# DOES CUSTOMER MEMBERSHIP LEVEL AFFECT ONLINE REVIEWS ? A STUDY OF ONLINE REVIEWS FROM 360BUY.COM IN CHINA

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### Abstract

More and more shopping sites implement membership level management strategies and provide customers with not only online review communities but also incentives to promote them to post their online reviews. However, whether these measures affect the results of online reviews and how they influence have not been studied yet. Based on the social exchange theory, we collect data of online reviews about the two types of products involving search and experience from Jingdong Mall shopping site ( i.e. 360Buy.com), and then an empirical research is conducted. The results show that the customer membership level has a positive effect on review rating, and a negative effect on review depth and review promptness; product type has reverse moderation effect on these effects. Finally, the theoretical contributions and practical implications of this research are discussed.

Keywords: Online Reviews, Customer Membership Level, Social Exchange Theory, Online Shopping.

### **1 INTRODUCTION**

Compared with traditional physical shopping, online shopping is visible with untouchable product, contributing to uncertainty and risk during consumers' making purchase decision that depends on the information provided by the sellers. As a word of mouth (abr. WOM), online reviews generated by consumers contain a large amount of information for consumers experience of the product attributes and quality. It is conductive to reduce the uncertainty and risk of product information, play a significant role for consumers to support shopping decision-making in online shopping (Chatterjee 2001; Olshavsky & Granbois 1979; Park & Lee 2009; Zhang et al. 2010), and finally promote sales for online retailers (Berger et al. 2010; Chen et al. 2006; Clemons et al. 2006). Therefore, for the convenience of consumers to post product comments, online shopping sites often provide built-in consumer communities, take incentives to encourage customers to post online reviews, expect other consumers to make purchasing decision, and promote sales ultimately. Some of the online shopping sites implement the membership level management strategy, endow customers with different membership levels or credit ratings according to the accumulated consumption or transaction credit levels of customers, and provide differential services in terms of different membership levels. Jingdong Mall website (i.e. 360buy.com) in China entitles customers to different membership levels in accordance with their levels of cumulative consumption. Customers with high membership levels can enjoy higher level of services, such as products discounts.

Previously, there were some research findings about the influence factors of posting WOM behaviour. Dichter (1966) identified that the four main motivation factors of publishing WOM are self-involvement (or self-enhancement), other involvement, product involvement and message involvement; There are different motivations between positive and negative WOMs, altruistic motive has a positive effect on both positive and negative WOMs, but product involvement and self-enhancement motives have positive effects on the positive WOM, anxiety reduction, vengeance, and advice seeking motives have positive effects on negative WOM (Sundaram et al. 1998); Have gaining social benefits, consumers are motivated to participate in the community website in terms of identification and social integration (Hennig Thurau et al. 2004); Consumer reviews will be affected by the public opinions (Gu & Lin 2006); attitude, perceived pressure, neuroticism and conscientiousness can significantly impact consumers' willingness to provide online reviews (Picazo-Vela et al. 2010); satisfaction and loyalty can positively or negatively affect WOM (Casal ó et al. 2008; de Matos & Rossi 2008; Zeelenberg & Pieters 2004); etc.

There are a great number of previous works about the effects of WOM on consumers and business. e.g., online review rating, review depth and disclosure of reviewers have effects on the usefulness of online reviews perceived by consumers (Connors et al. 2011; Danescu-Niculescu-Mizil et al. 2009; Forman et al. 2008; Mudambi & Schuff 2010); identity and characteristics of reviewers such as expertise, buyer or seller, and intimacy relations have effects on consumer's online shopping decisions (Brown & Reingen 1987; Chatterjee 2001; Chen et al. 2006; Chen & Xie 2008; Smith et al. 2005); WOM can affect sales, which can be illustrated by the point that positive or negative WOM has a significant effect on sales (Berger et al. 2010; Chen et al. 2006; Clemons et al. 2006; Forman et al. 2008; Ghose & Ipeirotis 2011; Hu et al. 2008), Specifically, positive WOM can noticeably improve sales (Chen et al. 2006; Clemons et al. 2006); etc.

It can be seen from previous studies that there are important implications of research and practice for both consumers and retailers. However, for the same product and the seller, even if the consumer status is identical, the content and ratings of online reviews generated by different consumers may differ from each other (Casal ó et al. 2008; de Matos & Rossi 2008). Our research question is that, when an online shopping website takes membership management with differential service levels and corresponding incentive strategies, whether does this affect online reviews posted by customers with different membership levels? How to affect? At present, such questions have not been paid attention by relevant researchers. Based on the social exchange theory and previous research results, we set the customer membership level as an independent variable and build the conceptual model for influences on online review results. Then, we collect the actual data of online reviews from B2C (Business to Customer, abr. B2C) shopping website of 360 buy.com in China to make an empirical test and finally discuss and conclude the empirical results.

## 2 THEORETICAL FOUNDATION AND MODEL

### 2.1 Constructs and Variables

### **Product Type**

According to the style and difficulty of obtaining product quality information prior to interaction with the product, products can be classified to two types of search and experience (Nelson 1970, 1974). For search products, it's easy to get most of objects' quality information provided by retailers. But for experience product, it requires customers to experience to obtain subjective quality information after transactions.

### Membership Level

In order to encourage consumers to conduct online shopping and participate in the interaction of the website to improve consumer loyalty, some online retailer sites tend to offer customers a membership level management. For instance, Jingdong mall (360buy.com) offers users membership levels ranging from 1 to 10 according to their accumulated amount of consumption, and provides differential level services on the basis of membership levels. Taking Jingdong mall as a source of data collection, membership levels are divided into 10 groups for the purpose of the convenient measurement, where each level is assigned an integer ranging from 1 to 10. It is reasonable that more amount of total consumption deserves higher membership level, so it can reflect the consumer shopping frequency, familiarity and reciprocity with the shopping site. In other words, the higher membership level is in accordance with the higher shopping frequency, familiarity and reciprocity with the shopping frequency.

### **Review Extremity**

Review extremity means the positive, negative or neutral tendency of reviews, which is also called review polarity (Mudambi & Schuff 2010). Using a 5-star rating system, review extremity can represent from negative to positive degree accompanying with the number of star increased. Consequently, the number of star, which embodies the customers' attitude towards products and websites, will be used to shed light on the degree of extremity.

### **Review Depth**

Review depth means the length of the content of online review. We use the word counts of the posted review as an indicator for review depth. The deeper review depth is, the more information may be contained, but it requires customers to make more efforts. So it can indicate the degree of efforts made by reviewers.

#### **Review Promptness**

Review promptness that can be also named as review timeliness, means the timeliness of posting review. We use interval days between the time of posting review and the time of transaction to reversely indicate review promptness. Review promptness may reflect the initiative and efforts made by reviewers to post reviews.

### 2.2 Theoretical foundation

The Social Exchange Theory (abr. SET) is laid as the theoretical foundation for this study, which

mainly focuses on exchange phenomenon among interpersonal relations. It supposes that human behaviour is built on the basis of reasonable selection, which means that human behaviours always tend to maximize rationalization, that is, the minimum cost for the maximum reward (Homans 1958). SET argues that all human behaviours are affected by some exchanges which can bring rewards and remuneration, and that exchange relations can also take the form of social relations in social exchange that is the relationship among individuals and groups. Homans (1958, 1974) put forward four propositions, two of which can be expressed as follows: (1) if an individual's action make him obtain the desired rewards or more than expected, he will embrace the delightful mood, and may make others agree with actions; (2) if an individual obtain a specific reward more frequently, it follows the same reward for his value lower. Blau (1964) further classified rewards expected by actors into "extrinsic rewards" (such as money, goods and services) and "inner rewards" (such as love, respect, honour and position, etc.).

The essence of the social exchange theory is based on the assumption that most of individuals are rational, social interaction relationships among individuals whereas groups are based on reciprocity. Customers are affected by shopping sites' membership level management and incentive strategies, and it will essentially form a reciprocal relationship between the shopping website and customers and influence the online review results. Customers with high membership levels may enjoy more preferential services, such as more credits scores and possibilities of discount, so they will be more satisfied with purchasing. Given that high customer satisfaction and loyalty will lead to repeat purchase and release more positive word of mouth for merchants (Brown et al. 2005; de Matos & Rossi 2008). Accordingly, Customers with high membership levels will tend to post more positive reviews for return, and therefore review rating will be correspondingly higher. Conversely, customers with low membership levels may have less access to preferential services, and they tend to publish less positive reviews in return. Therefore, we propose the following hypothesis.

**H1**. Membership level has a positive effect on review rating. Compared with customers with low membership level, customers with high membership levels will post higher review rating.

However, customers with high membership levels may trade more frequently than that with low membership levels as they are more familiar with the incentive rules of the shopping site (credits reward after posting review without considering review depth and promptness) and may perceive value less after the corresponding reciprocal return repeatedly. Without the prejudice to existing reciprocal return results, the degree of their efforts may be decreased, which will lead to the increased possibility of reviews promptness and depth reduction. On the other hand, Given that customers with high membership level purchase more products, they often write more reviews. Hence, each review they post can be easily shorter than other reviews and can be easily delayed. Therefore, we propose the following hypothesises.

**H2**. Membership level has a negative effect on review depth. Customers with higher membership level will post lower review depth.

**H3**. Membership level has a negative effect on review promptness. Customers with higher membership level will post lower review promptness.

Compared with experience products, most of the information of search products has been provided in the website before purchasing, and thus the gap between the actual experience after usage and the original expectation may be relatively small. Therefore, comments on search products may be relatively objective and this will reduce the positive tendency of subjectivity. In addition, since search products need to experience less subjective information, reviewers can post product reviews more promptly compared with experience products. Thus, we propose the following hypothesises. **H4**. Product type moderates the effect of membership level on review rating. Compared experience products, the positive effect of membership level on review rating for search products will be decreased, that is, review rating for search products will be less.

**H5**. Product type moderates the effect of membership level on review promptness. Compared experience products, the negative effect of membership level on review promptness for search products will be decreased, that is, interval days from transaction of review for search products will be shorter.

As search products have clear objective attributes with corresponding information, reviewers may easily post their reviews according to the objective attributes of search products provided by the shopping site. What we can infer is that the more attributes of products acquired by customers, the more reviews posted accordingly. For experience products, attributes and information of products provided by shopping site are less than those of search products. The majority information of experience products requires customers themselves to experience, and reviewers will make less content of comments due to inadequate attributes. Therefore, review depth for search products will be deeper when comparing with experience products. Subsequently, the following hypothesis is presented.

**H6**. Product type moderates the effect of membership level on review depth. Compared with experience products, the negative effect of membership level on review depth for search products will be decreased, which means that review depth for search products will be deeper.

### 2.3 Theoretical Model

According to the forenamed analysis, we propose a research model as shown in Figure 1.



Figure 1. Model for the Effect of Customer Membership Level on Reviews

Based on the social exchange theory, customer membership level affects online review results. Membership level influences review rating positively; however, it impacts review depth and review promptness negatively. Taking the search product type as reference datum, product type has a reverse moderation role in the effect of the membership level on review results.

### **3 RESEARCH METHODOLOGY**

#### 3.1 Variables and Measurement

In view of the precious description, we use Interval Days to reversely indicate Review Promptness (see Table 1).

Variable	Measurement	Metric
Membership	Convert the categorical variable of Membership Level to	Nonnegative integer
Level	integer variable	
Product Type	Encode the categorical variable of Product Type to binary	Search: 1, Experience: 0
	variable	
<b>Review Rating</b>	Review rating numerical score	Nonnegative integer:1-5
Review Depth	Word counts of review content	Nonnegative integer
Review	Interval Days between the time of posting review and the	Nonnegative integer
Promptness	time of transaction to reversely indicate Review	
	Promptness. The more Interval Days, the poorer Review	
	Promptness	

Table 1.	Measurements	for variables	of online	reviews
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### 3.2 Data Collection

We collected online review data from Jingdong mall site (www.jd.com) in China. Currently, Jingdong mall has more than 60 million registered customers throughout the country, as well as nearly 10 thousand venders and supplies online sales for 12 categories, supplies thousands of brand, millions kinds of high-quality goods (including home appliances, digital communications, food and so on), and handles more than 500 thousand orders per day. Jingdong achieved more than 10 billion sales scale in 2010, and gained 50.1% of the market share in China's independent operation B2C website at the 1st quarter of 2012. More importantly, Jingdong mall site supplies credits score as rewards and constraints for customers to publish reviews after transactions (only the purchasers can publish corresponding comments, and a certain limit credits score is convertible to vouchers), take membership level management strategy and differential services. What Jingdong mall site provides are not only detailed product and price information, but also online comments on its product page.

Product	Description	Туре	Sources
MP3	Apple iPod new shuffle 2G MC584CH/A	Experience	(Weathers et al. 2007)
	MP3 Player		
CD	Li 2012 album: don't crazy we old (CD)	Experience	(Nelson 1970)
Wine	Yanghe blue classic of the sea, 42 Alcoholic,	Experience	(Nelson 1970)
	liqueur, soft type		
Digital camera	Canon Power Shot A4000 IS Digital camera	Search	(Nelson 1970)
Mobile phone	Motorola XT615 3G Mobile phone	Search	(Bei et al. 2004)
Laser Printer	HP LaserJet 1020 Plus Black and white laser	Search	(Weathers et al. 2007)
	printer		

Table 2.	<b>Products</b>	Used i	n the Study
10000 -0	1	0.0000 0	

We collected 3 classic search products and 3 classic experience products separately (see Table 2) in December 2012, and took two criteria for collected data. First, for covering membership levels as wide as possible, products selected should be sold well and have plenty of reviews compared with similar products. Second, product type should be accordance with the search and experience classification by Nelson (1970, 1974), and products have been adopted by past research. Finally, we collect 42908 records of online reviews for 6 products of which the detailed information is given as follows:

- Membership Level (1 to 10): The higher membership level is, the more accumulated consumption amount;
- Review Rating(1 to 5): Comment score;
- Review Depth: Word counts of comment content;
- Interval Days: Interval Days between the time of posting review and the time of transaction. The more Interval Days is, the poorer Review Promptness;
- Product Type: 1 indicates search, 0 indicates experience.

Description statistics for full samples are included in Table 3, and comparison of description statistics for search and experience products sub samples are included in Table 4.

Variable	Ν	Min	Max	Mean	SD			
Membership Level	42908	1	10	4.20	1.509			
Review Rating	42908	1	5	4.64	.718			
Review Depth	42908	8	621	49.56	29.571			
Interval Days	42908	0	181	23.51	34.781			

Table 3.	Description Statistics for Full Samples

Variable	Search(N	I=24083)	Experience(N=18825)		
variable	Mean	SD	Mean	SD	
Membership Level	4.19	1.520	4.21	1.496	
Review Rating	4.54	.812	4.76	.553	
Review Depth	51.39	30.685	47.23	27.909	
Interval Days	21.72	32.453	25.81	37.424	

Table 4.Description Statistics for Different Product types

### 3.3 Data Analysis

We firstly take correlation analysis, and then take regression analysis. Due to plenty of review records covering the most range of membership levels and review rating scores for each product, we adopt normal linear regression method. In light of the same products and website faced by all reviewers, we mainly consider the effect of the membership level on review results. In order to test the moderation effect of product type, we make an interaction item between product type and membership level. Then two step regression methods are applied, which one regression has no moderator and another has moderator, then, comparisons between them are made.

According to the hypothesises, we make regression models as follows:

- The effect of membership level on review rating
- Review Rating =  $\alpha_1 + \beta_{11}$ Membership Level +  $\beta_{12}$ Product Type +  $\beta_{13}$ Membership Level x Product Type +  $\epsilon_1$
- The effect of membership level on review depth
  - Review Depth =  $\alpha_2 + \beta_{21}$ Membership Level +  $\beta_{22}$ Product Type +  $\beta_{23}$  Membership Level x Product Type +  $\epsilon_2$
- The effect of membership level on interval days of review Interval Days = α<sub>3</sub>+β<sub>31</sub>Membership Level + β<sub>32</sub>Product Type + β<sub>33</sub> Membership Level x Product Type + ε<sub>3</sub>

# 4 **RESULTS**

Taking correlation analysis for full sample, the results are showed in Table 5. It can be seen from the following table that research findings can show significant correlations among membership level, review rating, review depth and interval days. Furthermore, there is significant correlation coefficient between review rating and review depth.

Variable		Membership Level	<b>Review Rating</b>	Review Depth	Interval Days
Membership	Correlation	1	.176**	084**	.106**
Level	Significant		.000	.000	.000
Review	Correlation	.176**	1	211**	.039**

Rating	Significant	.000		.000	.000
Review	Correlation	084**	211**	1	074**
Depth	Significant	.000	.000		.000
Interval	Correlation	.106**	.039**	074**	1
Days	Significant	.000	.000	.000	

\*\*. At .01 level (two sided) significant

#### Table 5.Pearson Correlation Analysis for the Research

Regression results without product type moderation are presented in Table 6, which can state that membership level affects review rating and interval days of review positively (in other words, membership level affects review promptness negatively) but review depth negatively. Therefore, Hypothesis 1, 2 and 3 are supported. Taking account to interval days reversely indicating review promptness, the more interval days, the poorer review promptness, therefore, the results show that membership level affects significant review promptness negatively.

					[95% Co	onfident
Variable	Coefficient	Standard Error	t-value	P-value	Inter	val]
Dependent Variable: Review Rating, R-squared= 0.0308						
Membership Level	0.084	0.002	36.950	0.000	0.079	0.088
_constant	4.284	0.010	424.410	0.000	4.264	4.304
Dependent Variable	: Review Dep	oth, R-squared= 0	.0070			
Membership Level	-1.641	0.094	-17.410	0.000	-1.825	-1.456
_constant	56.452	0.421	134.240	0.000	55.627	57.276
Dependent Variable	: Interval Day	ys, R-squared= 0.0	0113			
Membership Level	2.447	0.111	22.120	0.000	2.230	2.664
_constant	13.240	0.494	26.830	0.000	12.273	14.207

Table 6.Regression Output for Full Data Set without Moderator Variable

Regression results with product type moderation are included in Table 7, which shows that product type moderates the effect of membership level on review results significantly (P values for both the interaction item and the product type item are all equal to 0.000). Table 7 shows that, product type has negative moderation for the effect of the membership level on review rating. In other words, the positive effect of membership level on review rating for search products will be decreased when they are compared with experience products. Thus, Hypothesis 4 is supported; compared with experience products, product type has negative moderation for the effect of membership level on interval days of review and the positive effect of membership level on interval days of review for search products will be decreased. It is equivalent to the fact that review promptness is faster for search products, and thus Hypothesis 5 is supported; compared with experience products, product type has positive moderation for the effect of membership level on review at the positive moderation for the fact that review promptness is faster for search products, and thus Hypothesis 5 is supported; compared with experience products, product type has positive moderation for the effect of membership level on review depth. The negative effect of membership level on review depth for search products will be decreased, making Hypothesis 6 supported. The final test results are included in Table 8.

		Standard			[95% C	onfident
Variable	Coefficient.	Error	t-value	P-value	Inter	rval]
Dependent Variable: Review Rating, R-squared= 0.0671						
Membership Level	0.019	0.003	5.630	0.000	0.012	0.026
Product Type	-0.691	0.020	-34.540	0.000	-0.730	-0.652
Product Type x						
Membership Level	0.113	0.004	25.180	0.000	0.104	0.122
_constant	4.677	0.015	309.850	0.000	4.648	4.707
Dependent Variable: H	Review Depth, R-sq	uared= 0.012	4			

Membership Level	-1.091	0.143	-7.620	0.000	-1.372	-0.811
Product Type	8.147	0.847	9.620	0.000	6.486	9.807
Product Type x						
Membership Level	-0.954	0.190	-5.030	0.000	-1.326	-0.582
_constant	51.818	0.639	81.060	0.000	50.565	53.071
Dependent Variable: I	nterval Days, R-squ	uared= 0.0165	i			
Membership Level	1.311	0.168	7.800	0.000	0.982	1.641
Product Type	-12.400	0.994	-12.470	0.000	-14.349	-10.451
Product Type x						
Membership Level	1.985	0.223	8.910	0.000	1.548	2.421
_constant	20.297	0.750	27.050	0.000	18.827	21.768

Table 7.Regression Output for Full Data Set with Moderator Variable

Hypothesis	Description	Result
H1	Membership level has a positive effect on review rating. Compared with customers with	Supported
	low membership level, customers with high membership level will post higher review	7
	rating.	
H2	Membership level has a negative effect on review depth. Customers with higher	Supported
	membership level will post lower review depth.	
Н3	Membership level has a negative effect on review promptness. Customers with higher	Supported
	membership level will post lower review promptness.	
H4	Product type moderates the effect of membership level on review rating. Compared	Supported
	with experience products, the positive effect of membership level on review rating for	•
	search products will be decreased, that is, review rating for search products will be less.	
Н5	Product type moderates the effect of membership level on review promptness.	Supported
	Compared with experience products, the negative effect of membership level on review	7
	promptness for search products will be decreased, that is, interval days from transaction	L
	of review for search products will be shorter.	
H6	Product type moderates the effect of membership level on review depth. Compared with	Supported
	experience products, the negative effect of membership level on review depth for search	L
	products will be decreased, that is review depth for search products will be deeper.	

Table 8.Summary of Findings

### 5 **DISCUSSION**

We obtain a number of interesting findings from this study as follows. When implementing membership level management in online shopping sites, membership level of reviewers affects their online review results. To be more accurate, the higher membership level is, the higher tendency to publish higher review rating scores but less review depth and review promptness. The product type has reverse moderation for these effects (search product type as reference datum) What's more, the correlation analysis in the study shows that, review rating has significant negative correction with review depth, which means that the more positive review rating, the less content of review and the more negative review rating, the more content of review. According to the findings of Sundaram e.t. (1998), our explanation is that, out of anxiety reduction and revenge motivation, a particular reviewer who posts more negative review tend to publish more content than positive review.

Like other studies, this research also has some limitations, such as:

• The effects of the characteristics of products and retailers are controlled in terms of the same products and retailers faced by reviewers, but we do not take the effects of reviewer's personality

traits, gender and other factors into account. Therefore, it leads to the consequence that interpretative indicators of R-squared is small;

- We do not parse the concept of the membership level but just take different membership levels as indicators to make a reasonable inference of reviewers' familiarity, shopping frequency and reciprocity with the shopping site, and then combine the social exchange theory to explain the corresponding review results;
- The sample is small. Although the number of review records is large (up to more than 40 thousands), we just collect 3 search products and 3 experience products separately, making statistics results have some limits;
- Lack of measurements for mental activity of reviewers. The study is established mainly in datadriven way, which combines the social exchange theory for interpretation but may have interpretation bias without measurements for mental activity of reviewers.

According to the above limitations, the following studies may consider the measurement of personality traits and gender of reviewers, parse the concept of membership level, increase the number of products and make questionnaire survey for some supplement.

# 6 CONCLUSION

Main theoretical contributions of this study are summarized as follows:

- Apply the social exchange theory to the online shopping environment, and test the effects of membership level on review results when B2C shopping sites implement incentives and membership level management for customers. The results show that the traditional theory of social exchange in online shopping environment still has a strong explanatory power. To a certain extent, this study expands the social exchange theory in the behavioral aspects of the interaction between the websites and consumers in B2C environment;
- Make up the research gap for previous literatures about the effects of shopping sites taking incentives and membership management strategies on publishing behavior of online review from a new research perspective. In addition, we test the effect of membership level on review promptness and fill the research gap for the influence factors of review promptness;
- Provide an interesting comparison with past research about the effects of online review on customer's purchasing decision and sales, and give some hints for future research. Reviewers with high membership levels tend to publish positive product reviews, which will improve the reputation of retailers; previous works show that positive reputation and WOM for retailers will promote purchasing intention of customers (Hong & Yang 2009; Park & Lee 2009). Reviewers with high membership levels will tend to publish less review depth, that is, making less effort; but past researches indicate that review depth affects review helpfulness perceived by other consumers (Mudambi & Schuff 2010).

In practice, shopping sites taking incentives and membership level management strategies may promote reviewers to post more positive online reviews, and then improve retailer reputation and sales, but review depth is decreased and usefulness of review perceived by consumers is also decreased (Mudambi & Schuff 2010). Therefore, we suggest that shopping sites should take actions for refining incentive strategies, encourage customers to post more depth and valuable product reviews, and support consumers' purchasing decision more effectively.

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