepomuceno, M.V., Laroche, M., Richard, M.O. 2014. How to reduce perceived risk when buying online: The interactions between intangibility, product knowledge, brand familiarity, privacy and security concerns. *Journal of Retailing and Consumer Services*, 21 (4), 619-629.
- [40] Nunnally, J.C., Bernstein, I.H. 1994. *Psychometric Theory*. 3 ed. New York: McGraw-Hill.
- [41] Petty, R.E., Cacioppo, J. 1981. Issue involvement as a moderator of the effects on attitude of advertising content and context. *Advances in Consumer Research* 8, 20-24.
- [42] Petty, R.E., Cacioppo, J.T. 1979. Issue involvement can increase or decrease message relevant cognitive responses. *Journal of Personality and Social Psychology* 37 (10), 1915-1926.
- [43] Petty, R.E., Cacioppo, J.T. 1986. The elaboration likelihood model of persuasion. *Advances in experimental social psychology* 19, 123-205.
- [44] Ringle, C.M., Wende, S., Will, A. 2005. *Smart PLS*. Hamburg, Germany: University of Hamburg.
- [45] Schiffman, L.G., Kanuk, L.L. 2009. *Consumer Behavior*. New Jersey: Prentice Hall International, Inc.
- [46] Sharma, S., Crossler, R.E. 2014. Disclosing too much? Situational factors affecting information disclosure in social commerce environment. *Electronic Commerce Research and Applications* 13 (5), 305-319.
- [47] Shiau, W.L., Luo, M.M. 2012. Factors affecting online group buying intention and satisfaction: A social exchange theory perspective. *Computers in Human Behavior* 28 (6), 2431-2444.
- [48] Teng, C.C., Lu, C.H. 2016. Organic food consumption in Taiwan: Motives, involvement, and purchase intention under the moderating role of uncertainty. *Appetite* 105, 95-105.
- [49] Tsai, M.T., Cheng, N.C., Chen, K.S. 2011. Understanding online group buying intention: the roles of sense of virtual community and technology acceptance factors. *Total Quality Management & Business Excellence* 22 (10), 1091-1104.
- [50] Tseng, S.M., Lee, M.C. 2017. A study on information disclosure, trust, reducing search cost, and online group-buying intention. *Journal of Enterprise Information Management*.
- [51] Wang, R.Y., Wang, J.H., Chuang, C.J. 2012. The Influence of Electronic Word-of-Mouth to Online Collective Purchasing Intention. *Chung Yuan Management Review (in Chinese)* 10 (1), 1-33.
- [52] Wang, W.T., Wang, Y.S., Liu, E.R. 2016. The stickiness intention of group-buying websites: The integration of the commitment-trust theory and e-commerce success model. *Information & Management*.
- [53] Warrington, T.B., Abgrab, N. j., Caldwell, H.M. 2000. Building trust to develop competitive advantage in e-business relationships. *Competitiveness Review* 10 (2), 160-168
- [54] Zaichkowsky, J.L. 1985. Measuring the involvement construct *Journal of Consumer Research* 12 (3), 341-352.
- [55] Zaichkowsky, J.L. 1986. Conceptualizing involvement. *Journal of Advertising* 15 (2), 4-14.
- [56] Zaichkowsky, J.L. 1994. The personal involvement inventory: Reduction, revision, and application to advertising. *Journal of Advertising* 23 (4), 59-70.
- [57] Zhang, R., Li, G., Wang, Z., Wang, H. 2016 In Press. Relationship value based on customer equity influences on online group-buying customer loyalty. *Journal of Business Research*.
- [58] Zhang, Z., Zhang, Z., Wang, F., Law, R., Li, D. 2013. Factors influencing the effectiveness of online group buying in the restaurant industry. *International Journal of Hospitality Management* 35, 237-245.

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