Relationships between brand awareness and online word-of-mouth: an example of online gaming community

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Abstract: With the increasing popularity of broadband networks, the online game market is becoming more mature. One of the most popular online games, World of WarCraft, has more than ten million global members, making it the largest massive multiplayer online role playing game (MMORPG). Many researchers have widely explored online communities. However, online entertainment community has seldom been addressed; especially in the investigation of online communities marketing factors and consumer behaviour. An issue of particular interest in this study is in determining whether there are some relationships in online game consumer model between marketing factors and behaviour, and if there are relationships, in

understanding the reasons for these relationships. Thus, this study explores the relationships among brand awareness, customer value, repurchase intention, and online word-of-mouth based on 280 questionnaires from players of World of WarCraft in Taiwan and using structural equation modelling. The results show that brand awareness affects repurchase intention and online word-of-mouth through customer value. In addition, customer value is a completely mediated variable in our model. Finally, this study shows that if online game firms can satisfy the core values of their players, the players will be willing to recommend and share this with others on the net.

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1   Introduction

As the internet continues to grow worldwide, internet-based channels have become increasingly important for communication. As a result, online communities of many forms and for various purposes have developed and have enabled people to work,

socialise and entertain themselves. Online communities have been one of the strategies employed to increase customers' loyalty recently. Many e-commerce companies launch communities as a business model in electronic markets. Specifically, online games have become a killer application of online communities, which are seen as an entertainment community because they allow users to indulge in fantasy and be entertained. In the community of online games, users can perform a special role, interact socially and exchange information. People who interact even create their own virtual worlds.

According to the International Data Corporation/Taiwan, 2008 (IDC), in worldwide, the total revenue of online games has increased from US 19 million dollars in 2001 to US 150 million dollars in 2007, and the complex annual growth rate (CAGR) from 2001 to 2006 was 49.9%. This revenue is expected to increase to US 410 million dollars by 2011, and the complex annual growth from 2006 to 2011 to be 22.3%. East Asia accounted for 46.6% of the global revenue of 2006, including China, South of Korea, Taiwan, Hong Kong, and Singapore, for the largest online game market. North of America, Europe and Japan, accounted for 31.2%, 15.3% and 6.9% of the global revenue of 2006, respectively. In addition, the total number of global online game players increases from 91.2 million in 2001 to 242 million in 2006, and the complex annual growth from 2001 to 2006 is 21.6%. Furthermore, the number of online game players is expected to be increased to 328 million by 2011.

One of the most popular online games, World of WarCraft, has more than 10 million global members, making it the largest massive multiplayer online role playing game (MMORPG) by January 23, 2008. World of WarCraft was the first online game from of Blizzard Entertainment. Based on historical background of WarCraft, it has most popular players in Taiwan, since Nov. 2007. Therefore, the players in World of WarCraft are the samples of this study.

Many researchers have widely explored online communities (Balasubramanian and Mahajan, 2001; Kardaras et al., 2003). However, online entertainment community has seldom been addressed; especially in the investigation of online gaming communities marketing factors and consumer behaviour (Doughty and O'Coill, 2008). An issue of particular interest in this study is in determining whether there are some relationships in online game consumer model between marketing factors and behaviour, and if there are relationships, in understanding the reasons for these relationships. On the other hand, virtual brand communities are increasing their importance day by day due to the fact that many consumers are using brand image to contact consumers. Casalo et al. (2010) found that consumer participation in the activities carried out in a virtual brand community may enhance consumer loyalty to the brand around which the community is centred. Thus, online firm has to implement some activities in terms of developing and maintaining its brand strength on the virtual community.

Accordingly, in case of online gaming community, this study proposes a theoretical model and verifies the relationships between brand awareness, customer value, customer repurchase, and online word-of-mouth. Thus, the structural equation modelling is constructed based on 280 questionnaires from players of World of WarCraft in Taiwan. The rest of the article is organised as follows. Section 2 reviews the literature, proposes hypotheses, and illustrates a research map. Section 3 proposes methodology, including research framework, measure, and sampling. Section 4 describes research results. Section 5 discusses research findings and implications. Finally, Section 6 contains brief conclusions.

2   Literature and hypotheses

2.1   Brand awareness

Hoyer and Brown (1990) NOTE that brand awareness affects customer choice deeply, and suggest that brand awareness is the first consideration in customers' purchase selections. Keller (1993) indicates that brand awareness reflects the intensity of brand memory linkage, and the identification of brand difference in customers. This says that brand awareness will be a strong linkage in customers' memory. On the other hand, Aaker and Keller (1990) find that well-known brands with good reputation will promote the loyalty and a clear image in customers' mind. This study adopts the definition from Baldauf et al. (2003), and defines brand awareness as the ability of customers to identify or recall specific brand characteristics. Measurement items are from Yoo et al. (2000).

2.2   Customer value

Customer value is the evaluation of entire products satisfaction to customers' need (Armstrong and Kolter, 2000). Dodds and Monroe (1985) consider that customer value is related with customer preferences. Barnes (2001) suggests different forms of customer value, which includes product-price value, access-convenience value, choice-based value, employee-based value, information value, association value, enabling value, relationship value, surprise value, and community value. These values are all specific and clearly definite. Park et al. (1986) classify three customer values including functional needs, experiential needs, and symbolic needs. This study adopts Park et al. (1986) for measuring customer value, and use three dimensions for designing questionnaire items.

2.3   Repurchase intension

Repurchase intention is a tendency of customers to buy certain products (Dodds and Monroe, 1985). Howard (1977) points that if customers purchase more of some specified brand products or services, and receives more positive value, they have higher repurchase intention. This study adopts the definition of Tsiros and Mittal (2000) for repurchase intension measurement, as the probability of repurchasing products of the same brand. Following the Tsiros and Mittal, we designed five items to measure content for service, content of game, payment method, game communities, and price base on the characters of players.

2.4   Online word-of-mouth

Word-of-mouth communication is the most important information source in customers' daily life (Kiel and Layotn, 1981; Udell, 1966). Engel et al. (2001) mention the 'post-purchase behaviour' concept to indicate whether customers feel satisfied or not after purchasing products or services. This lead to one kind of behaviour, called that post-purchase behaviour. Satisfied customers will repurchase, and become brand-loyal buyers. They may also recommend the products or services to others. On the contrary, customers may not repurchase or even complain to others when they are not satisfied.

Due to the internet, openness of communication has expanded beyond face to face. By the convenience and effects of digital data, online word-of-mouth is more effective

than traditional contact. Besides, the internet provides more flexible communicative space for different types of people (Feenberg and Bakardjieva, 2004). Thus, this study adopts Zeithaml et al. (1996) items in the work of Chiou et al. (2002) to measure online word-of-mouth. It is defined as a kind of customer behaviour relating one's own or others' experience of consuming products and the perceptions of interacting with firms via electronic media.

2.5 Hypothesis

2.5.1 Brand awareness and online word-of-mouth

Esch et al. (2006) find that brand awareness affects brand trust through brand image, and Gremler et al. (2001) demonstrates that trust affects word-of-mouth positively in bank customers and dental patient samples. Chiou et al. (2002) also find that brand trust affects the online word-of-mouth in samples of investors in mutual investment funds Taipei, Taiwan. Therefore, this study proposes the following research hypotheses:

H1 Brand awareness affects online word-of-mouth positively.

2.5.2 Customer value and online word-of-mouth

Customer satisfaction is the most important objective and criterion in business management. Woodruff et al. (1993) emphasise the importance of creation, communication, and dissemination of target customer in their work. Gale (1994) considers that business should involve customer value in their competitive strategy, because customer value is the key success factor for businesses. Petrick (2004) also notes the relationship between customer value and customer satisfaction.

Furthermore, Chiou et al. (2002) mention if investors are satisfied with the funds performance, they will share related information to others. Furthermore, these investors encourage others to purchase mutual investment funds. Wirtz and Mattila (2004) show that service recovery satisfaction is related with word-of-mouth in 187 adults work in restaurants. In addition, Kau and Loh (2006) find satisfied customers have positive recommendation behaviours, whereas unsatisfied customers have negative recommendation behaviours in 428 mobile phone buyers. Besides, Gruen et al. (2006) state that customer value affects the probability of recommending to others in 616 online debaters. This says that customer value affects online word-of-mouth. Therefore, we consider that customer value affects online word-of-mouth according to these four articles above. Thus this study proposes the following research hypotheses:

H2 Customer value affects online word-of-mouth positively.

2.5.3 Brand awareness and customer value

Brand awareness plays a critical role in customer purchasing and evaluation. In order to increase market share, build up loyalty, and repurchase intention, many business focus their promotion strategy on brand awareness. For customers, it takes time to make purchase decisions for different kinds of brand products, so brands are the easiest way to identify products. Brands not only supply the information about products but also can

reduce the time comparing alternatives for customers. Therefore, customers are willing to pay a premium when purchasing products with high brand awareness. Baldauf et al. (2003) find that brand awareness affects customer value positively in a survey of 154 managers in China. Therefore this study proposes the following research hypotheses:

H3 Brand awareness affects customer value positively.

2.5.4 Brand awareness and repurchase intention

Brand awareness represents the strong linkage and impression in customers' memory. In many dimensions of brand awareness, brand perception is the identification of seeing it before considering brand details (Keller, 1993). High brand awareness usually represents recalling the brand when seeing some product. As the brand recalling frequency increase, there is a greater degree of brand awareness. Brand awareness strongly affects customer choices, and it may be the most important consideration in customers' minds when they purchase products (Hoyer and Brown, 1990). Accordingly, even with lack of price promotions (reducing purchase attractiveness), customers are willing to repurchase products with high brand awareness.

In the past, many studies have shown that brand awareness has a powerful influence on the choices of consuming and repurchasing (Hoyer and Brown, 1990; Macdonald and Sharp, 2000). Also, past literatures mentioned that brand awareness indirectly affects repurchase intention through customer value and satisfaction (Baldauf et al., 2003; Petrick, 2004; Chiou et al., 2002). Kamins and Marks (1991) consider that customers show more purchase intention if they are more familiar with a certain brand. Therefore this study proposes the following research hypotheses:

H4 Brand awareness affects repurchase intention positively.

2.5.5 Customer value and repurchase intention

Value can represent a kind of accumulation of long-term experience, which has been converted to a viewpoint or perspective, and is a key factor in purchasing or repurchasing. Dowling and Uncles (1997) note that for a business to succeed, and it must reinforce the overall value of products and service in competitive markets. Sirohi et al. (1998) also think that customer value affects repurchase intention positively. Therefore this study proposes the following research hypotheses:

H5 Customer value affects repurchase intention positively.

2.5.6 Repurchase intention and online word-of mouth

It has been stated thinks that double purchasing or repurchasing is the most important criteria for measuring the loyalty of products or service (Rust et al., 1995). This study separates loyalty into two dimensions, including repurchase intention and word-of-mouth, and establishes two hypotheses in order to understand the relationship between them two. Supporting this, Petrick (2004) finds that repurchase intention affects word-of-mouth positively in 792 tourists. Oh (2000) also finds that repurchase intention is correlated with word-of-mouth disseminations in tourists. Thus this study proposes the following research hypotheses:

H6 Repurchase intention and online word-of mouth positively.

2.5.7 *Brand awareness, customer value, repurchase intention, and online word-of-mouth*

Brand awareness is the strong linkage or impression of brand in customers' memory. Customers can more easily have a positive evaluation of products when they can identify a brand or logo. Wirtz and Mattila (2004) state that satisfaction affects repurchase intention and word-of-mouth positively. Other studies show that business should link the customer value and customer satisfaction (Oh, 2000; Woodruff, 1997). Both Oh (1999) and Petrick (2004) find that customer value, repurchase intention, and word-of-mouth are positive related. Thus, this study proposes the following research hypotheses:

H7 Brand awareness affects repurchase intention through customer value.

H8 Brand awareness affects online word-of-mouth through customer value.

H9 Brand awareness affects online word-of-mouth through customer value and repurchase intention.

Accordingly, this study assembles the previous literature into a research map, as shown in Figure 1. By doing so, it is possible to examine the relationships among brand awareness, customer value, repurchase intention, and online word-of-mouth.

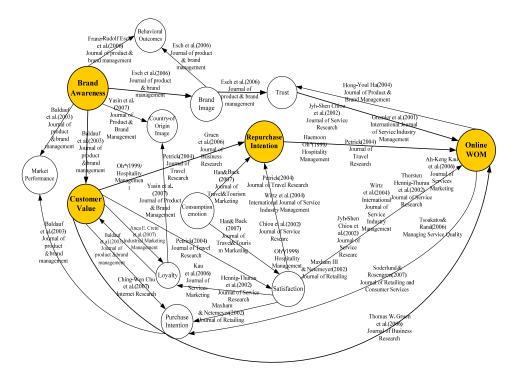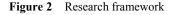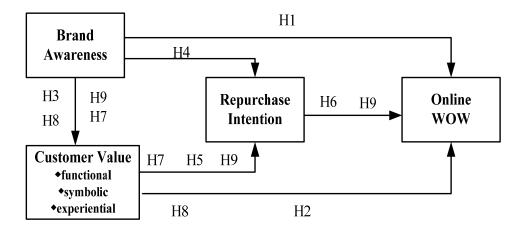**Figure 1**   Research map (see online version for colours)

Figure 1 shows that there are many studies relating customer value and repurchase intention; as well as between repurchase intention and online word-of-mouth. But there are few studies relating brand awareness and customer value; customer value and online word-of-mouth been found. In addition, this study finds that the relationship among brand awareness and repurchase intention; brand awareness and online word-of-mouth are evidenced by articles only indirectly in Figure 1. Therefore, this study investigates the relationships among brand awareness, customer value, repurchase intention, and online word-of-mouth, and verifies the research framework and hypotheses.

3   Methodology

3.1   Research framework

This study primarily explores the relationships among brand awareness, customer value, repurchase, and online word-of-mouth. Among these variables, we discuss the relationship between brand awareness and repurchase, and the same between brand awareness and online word-of-mouth further regarding customer value as a mediator. Base on a literature review, this study constructs a research framework as showing in Figure 2.

Figure 2   Research framework

3.2   Measures

Table 1 lists the operational definition, numbers of items, and the original sources of each variable.

This questionnaire includes items for four main research variables and demographic ones. Demographic variables contain gender, age, education, occupation, disposal income per month, and time available to play games per week.

Table 1 Operational definition of variables

Variables	Dimension	Operational definitions	Items	Source
Brand awareness		Ability of customers to identify or recall specific brand characteristics, symbol, logo, and image.	5	Yoo et al. (2000)
Customer value	Functional value	Functional needs are those that motivate the search for products to solve consumption-related problems (e.g., solve a current problem, prevent a potential problem, re- solve conflict, restructure a frustrating situation; see Fennell, 1978)	3	Park et al. (1986)
	Experiential value	Experiential needs are desires for products that provide sensory pleasure, variety, and/or cognitive stimulation	4	
	Symbolic value	Symbolic needs are desires for products that fulfil internally generated needs for self-enhancement, role position, group membership, or ego-identification	4	
Purchase intention		The possibility of customers to re-purchase the same brand products.	5	This study
Online word-of-mouth		A kind of customer behaviour that display one's own or others' experience of consuming products and the perceptions of interacting actively and positively with firms via electronic media.	4	Zeithaml et al. (1996)

Note: All items were measured on 5-point Likert-type scales, with anchors of
1 = strongly disagree and 5 = strongly agree.

3.3 Sampling

This study discusses the relationship among brand awareness, customer value, repurchase, and online word-of-mouth. Online word-of-mouth is disseminated via many internet electronic media. Accordingly, we posted our questionnaire on the internet for players randomly to answer. In this survey, players can explore information, share, and disseminate playing experience easily when they surf the net, which is consistent with this study subject.

Our samples are the players who play the online game 'World of WarCraft'. The questionnaire was set up in the my3q free website located at URL: http://tinyurl.com/ 2q63n9. We also posted it on http://www.ptt.cc/index.html and advertised it on http://www.gamer.com.tw, which are two well-known World of WarCraft boards in Taiwan. We received 340 responses from Nov. 2007 to Jan. 2008. After deleting invalid ones, there were a total of 280 valid samples.

4 Results

4.1 Sample

Table 2 lists the study's sample distribution according to gender, age, education, occupation, disposal income per month, and time to play per week. Most players are male

(80.4%), age 19~24 (50.4%), university degree (61.1%), occupation (students) (64.6%), with disposable income per month below NTD 5,000 (42.5%), and time to play games 11–30 hours per week (44.6%).

Table 2   Descriptive statistics of the participant profile

Demographics		Frequency	Percentage (%)
Gender	Female	55	19.6
	Male	225	80.4
Age	Below12	2	0.7
	13~18	59	21.1
	19~24	141	50.4
	25~30	65	23.2
	31~36	10	3.6
	37~42	2	0.7
	43~48	1	0.4
	Over49	2	0.7
Education	Elementary School	2	0.7
	Junior High School	8	2.9
	Senior High School	79	28.2
	University	171	61.1
	Graduate School	20	7.1
Occupation	Student	181	64.6
	Public Servant	6	2.1
	Manufacturing	16	5.7
	Information	13	4.6
	Service	16	5.7
	Self-employed	14	5.0
	Others	34	12.1
Disposal income per month (NTD)	Below 5,000	119	42.5
	5,001~10,000	77	27.5
	10,001~15,000	19	6.8
	15,001~20,000	11	3.9
	20,001~25,000	18	6.4
	25,001~30,000	17	6.1
	Over 30,001	19	6.8
Time to play games per week (hours)	Below 10	76	27.1
	11~20	72	25.7
	21~30	53	18.9
	31~40	31	11.1
	41~50	18	6.4
	51~60	9	3.2
	Over 61	21	7.5

4.2   Analysis

4.2.1   Measurement model-CFA

This study modified the initial model because of incomplete model fit based on modification indices (MI) values. Lower item standard solution value means lower explains of variables; and over MI means mix identification of items. Table 3 lists the final model fits after deleting some items base on these two criteria. Finally, this study deleted 1 item of brand awareness, three items of customer value, and one item of repurchase intention in order to achieve good model fit.

Table 3   Indices of measurement model

Indices	Brand awareness		Customer value		Repurchase intention		Online WOM
	Initial	Final (delete no. 1)	Initial	Final (delete no. 12, 15, 16)	Initial	Final (delete no. 18)	
GFI	0.94	1	0.90	0.97	0.88	0.99	0.99
SRMR	0.044	0.011	0.045	0.027	0.043	0.013	0.013
RMSEA	0.175	0.014	0.110	0.059	0.257	0.067	0.066
NNFI	0.93	1	0.97	0.99	0.88	0.99	0.99
CFI	0.96	0.96	0.98	0.96	0.94	1	1
Chi-square (χ^2)	47.62	2.12	179.66	33.60	97.36	4.48	4.4
DF	5	2	41	17	5	2	2
Normed chi-square	9.52	1.06	4.38	1.98	19.47	2.24	2.20

Thus, measurement model has good model fits, such as GFI, NNFI > 0.9 (Hu and Bentler, 1999), CFI > 0.95 (Bentler, 1995); SRMR < 0.08, between 0.011 and 0.027 (Hu and Bentler, 1999). RMSEA is between 0.014 and 0.067 (McDonald and Ho, 2002; Brown and Cudeck, 1993). Normed chi-square is between 1.06 and 2.24 (Anderson and Gerbing, 1988).

4.2.2   Reliability

The reliabilities (Cronbach's α) for all measures are above the recommended limits 0.7: 0.763~0.911, which indicate high reliabilities (Nunnally, 1978). All of the measurement *t* values are between 9.39 and 19.88 all larger than 1.96, which show good convergent validity in brand awareness, customer value, repurchase intention, and online word-of-mouth. Table 4 lists all indices for reliability and convergent validity.

4.2.3   Discriminant validity

Discriminant Validity in customer value shows good fit indices as Table 5. All $\Delta\chi^2$ are larger than 3.84, between 14.36~23.34. This shows a good discriminant validity of model (Anderson and Gerbing, 1988).

Table 4   Reliability and convergent validity

Dimension	Indicators	Factor loading	Standard error	t-value	Standard solution	Composite reliability
Brand awareness	λ 21	0.67	0.05	13.03***	0.71	0.872
	λ 31	0.91	0.05	17.54***	0.87	
	λ 41	0.91	0.05	17.84***	0.88	
	λ 51	0.91	0.07	13.99***	0.74	
Customer value (functional)	λ 21	0.90	0.06	15.97***	0.82	0.763
	λ 61	0.89	0.06	16.26***	0.83	
	λ 81	0.64	0.07	9.39***	0.55	
Customer value (experiential)	λ 32	1.00	0.05	19.88***	0.95	0.794
	λ 52	0.82	0.06	12.89***	0.69	
Customer value (symbolic)	λ 13	0.96	0.06	16.59***	0.83	0.858
	λ 43	0.92	0.06	16.49***	0.83	
	λ 93	0.87	0.06	15.13***	0.78	
Repurchase intention	λ 11	1.01	0.06	17.54***	0.86	0.899
	λ 31	1.04	0.06	18.90***	0.90	
	λ 41	0.91	0.06	15.91***	0.81	
	λ 51	0.89	0.06	14.38***	0.75	
Online WOM	λ 11	0.99	0.05	19.64***	0.92	0.911
	λ 21	1.03	0.05	19.66***	0.92	
	λ 31	0.69	0.05	13.18***	0.70	
	λ 41	0.95	0.06	17.40***	0.85	

Notes: $|T| \geq 1.96$, at p0.05 level*; $|T| \geq 2.58$, at p 0.01 level**; and $|T| \geq 3.29$, at p 0.001 level***

Table 5   Discriminant validity

Variable	Model	χ^2	DF	$\Delta\chi^2$
Customer value	Unconstrained	33.60	17	
	Functional-experiential	47.96	18	14.36*
	Experiential-symbolic	55.37	18	21.77*
	Symbolic-functional	56.94	18	23.34*

Notes: [1]$\Delta\chi^2$ = The constrained model χ^2 — The unconstrained model χ^2
[2]* is significant: $\Delta\chi^2 > 3.84$

4.3   Structural model

Figure 3 presents the overall model fit and the results of path analysis which indicate an adequate fit: $\chi^2 = 193.19$, p = 0.00000, and RMSEA = 0.068. The significant standard solution of each path is 0.88, 1.29, and 0.69 respectively. But results show two insignificant paths are 0.03 and 0.18 indicating that the relationship between brand awareness and online word-of-mouth, repurchase intention and online word-of-mouth are not significant. Furthermore, the correlation between brand awareness and repurchase intention are negative in spite of t-value is significant, which is contradicts the hypothesis to our model. Therefore, we test the mediation effect examination further.
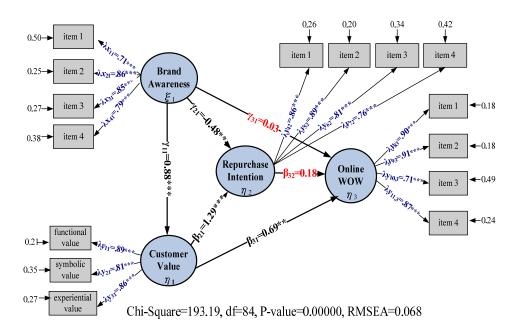
Figure 3 Theoretical model (see online version for colours)

Chi-Square=193.19, df=84, P-value=0.00000, RMSEA=0.068

This study tests the full structural equation modelling using the maximum likelihood method. Table 6 lists all indices of structural model (hypotheses testing).

Table 6 Structural parameter estimates and goodness-of-fitness indices

Path	Relation	Standard solution	Standard error	T-value	Result
Brand awareness → customer value (γ_{11})	+	0.88	0.06	15.56***	Supported
Brand awareness → repurchase intention (γ_{21})	+	–0.48	0.15	–3.23**	---
Brand awareness → online WOM (γ_{31})	+	0.03	0.15	0.20	---
Customer value → repurchase intention (β_{21})	+	1.29	0.16	8.19***	Supported
Customer value → online WOM (β_{31})	+	0.69	0.26	2.66**	Supported
Repurchase intention → online WOM (β_{32})	+	0.18	0.14	1.28	---

4.3.1 Brand awareness and online word-of-mouth

Table 6 lists the T-value between brand awareness and online word-of-mouth of 0.20 ($\gamma_{31} = 0.03$), which is not significant, so brand awareness does not affect online word-of-mouth significant positively. Therefore, the result does not support H1.

4.3.2   Customer value and online word-of-mouth

Table 6 lists the T-value between customer value and online word-of-mouth of 2.66 (β_{31} = 0.69), which is significant, so customer value affects online word-of-mouth significant positively. Therefore, the result supports H2.

4.3.3   Brand awareness and customer value

Table 6 lists the T-value between brand awareness and customer value of 15.56 (γ_{11} = 0.88), which is significant, so brand awareness affects customer value significant positively. Therefore, the result supports H3.

4.3.4   Brand awareness and repurchase intention

Table 6 lists the T-value between brand awareness and repurchase intention of −3.23 (γ_{21} = −0.48), which is not significant, so brand awareness does not affect repurchase intention significant positively. Therefore, the result does not support H4.

4.3.5   Customer value and repurchase intention

Table 6 lists the T-value between customer value and repurchase intention of 8.19 (β_{21} = 1.29), which is significant, so customer value affects repurchase intention significant positively. Therefore, the result supports H5.

4.3.6   Repurchase intention and online word-of-mouth

Table 6 lists the T-value between repurchase intention and online word-of-mouth of 1.28 (β_{32} = 0.18), which is not significant, so repurchase intention does not affect online word-of-mouth significant positively. Therefore, the result does not support H6.

4.3.7   Brand awareness, customer value, and repurchase intention

Table 7 lists the total and indirect effect of exogenous variable-brand awareness and endogenous variables-customer value, repurchase, and online of word-of-mouth base on LISREL output. We find the total effect of brand awareness to repurchase intention is 0.66, but the indirect effect through customer value is 1.14. Therefore, brand awareness affects repurchase intention through customer value, which supports H7.

4.3.8   Brand awareness, customer value, and online word-of-mouth

We find the total effect in Table 7 of brand awareness to online word-of-mouth is 0.76, but the indirect effect through customer value is 0.73. Therefore, brand awareness affects online word-of-mouth through customer value, which supports H8.

4.3.9   Brand awareness, customer value, repurchase intention, and online word-of-mouth

Table 7 lists the effect of repurchase intention to online word-of-mouth of 0.18, which is not significant, not support H6. Accordingly, this result does not support H9.

Table 7 Direct and indirect effect

Variables		Customer value		Repurchase intention		Online WOM	
		Effect	*t-value*	*Effect*	*t-value*	*Effect*	*t-value*
Exogenous	Brand awareness						
	Direct	0.88***	15.56***	–0.48**	–3.23**	0.03	0.20
	Indirect	--	--	1.14***	7.24***	0.73***	4.74***
	Total	0.88***	15.56***	0.66***	10.66***	0.76***	13.02***
Endogenous	Customer value						
	Direct			1.29***	8.19***	0.69**	2.66**
	Indirect			--	--	0.23	1.32
	Total			1.29***	8.19***	0.92***	7.18***
Endogenous	Repurchase intention						
	Direct					0.18	1.28
	Indirect					--	--
	Total					0.18	1.28

Note: the *Endogenous* heading spans the Customer value, Repurchase intention, and Online WOM columns.

Notes: $|T| \geq 1.96$, at p0.05 level*; $|T| \geq .58$, at p 0.01 level**; and $|T| \geq 3.29$, at p 0.001 level ***

4.4 Mediation test

Firstly, the hypothesis that brand awareness affects repurchase intention positively is significant in model from analysis ($\gamma_{21} = -0.48$, $p < .01$), which does not support H4. Consistent with Baron and Kenny (1986), this study finds that the relationship between brand awareness and repurchase intention has negative correlation. Brand awareness is suppressed by customer value, and customer value is what called the suppressor.

Secondly, the hypothesis that brand awareness affects online word-of-mouth positively is not significant from model analysis ($\gamma_{31} = 0.03$, $p > .05$), so it does not support H1. After testing, this study finds the reason is that the net effect of customer value to online word-of-mouth is larger than brand awareness to online word-of-mouth.

Thirdly, the hypothesis that repurchase intention affects online word-of-mouth positively is not significant ($\beta_{32} = 0.18$, $p > .05$), so it does not support H6. This study finds the net effect of customer value to online word-of-mouth is larger than repurchase intention.

Therefore, the relationships of brand awareness to online word-of-mouth and repurchase intention have positively influence. But when customer value is added to the model, it affects online word-of-mouth more strongly than brand awareness and repurchase intention, leading to a non-significant result. In this regard, brand awareness and repurchase intention will affect online word-of-mouth, whereas they are not the main factors when considering customer value.

5   Implications

1   From empirical analysis, customer value affects online word-of-mouth positively, which is consistent with Gruen at al. (2006). Although our sample subjects are different from that work, we find the same conclusion that customer value positively affects the recommendation of customers. Previously, via indirect inference from the research path, researchers found customer value would create word-of-mouth through satisfaction (Petrick, 2004; Chiou et al., 2002; Hennig-Thurau et al., 2002; Wirtz and Mattila, 2004; Kau and Loh, 2006). But this study shows that customer value and online word-of-mouth are directly involved in the same model. In addition, Baek (2005) explored online gamers' preference by measuring their WTP (willingness to pay) for online games. More specifically, this study explores how the interaction attributes of an online game affect customer preferences by creating customer value. Therefore, if an online game firm wants to create favourable online gaming word-of-mouth, it must pay much more attention to customer value. From the customers' perspective, a business must realise their exact needs and perceptions, and provide the products or service which fit customer value. Only by doing so, can online game firms foster favourable online gaming word-of-mouth.

2   Research results show that customer value affects repurchase intention positively which is consistent with Oh (1999), Petrick (2004) and Gruen et al., (2006). In the increasing competitive business environment, any product or service can be copied so that every enterprise must create new distinguishing features in order to maintain leading advantage. That is new customer value. Businesses must understand customers' exact needs, and provide new customer value by taking differentiation strategy, and thus obtain the repurchase intention. In these regards, such as the help to customers for products/services to solve consumption-related problems, the sensory pleasure and/or cognitive stimulation, and the self-enhancement are possible ways to create and sustain customer value by online game firms.

3   Baldauf et al. (2003) find that brand awareness affects customer value positively based on 154 managers in Chinese manufacturing firms. We obtain the same results in this study based on the very different sample, of players in World of WarCraft online game. So, brand awareness is extremely important not only for traditional industries but also for online games producers. Aside from marketing ads, online game firms must create customer value through brand awareness in order to build up their reputation by service. Thus players can provide positive valuation, and promote or retain their loyalty to online games producers.

4   Research results show that brand awareness does not affect online word-of-mouth positively, which is not consistent with the results of Esch et al. (2006), Gremler et al. (2001), and Chiou et al. (2002). Brand awareness does not affect repurchase intention positively, which is not consistent with the results of Baldauf et al. (2003), Petrick (2004), Chiou et al. (2002), and Wirtz et al., (2004). Furthermore, the results show that repurchase intention does not affect online word-of-mouth, which differs from the results of Petrick (2004), and Oh (2000). Although some authors supported those three hypotheses in the past with different research subjects (no online game players), the paths and samples in our study are totally different from previous research, and so the three hypotheses are not supported in our model.

In addition, after testing this study finds that customer value suppresses the effect of brand awareness, and repurchase intention to online word-of-mouth; brand awareness to repurchase intention leading not supported the hypotheses. Thus, for players, obtaining functional, experiential, and symbolic value creates much more word-of-mouth than brand awareness and repurchase intention. This shows that if online game firms can satisfy the core values of their players, the players will be willing to recommend and share this with others on the online gaming community.

5   From empirical evidence, this study finds that brand awareness affects online word-of-mouth through customer value and repurchase intention. This demonstrates the important role of customer value in our model. Thus brand awareness can provide many more advantages and much more loyalty from customers. In these regards, online game firms can consider to create and sustain some ways, such as marketing, new product development, and customer relationship management in order to keep customers' identification on its brand characteristics, symbol, logo, and image.

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