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Abstract
Existing empirical studies have drawn inconsistent conclusions about the effect of electronic word-of-mouth valence on consumer decision making. Based on attribution theory and prospect theory, this study attempts to explain this discrepancy through exploring how product type moderates the impact of online consumer reviews valence. Our results from a 2 (Positive reviews vs. Negative reviews) × 2 (Search goods vs. Experience goods) experiment design show that the effect of online consumer reviews valence is asymmetrically moderated by product type: The effect of positive reviews is greater for search goods than that for experience goods, whereas the effects of negative reviews have no significant difference between these two types of goods; And the impact difference between negative reviews and positive reviews is greater for experience goods than for search goods. Our study not only confirms the moderating role of product type, but also further explores how product type moderates the effect of reviews valence. We also provide implications for e-marketers.

1. Introduction

With the development of Internet application, electronic word-of-mouth (e-WOM) has become an independent product information resource with growing popularity and importance. E-WOM communication direction (positive or negative, also named as Valence) is one of the most focused dimensions by marketers, because e-WOMs of different valences may cause totally opposite communication effects. Besides, if there are asymmetric effects of positive e-WOMs and negative ones, management strategies for e-WOMs of different valences may vary greatly.

Previous relevant researches on electronic word-of-mouth communication show an inconsistent relationship between e-WOM valence and consumers’ purchase intention/behavior (or online product sales). Some studies indicate positive relationship between them [4] (that is, the impact of positive e-WOMs is greater than negative e-WOMs), while other research finds negative relationship between them [6] (that is, the impact of negative e-WOMs is greater than positive e-WOMs). There are also other studies [5][10][20] arguing that there is no significant relationship between these two factors. Which conclusion actually reveals the fact? According to Accessibility/diagnosticity theory [11], the diagnosticity of word-of-mouth will change depending on some conditions. It suggests that some factors may moderate the effect of e-WOM valence besides the difference in data sources, modeling method, and measures of the factors. Among these factors, product category may be an important moderator for the effect of e-WOM. Sundaram & Webster’s study [12] shows that the characteristics of the product may affect how consumers process the WOM message. Hankin [14] provides a nice review on existing literature, which has drawn inconsistent conclusions about the effect of e-WOM valence on consumer decision making (or product sales) when different products were taken as the study object.

We did an extensive review of relevant literature on the effect/impact of electronic word-of-mouth in marketing, e-commerce and psychology research field. We find there is a lack of research exploring how the impact of e-WOM valence varies depending on the product type. A few researchers have begun to study the interaction effect between product type and negative orientation e-WOMs versus mixed orientations e-WOMs. For example, Sen & Lerman [28] found negative reviews for utilitarian products are more useful than those for hedonic products. Park &
Han [24] found that product type (search goods vs. experience goods) moderates the relationship between mixed orientations e-WOMs and consumer attitude toward product. One exception is that Park & Lee [27] studied the interaction effect between product type and e-WOM valence (positive vs. negative). However, they didn’t discuss about the detailed form of interaction effect between product type and e-WOM valence. There may be seven forms of interaction effect (see Figure 1).

![Figure 1. Possible forms of interaction effect between WOM valence and product type](image)

For each form of interaction effect in Figure 1, the slopes of the two lines are different, indicating the existence of interaction between e-WOM valence and product type. Besides, the direction of the line reflects the impact direction of e-WOM valence. While different slopes of the lines with the same direction indicate the differences in impact strength of e-WOM valence (impact differences of positive and negative e-WOMs) for different types of products.

More specifically, for (a) (b) and (e) in Figure 1, the lines between positive and negative e-WOMs for different product types have different directions, suggesting effects of WOM valence are opposite for different types of products. For (c) (d) (f) and (g) in Figure 1, the lines have the same directions but different slopes, indicating impact strengths of e-WOM valences are different between different types of goods.

Declaring in what form product type moderates the effect of e-WOM valence on consumer purchase decision making (significant or non significant, positive or negative, weak or strong) can be helpful for marketing strategy formulation from vertical (product focused) and horizontal (word of mouth focused) perspectives. From the vertical view, for the two different types of products, this study can suggest whether it is necessary to pay attention to e-WOM valence. If necessary, which direction e-WOMs should be mainly focused and how much effort and time should be invested on it. From the horizontal view, when marketers conduct mixed marketing of different types of goods, this research can help in suggesting for which type of goods the effect of e-WOM is greater, and which type of goods should be first focused in positive and negative WOM management. According to the different directions and strengths of WOM valence for different products, marketers can adjust the e-WOM marketing strategies more economically and effectively under resources constraint. Therefore, it is practically meaningful to examine the effect of e-WOM valence on consumers’ decision.

Taking online user reviews, one type of e-WOMs, as our focus, this study attempts to explain the inconsistence about the WOM effect of online user reviews valence by exploring the moderating role of product type (search goods and experience goods). Further, based on attribution theory and prospect theory, we hypothesize and validate the detailed form of this interaction effect between product type and valence of reviews. Our findings have implications for marketers on how to manage e-WOM more effectively and economically for different types of products.

2. Theory background

Attribution theory explains how people make causal inferences on events. [15] An individual is thought to attribute his (another’s) behavior or attitudes to two major types of causes: personal causes (internal causes) and causes related with stimuli or environmental situation (external causes). The different causal attributions will influence the consumer’s
subsequent intentions and actions. [15] Attribution theory has been applied to disclose the determinants of source credibility and other areas dealing with consumer perception and inference formation. [28] As Sen & Lerman suggest, the attribution theory paradigm is helpful for understanding readers’ inferences about the reviewer’s motivations in posting the e-WOM, and whether the review readers will use or not use an e-WOM based on their different causal inferences. [28] Applying this theory to the attribution of online review postings, reader’s attributions about the reasons for the reviewer posting the review may be based on external (product) reasons or internal (reviewer) reasons. Moreover, regardless of the accuracy of this inference, this perceived causality will influence the reader’s subsequent actions. If readers make the attribution that the review is based on external (product) reasons, they will perceive the review to be legitimate, credible, and will consider it useful. In contrast, if the readers believe that the review is based on internal (reviewer) reasons, they will then discount it. [28]

The process of causality inferring is subject to some biases. [15] The existence of these biases always derives from individual demands and motives. [15][31] The prospect theory provides a framework for understanding human decision making under uncertainty [18][19]. It proposes that experience of loss appears to be greater than that of an equivalent gain because the value function is steeper for losses than for gains. Thus, people hate losses more than they love gains and are risk averse. The prospect theory suggests that, in consumer decision process, risk/loss aversion and avoidance is one key motivation for information seeking and decision making. Thus, when the attribution probably leads to loss in behavior outcomes, consumers may form attribution bias and change their original attribution towards riskless direction.

3. The interaction effect between valence of online reviews and product type

At present, the product taxonomy commonly adopted in e-commerce marketing research is the one proposed by Nelson [23], which classified products into search goods and experience goods. According to Nelson’s definition, search goods are those whose main features can be objectively evaluated from information that is readily available, whereas experience goods need to be personally tried and examined prior to purchase. Existing literature [2] [7][12][13] has found the significant difference in information search, e-commerce adoption and consumer purchase behavior across search goods and experience goods. In our study, we also adopt this product taxonomy framework.

Several researchers have argued that negative WOM has greater influence on consumers’ purchase decision than positive one. For example, in psychology field, negative ratings are usually granted with more weights than positive ratings in the process of decision making [29]. It is because that the psychological reaction triggered by negative rating, such as arouse, awareness, emotion, attribution, are stronger than that by positive one. And in marketing field, Ahluwalia et, al. [1] also finds that people rely more on negative rating information than positive one because negative rating information is more informative. Thus, we assume the effect of negative reviews is always greater for both search goods and experience goods. We propose Hypothesis 1 and Hypothesis 2 as follows:

**H1:** For search goods, the WOM effect of negative reviews is greater than that of positive reviews.

**H2:** For experience goods, the WOM effect of negative reviews is greater than that of positive reviews.

According to attribution theory [15], one person may mainly attribute his own or another person’s attitude or behavior to the personal causes (internal causes) and causes related with stimuli or environmental situation (external causes). As Sen & Lerman [28] and Park & Han [24] argued that, information receivers may make different attributions and thus further lead to varied WOM effects across search goods and experience goods. According to Nelson’s definition [23], experience goods are those whose features can only be evaluated by personally trying or inspecting the product. So the evaluation of an experience product is individual dependent and is lack of common standards. As a result, when encountering with positive reviews of experience goods, word of mouth receivers are more likely to attribute them towards reviewers rather than towards product, and think reviews only reflect the individual experience rather than product intrinsic quality. In contrast, due to the uniform and definite standard of quality judgment for search goods, when reading positive reviews of search goods, word of mouth receivers are more prone to attribute the reviewer’s opinion towards product intrinsic quality. When people attribute reviewer’s attitude towards product, positive WOM effect of online reviews becomes greater [28]. In another word, the effect of positive online reviews is greater for search products than experience products. Therefore, we propose Hypothesis 3 as follows.
The WOM effect of the positive online reviews is greater for search goods than for experience goods. Does this conclusion also apply for negative online reviews? Does attribution for positive reviews across these two types of products still work for negative reviews? According to prospect theory, one experience of loss appears to be greater than that of equivalent gain [18][19]. It suggests that, people pay more attention to perceived risk and are usually risk/loss averse. This risk aversion and avoidance greatly influences consumers’ information searching and the following decision outcomes. [21] That is to say, when perceived risk exists, consumers may adjust their behaviors to avoid or reduce risk/loss. So consumers’ behaviors may be different depending on different perceived risk situations. One key objective for consumers to seek and refer to WOMs about product before decision making is to reduce potential risk of purchasing. Therefore, it is expected that how consumers refer to other’s WOMs may be subject to different risk situations.

Zhou et al.’s study pointed out, the effect of consumer perceived risk may be subject to product characteristics [30]. And it is usually regarded as true that consumer perceived risk is higher for experience goods than for search goods in purchase decision process. [8][16][22][33] Because as for experience goods, the information used to judge quality is incomplete and quality evaluation standard is not definite enough, which increases perceived risk of purchasing. Since higher risk is perceived for experience goods, consumers are more likely to deal with other’s positive or negative reviews for experience goods in a self-protect way. In another word, to avoid or decrease risk, consumers may discount positive WOMs and value negative WOMs for experience goods in contrast with search goods. Negative WOMs are especially relevant with the possible loss or risk. Distrusting other users’ negative WOMs may expose the consumer into possible loss of purchasing bad quality products. Thus, consumer may put more value on negative reviews for experience goods than for search goods.

The above expectation seems to paradox with conclusions inferred from attribution theory. However, an explanation from the view of attribution bias also supports our expectation. Heider et al. [15] and Taylor & Peplau [31] pointed out that, the attribution process can be biased depending on individual motives or preferences. Several types of attribution biases such as Self-serving Bias, Actor-Observer Bias, Correspondence Bias, and Egocentric Bias [30] all indicate the distortion of the original attribution out of self-defense and self-interest for avoiding risk/loss. Thus, based on the preference of risk aversion and avoidance according to prospect theory, when exposed under perceived risk/loss, consumers may form attribution bias and change original attribution towards less risk direction to avoid loss. Let us consider about readers’ attribution of reviews posting motives. To avoid or reduce risk when facing with negative reviews, consumers would rather attribute negative reviews towards products and trust them even if these reviews may only indicate others’ individual bias. Therefore, No matter for experience goods or search goods, negative reviews relevant with risk/loss are more likely to be attributed towards external (product) reasons rather than personal reasons. So we expect stronger effect of negative reviews for experience goods than for search goods, and propose Hypothesis 4.

H4: The WOM effect of the negative online reviews is greater for experience goods than for search goods.

According to all the above hypotheses, the specific interaction form of product type and online reviews valence can be represented by Figure 1(d) or Figure 1(f). For both figures, the slope of the line for experience goods is greater than that for search goods. According to this fact, we further infer that the impact difference between the effects of positive and negative reviews is greater for experience goods than for search goods. Thus, we propose Hypothesis 5.

H5: The impact difference between positive reviews and negative reviews is greater for experience goods than for search goods.

4. Research method and design

This study tests the above hypotheses through 2 (search goods vs. experience goods) × 2 (positive online reviews vs. negative online reviews) experiment design.

4.1. Manipulations of the independent variables

4.1.1. Product type. According to the result of a focus group interview with four professors in product marketing field from our university, we first separately selected three products to represent each type of goods. Then using the convenient samples of 10 male and 10 female undergraduate students from our university, we asked them about how difficult to judge the quality of these products only through product description
information with five-point options. According to the responses of this question, two products scoring highest and lowest are chosen to represent each type of goods for later formal experiment: USB flash drive is selected for search goods and face lotion for experience goods.

4.1.2. Valence of online reviews. We collected online product reviews of different valences from a popular shopping websites of China, Joyo website (http://www.amazon.cn) and then make certain adjustment on the original reviews to form final reviews used for experiment. In details, we first collected abundant original online reviews relevant with these two products. Then we analyzed important product attributes frequently mentioned within these reviews for each product. The results show that, appearance, stability, portability, speed of input and output, actual volume are the main attributes for USB Flash Drive. Product attributes such as moisturizing effect, ventilating effect and anti-allergic feature are frequently mentioned for Face Lotion. Then among these original reviews for each product, we selected some of 1-star numerical rating reviews (negative reviews) and 5-star numerical rating reviews (positive reviews) covering these important product features above. Considering the impact of review quality, we just extracted the high helpfulness rating ones from these reviews. Besides, some research (e.g. [24]) found the variance of review emotional contents also impacts the consumer’s product attitude. Thus, to control the impact of variance between positive and negative contents for each review, we only extracted completely positive (negative) sentences from these reviews to comprise extremely positive (negative) reviews. Park et al. [25] and Park & Kim [26] also found the impact of the review type (attribute-value reviews vs. simple-recommendation) on consumer’s behavioral intention. To control the effect of review type, according to the definition of these two types of reviews [25], three attribute-based reviews (including the main product attributes mentioned above) and three benefit-centric reviews are chosen from these reviews for each group of reviews. To control for the potential effect of information volume, we control sentences in each review to have approximately the same words. Meanwhile, we also make up reviewer names and review posting time to enhance the truthfulness of reviews. Table I in the appendix lists some examples of the final reviews for experiment.

4.2. Dependent variable

This study examines how product type moderates the effect of e-WOM valence. Previous relevant studies have adopted WOM effect, WOM helpfulness, consumer purchase intention, and consumer product attitude as dependent variable. Consumer purchase intention and consumer product attitude are the final target researchers and marketers focus on. Yet, experimental method may not guarantee purchase intention that respondents reported is exclusively caused by online reviews they read in the experiment process. Thus, we choose WOM effect as the dependent variable to directly measure the impact of online reviews under experimental environment. We measure WOM effect by the validated three-item scale from Park & Lee [27] and Jeon & Park [17] on a 5-point rating of agreement (1 for strongly disagree; 5 for strongly agree). (See Table II in the appendix)

4.3. Other control variables

There may be other factors affecting WOM effect of online reviews, which are not focused in this study, such as individual differences including personal cognitive style, personal online purchase experience, prior brand attitude, consumer decision involvement, consumer’s expertise, general attitude on online reviews, democracy statistics (such as gender) and so on. [25][26][27] Adopting the method mentioned by Park et al. [25], we try to control for the effect of individual cognitive style through randomly assigning the participants into the four experiment groups. We control for the brand effect through hiding brand names of the products. For involvement, our study mainly examines high involvement situation, which is more common condition in consumer online purchase process. We control consumer involvement as high through inducting respondents to imagine they need the product and are going to buy this product. The individual differences in personal online purchase experience, general attitude on online reviews, expertise and gender may also have effect on the dependent variable. If differences exist among experimental groups in these factors, we will include them into our model as covariate variables. Among them, one item about whether the respondent has online purchasing experience is asked to investigate personal online purchase experience. In addition, consumer general attitude on reviews are measured by four items with 5 points from strongly disagree to strongly agree according to Park et al.’s scale [25] (see Table II in the appendix). As for consumer expertise, according to Brucks [3], WOM receivers’ product expertise can be measured by three aspects: objective knowledge (also named actual knowledge), subjective knowledge (also named perceived knowledge) and product familiarity. Among them, subjective knowledge indicates consumers’ own perceptions
about how much knowledge they have on some product, which influences consumers’ information search and processing behaviors more directly than objective knowledge consumers practically have. Hence, we define consumer’s product expertise as subjective knowledge in our study. Subjective knowledge is measured by a five-point scale used in Brucks [3]. (See Table II in the appendix)

4.4. The experimental procedure

According to the 23rd Statistical Report on the Internet Development in China from China Internet Network Information Center (CNNIC) published in January 2009 year [8], in China, only 6.4% of total Internet users are university students; however, in the people group that purchase online, university students compose 38.8%, which is obviously higher than the online purchase rate of other important groups of Internet users. Thus, university students are becoming a major and active group who use Internet to purchase online in China. These young surfers also usually rely on online WOM recommendations to make their online purchasing. Besides, there is less heterogeneity in demographic features for this group of people. So taking this group as respondents can remove partial impact caused by demography. Thus, we sample university students as respondents. In the formal experiment, we invite 380 students at the age of 18-30 from one major university in China to participate in this experiment. These respondents are randomly assigned to these four experiment groups. In the survey questionnaire, the purpose of this survey is firstly specified. Next, the respondents are requested to read the survey guideline and one set of six online reviews below. After reading these reviews, the respondents are asked to answer the following related questions. Finally, we collected 302 responses with response rate of 79.5%. After removing the invalidated ones, we got 290 validated samples for further analysis. The numbers of validated responses in each experimental group are basically balanced, see Table 2. In the validated samples, 57.8% is male and 42.2% is female. The average time spent online per day is about 2.38 hours. 56.75% respondents have online purchase experience in the past year, with the average experience of five online purchases.

5. Analysis results

5.1. Manipulation and control checks

Two items are separately designed to check whether review valence and product type are manipulated successfully (see Table III in the appendix). T test of responses on the item checking the review valence shows that consumers’ attitudes on review valence are significantly different between positive reviews group and negative reviews group, (T(285.37))=50.68, P<0.001, Mean(positive)=4.56, and Mean(Negative)=1.65). T test of responses on the item checking the product type also shows the significant difference in the difficulty of product quality judgement between USB Flash Drive group and Face Lotion group (T(285)=-4.59, P<0.001, Mean(USB Flash Drive)=3.25, Mean(Face Lotion)=3.73)). Thus, product type and review valence have been manipulated as intended.

The responses on the four items measuring consumer general attitude towards online reviews (Cronbach’s Alpha=0.802) are averaged to indicate the overall consumer general attitude on reviews. The correlation of this variable with WOM effect (Cronbach’s Alpha=0.827) is significant (Pearson Correlation=0.596, P<0.001). ANOVA analysis shows no significant difference in consumer general attitude towards online reviews among all four groups (F(3, 286)=2.14, P<0.095). The responses on the four items measuring consumer product expertise (Cronbach’s Alpha=0.939) are averaged to indicate the overall consumer expertise. The correlation of this variable with WOM effect is significant (Pearson Correlation=0.174, P<0.003). ANOVA analysis shows significant difference in consumer expertise among all four groups (F(3, 286)=7.98, P<0.001). Different gender groups vary in WOM effect (T(285)=2.39, P<0.01, Mean(Male)=3.49, Mean(female)=3.69). In addition, T test shows significant difference in WOM effect between groups with online purchase experience and ones with no online purchase experience. (T(287)=-3.819, P<0.001, Mean(no online purchase experience)=3.39, Mean(ever purchased online)=3.70)). Therefore, consumer expertise, gender and online purchase experience are included as covariates in the following ANCOVA analysis.

5.2. Hypotheses testing

Taking gender, online purchase experience and consumer expertise as covariates, we conduct an all two-way ANCOVA analysis to test the interaction effect between product type and valence of reviews (See Table 1 for results). Descriptive statistics of WOM effect among these groups are shown in Table 2.

According to ANCOVA results in Table 1, the main effects of the two covariates, consumer online purchase experience and gender, are both significant (P values are 0.003 and 0.021 separately). The low and high expertise groups have no significant difference in WOM effect (P<0.081) after controlling other factors.
Table 1. ANCOVA results for the interaction effect between product type and valence of reviews

<table>
<thead>
<tr>
<th>Effect</th>
<th>F-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>724.347</td>
<td>0.001</td>
</tr>
<tr>
<td>Review Valence</td>
<td>15.488</td>
<td>0.001</td>
</tr>
<tr>
<td>Product Type</td>
<td>0.939</td>
<td>0.333</td>
</tr>
<tr>
<td>WOM Valence × Product Type</td>
<td>7.430</td>
<td>0.007</td>
</tr>
<tr>
<td>Consumer Expertise (as covariate)</td>
<td>3.067</td>
<td>0.081</td>
</tr>
<tr>
<td>Gender (as covariate)</td>
<td>5.415</td>
<td>0.021</td>
</tr>
<tr>
<td>Online Purchase Experience (as covariate)</td>
<td>8.871</td>
<td>0.003</td>
</tr>
</tbody>
</table>

Table 2. Descriptive statistics of WOM effect among the experimental groups

<table>
<thead>
<tr>
<th>Review Valence</th>
<th>Positive reviews</th>
<th>Negative reviews</th>
<th>Total</th>
<th>T-value (P) for pairwise comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Type</td>
<td>(N)</td>
<td>(N)</td>
<td>(N)</td>
<td></td>
</tr>
<tr>
<td>Search goods</td>
<td>3.582 (N=73)</td>
<td>3.632 (N=72)</td>
<td>3.617 (N=145)</td>
<td>-0.455 (P&lt;0.650)</td>
</tr>
<tr>
<td>Experience goods</td>
<td>3.246 (N=68)</td>
<td>3.766 (N=77)</td>
<td>3.550 (N=145)</td>
<td>-4.362 (P&lt;0.001)</td>
</tr>
<tr>
<td>Total</td>
<td>3.429 (N=141)</td>
<td>3.737 (N=149)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

(Note: N = number of responses in corresponding groups; P=p value for T test)

According to descriptive statistics and ANCOVA results in Table 1 and Table 2, the main effect of review valence is significant (P<0.001). WOM effect of negative reviews (3.737) is stronger than that of positive reviews (3.429) if we don’t consider the impact of product type. ANCOVA results in Table 1 also show that, the main effect of product type is not significant (P<0.333), indicating no significant difference in WOM effect between search goods and experience goods if not considering the impact of review valence.

Besides, ANCOVA results show that, the interaction effect between review valence and product type is shown significant (P<0.007). To confirm the detailed form of interaction effect between review valence and product type, we further compare the WOM effect of positive reviews and that of negative reviews for the same product type; we also compare the WOM effect for search goods and that for experience goods under the same review valence. The comparison results through T test in the last column of Table 2 and Figure 2 show that, for search goods, though effect of negative reviews is slightly stronger than that of positive ones, this difference is not significant. In contrast, for experience goods, effect of negative reviews is significantly stronger than that of positive reviews. Thus, Hypothesis 1 is not strongly supported, but Hypothesis 2 is supported. Besides, the effect of positive reviews for search goods is greater than that for experience goods. However, though the effect of negative reviews for experience goods is slightly greater than that for search goods, this difference is not significant. These results support Hypothesis 3, but don’t strongly support Hypothesis 4. Based on all of the already validated hypotheses, Hypothesis 5 is also supported.

![Figure 2](image)

(Note: dotted lines indicate non significant difference at the level of 0.05)

6. Conclusion

Based on the inconsistent relationship between the e-WOM valence and consumers’ decision making in
previous studies, our study explores the moderating role of product type on the effect of online review valence. Further, using attribution theory and prospect theory, we hypothesize and validate the detailed form of this interaction effect. Our major findings are as follows: For search goods, there is no significant difference in WOM effect between the negative reviews and positive reviews, suggesting no significant effect of e-WOM valence for search goods. However, e-WOM valence has the negative impact for experience goods. In details, the WOM effect of negative reviews is greater than that of positive reviews for experience goods. In addition, the effect of positive reviews is greater for search goods than for experience goods, whereas, there is no significant difference in the effect of negative reviews between search goods and experience goods. These findings demonstrate the asymmetry of the interaction between product type and e-WOM valence. Our results don’t provide strong support for H1 and H4. For H1, our results may indicate the decrease in the diagnosticity of negative WOMs when consumer purchasing search goods, for which it is much easier to judge product quality with abundant and definite product information. This explanation can be justified by availability (diagnosticity) theory which points that information diagnosticity is situation dependent. For H4, though our results don’t strongly validate H4, H4 is not refused as well. For the result of the non-significant difference in the effect of negative reviews between search goods and experience goods, we expect it is caused by the mixed effect of consumer attribution and perceived risk. Further systematic check is needed on these two hypotheses in the future researches.

From the theoretical perspective, we first confirm the effect of e-WOM valence is situation dependent and may change under the moderation of other factors. There exists the asymmetric interaction effect between e-WOM valence and product type. Based on attribution theory, WOM effects were supposed to be greater for search goods than experience goods since consumers are more likely to attribute e-WOMs of search goods towards product and attribute e-WOMs of experience goods to reviewer. When we classify online reviews according to valence, positive ones and negative ones, this conclusion does not apply for negative reviews though it still works for positive reviews. Based on prospect theory, we try to explain this phenomenon by arguing that one consumer’s attribution could be changed by some other factors, such as perceived risk. Besides, through validating several hypotheses based on attribution theory and prospect theory, we analyze the detailed form of the interaction effect between review valence and product type, which may add to existing literature on review valence relevant researches. We find that the impact difference between positive reviews and negative ones is insignificant for search goods but significant for experience goods. These findings offer an explanation for the inconsistent results about the effect of WOM valence.

From the managerial perspective, our findings have implications for marketers on how to manage e-WOM more effectively and economically for different types of products. Our findings suggest that, no matter for which type of goods, negative e-WOMs should be paid enough attentions by marketers. Compared with positive e-WOMs, negative ones are usually fewer in the amount. However, their power in exerting influence on consumer decision can’t be ignored. E-WOM managers can track the high-quality negative reviews on some popular WOM communication websites timely. On one hand, e-WOM managers can improve product quality according to these negative feedbacks. On the other hand, e-WOM managers can offer feedbacks for consumers’ negative reviews to clarify the misunderstanding and seek for recovery. Besides, our findings indicate that the equivalent efforts in positive e-WOM management will bring more significant effect for search goods than experience goods. Thus, under the resources constraint, positive e-WOM marketing can be firstly conducted for search goods. According to the different directions and strengths of WOM valence under different situations, marketers can correspondingly adjust the e-WOM marketing strategies more economically and effectively.

This study has several caveats: Only two products are chosen to represent search goods and experience goods. Generality and externality of our findings are yet to be further justified. In addition, other important factors that may moderate the effect of eWOM valence are not included in our study. Adopting the experiment method has a limitation in including too many factors into analysis, which may hamper revealing the truth. We conduct our analysis with Chinese consumer data, so whether our findings apply for other cultures is not yet to be known. These limitations will be focused in our future researches.

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References
Appendix

Table I. Samples of online reviews for the experiment

<table>
<thead>
<tr>
<th>Group</th>
<th>Group Description</th>
<th>Sample Reviews</th>
</tr>
</thead>
</table>
| 1     | Positive WOM Valence | • This flash drive feels good and is quite portable. Its outlook is simple and clean. The light on it is green and looks beautiful in the dark.  
• I have owned several different brands of flash drives, some failed within a few weeks. This brand ALWAYS works, lasts, and is a great value. So recommend it! |
| 2     | Negative WOM Valence | • There is no lanyard on it, so not convenient to carry. The cap of it is quite small, and also not very tight. So easy to lose it.  
• Much less quality than I expected. Not worth the money, even if it is cheap. Disappointed! Suggest you all choosing other brands. |
| 3     | Positive WOM Valence | • For this face lotion, its moistening effect is outstanding. Not greasy, also. The skin feels elastic and tender after using it. Quite suitable for dry weather.  
• I have used many brands. Though some brands are more expensive, this brand fits me. By now, I have consumed a few bottles of this brand. Recommend! |
| 4     | Negative WOM Valence | • Too greasy to use for summer. It feels airtight. Moistening effect is awful and not as good as DaBao brand lotions. Also, it loses effect so quickly.  
• Choose this brand for the first time. It feels ordinary, and not that good as the advertisement said. Don’t like it! Sisters and brothers. Be careful not to choose this brand! |

Table II. Measures of Dependent Variables and Covariates

<table>
<thead>
<tr>
<th>Variables</th>
<th>Measures</th>
<th>Reference Sources</th>
<th>ANOVA analysis results among the four groups</th>
</tr>
</thead>
</table>
| WOM effect (Cronbach's Alpha=0.827) | I will refer to these reviews in my purchase decision.  
Overall, I think these reviews are credible.  
These reviews will crucially affect my purchase decision. | Park & Lee [27]; Jeon & Park [17] | F(3, 286)=7.31, P<0.001 |
| General Attitude on online reviews (Cronbach's Alpha=0.802) | “When I buy a product online,”  
I always read online product reviews posted by other users.  
The online product reviews are helpful for my decision making.  
The online product reviews make me confident in purchasing the relevant product.  
If I don’t read the online product reviews, I will worry about my decision. | Park et al. [25] | F(3, 286)=2.14, P<0.095 |
| Consumer Expertise (Cronbach's Alpha=0.939) | I am knowledgeable about this product.  
I have rich purchasing experience on this product.  
I know well about this product.  
I am an expert on this product. | Brucks [3] | F(3, 286)=7.98, P<0.001 |

Table III. Checking items for manipulated variables

<table>
<thead>
<tr>
<th>Manipulated Variable</th>
<th>Level</th>
<th>Item</th>
</tr>
</thead>
</table>
| Product Type         | Search goods | For this product, how easy to judge its quality only through descriptive information about it without trying before purchasing?  
Experience goods | A. very easy … E. very difficult |
| WOM Valence          | Positive | What is the overall attitude of these user reviews towards this product?  
Negative | A. completely negative … E. completely positive |