The Positive Effects of Negative e-WOM

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Abstract

This paper investigate how e-WOM effects vary with the levels of expertise, types of reviews, and types of products, when the ratios of positive to negative messages of electronic word-of-mouth (e-WOM) are 10:0, 8:2, and 6:4 in turn. E-WOM effects are defined as the component of attitude toward the web site, credibility of the messages, attitude toward the product, and purchase intention. The hypothesis were tested using a 2 (expert or novices) × 2 (attribute-centric or benefit-centric) × 2 (hedonic or utilitarian) between-subjects experiment. As a result of the ANOVA, the effects of e-WOM on attitude toward the product were stronger when the ratio of positive to negative messages is 8:2 than 10:0 and 6:4 in two case experts reading attribute-centric reviews and e-WOM on hedonic products. These findings can be a research step to uncover the conditions under which negative e-WOM positively affects consumer behavior.

Keywords: Negative electronic word-of –mouth; Experts; Attribute-centric reviews; Hedonic products

1.Introduction

Word-of-mouth (WOM) is defined as a form of person-to-person communication between a receiver and a communicator whom the receiver perceives as non-commercial, concerning a brand, a product, or service for sale (Arndt, 1967). With the advent of the Internet, a less personal but more ubiquitous form of WOM, viz. electronic word-of-mouth (e-WOM) consumer reviews, has come into vogue (Bickart and Schindler, 2001; Chen, Fay, and Wang, 2002; Godes and Mayzlin, 2004; Henning-Thurau et al., 2004). The expansion of consumer generated media such as blog and social-networking-service (SNS) makes more people post their views on different Web sites. The effects of e-WOM cannot be neglected at the formation of consumer behavior. Rather, it is meaningful for business to comprehend the function of e-WOM.

Previous research has shown that positive e-WOM has positive effects, while negative e-WOM has negative effects on consumer behavior. (Herr, Kardes, and Kim, 1991; File and Prince, 1992; Russell N. Laczniak, Thomas E. DeCarlo, and Sridhar N. Ramaswami, 2001; Marsha L. Richins, 1983; Xueming Luo, 2009). Additionally, in comparison of positive and negative WOM, people tended to weight negative information more than positive information during evaluation (Marc, C. Weinberger, and William, R. Dillon, 1980; Herr, Kardes, and Kim, 1991; Rohini Ahluwalia and Baba Shiv, 1997). These studies, however, assume that consumers form their attitudes through referring to either positive or negative WOM, including the difficulty of not reflecting the fact that consumers refer to both positive and negative WOM.

Thus, we investigate that negative WOM has a positive effects on consumer behavior under condition that con-

sumers refer to both positive and negative WOM simultaneously. Also, we present a clear picture of how the effects of negative WOM vary with levels of expertise (experts vs. novices), types of reviews (attribute-centric vs. benefit-centric reviews), and types of products (hedonic vs. utilitarian products), when the ratios of positive to negative messages are 10:0, 8:2, and 6:4 in turn.

2.Theoretical Background and Hypotheses

2.1.The reverse function of negative WOM

Previous researches showed that positive WOM has positive influence on consumer behavior and negative WOM has negative one. However, there is one research which revealed the positive effect of negative WOM. Doh and Hwang (2009) showed how e-WOM effect, which consisted of attitude toward the product, purchase intention, attitude toward the Web site, credibility of e-WOM message changes, if the ratio of positive to negative message is 10:0, 9:1, 8:2, 7:3, and 6:4. As a result, although attitude toward the product and purchase intention showed the highest score when the ratio of positive to negative message was 10:0, attitude toward the Web site showed the highest score when 9:1 and credibility of e-WOM message when 8:2. In addition, involvement and prior knowledge partially altered the relationship between the ratio of messages and the e-WOM effect. Therefore, the existence of certain negative WOM is contributed to enhancing attitude toward the Web site and credibility of e-WOM message.

2.2.The influential factor of information usefulness

Cheung, Lee, and Rabjohn (2008) examined the extent to which consumers' acceptance and adoption of e-WOM messages, and revealed which factors affect their information adoption. Also, in this study, comprehensiveness was regarded as the existence of various e-WOM messages including more detailed information on the websites. They supposed that the adoption of e-WOM as information was relevant to information usefulness, relevance, timeliness, accuracy, comprehensiveness, source expertise, and source trustworthiness. As a result, using Partial Least Squares, they found that information relevance and information comprehensiveness which were components of argument quality were the most effective factors for affecting information usefulness and information adoption. As mentioned, information comprehensiveness means including different types of e-WOM messages on the websites. Therefore, we consider the presence of both positive and negative e-WOM has more comprehensive than that of only either positive or negative. Thus, when there are both positive and negative e-WOM messages on the Web site, people can perceive more useful information.

Source credibility which is consisted of source expertise and source trustworthiness was not significant towards the influence of information usefulness. This is because people could not identify who posted the message due to anonymity of e-WOM. Accordingly, our study is conducted without considering the source attribute in investigating the impact of online review on consumers' attitude formation.

2.3.The levels of expertise and the types of reviews

Doh and Hwang (2009) revealed that it is not true in all situations that the negative WOM has negative influence on consumer behavior. Park and Kim (2008) focused on consumers and review characteristics and inquired how the level of expertise and the types of reviews influence the effect of e-WOM on consumer behavior. The levels of expertise involve the motivation and the ability to process detailed information: Experts have both, while novices have either or nothing. Reviews are categorized into two types: attribute-centric reviews, which refer to the attributes of the products, and benefit-centric reviews, which in turn refer to concrete benefits the attributes bring. In this research, they used the cognitive fit theory and elaboration likelihood model (ELM).

Cognitive fit theory is proposed by Vassey and Gallets(1986). Cognitive fit theory indicates that individuals' information processing would be more efficient and effective when they are able to use appropriate cognitive

processes from given information. Experts examine the product information based on their prior experience and knowledge and infer product benefit by themselves, processing information through the central route. The reviews framed as attribute-centric are appropriate for experts. On the other hand, novices cannot infer product benefits by themselves from attribute information. They are likely to process literally expressed benefit information which are interpreted and reproduced to be easily understandable. Therefore, reviews framed as benefit-centric are fit for novices (Walker, Celsi, and Olson, 1987).

Elaboration likelihood model (ELM) is proposed by Petty and Cacioppo(1986). According to ELM, a message is transmitted and received through one of two routes of persuasion depending on the elaboration continuum: the central route and the peripheral route. If consumers are lack of either the motivation or the ability to process detailed information, they form their attitude through the peripheral route. However, if consumers have high motivation and the ability, they form their attitude through the central route.

Park and Kim (2008), using these cognitive fit theory and ELM, considered two components of review structure: the type and the number of reviews. The results showed that the effect of cognitive fit (type of reviews) on purchase intention was stronger for experts than for novices while the effect of the number of reviews on purchase intention was stronger for novices than for experts. This study has revealed the level of expertise have an effect of forming consumers' attitude in reading the e-WOM messages. Furthermore, they focused on the types of reviews. They investigated how attribute-centric review and benefit-centric review influence experts and novice. As a result, attribute-centric review had a stronger effect on experts than benefit-centric review did, while benefit-centric review had a stronger effect on novice than attribute-centric review did.

2.4.The relationship between the e-WOM effect and the levels of expertise / the types of reviews

The e-WOM effect of this study is composed of 4 factors; "attitude toward the product", "purchase intention", "attitude toward the Web site", "credibility of e-WOM message", following Doh and Hwang (2009). Also, in this research, which focus on the e-WOM, the involvement of consumer is already given, therefore, we divide consumers into two groups; expertise and novice according to the extent of their ability.

According to Doh and Hwang(2009), the e-WOM effect consists of purchase intention, attitude toward product, attitude toward website, and credibility of WOM. In this study concerning e-WOM, using ELM, we separate experts who are consumers with a high level of expertise from novice who are consumers with low expertise based on their ability when we assume all of them have motivation.

Using cognitive fit theory, for consumers with high expertise, reviews framed as attribute-centric have a better fit than reviews framed as benefit-centric (Park and Kim, 2008).Therefore, firstly, we consider the case where consumers with high expertise read reviews framed as attribute-centric, which is valid in the respect that the effect of WOM derives from the interaction between receivers and messages on the website.

Similarly, Sussman and Siegal(2003) suggested that consumers with low expertise more weighted source credibility than argument quality, while consumers with high expertise more weighted argument quality than source credibility. According to Cheung et al.(2008), information comprehensiveness containing both positive and negative sides had the strongest impact on information usefulness in all components of argument quality. Comprehensiveness is important for those consumers who can perceive information precisely with high expertise through central route. For consumers with high expertise, the reviews framed as attribute-centric including some negative WOM has stronger impacts on their attitude formation than the reviews excluding negative WOM. Thus, we propose the hypothesis 1 as follows.

H1: In the case where experts read attribute-centric reviews, the e-WOM effects are stronger when there is some negative e-WOM than none of it.

Also, we examine how the e-WOM effect will change when the consumers with high expertise read the reviews framed as benefit-centric. This research question is as follows:

RQ1: In the case where experts read benefit-centric reviews, which the e-WOM effects are stronger when there is a certain negative e-WOM or when there is none of it?

For consumers with low expertise, reviews framed as benefit-centric had a better fit than reviews framed as attribute-centric (Park and Kim, 2008). Therefore, we assume the case where consumers with low expertise read the reviews framed as benefit-centric. Consumers with low expertise lack the ability to understand and assess a product from attribute-centric product information, so they prefer the reviews framed as benefit-centric. Even though they do not understand the reviews framed as attribute-centric well, they will try to gain a signal implying whether the reviews are positive and negative. Then, they perceive the only positive reviews as useful (Park and Kim, 2008). When consumers with low expertise read the reviews framed as benefit-centric, they try to know how many positive factors are included in the reviews. After that, they interpret the only positive reviews as useful. For consumers with low expertise, reviews excluding negative WOM have a stronger impact on their attitude formation than those included. Thus, we propose the hypothesis 2 as follows.

H2: In the case where novices read benefit-centric reviews, the e-WOM effects are weaker when there is a certain negative e-WOM than none of it.

We examine how the effect of WOM will change when the consumers with low expertise read the reviews framed as attribute-centric. This research question is as follows:

RQ2: In the case where novices read attribute-centric reviews, which the e-WOM effects are stronger when there is a certain negative e-WOM than when none of it.

2.5.The relationship between the e-WOM effect and the types of products

On the other hand, there is one research which examined the role of the types of products when consumers referred to e-WOM messages. Sen and Lerman (2007) investigated the existence of negative effect of e-WOM consumer reviews for hedonic versus utilitarian products on the basis of affect-confirmation hypothesis. Hedonic products are defined as the products the consumption of which is primarily characterized by an affective and sensory experience of aesthetic or sensual pleasure, fantasy, and fun (Hirschman and Holbrook, 1982). In contrast, utilitarian products are defined as the products whose utility is measured as a function of the product's tangible attributes (Drolet, Simonson, and Tversky, 2000). In this study, they found that, compared with the utilitarian case, readers of negative hedonic product reviews were more likely to attribute the negative opinion expressed, to the reviewer's internal (or non-product related) reasons; and therefore were less likely to find the negative reviews useful. However, in the utilitarian case, readers were more likely to attribute negative opinions to external (or product related) motivation, and therefore found negative reviews more useful than positive reviews on average. These results have shown that the types of products determine how e-WOM messages affect consumer behavior. Thus, we take types of products into consideration in this research, where we examine the positive effect of negative e-WOM on consumer behavior.

The affect-confirmation hypothesis offers an explanation of the differences in consumer behavior for hedonic versus utilitarian products (Adaval, 2001). Persons who found that subjects who base their product judgment on hedonic criteria give greater weight to attribute information when the information is evaluatively consistent with their mood than when it is inconsistent with their mood. This should not be the case, however, when reading a review for a utilitarian product, as research suggested that affect had little effect on evaluations based on utilitarian criteria (Adaval, 2001; Pham, 1998).

Consumers may be in a positive mood when they read some reviews about hedonic products, because they

would like to selecting a product that may makes them good feeling. As a result of influence of confirmation process, they should reduce the negative information which they find in the hedonic product review as it is irregular with their present or joined mood. Moreover, the evaluation of hedonic products is linked to expectations regarding the likely achievement of a certain value. Whereas the desire to gain a certain high value may be shared by many consumers, the path via which to gain such a value will likely vary from person to person. In other words, the evaluation of a hedonic product by an unidentified reviewer will likely be perceived more much unusable than a negative review for a utilitarian product. Thus, in case of hedonic products, negative e-WOM messages do not have a negative effect on consumers' forming their behavior and we propose the hypothesis 3 as follows.

H3: In case of e-WOM on hedonic products, there is no significance difference of the e-WOM effect about comparison when there is a certain negative e-WOM with none of it.

On the other hand, in the case of the utilitarian products, consumers are primarily concerned with the immediate consequence of consumption (Batra and Ahtola, 2001; More and Rose, 2004). Negative experiences with tangible attributes can directly impact the utility that consumer will likely derive from the product. Because the goal of utilitarian consumption is to maximize utility, such negativity will likely be weighted rather heavily when evaluating a utilitarian product and we propose the hypothesis 4 as follows.

H4: In the case of e-WOM on utilitarian products, the e-WOM effect is weaker when there is a certain negative e-WOM than none of it.

3.Research Method and Design

ANOVA was used to analyze the hypotheses. As a beginning, we selected products which are used in this experiment as a preparatory experiment. A preparatory experiment was conducted in order to select products class whose the ratio of the level of expertise of the subjects was practically equal. We experimented about personal computer, portable media player, and digital camera as utilitarian products and movie, game soft, and comic as hedonic products. Question about each construct were implemented on a seven-point Likert scale with 1=strongly disagree and 7=strongly agree. We classified subjects whose score were under 32 point as novice and whose score were above 33 point as expertise. As a result, the ratio of the level of expertise of portable media player, digital camera, movie, and comic was practically equal. We made virtual e-WOM site about movie, comic, digital camera, and portable media player. Each type of products had both attribute-centric reviews and benefit-centric reviews. The ratios of positive to negative messages of this site were 10:0, 8:2, and 6:4 in turn. Question about each construct were implemented on a seven-point Likert scale with 1=strongly disagree and 7=strongly agree. For the manipulation of the ratio of positive reviews and negative reviews, a statistical significant difference of the results of products whose ratio of positive reviews and negative reviews was measured. After checking a statistical significant difference of the results of products, we conducted an analysis of variance. A dependent variable consists of the effects of e-WOM and an independent variable which affects a dependent variable consists of attitude toward the web site, credibility of e-WOM, attitude toward the products, and purchase intention. We used ANOVA procedure of SAS/Stat 9.1. The subjects were thirty five Keio University students.

4.Results

4.1.Attitude toward the web site

The results are summarized in table 1. The F test for the whole model, showing $F=2.76$, $p <.0.00$, was significant. The F test for products, showing $F=1.24$, for the type of e-WOM, showing $F=2.52$, and for the levels of expertise, showing $F=0.29$, was not significant. The F test for the ratio of positive and negative WOM, showing

F=29.01, p <.0.00, was significant. In addition, the interaction between products and the ratio of positive and negative WOM, showing F=0.79, was not significant. The interaction among products, type of e-WOM, and the ratio of positive and negative WOM, showing F=4.83, p <.0.00, was significant. The interaction among the levels of expertise, the type of e-WOM, and the ratio of positive and negative WOM, showing F=2.05, was not significant.

Table 1

ANOVA results : Attitude toward the Web site

X_1 (Types of products)	F=	1.07
X_2 (Types of reviews)	F=	2.52
X_3 (Ratio of e-WOM)	F=	29.01[a]
X_4 (Levels of expertise)	F=	0.29
X_1*X_3 (Types of products × Ratio of e-WOM)	F=	0.79
$X_1*X_2*X_3$ (Types of products × Types of reviews × Ratio of e-WOM)	F=	4.83[a]
$X_2*X_3*X_4$ (Types of reviews × Ratio of e-WOM × Expertise)	F=	2.05

Note. [a] significant at 0.01 level. F statistics for overall model is 2.76 (p<0.01).

Table 2

Mean and Standard deviation: Attitude toward the Web site

X_3 (Ratio of e-WOM)	Mean (S. D.)
10:0	0.31 (0.71)
8:2	0.26 (0.84)
6:4	-0.58 (1.16)

Table 2 showed the results of the average rating for each class of the independent variable X. In the case that the ratio of positive and negative WOM was 10:0, 8:2, 6:4, average rating of attitude toward the Web site was 0.31 (S.D. is 0.71), 0.26 (0.84), −0.58 (1.16).

4.2.Credibility of e-WOM message

The results are summarized in table 3. The F test for the whole model, showing F=4.57, p <.0.00, for the type of e-WOM, showing F=8.18, p <.0.00, was significant. The F test for products, showing F=2.12, and for the levels of expertise, showing F=0.04, was not significant. The F test for the ratio of positive and negative WOM, showing F=60.49, p <.0.00, was significant. In addition, the interaction between products and the ratio of positive and negative WOM, showing F=1.01, was not significant. The interaction among products, type of e-WOM, and the ratio of positive and negative WOM, showing F=5.20, p <.0.00, was significant. The interaction among the levels of expertise, the type of e-WOM, and the ratio of positive and negative WOM, showing F=2.66, was not significant.

Table 3

ANOVA results : Credibility of e-WOM message

X_1 (Types of products)	F=	2.12
X_2 (Types of reviews)	F=	8.18[a]
X_3 (Ratio of e-WOM)	F=	60.49[a]
X_4 (Levels of expertise)	F=	0.04
X_1*X_3 (Types of products × Ratio of e-WOM)	F=	1.01
$X_1*X_2*X_3$ (Types of products × Types of reviews × Ratio of e-WOM)	F=	5.20[a]
$X_2*X_3*X_4$ (Types of reviews × Ratio of e-WOM × Expertise)	F=	2.66

Note. [a] significant at 0.01 level. F statistics for overall model is 4.57 (p<0.01).

Table 4

Mean and Standard deviation: Credibility of e-WOM message

X_3 (Ratio of e-WOM)	Mean (S. D.)
10:0	0.41 (0.68)
8:2	0.29 (0.80)
6:4	-0.76 (1.04)
X_2 (Types of reviews)	Mean (S. D.)
Attribute-centric	0.13 (1.00)
Benefit-centric	-0.14 (0.98)

Table 4 showed the results of the average rating for each class of the independent variable X. In the case that the type of e-WOM is attribute-centric or benefit-centric, each average rating toward credibility of e-WOM was 0.13 (S.D. is 1.00), −0.14 (0.98). Additionally, in the case that the ratio of positive and negative WOM was 10:0, 8:2, 6:4, average rating of attitude toward the Web

site was 0.41 (S.D. is 0.68), 0.29 (0.80), －0.76 (1.04).

4.3.Attitude toward products

The results are summarized in table 5. The F test for the whole model, showing F=12.98, p <.0.00, was significant. The F test for products, showing F=1.24, for the type of e-WOM, showing F=0.81, and for the levels of expertise, showing F=0.17, was not significant. The F test for the ratio of positive and negative WOM, showing F=234.52, p <.0.00, was significant. In addition, the interaction between products and the ratio of positive and negative WOM, showing F=6.40, p <.0.00, was significant. The interaction among products, type of e-WOM, and the ratio of positive and negative WOM, showing F=5.42, p <.0.00, was significant. The interaction among the levels of expertise, the type of e-WOM, and the ratio of positive and negative WOM, showing F=4.24, p <.0.01, was significant.

Table 5

ANOVA results : Attitude toward products

X_1 (Type of products)	F=	1.24
X_2 (Type of reviews)	F=	0.81
X_3 (Ratio of e-WOM)	F=	234.52 [a]
X_4 (Level of expertise)	F=	0.17
X_1*X_3 (Type of products × Ratio of e-WOM)	F=	6.40 [a]
X_1*X_2*X_3 (Type of products × Type of reviews × Ratio of e-WOM)	F=	5.42 [a]
X_2*X_3*X_4 (Type of reviews × Ratio of e-WOM × Level of Expertise)	F=	4.24 [b]

Note. [a] significant at 0.01 level, [b] significant at 0.05 level. F statistics for overall model is 12.98 (p<0.01).

Table 6 showed the results of the average rating for each class of the independent variable X. In the case that the ratio of positive and negative WOM was 10:0, 8:2, 6:4, average rating of attitude toward products was 0.55 (S.D. is 0.65), 0.49 (0.62), －1.07 (0.72). Table 6 also showed the results of the average rating for each class of the independent variable X. In the case that experts read attribute-centric reviews ,when the ratio of positive and negative WOM was 10:0, 8:2, 6:4, average rating of attitude toward products was 0.46 (S.D. is 0.54), 0.91 (0.45), － 1.35 (0.74). In the case that novices read attribute-centric reviews ,when the ratio of positive and negative WOM was 10:0, 8:2, 6:4, average rating of attitude toward products was 0.33 (S.D. is 0.68), 0.39 (0.52), －1.05 (0.79). In the case that experts read benefit-centric reviews ,when the ratio of positive and negative WOM was 10:0, 8:2, 6:4, average rating of attitude toward products was 0.55 (S.D. is 0.66), 0.24 (0.66), －0.90 (0.72). In the case that novices read benefit-centric reviews ,when the ratio of positive and negative WOM was 10:0, 8:2, 6:4, average rating of attitude toward products was 0.87 (S.D. is 0.60), 0.40 (0.62), －0.99 (0.59). These results are in line with our hypothesis 1 that in the case where experts read attribute-centric reviews, attitude toward the product is stronger ,when there is a certain negative e-WOM than none of it, and hypothesis 2 that in the case where novices read benefit-centric reviews, attitude toward the product is weaker ,when there is a certain negative e-WOM than none of it.

In the case that experts read benefit-centric reviews ,when the ratio of positive to negative message is 10:0, 8:2, 6:4, average rating of attitude toward the product is 0.55 (S.D. is 0.66), 0.24 (0.66), －0.90 (0.72). In the case that novices read benefit-centric reviews ,when the ratio of positive to negative message is 10:0, 8:2, 6:4, average rating of attitude toward the product is 0.87 (S.D. is 0.60), 0.40 (0.62), －0.99 (0.59). Regarding our research question 1, results indicated that in the case where experts read benefit-centric reviews, attitude toward the product is weaker ,when there is a certain negative e-WOM than none of it. Regarding our research question 2, results indicated that in the case where novices read attribute-centric reviews, attitude toward the product is stronger ,when there is a certain negative e-WOM than none of it.

Table 6 showed the results of the average rating for each class of the independent variable X. In the case of e-WOM for movie ,when the ratio of positive to negative message is 10:0, 8:2, 6:4, average rating of attitude toward the product is 0.34 (S.D. is 0.67), 0.69 (0.59), － 1.17 (0.83). In the case of e-WOM for comic, when the

ratio of positive to negative message is 10:0, 8:2, 6:4, average rating of attitude toward the product is 0.20 (S.D. is 0.68), 0.76 (0.56), －0.90 (0.66). In the case of e-WOM for digital camera, when the ratio of positive to negative message is 10:0, 8:2, 6:4, average rating of attitude toward the product is 0.82 (S.D. is 0.55), 0.34 (0.47), －1.06 (0.67). In the case of e-WOM on PMP, when the ratio of positive to negative message is 10:0, 8:2, 6:4, average rating of attitude toward the product is 0.86 (S.D. is 0.38), 0.19 (0.67), －1.14 (0.73). These results are not in line with our hypothesis 3 that in the case of e-WOM on hedonic products, there is no significance difference of the attitude toward the product in comparison between a certain negative e-WOM with none of it. However, these results are in line with our hypothesis 4 that in the case of e-WOM on utilitarian products, attitude toward the product is weaker when there is a certain negative e-WOM than none of it.

Table 6

Mean and Standard deviation: Attitude toward products

		Mean (S. D.)		
		X_3 (Ratio of e-WOM)		
		10:0	8:2	6:4
		0.55 (0.65)	0.49 (0.62)	-1.07 (0.72)
X_1 (Type of products)		10:0	8:2	6:4
Movie		0.34 (0.67)	0.69 (0.59)	-1.17 (0.83)
Comic		0.20 (0.68)	0.76 (0.56)	-0.90 (0.66)
PMP		0.82 (0.55)	0.34 (0.47)	-1.06 (0.67)
Digital Camera		0.86 (0.38)	0.19 (0.67)	-1.14 (0.73)
X_2 (Type of reviews)	X_4 (Level of expertise)	10:0	8:2	6:4
Attribute-centric	Expert	0.46 (0.54)	0.91 (0.45)	-1.35 (0.74)
Attribute-centric	Novice	0.33 (0.68)	0.39 (0.52)	-1.05 (0.79)
Benefit-centric	Expert	0.55 (0.66)	0.24 (0.66)	-0.90 (0.72)
Benefit-centric	Novice	0.87 (0.60)	0.40 (0.62)	-0.99 (0.59)

Figure 1: The interaction effects of Type of reviews × Ratio of e-WOM × Level of expertise

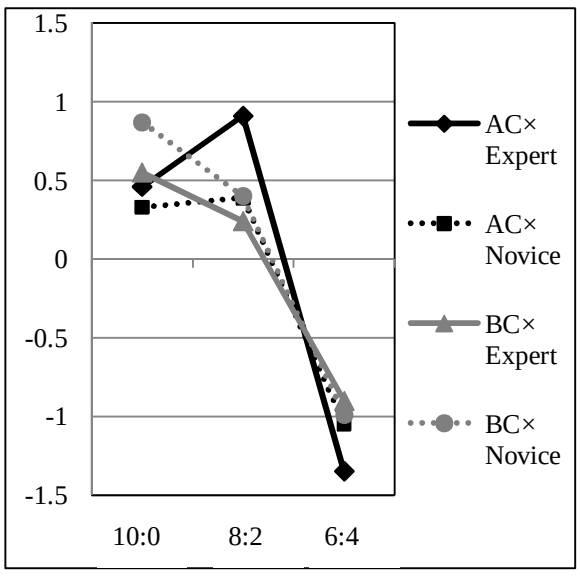
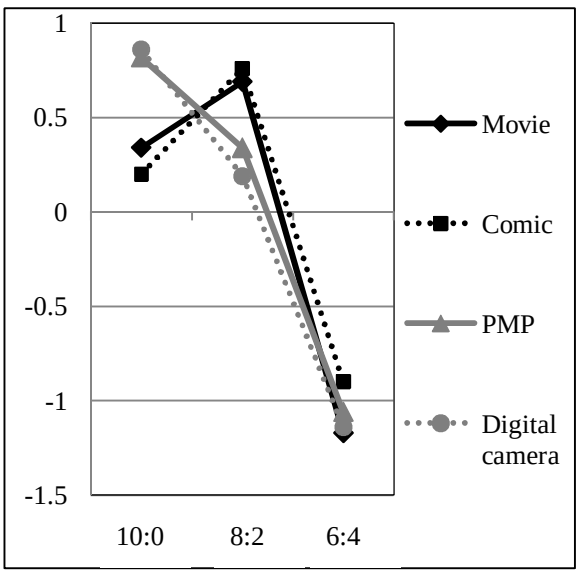


Figure 2: The interaction effects of Type of products × Ratio of e-WOM



4.4.Purchase intention

The results are summarized in table 7. The F test for the whole model, showing F=8.18, p <.0.00, was significant. The F test for products, showing F=0.86, for the type of e-WOM, showing F=2.26, and for the levels of expertise, showing F=0.07, was not significant. The F test for the ratio of positive and negative WOM, showing F=135.34, p <.0.00, was significant. In addition, the interaction between products and the ratio of positive and negative WOM, showing F=1.12, was not significant. The interaction among products, type of e-WOM, and the ratio of positive and negative WOM, showing F=3.08, p <.0.00, was significant. The interaction among the levels of expertise, the type of e-WOM, and the ratio of positive and negative WOM, showing F=2.66, was not significant.

Table 7

ANOVA results : Purchase intention

X_1 (Type of products)	F=	0.86
X_2 (Type of reviews)	F=	2.26
X_3 (Ratio of e-WOM)	F=	135.34
X_4 (Level of expertise)	F=	0.07
X_1*X_3 (Type of products × Ratio of e-WOM)	F=	1.12
$X_1*X_2*X_3$ (Type of products × Type of reviews × Ratio of e-WOM)	F=	3.08[a]
$X_2*X_3*X_4$ (Type of reviews × Ratio of e-WOM × Expertise)	F=	2.66

Note. [a] significant at 0.01 level. F statistics for overall model is 8.18 (p<0.01).

Table 8

Mean and Standard deviation: Purchase intention

X_3 (Ratio of e-WOM)	Mean (S. D.)
10:0	0.55 (0.77)
8:2	0.37 (0.79)
6:4	- 0.95 (0.68)

Table 8 showed the results of the average rating for each class of the independent variable X. In the case that the ratio of positive and negative WOM was 10:0, 8:2, 6:4, average rating of purchase intention was 0.55 (S.D. is 0.77), 0.37 (0.79), －1.95 (0.68).

5.Discussion

Previous research has shown that positive e-WOM has positive effects, while negative e-WOM has negative effects on consumer behavior. Contrary to this, this research finds that, under a particular condition, negative e-WOM positively stimulate consumer attitude positively.

E-WOM effects are composed of attitude toward the web site, credibility of e-WOM, attitude toward the product, and purchase intension. As a result, although attitude toward the web site, credibility of e-WOM, and purchase intension are not significant, attitude toward the product is significant.

The result shows that the effects of e-WOM on attitude toward the product are stronger when the ratio of positive to negative messages is 10:0 than 8:2 and 6:4 in the case of novices reading benefit-centric reviews and in the case of e-WOM on utilitarian products. It supports what previous research has shown. However, this research finds the positive effects of negative e-WOM in a certain condition. The effects of e-WOM may be stronger when the ratio of positive to negative messages is 8:2 than 10:0 and 6:4 in the case of experts reading attribute-centric reviews and in the case of e-WOM on hedonic products. These findings can be a research step to uncover other conditions under which negative e-WOM positively affects consumer behavior.

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