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# THE INFLUENCE OF EWOM AND EDITOR INFORMATION ON INFORMATION USEFULNESS IN VIRTUAL COMMUNITY

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## Abstract

*This study proposes that editor information strength and completeness, as well as electronic word-of-mouth (eWOM) strength, completeness and quantity have positive effects on the information readers' general perception of information usefulness in the virtual community; we further predict that sense of belonging can moderate these variables' effects on information usefulness. We collect 289 data from two famous third party review forums in China, the analytical results confirm 4 of the 5 main effect hypotheses, which indicate that both editor and eWOM information, if possessing certain attributes, can significantly affect information reader's perception of information usefulness. Furthermore, we confirm sense of belonging can significantly moderate 3 of the 5 independent variables' effects on information usefulness; it validates the significance to take information reader's sense of belonging into consideration during their information processing.*

*Keywords: Information Usefulness, eWOM Information, Editor Information, Sense of Belonging*

# 1 INTRODUCTION

With the popularity of electronic commerce, more and more people are willing to purchasing online, before making their final purchasing decision, most of them will try to collect review information about the product/service from various websites (Chau et al. 2007), previous research (Kim et al. 2008) believes online information can help readers get a better understanding about the product/service thus make a better purchasing decision. As online information takes an important role on people's cognition and decision making, thus, to investigate how the information readers evaluate the usefulness of the online information is a crucial and interesting research theme since it will determine to what extent the information readers accept the viewpoint of the information (Cheung et al. 2008; Cheung et al. 2012).

Although information readers can acquire information from various kinds of websites, previous researchers (Cheung et al. 2009; Lee et al. 2011) consider that the third party review forums are the most popular information platforms; compared with other kinds of websites (such as online stores), third party review forums have less commercial relationship with the discussed product/service thus information readers may consider they can get unbiased information. In these forums, information readers can get two kinds of information toward the product/service they concerned, the first kind is the review information composed by other forum members, previous studies often name such kind of information as electronic word-of-mouth (eWOM) (Hennig- Thurau et al. 2004), and the other kind of information is the review comment provided by the forum administrators or editors, hereafter we name this information as editor information in this study.

Actually, various previous studies (Cheung et al. 2008; Jin et al. 2009) have been conducted to explore the antecedent factors of information usefulness in third party review forums, however, most of them only focus on eWOM information and neglect the editor information, we consider it is insufficient since the editor information in these forums may also significantly affect the information readers' cognition. Thus, we believe to investigate both the eWOM and editor information's effect will help us get a better understanding on the information readers' general perception of information usefulness in these forums. Thus, the first research question of this study is:

*How the eWOM and editor information can affect information readers' perception of information usefulness in third party review forums?*

Actually, third party review forums can be regarded as virtual communities since they provide virtual platforms for information communications and social interactions among the members (Lin 2008), prior studies (Teo et al. 2003; Zhao et al. 2012) indicate, with the information readers frequently visiting some review forums, they will perceive an emotional attachment to these forums, researchers of name as sense of belonging (or sense of membership). Some more studies (McMillan et al. 1986; Ridings et al. 2002) consider that information readers' sense of belonging can significantly affect their cognitive styles in these forums; thus, it is reasonable for us to predict, the information readers' sense of belonging may moderate eWOM and editor information's effect on their perception of information usefulness, and different information readers may utilize different attributes associated with the eWOM and editor information to evaluate the usefulness of the information acquired from the third party review forums. Thus, the second research question of this study is:

*How the information readers' senses of belonging moderate the eWOM and editor information's effect on their perception of information usefulness?*

The rest of this paper is organized as follows, section 2 introduces the literature review about information usefulness and sense of belonging, section 3 proposes our research model and hypotheses, section 4 and 5 presents the methodology and research finding, and the final section discusses the theoretical and practical implications.

## **2 LITERATURE REVIEW**

### **2.1 Information Usefulness**

The construct “perceived usefulness” was introduced by technology acceptance model (TAM) (Davis 1989), it indicates that how individuals perceive utilizing a new technology can improve their performances. Sussman and Siegal (2003) believe that this construct can be applied to information communication context, namely, information usefulness. Information usefulness is defined as the extent to which the readers perceive the received information as valuable thus can help them make a better purchasing decision (Cheung et al. 2008; Sussman et al. 2003), it is the crucial determinant of information adoption.

As information usefulness plays a crucial role during the information readers’ information processing, lots of studies have been conducted to investigate its antecedent factors; for instance, based upon elaboration likelihood model, Sussman and Siegal (2003) confirm that information quality and source credibility can significantly affect the readers’ perception of information usefulness toward a particular e-mail message; this finding is also been approved by some subsequent research (Zhang et al. 2008) which is conducted to explore the effect of a piece of eWOM information in online communities. Further studies (Luo et al. 2013; Yang et al. 2005) consider that the construct “information quality” may contain various components which may exert different impacts on information readers’ cognition, they indicate that information’s argument strength and completeness are the two most important sub-dimensions of information quality and have confirmed that these two sub-dimensions do have different effects on information readers’ evaluation toward the discussed target.

### **2.2 Sense of Belonging**

With various Internet users frequently visiting some websites and communicating with other persons on these websites, these websites gradually evolve to virtual communities (Koh et al. 2003-4), virtual community (Lechner et al. 2002) is a new form of social entity in which community members share and seek required information for mutual learning and problem solving on Internet. Previous research (Zhao et al. 2012) indicates that the Internet users who often participate in the virtual communities will gradually perceive an emotional attachment, researchers often name it as sense of belonging, under the online environment, sense of belonging is a crucial determinant of the success of virtual communities (Roberts 1998) since it can enhance the members’ loyalty to the communities (Lin 2008).

Prior studies (McMillan et al. 1986; Ridings et al. 2002) believe that sense of belonging can affect individual’s cognitive style toward the information and other persons in the community, to be more specifically, they consider that individuals who hold a strong sense of belonging will incline to give more credit to the virtual community thus will be more willing to believe the information provided by the virtual community, they are also more likely to trust other community members in the communities since they think other members are “in the group” thus will not deliberately cheat them (Ehrlich et al. 1971). Whereas, those individuals who seldom visit a virtual community, thus possess a weak sense of belonging will be more likely hold a skeptical attitude toward the information and other persons in the community.

## **3 RESEARCH MODEL AND HYPOTHESES**

Based upon previous research, this study plans to investigate how the attributes of eWOM and editor information can affect information readers’ perception of information usefulness in a virtual community; as different information readers may hold different level of sense of belonging to the virtual community, we will further explore its moderating effects between the causal relationship

between the attributes of eWOM/editor information and the perception of information usefulness. The research model is shown in figure 1.

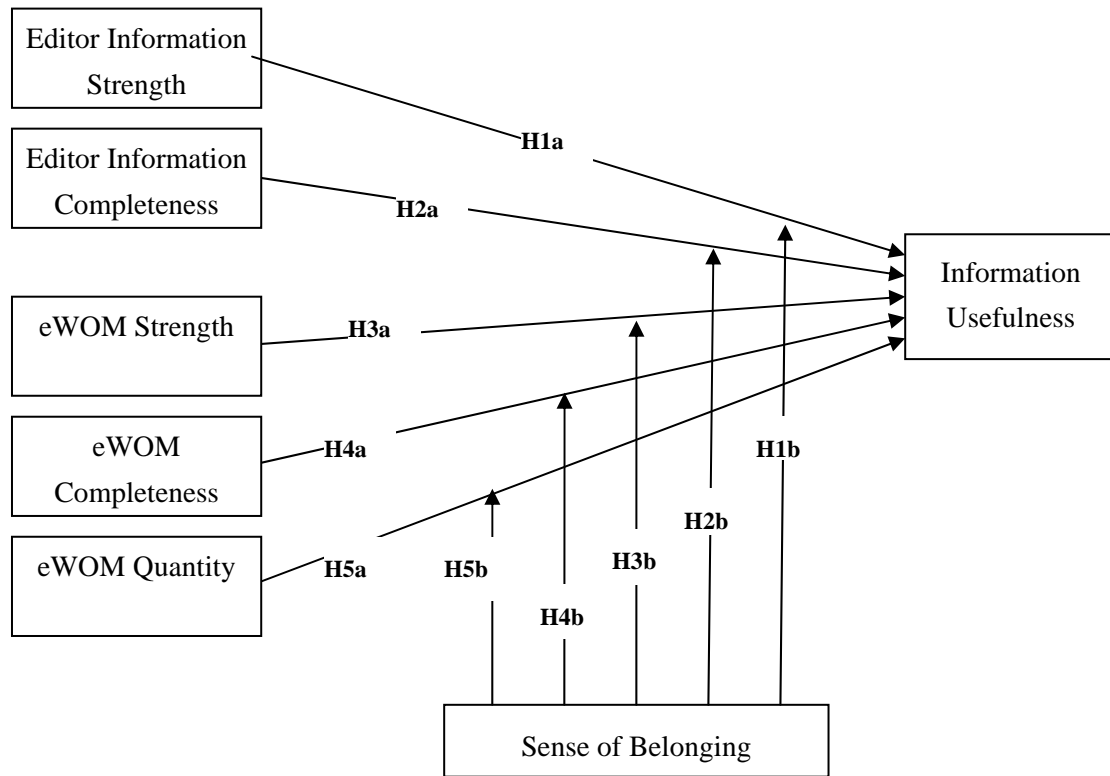


Figure 1. Research Frameworks

In addition, we want to clarify that our research object is totally different from previous eWOM research which often focus on investigating a piece of information (e.g., Cheung et al. 2008; Zhang et al. 2008), instead, we focus on exploring the information readers' general information usefulness perception toward a product/service they concerned in a third party review forum, thus, it includes all the eWOM (which may contains lots of reviews composed by various virtual community members) and editor information which is related to the target product/service.

### 3.1 The eWOM and editor information's effect on information usefulness

Previous research (Sussman et al. 2003; Zhang et al. 2008) has consistently confirmed that information quality can be one of the most important factors to affect information readers' perception of information usefulness, in this study, we also predict, the information quality of both eWOM and editor information also can significantly affect the general information usefulness perception in a virtual community. Subsequent studies (Luo et al. 2013; Yang et al. 2005) indicate that information quality contains two sub-dimensions: argument strength and completeness, they describe that high information argument strength indicates the argumentations of the information are reasonable and convincing, and information completeness indicates the information contains a wide range of aspects thus can provide comprehensive information to the readers. Following this viewpoint, we partition information quality into two components, argument strength and completeness, and we consider both of them can have significant effects on information reader's perception of information usefulness; we then propose corresponding hypotheses as follows:

*H1a. Editor information strength has a positive effect on information readers' perception of information usefulness.*

*H2a. Editor information completeness has a positive effect on information readers' perception of information usefulness.*

*H3a. eWOM information strength has a positive effect on information readers' perception of information usefulness.*

*H4a. eWOM information completeness has a positive effect on information readers' perception of information usefulness.*

We will not propose the hypothesis about the relationship between source credibility and information usefulness in this study, because the research object of this study is dissimilar with previous studies (i.e., one piece of information). To be more specifically, in this study, we want to explore the effect of a review group (discussing the same product/service), as well as the effect of forum editors' comments on readers' information usefulness perception, thus, we consider the information readers have no idea about the source credibility toward the information since the information is provided by lots of composers (including other forum members as well as forum editors).

Whereas, we propose that the quantity of the reviews will affect reader's perception of information usefulness. This is because herd theory (Banerjee 1992) indicates that many information readers will have a mass-following psychology (Cialdini et al. 2004), thus, it is reasonable to speculate that information readers will incline to believe the viewpoints held by lots of other persons, if a large number of people have given their evaluations and comments toward a certain product/service, the information readers will perceive more certain and have less uncomfortable feeling, this will help them rationalize their purchasing decision (Park et al. 2007). Besides, Lu et al. (2013) find that the quantity of the reviews can enhance the sales volume of the product/service, this finding also indicates that the information readers are more willing to adopt the viewpoint held by numerous persons. For these reasons, we predict, the number of the reviews will significantly affect information readers' information usefulness perception.

*H5a. eWOM information quantity has a positive effect on information readers' perception of information usefulness.*

### **3.2 The moderating effect of sense of belonging**

In a virtual community, the members who frequently participate in the community and communicate with other members will definitely hold a strong sense of belonging and other visitors who seldom, or the first time participate in the community will perceive a weak sense of belonging to it (Lin 2008; Yoo et al. 2002). Previous studies (Hagerty et al. 1992; McMillan et al. 1986; Ridings et al. 2002) think that sense of belonging will change individuals' cognitive and behavioral responses, and persons with different level of sense of belonging will utilize different criteria and cues to evaluate other persons and things in a community. These previous studies motivate us to postulate, in a third party review forum, the information readers' sense of belonging will affect the impact styles of the eWOM/editor information on their attitudes, thus we consider it serves as a moderator on the relationships between various eWOM/editor information attributes and information usefulness.

For editor information, we predict the positive effects of argument strength and completeness on the information readers' perception of usefulness will be attenuated with the enhance of their sense of belonging; as previous researchers (Teo et al. 2003) indicate, community members who feel they belong to the virtual community (i.e., the third party review forums) will perceive less uncertainty in it, they will give more credit to the community and the information provided by the community (Zhao et al. 2012). As the editor information is published by the forum administrators and editors, thus, information readers will consider the viewpoints of the information is authorized by the forum, since they believe that the forum will not deliberately cheat them (Lin 2008), therefore, they will be more willing to accept the information, even if the information only contains weak argumentations or its content is insufficient. For these reasons, we conjecture that information readers will treat the editor information more equal regardless of its argument strength and completeness, thus these two factors' effect on their perception of information usefulness will be weakened.

However, for other information readers who perceive a low sense of belonging, they have no strong emotional attachment to the forum thus will be more suspicious in it, therefore, they may not hastily accept the information provided by the forum without their own cognitions and evaluations on the information content, thus, we consider the editor information's argument strength and completeness will determine their perception of information usefulness.

*H1b. The higher sense of belonging the information readers have, the less the editor information strength affects their perception of information usefulness.*

*H2b. The higher sense of belonging the information readers have, the less the editor information completeness affects their perception of information usefulness.*

For eWOM information, we also consider the argument strength and completeness's effects on information readers' information usefulness perception will be weakened with the raise of their sense of belonging. The reason is similar to the editor information, as previous research (McMillan et al. 1986) find that information readers' with high sense of belonging to a community will consider that other members will act in accordance with the norms and rules in the community, thus they will incline to give more trust to other members and think the information provided by them is useful and beneficial, regardless of the information argument strength and completeness. Furthermore, we predict, information readers with high sense of belonging will also believe the eWOM information even if only a few members have given their evaluations and recommendations toward a certain product/service. In general, we propose the following hypotheses:

*H3b. The higher sense of belonging the information readers have, the less the eWOM strength affects their perception of information usefulness.*

*H4b. The higher sense of belonging the information readers have, the less the eWOM completeness affects their perception of information usefulness.*

*H5b. The higher sense of belonging the information readers have, the less the eWOM quantity affects their perception of information usefulness.*

## **4 METHODOLOGY**

### **4.1 Online survey**

The research model was tested using the field data collected from two famous third party review forums in China ([www.pconline.com.cn](http://www.pconline.com.cn), and [www.dianping.com](http://www.dianping.com)), the reasons to choose these two forums are: first, they are the most popular third party review forums in China thus can be the proper representatives of Chinese review forums, they have a large number of members which can ensure us to collect various kinds of information readers (e.g., with strong or weak sense of belonging); and second, these two forums' discussing targets are different, the first one contains review information about electronic products and the second one focuses on discussing various kinds of services in daily life, we believe to collect data from various kinds of review forums will enhance the generalizability of this research.

We randomly selected the members from the two forums, thus the members who have registered for more than 3 years, or just registered a few days ago were all included in our sample candidate pool. We invited these forum members through various communication cues on Internet, once they promised to participate, we first required them to read the eWOM and editor information related to a product/service on the forum, then to fill in the question items based on their real perception. We also required them to provide the hyperlink of the webpage to us, which facilitated us to trace more information about the product/service they concerned. There are three parts in our questionnaire. The first part introduces our research purpose, the second part includes all the constructs items, all of them are adopted from previous studies and are reflective indicators with a Likert-type 7-point (except eWOM quantity), please refer to appendix A to get more detail information. We have traced all the

product/service hyperlinks and thus we utilize the real number of review information (eWOM quantity) on the web pages in this study. The third part includes the demographic questions.

## 4.2 Sample demographics

The data collection work lasted around two month, finally we get 289 samples, 139 of them are from www.pconline.com.cn and the rest 150 are from www.dianping.com. These samples are from more than 10 provinces in China, 147 of them are male and other 142 are female; their age distribution is : 41.5% of them are below 20; 29.1% of them are 21-25, 12.8% of them are 26-30; and 16.6% of them are above 30; there occupations include student, manager, clerk, and so forth.

# 5 RESULTS

## 5.1 Measurement model

First we test the convergent validity of the constructs, commonly, item loading, composite reliability, Cronbach's alpha and average variance extracted (AVE) for each construct are utilized to assess the convergent validity (Fornell et al. 1981). As shown in table 1, the composite reliability values of all constructs are larger than 0.9, the AVEs are above 0.7, the values of Cronbach's alpha are larger than 0.8, and all the item loadings are above 0.8; all are much higher than their corresponding thresholds, this confirms the high convergent validity of our constructs. Then, we test the discriminant validity of the constructs; table 2 shows the square roots of the AVE of all constructs are much larger than the cross-correlations, which approve the sufficient discriminant validity of our research model.

Construct	Composite Reliability	Average Variance Extracted	Cronbach's Alpha	Item	Item Loading
Editor Information Strength (EDIS)	0.943	0.845	0.908	EDIS1	0.909
				EDIS2	0.932
				EDIS3	0.917
Editor Information Completeness (EDIC)	0.944	0.849	0.909	EDIC1	0.933
				EDIC2	0.946
				EDIC3	0.885
eWOM Strength (EWS)	0.935	0.828	0.896	EWS1	0.900
				EWS2	0.924
				EWS3	0.907
eWOM Completeness (EWC)	0.906	0.763	0.844	EWC1	0.899
				EWC2	0.897
				EWC3	0.823
eWOM Quantity (EWQ)	N.A	N.A	N.A	EWQ1	N.A
Sense of Belonging (SOB)	0.944	0.809	0.922	SOB1	0.905
				SOB2	0.920
				SOB3	0.901
				SOB4	0.872
Information Usefulness (INU)	0.960	0.857	0.944	INU1	0.934
				INU2	0.933



				INU3	0.911
				INU4	0.922

Table 1. Convergent validity of constructs

	EDIS	EDIC	EWS	EWC	SOB	INU
EDIS	0.919					
EDIC	0.635	0.921				
EWS	0.662	0.579	0.910			
EWC	0.565	0.525	0.617	0.873		
SOB	0.449	0.358	0.348	0.371	0.899	
INU	0.563	0.565	0.546	0.500	0.340	0.926

Table 2. Square root of AVE and cross-correlations

## 5.2 Structural Model

With all data standardized, we utilize SPSS to test our hypotheses. First, linear regression is adopted to test the 5 main effects, the result indicates the full model is significant with  $F=40.650$ ,  $P<0.01$ , and the  $R^2$  is 41.8%. Table 3 shows the path coefficient and t values of H1a-H5a, we confirm 4 of the 5 hypotheses, to be more specifically, we find editor information strength and completeness, as well as eWOM strength and quantity have positive effects on the information readers' general perception of information usefulness in a third party review forum, thus H1a, H2a, H3a and H5a are supported; however, eWOM completeness cannot significantly affect the information usefulness perception, thus, H4a is not supported.

	Path	Path coefficient	T value
H1a	EDIS->INU	0.179**	2.408
H2a	EDIC->INU	0.236**	3.418
H3a	EWS->INU	0.173**	2.361
H4a	EWC->INU	0.099	1.475
H5a	EWQ->INU	0.112*	2.196

Table 3. Main Effects Model Note: \* $p<0.05$ , \*\* $p<0.01$

Then we utilize moderated multiple-regression model (Cohen et al. 1983) to test the remaining five hypotheses which predict that sense of belonging will moderate the relationships between the independent variables and information usefulness. The result of the test confirms the significance of the full moderating model, the  $\Delta F=3.721$ ,  $P<0.01$ , and the  $\Delta R^2$  is 4.0%. As shown in table 4, we find 3 of the 5 hypotheses are significant in this model; sense of belonging can significantly and positively moderate editor information strength's effect on information usefulness perception, thus, H1b is not supported since the direction of the moderating effect is opposite to our hypotheses; sense of belonging can significantly and negatively moderate eWOM strength and quantity's effects on information usefulness perception, thus H3b and H5b are supported; however, the result indicates sense of belonging has no moderating effect on the causal relationship between editor information completeness/eWOM completeness and perception of information usefulness, thus, H2b and H4b are not supported.

	Path	Path coefficient	T value
H1b	EDIS×SOB->INU	0.189 <sup>*</sup>	2.237
H2b	EDIC×SOB ->INU	0.046	0.610
H3b	EWS×SOB ->INU	-0.239 <sup>**</sup>	-2.959
H4b	EWC×SOB ->INU	0.075	1.063
H5b	EWQ×SOB ->INU	-0.114 <sup>*</sup>	-2.262

Table 4. Moderating Effects Model Note: <sup>\*</sup> $p < 0.05$ , <sup>\*\*</sup> $p < 0.01$

The statistic results of all the hypotheses are shown in figure 2.

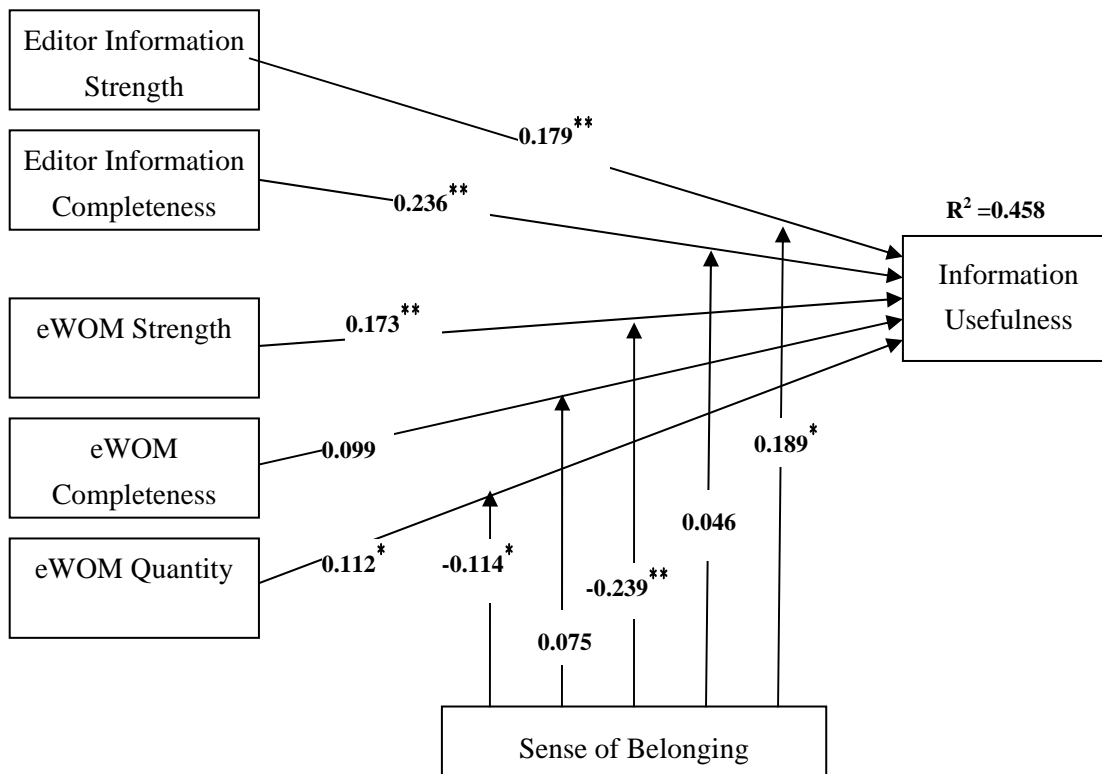


Figure 2. Results of the Research Model

## 6 DISCUSSION, IMPLICATION AND CONCLUSION

With comprehensive literature review, we find that most previous research (e.g., Cheung et al. 2009; Lu et al. 2013; Luo et al. 2013) only focuses on investigating eWOM information's effect on information readers' cognitions, we consider this method is insufficient since eWOM information is not the sole element to affect their evaluation toward the product/service they concerned. This study extends the research object by incorporating editor information into the research model; we explore the effects of both editor and eWOM information on information readers' perception of information usefulness in virtual communities.

The statistic result shows that the argument strength and completeness of the editor information, as well as the argument strength and quantity of the eWOM information can significantly affect information reader's information usefulness perception, this finding confirms the validity of our extended model, it indicates that information readers will utilize both editor and eWOM information to evaluate the product/service they concerned in a virtual community, thus both kinds of information

can take significant role during their information processing. Besides, we find that eWOM completeness cannot significantly affect information reader's information usefulness perception, this finding is interesting, it indicates that information readers will not utilize this attribute to evaluate the eWOM information, it also hints that information readers utilize different cognitive modes to process editor and eWOM information: for editor information, readers may consider the information composers should be the expert of the discussed target, thus, they should provide persuasive and comprehensive review information; however, for the eWOM information, which is composed by other virtual community members, information readers will not be so critical to evaluate the reviews, even if the information does not contain comprehensive comments toward the product/service, they may still incline to adopt it.

We further investigate sense of belonging's moderating effects on the relationships between the five independent variables and perception of information usefulness. We find that with the raising of sense of belonging, editor information strength's effect on information readers' perception of information usefulness will be enhanced, this contradicts with our hypotheses H1b, however, eWOM information strength and quantity's effects will be attenuated, they are consistent with our H3b and H3c. These findings imply that different information readers' cognitive modes toward the two kinds of information are distinct in virtual communities. For the information readers who have strong sense of belonging to the virtual community, regardless the eWOM reviews contain strong or weak argumentations, and no matter the quantity of eWOM reviews, they have the same effect on perception of information usefulness; it means that these information readers will take a tolerant attitude to evaluate the eWOM reviews, even if these reviews are not so persuasive, and even if they are just composed by a few members; however, they may be more critical to evaluate the usefulness of the editor information, thus only persuasive editor information can significant affect their cognitions, it hints that they may not give enough trust to the virtual community editors even if they feel a strong emotional attachment to the community. In contrast, for the information readers with a weak sense of belonging, they may not give absolute credit to other members, thus, they will only consider the eWOM information with persuasive argumentations to be useful, they will dismiss the eWOM information if the number of the reviewers is limited; furthermore, they will be reluctant to accept the editor information even if it contains strong argumentations.

This research makes some practical implications to the administrators and editors of the third party review forums and the companies who have adopted e-marketing strategies in these forums; we suggest the practitioners pay more attention to the management work for both editor and eWOM information. First, they should provide review information which contains persuasive argumentations and contains comprehensive description about the product/service to the information readers, since we confirm that editor information can significantly affect information readers' attitude toward the product/service. Second, although practitioners cannot distort the content of the eWOM information, they can redesign the exhibition systems, for instance, they may recommend the persuasive eWOM information with a large number of reviews in a prominent location on their web pages, and this will help information readers to acquire instructive information more conveniently. Third, practitioners should design customized information exhibition systems so as to recommend different eWOM and editor information to different information readers according to their sense of belonging in the virtual community; to be more specifically, they need to recommend editor information with convincing argument strength to the information readers who have high sense of belonging, and eWOM information with any attributes can also be provided to these readers; for the information readers with low sense of belonging, persuasive eWOM information recommended by a large number of virtual community members need to be recommend to them preferentially.

Finally, we acknowledge some limitations of this study. First, we only collect data from two famous third party review forums in China, although these two forums are recognized to be the most popular review virtual communities, we cannot ensure that the findings of this research can be generalized to other virtual communities which are dissimilar with these two forums. Second, the samples of this study are all Chinese people; thus, the finding may not be applicable to other countries with different cultures.

## 7 ACKNOWLEDGEMENT

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## Appendix A. Constructs Items

EDIS	Item1	The editor information's arguments are convincing	Adapted from (Cheung et al. 2009)
	Item2	The editor information's arguments are strong	
	Item3	The editor information's arguments are persuasive	
EDIC	Item1	The editor information is sufficient	Adapted from (Luo et al. 2013)
	Item2	The editor information is comprehensive	
	Item3	The editor information provides complete descriptions	
EWS	Item1	The eWOM arguments are convincing	Adapted from (Cheung et al. 2009)
	Item2	The eWOM arguments are strong	
	Item3	The eWOM arguments are persuasive	
EWC	Item1	The eWOM is sufficient	Adapted from (Luo et al. 2013)
	Item2	The eWOM is comprehensive	
	Item3	The eWOM provides complete descriptions	
SOB	Item1	I feel as if I belong to the forum	Adapted from (Koh et al. 2003-4)
	Item2	I feel membership in the forum	
	Item3	I feel as if the forum members are my close friends	
	Item4	I like the forum members	
INU	Item1	In general, I think the information in this forum is valuable	Adapted from (Sussman et al. 2003)
	Item2	In general, I think the information in this forum is informative	
	Item3	In general, I think the information in this forum is helpful	
	Item4	In general, I think the information in this forum is instructive	