**Paradoxical Relationship between the Amount of Negative eWOM Messages and Positive Consumer Attitude**

Mai Kikumori *
Akinori Ono **

**Abstract**

Most research has shown that positive electric word-of-mouth (e-WOM) has positive effects, while negative e-WOM has negative effects on consumer attitude towards a product. However, negative e-WOM may have positive impacts rather than negative impacts. Using ANOVA in three experiments, this study found that negative e-WOM can have a positive impact on consumer attitude under some conditions, including when the e-WOM is in regard to hedonic products, when expert consumers read attribute-centric reviews, and/or when there is negative e-WOM at the top of the website than at the bottom.

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INTRODUCTION

With the advent of the Internet in the United States, European Union, and other developed countries, electronic word-of-mouth (e-WOM) consumer reviews, have come into vogue (Bickart and Schindler 2001; Godes and Mayzlin 2004). WOM is defined as a form of person-to-person communication between a receiver and a communicator, which the receiver perceives as non-commercial, concerning a brand, product, or service for sale (Arndt 1967). e-WOM is a less personal but now more ubiquitous form of WOM. Consumers can refer to both positive and negative e-WOM simultaneously on a single website unlike traditional WOM.
Most research has shown that positive e-WOM has positive effects, while negative e-WOM has negative effects on consumer attitude (Herr, Kardes, and Kim 1991; Luo 2009). Additionally, it has been suggested that people tend to weigh negative reviews more than positive ones; negative e-WOM has a stronger, negative impact than positive e-WOM (Herr, Kardes, and Kim 1991; Ahluwalia and Shiv 1997). These studies have assumed that consumers form their attitude through referring to either positive or negative e-WOM. However, when consumers simultaneously refer to both positive and negative e-WOM reviews on a single website, negative e-WOM may have a positive impact. For example, it is reported that consumer attitude towards a product was higher when the ratio of positive to negative e-WOM was 8:2 than when the ratio was 10:0 (Doh and Hwang 2009). This indicates that the existence of some negative e-WOM improved consumer attitude.

This study addresses the positive effects of negative e-WOM by assessing consumer attitude changes in relation to different ratios of positive to negative e-WOM (10:0, 8:2, 6:4), different types of product (hedonic vs. utilitarian products), different levels of expertise (expert vs. novice consumers), different types of reviews (attribute-centric vs. benefit-centric reviews), and different orders of positive and negative e-WOM (negative e-WOM preceding positive e-WOM and vice-versa).
**LITERATURE REVIEW AND HYPOTHESES**

*Negative effects of negative e-WOM*

Much previous research has claimed that positive WOM has positive effects, while negative WOM has negative effects on consumer attitude towards a product (e.g. Richins 1983; Herr, et al. 1991; Laczniak, et al. 2001; Xueming 2009). In e-WOM research studies, Park and Lee (2009), for example, examined the effects of the type of product (search vs. experience goods), the direction of e-WOM (positive vs. negative e-WOM), and the reputation of the website (established vs. unestablished website). Their results showed the positive WOM had positive effects, while negative WOM had negative effects.

*Positive effects of negative e-WOM*

Unlike traditional WOM, both positive and negative e-WOM is typically presented to consumers on a single website. Doh and Hwang (2009) assumed that consumers exposed to many e-WOM messages simultaneously at positive to negative e-WOM ratios of 10:0, 9:1, 8:2, 7:3, and 6:4. They found that purchasing intention and attitude towards the product were highest when the ratio was 10:0, while credibility of the e-WOM messages and
attitude towards the website were highest when the ratios were 9:1 and 8:2, respectively. This indicates that the existence of negative e-WOM had a positive impact on some aspects of consumer behavior.

Hiura, et al. (2010) also investigated the positive impacts of negative e-WOM. They found that attitude towards a product were the highest when the ratio was 8:2, not 10:0 under particular conditions, and concluded that consumer characteristics, reviews, and products determine whether negative e-WOM affects consumer attitude negatively or positively.

**Moderating effects of product characteristics**

Sen and Lerman (2007) investigated the negative effects of e-WOM for hedonic versus utilitarian products on the basis of the affect confirmation hypothesis (Adaval 2001). Hedonic products are primarily characterized by an affective and sensory experience of aesthetic or sensual pleasure, fantasy, and fun (Hirshman and Holbrook 1982). In contrast, utilitarian products are measured as a function of the products’ tangible attribute (Drolet, Simonson, and Tversky 2000). According to the affect confirmation hypothesis, persons who base their product judgment on hedonic criteria give greater weight to attribute
information when the information is consistent with their mood than when it is inconsistent with their moods. In contrast, this should not be the case, when reading reviews for utilitarian products. Consumers are likely to be in a positive mood when reading reviews for a hedonic product, basically because they are looking forward to choosing a product that will make them feel good. As a result, they may discount negative reviews of the product because they are inconsistent with their current moods. Thus, in the case of hedonic products, negative effects of negative e-WOM are extinguished.

Similarly, Ellis (1973) claimed that people seek optimal stimuli, that they feel most comfortable when exposed to moderate stimuli, called “optimal arousal.” Assuming that negative measures can be seen as stimulation for consumers processing information in making purchase decisions, they may regard a lower ratio of positive to negative messages than 10:0 as an optimal stimulation. If so, consumer attitude may be higher when there is at least some negative e-WOM. Thus, we propose the following hypothesis:

H1: Consumer attitude towards a hedonic product is higher when there is at least some negative e-WOM than when there is none of it.
Moderating effects of consumer and review characteristics

Park and Kim (2008) focused on the roles of both consumer and review characteristics and inquired how the level of expertise and the type of reviews influenced the effects of e-WOM on consumer attitude. The level of expertise involves consumer motivation and the ability to process detailed information. Experts have both, while novices have either or neither. Reviews can be attribute-centric or benefit-centric. Park and Kim showed that attribute-centric reviews had stronger effects on experts than did benefit-centric reviews, whereas the latter had a stronger effect on novices.

Similarly, Sussman and Siegal (2003) suggested that consumers with low expertise weigh source credibility more than argument quality, while consumers with high expertise weigh argument quality more than source credibility. According to Cheung, Lee, and Rabjohn (2008), information comprehensiveness which contains both positive and negative sides has the strongest impact on information usefulness in all components of argument quality. For expert consumers, attribute-centric reviews with some negative WOM have a stronger impact on their attitude towards the product than the reviews with no negative WOM. Thus, we propose the following hypothesis:
H2: In the case of experts reading attribute-centric reviews, consumer attitude towards a product is higher when there is at least some negative e-WOM than when there is none of it.

Moderating effects of the order of the messages

According to the recency effect (Broadbent, Vines, and Broadbent 1978), the effects of a review acquired recently are stronger than those acquired previously. Pathak, et al. (2010) found that the recency of recommendation messages significantly moderated the impact of positive messages on the sales of a product in an online store when anxiety for purchasing the product and information processing costs were higher. This indicates that recent e-WOM has a stronger impact on consumer behavior than older e-WOM.

Thus, the negative effects of negative e-WOM on consumer attitude towards a product might be diminished if the e-WOM review is followed by a series of positive e-WOM reviews. We investigate this phenomena in two conditions under which negative e-WOM has a positive impact on consumer attitude. We propose the following two hypotheses:
H3: Consumer attitude towards a hedonic product is higher when there is more negative e-WOM at the top of the website than at the bottom.

H4: In the case of experts reading attribute-centric reviews, consumer attitude towards a product is higher when there is some negative e-WOM at the top of the website than at the bottom.

**METHODS AND RESULTS**

*Study 1: Moderating effects of product, review, and consumer characteristics*

To test these hypotheses, we conducted three laboratory experiments that investigated how consumer attitude towards a product varied with the type of product (hedonic vs. utilitarian products), receiver (expert vs. novice consumers), the type of review (attribute-centric vs. benefit-centric reviews), and the order of positive and negative e-WOM (negative e-WOM preceding positive e-WOM and vice-versa) when the ratios of positive to negative e-WOM were 10:0, 8:2, and 6:4.
In Study 1, we tested H1 and H2 empirically using an experiment with virtual internet forums with different ratios of positive and negative e-WOM messages, which were either attribute-centric or benefit-centric reviews about one of four products—movies and comics as hedonic products and portable music players and digital cameras as utilitarian products. The orders of the positive and negative e-WOM in the virtual forums were random. In total, 201 undergraduate students in a business school participated in the experiment; they were highly involved with the products, but had different levels of expertise regarding the products: Some students were expert consumers, while others were novices. They were asked to browse a series of e-WOM messages in a particular virtual forum regarding one of the four products, and then to answer questions regarding their own evaluation of the product.

An analysis of variance (ANOVA) was conducted. The main effects of the ratio of positive to negative e-WOM (10:0, 8:2, 6:4) were significant ($F = 192.66, p < 0.01$), as were the interactions between the ratio and the type of product (hedonic vs. utilitarian) ($F = $ Insert Table 1 and Figure 1 about here
6.13, p < 0.01). As summarized in Table 1 and Figure 1, consumer attitude towards hedonic products was highest when there was some negative e-WOM. The mean levels of consumer attitude towards the movies were 4.72 (SD = 1.04), 5.50 (SD = 0.81), and 2.57 (SD = 1.31) when the ratios of positive to negative e-WOM were 10:0, 8:2, and 6:4, respectively. Those towards the comics were 4.60 (SD = 1.05), 5.44 (SD = 0.90), and 3.01 (SD = 1.00), respectively. In contrast, consumer attitude was highest when there was no negative e-WOM. The mean levels of consumer attitude towards the portable music players were 5.64 (SD = 0.55), 4.71 (SD = 0.95), and 2.84 (SD = 1.03), respectively. Those towards the digital cameras were 5.64 (SD = 0.55), 4.71 (SD = 0.95), and 2.84 (SD = 1.03), respectively. These results empirically support H1.

Insert Table 2 and Figure 2 about here

Interactions among the ratio of positive to negative e-WOM, the level of expertise (expert vs. novice consumers), and the type of review (attribute-centric vs. benefit-centric) were also significant (F = 3.88, p < 0.01). As summarized in Table 2 and Figure 2, consumer attitude towards a product was highest when there was some negative e-WOM if
and only if the consumer was an expert and the e-WOM was attribute-centric. The mean levels of attitude of expert consumers reading attribute-centric reviews were 4.99 (SD = 0.82), 5.71 (SD = 0.68), and 2.42 (SD = 1.15) when the ratios of positive to negative e-WOM were 10:0, 8:2, and 6:4, respectively. In contrast, those of novice consumers reading attribute-centric reviews were 5.14 (SD = 1.03), 4.84 (SD = 0.97), and 3.09 (SD = 1.00). The mean levels of attitude of expert consumers reading benefit-centric reviews were 4.85 (SD = 1.00), 4.99 (SD = 0.78), and 2.85 (SD = 1.21); those of novice consumers reading benefit-centric reviews were 5.56 (SD = 1.03), 4.97 (SD = 0.86), and 2.94 (SD = 0.86). These results empirically support H2.

**Study 2: Moderating effects of the order of the messages in the case of e-WOM on hedonic products**

In Study 2, we tested H3 empirically using an experiment with virtual internet forums with different ratios of positive and negative e-WOM messages for movies and comics (hedonic products). Unlike in Study 1, the order of positive and negative e-WOM was varied as follows: negative proceeding positive, negative following positive, and random. In total, 420 undergraduate students in a business school participated in the experiment.
The ANOVA results are summarized in Table 3 and Figure 3. Again, the main effects of the ratio of positive to negative e-WOM (10:0, 8:2, 6:4) were significant ($F = 287.98$, $p < 0.01$). The mean levels of consumer attitude towards the movies were 4.53 (SD = 1.33), 6.13 (SD = 0.58), and 4.24 (SD = 0.79) when the ratios of positive to negative e-WOM were 10:0, 8:2, and 6:4, respectively. Additionally, the effects of the order of positive and negative e-WOM were also significant ($F = 22.64$, $p < 0.05$). The mean levels of consumer attitude towards the movies were 3.87 (SD = 1.83), 3.69 (SD = 1.80), and 3.40 (SD = 1.72) when negative e-WOM preceded positive e-WOM, when the two types were presented randomly, and when negative followed positive, respectively. Thus, these results empirically support H3.

**Study 3: Moderating effects of the order of the messages in the case of experts reading attribute-centric reviews**

In Study 3, we tested H4 empirically using an experiment with virtual internet forums with different ratios of positive to negative e-WOM messages, that were either
attribute-centric or benefit-centric. Like Study2, the order of positive and negative e-WOM was varied as follows: negative proceeding positive, negative following positive, and random. 201 undergraduate students in a business school participated. They had different levels of expertise regarding the products. Some students were expert consumers, while others were novices in choosing the products.

The ANOVA results are summarized in Table 4 and Figure 4. Again, the main effects of the ratio of positive to negative e-WOM (10:0, 8:2, 6:4) were significant ($F = 56.88$, $p < 0.01$). The mean levels of attitude of expert consumers reading attribute-centric reviews were 4.52 (SD = 0.62), 5.02 (SD = 0.84), and 3.76 (SD = 0.94) when the ratios of positive to negative e-WOM were 10:0, 8:2, and 6:4, respectively. Additionally, the effects of the order of positive and negative e-WOM were also significant ($F = 12.72$, $p < 0.01$). The mean levels of consumer attitude towards the movie were 4.59 (SD = 1.83), 4.62 (SD = 1.80), and 4.09 (SD = 1.72) when negative e-WOM proceeded positive e-WOM, when the two types were presented randomly, and when negative followed positive respectively.
Thus, these results empirically support H4.

**DISCUSSION**

There has been much discussion about WOM consumer reviews. Most research has shown that positive WOM has positive effects, while negative WOM has negative effects on consumer behavior. Also, most studies tend to assume that consumers form their attitude by referring to either positive or negative WOM. In this study, we assume that consumers refer to both positive and negative e-WOM simultaneously on a single website, and found that negative e-WOM had a positive effect on consumer attitude regarding hedonic products and/or experts reading attribute-centric reviews. Moreover, negative e-WOM had a greater positive effect when it was at the top of the website as opposed to at the bottom.

**LIMITATIONS AND FURTHER RESEARCH**

This study has some limitations. First, we assumed that attribute-centric and benefit-centric reviews do not coexist on a single website. Future research should also
consider the ratio and the order of attribute-centric to benefit-centric reviews. Second, not only the ratio and order of positive and negative reviews, but also the content and relationships between reviews should be considered. Some negative reviews are posted as counterarguments against previous positive reviews, while others are posted as arguments independent from any previous review. Finally, future studies should consider the impact of the credibility of the information source and the platform where the reviews are posted.

ACKNOWLEDGMENT

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REFERENCES


Table 1. Results of Study 1 (Effects of Product Type)

<table>
<thead>
<tr>
<th>$X_1$ (Type of Products)</th>
<th>$X_3$ (Ratio of e-WOM)</th>
<th>Mean (SD)</th>
<th>Mean (SD)</th>
<th>Mean (SD)</th>
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<td>Movie</td>
<td>4.72 (1.04)</td>
<td>5.50 (0.81)</td>
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<td>Comic</td>
<td>4.60 (1.05)</td>
<td>5.44 (0.90)</td>
<td>3.01 (1.00)</td>
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<td>Utilitarian</td>
<td>Portable Media</td>
<td>5.64 (0.55)</td>
<td>4.71 (0.95)</td>
<td>2.84 (1.03)</td>
</tr>
<tr>
<td>Products</td>
<td>Player</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Digital</td>
<td>5.60 (0.77)</td>
<td>4.92 (0.64)</td>
<td>2.94 (0.94)</td>
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<tr>
<td></td>
<td>camera</td>
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Figure 1. Summary of the Results of Study 1 (Effects of Product Type)
### Table 2. Results of Study 1 (Effects of Review Type × Receiver Type)

<table>
<thead>
<tr>
<th>$X_4$ (Type of Receiver)</th>
<th>$X_2$ (Type of Review)</th>
<th>$X_3$ (Ratio of e-WOM)</th>
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<td>10 : 0</td>
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<td>Expert</td>
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<tr>
<td></td>
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<td>Novice</td>
<td>Attribute-centric</td>
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<td></td>
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<td>Novice</td>
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<td></td>
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<td>(SD)</td>
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### Figure 2. Summary of the results of Study 1 (Effects of Review Type × Receiver)

![Graph showing the results of Study 1](image-url)
Table 3. Results of Study 2

<table>
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<th>$X_1$ (Ratio of e-WOM)</th>
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<tr>
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<td>(SD)</td>
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<td>(SD)</td>
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<td>(1.80)</td>
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Figure 3. Summary of the Results of Study 2

![Graph a)](image_a.png)

![Graph b)](image_b.png)
Table 4. Results of Study 3

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<td>(0.62)</td>
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<tr>
<td>(SD)</td>
<td></td>
<td>(1.83)</td>
<td>(1.80)</td>
<td>(1.72)</td>
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</table>

Figure 4. Summary of the Results of Study 3