The Influence of Electronic Word-of-Mouth Dispersion on Order Decision from the Perspective of Self-Construal

W L Wu¹, M M Song², Y C Duan³, Y Hong⁴ and W J Sui²

¹School of Management, Shandong University, Jinan, Shandong 250100, China
²School of Tourism, Hainan University, Haikou, Hainan 570228, China
³School of Computer Science and Cyberspace Security, Hainan University, Haikou, Hainan 570228, China
⁴School of Business Administration, Hunan University, Changsha, Hunan 410082, China

*Correspondence: 992968@hainanu.edu.cn

Abstract. Based on attribution theory, this paper explores the mechanism behind the influence of hotel electronic word-of-mouth dispersion on consumer order decision. Results show that (1) discrete electronic word-of-mouth negatively impact the order decision; (2) attribution selection could mediate the effect of electronic word-of-mouth dispersion on order decision of consumers; (3) independent self-construal weakens the negative effect of electronic word-of-mouth dispersion on order decision of consumers; and (4) consumers with high endowment reduce the tendency of electronic word-of-mouth dispersion due to online supporter reviews. Findings not only contribute to electronic word-of-mouth dispersion studies in the field of consumer behaviour, but also provide theoretical guidance and reference for hotel order management based on electronic word-of-mouth.

1 Introduction

As the main way for consumers to obtain product information [1], electronic word-of-mouth is critical for hotel management. However, most reviews are positive that consumer is difficult to make decision. Therefore, this paper introduces the dispersion as a judgment mechanism to study the order decision making. When faced the dispersion of electronic word-of-mouth, consumers tend to explain the reasons for dispersion [2]. Previous studies have attributed the dispersion of electronic word-of-mouth to the product or the commentator [3]. However, companies often hire online supporters to post fabricated reviews so that consumers cannot easily judge the authenticity of electronic word-of-mouth [4]. In this case, this attribution interpretation has some limitations. Therefore, this paper proposes a new attribution view, that is, the discrete electronic word-of-mouth can be attributed to consumer and online supporter reviews.

Some scholars argued that consumers hold different attitudes toward e-WOM [2]. Consumers may reduce dependence on e-WOM in pursuit of product uniqueness or may pay attention to e-WOM in pursuit of social identity. These characteristics agree with the differences of independent and interdependent self. In addition, endowment effect can regulate the influence of e-WOM dispersion on attribution selection [2].

Therefore, based on attribution theory and loss aversion theory, this paper explores whether the dispersion of electronic word-of-mouth affects order decision making and introduces attribution...
selection as an intermediary variable to investigate whether endowment effect can regulate the influence of electronic word-of-mouth dispersion on attribution selection. This paper also analyses whether self-construal regulates the influence of electronic word-of-mouth dispersion on order decision making.

2 Literature review and hypotheses

2.1 Effects of electronic word-of-mouth on order decisions

By using a word-of-mouth star-rating distribution map, scholars have examined the discreteness of electronic word-of-mouth. E-WOM dispersion may represent the difference of word-of-mouth reflected in the standard deviation of star-rating of a product or service [5]. When electronic word-of-mouth is highly discrete, potential consumers cannot easily make judgments regarding the quality of a product or service, and their perceived decision risk is relatively high. Conversely, consumers perceived decision risk is relatively low [6].

Minnema et al. highlighted the effects of electronic word-of-mouth dispersion on product returns [7]. In the hospitality industry, electronic word-of-mouth dispersion may also affect order decisions. Therefore, this study proposes that when the electronic word-of-mouth is more discrete, consumers tend to cancel their orders increasingly. The first hypothesis is suggested on this basis.

H1. The dispersion of electronic word-of-mouth has a significantly negative impact on order decision making.

2.2 Mediating effect of attribution theory

Heider proposed attribution theory to judge and explain the reason behind people’s own behaviour [8]. According to attribution theory, the dispersion degree of electronic word-of-mouth can be attributed to either internal or external reasons [2]. He and Bond argued that consumers tend to attribute the dispersion of electric word-of-mouth to the product or existing reviewers [3]. Given that potential consumers feel that they belong to the same social group as the existing consumers. Therefore, existing consumer reviews can be considered internal causes [9]. Online supporters refer to those users who are employed by others to publish false statements. They are influenced by external environments [9], so online supporters’ reviews are identified as an external cause. Attribution theory posits that when the degree of information consensus is high (low), individuals deem that the behaviour of the observed is mainly due to external (internal) causes [2]. So consumers attribute highly and lowly discrete electronic word-of-mouth to consumer reviews and online supporter reviews, respectively.

If consumers attribute the e-WOM dispersion to consumer reviews, the perceived credibility will be improved [3]. Or they perceived credibility will be reduced [3]. Compared to consumer reviews, consumers who attributed e-WOM dispersion to the online supporter reviews tend to cancel their orders. Accordingly, the following hypotheses are proposed.

H2. Attribution selection plays a mediating role in the influence of discrete electronic word-of-mouth on order decisions.

H2a. Consumers attribute highly and lowly discrete electronic word-of-mouth to consumer reviews and online supporter reviews, respectively.

H2b. Consumers tend to cancel their orders when they attribute the dispersion of electronic word-of-mouth to online supporter reviews.

2.3 Moderating effect of self-construal

Proposed by Markus and Kitayama, self-construal refers to how individuals view the relationship of connected or separated from others [10]. Self-construal can be categorized into independent and interdependent [10], independent self-construal pays less attention to electronic word-of-mouth and stick to their original intention of purchasing products to express their unique needs. By contrast, interdependent self-construal depends on the opinions of others when making decisions [11]. Hence, this paper introduces self-construal to regulate the effect of e-WOM dispersion on order decision
making. Interdependent self-construal attaches importance to electronic word-of-mouth and tend to keep their orders when they perceive a lowly discrete electronic word-of-mouth. Independent self-construal is less dependent on electronic word-of-mouth and adheres to their original intention of purchasing products to express their unique needs [11]. Therefore, individuals dominated by independent self-construal tend to retain their orders. Accordingly, the following hypotheses are proposed.

**H3.** Self-construal moderates the influence of electronic word-of-mouth dispersion on order decision making.

**H3a.** Compared with high electronic word-of-mouth, when the dispersion of electronic word-of-mouth is low, consumers dominated by interdependent self-construal tend to keep their orders.

**H3b.** In the face of discrete electronic word-of-mouth, those consumers dominated by independent self-construal tend to keep their orders.

### 2.4 Moderating effect of endowment

The endowment effect posits that once a person owns an item, s/he tends to place a higher value on such item [12]. Chatterjee et al. argued that the endowment effect shifts the bias of consumers toward information integration [13] and affects the attribution of e-WOM dispersion [2]. Therefore, endowment effect may moderate the attribution selection of e-WOM dispersion. Consumers with a strong endowment are inclined to weaken their attribution of high-level e-WOM dispersion to other consumers [2]. The following hypotheses are proposed:

**H4.** The influence of electronic word-of-mouth dispersion on attribution selection is moderated by the endowment effect

**H4a.** Consumers with strong endowments have a stronger tendency to attribute the high dispersion of electronic word-of-mouth to the existence of online supporter reviews than those consumers with weak endowments.

### 3 Experiment design and result analysis

This study consists of 4 experiments. Experiment 1 examines the influence of e-WOM dispersion (high vs. low) on order decision making (cancel vs. keep), verifies H1. Experiment 2 examines the impact of attribution selection (online supporter comments vs. consumer comments) on order decision making, tests H2. Experiment 3 explores the moderating role of self-construal (independent vs. interdependent) in the influence of e-WOM dispersion on order decision, tests H3. Experiment 4 verifies the moderating effect of the endowment effect (strong vs. weak) on the effect of e-WOM dispersion on attribution selection, tests H4.

### 3.1 Design and procedure

A 2 (e-WOM dispersion: high vs. low) by 2 (number of reviews: 47 vs. 987) within-subjects design was employed in this study. Different levels of comments were introduced to avoid the participants perceiving the purpose of the study. After a brief description of the experiment, participant was introduced to first situation, “Please imagine that you have already booked the hotel”. At this point, the participants were shown a picture of the hotel. Afterward, they were randomly presented four decision situations and were asked about their order decision, attribution selection, self-construal and endowment effect in a specific situation. Each scenario was presented with an electronic word-of-mouth distribution map that includes the number of comments, hotel star rating distribution (1~5 stars) and average star level (3.5 stars) [14]. A survey was eventually conducted to collect the demographic information of these participants.

### 3.2 Measurements

Independent variable is e-WOM dispersion. A standard deviation of less than 0.71 is regarded as low e-WOM dispersion, whereas a standard deviation larger than 1.49 is regarded as high dispersion [14].
The manipulation of e-WOM dispersion is the form of texts and pictures. According to Geuens and Pelsmacker [15], observable variables cannot be manipulated. So there is no manipulation inspection for e-WOM dispersion.

Dependent variable is order decision. Order decision was measured by one item (i.e., “what is your order decision for this hotel?”; 1=cancel order, 5=keep order).

Mediating variable is attribution selection. Attribution selection was measured by four items [2]. The average scores for questions 1 and 3 were computed to reflect the consumer review index, whereas those for questions 2 and 4 were computed to reflect the online supporter review index. The attribution selection index was obtained by subtracting the consumer review index from the supporter review index.

Moderating variables are self-construal and endowment effect. (1) Self-construal. Independent self-construal (α=0.619) and interdependent self-construal (α=0.645) were measured by seven items respectively [16]. The independent and interdependent self-indexes of the participants were calculated by averaging the scores. The independent self-index was subtracted from the interdependent self-index to obtain the self-construal index [17]. (2) Endowment effect. Endowment effect was measured by three items (α=0.86) [18]. The endowment effect index was obtained by averaging the scores. Then, the participants whose index was lower than the median were label with weak endowment, others label with strong endowment.

3.3 Results

3.3.1 Experiment 1. Sample. In September 2020, 120 college students were recruited to participate in experiment 1, of which 11 samples were excluded due to the key variables being answered incorrectly. The final valid samples are 109, with females and males accounting for 59.6% and 40.4%, respectively.

Hypothetical test. Examine the effect of e-WOM dispersion on order decision by regression analysis. E-WOM dispersion has a significant negative impact on order decision making in 47 comments (β=−0.38, t=−6.00, p<0.05), Meanwhile, e-WOM dispersion also has a significant negative impact on order decision in 987 comments (β=−0.47, t=−7.83, p<0.05), supporting H1.

3.3.2 Experiment 2. Samples. In September 2020, 120 college students were recruited to participate in experiment 2. A total of 120 samples were valid, with females and males accounting for 64.2% and 35.8%, respectively.

Hypothetical test. SPSS20.0 and SPSS PROCESS macro (version 3.3) Model 4 were used to test H2. Result shows the negative influence of e-WOM dispersion on order decision remains significant (β=−0.65, t=−4.25, p<0.05). E-WOM dispersion significantly negative influence attribution selection (β=−1.23, t=−6.38, p<0.05), attribution selection has a significant positive impact on order decision making in 47 comments (β=0.25, t=5.18, p<0.05), that is, when electronic word-of-mouth dispersion is high (low), consumers tend to attribute to the online supporter reviews (consumer reviews), rejecting H2a; consumers tend to cancel their orders when they attribute the d e-WOM dispersion to online supporter reviews, H2b is supported. In 987 comments situation, the influence of e-WOM dispersion on order decision remains significant (β=−0.87, t=−5.80, p<0.05). Similarly, discrete electronic word-of-mouth significantly negative affects attribution selection (β=−1.48, t=−7.28, p<0.05), attribution selection significantly positive impacts on order decision making (β=0.21, t=4.86, p<0.05). In sum, attribution selection has a mediating effect on the dispersion of electronic word-of-mouth and the influence of order decision making, supporting H2.
3.3.3 Experiment 3. Sample. In September 2020, 120 college students were recruited from a university in Hainan to participate in experiment 3. A total of 120 samples were collected, of which 20 were excluded from the analysis because of unqualified answers, for example, the answers to all questions were same. The final valid samples were 100, with females and males accounted for 59% and 41%, respectively.

Hypothetical test. SPSS20.0 and SPSS PROCESS macro (version 3.3) Model 1 were used to test H3. In the 47 comments situation, the dispersion of electronic word-of-mouth has a significant impact on order decision making ($\beta=-0.41$, $t=-3.40$, $p=0.001<0.05$); the product of electronic word-of-mouth dispersion and self-construal significantly affects order decisions ($\beta=0.31$, $t=2.88$, $p=0.004<0.05$), thereby self-construal regulates the influence of discrete electronic word-of-mouth on order decisions, supporting H3. When the dispersion of electronic word-of-mouth is low, interdependent self-construal consumers tend to reserve their orders ($t=-4.44$, $p<0.05$), supporting H3a. When faced with discrete electronic word-of-mouth, independent self-construal consumers tend to reserve their orders ($t=-0.36$, $p=0.72>0.05$), supporting H3b. Meanwhile, in the 987 comments situation, the dispersion of electronic word-of-mouth significantly affects order decision making ($\beta=-0.45$, $t=-3.69$, $p<0.05$), the product of electronic word-of-mouth dispersion and self-construal has an insignificant effect on order decision ($\beta=0.14$, $t=1.29$, $p=0.20>0.05$), which means that the moderating effect of self-construal on the influence of electronic word-of-mouth dispersion on order decision is not significant, rejecting H3.

3.3.4 Experiment 4. Sample. In September 2020, 120 college students were recruited to join experiment, total of 120 samples were valid. Females and males accounted for 58.3% and 41.7% of the sample, respectively.

Hypothetical test. SPSS 20.0 and SPSS PROCESS macro (version 3.3) Model 1 were used to test H4. Results show that e-WOM dispersion has a significant negative effect on attribution selection ($\beta=-0.39$, $t=-2.28$, $p=0.02<0.05$), the product of e-WOM dispersion and endowment effect has a significant positive effect on attribution selection in 47 comments ($\beta=0.39$, $t=2.03$, $p=0.04<0.05$), supporting H4. Compared with weak endowment, participants with strong endowment have a lower tendency to attribute the e-WOM dispersion to online supporter reviews (2.86 vs. 3.37), rejecting H4a. In the 984 comments situation, the e-WOM dispersion has a significant impact on order decision making ($\beta=-0.30$, $t=-2.70$, $p=0.008<0.05$), the product of e-WOM dispersion and endowment effect has no significant influence on attribution selection ($\beta=0.05$, $t=0.37$, $p=0.71>0.05$), rejecting H4.

4 General discussion
This research mainly explores the influence mechanism of e-WOM dispersion on order decision making, introduces attribution selection as an intermediary variable, and examines the moderating influence of endowment effect and self-construal. Results show that (1) discrete electronic word-of-mouth negative impact the order decision of consumers; (2) attribution selection could mediate the effect of electronic word-of-mouth dispersion on order decision of consumers; (3) independent self-construal weakens the negative effect of electronic word-of-mouth dispersion on order decision of consumers; (4) consumers with high endowment reduce the tendency of electronic word-of-mouth dispersion due to the presence of online supporter reviews.
4.1 Theoretical contribution
This research offers three theoretical contributions as follows:

1) This research explores the influence of e-WOM dispersion on order decisions. Previous research on e-WOM dispersion mainly focused on the purchase intention and behaviour of consumers. This study extends previous research on influence of e-WOM dispersion on consumer behaviour.

2) This research proposes an innovative attribution perspective. Previous studies have attributed the e-WOM dispersion to both the reviewer and the product. However, as businesses continue to hire online supporters to post fabricated reviews, this perspective of attribution cannot correctly interpret the internal mechanism of consumers’ attribution. Therefore, this study attributes the e-WOM dispersion to consumer reviews and online supporter reviews.

3) This study examines the moderating variables of self-construal. It is found that independent self-construal weakens the negative effect of electronic word-of-mouth dispersion on order decision of consumers. This research makes contributions to the order decision-making, which has not been explored.

4.2 Management implications
This study offers three management implications as follows:

1) Hotels should avoid recruiting online supporter to make false reviews. Results show that consumer attribute the e-WOM dispersion to online supporter comments will cancel order. From a long-term perspective, if hotels recruit online supporters to make false comments, the credibility of e-WOM will be reduced, and consumers will negative impact order decision because they distrust e-WOM.

2) Hotels should provide personalized services to awaken consumers’ independent self-construal. Results show that independent consumers have a higher tendency to keep their orders. Therefore, hotels should form a differentiated customer value proposition so that consumers can perceive the uniqueness and increase their probability of retaining their orders.

3) Hotels should adopt differentiated experiential marketing attracted consumers’ emotional attachment, and create a limited opportunity to stimulate consumers. Results show that consumers with strong endowments tend to attribute dispersion to online supporter reviews and keep orders. Therefore, hotels should customize the experience in a differentiated way so that consumers would form an emotional attachment. Hotels should also provide limited-time discounts (tonight specials/10% discounts), soon-to-be-sold-out promos (only 1 room/2 rooms left), and other promotions to encourage their consumers to keep their orders.

4.3 Limitations and prospects
This study has both theoretical contributions and managerial implications, but also has limitations. Firstly, this research mainly focuses on the impact of hotel e-WOM dispersion on order decisions. The findings of this work can only be applied to the hotel industry. Future research should enhance the universality of these findings. Secondly, the study does not explore why the moderating influence of the self-construal and endowment effect in high comments (987 reviews) is not significant. Therefore, the impact of e-WOM dispersion on order decisions under a large number of comments may be investigated in future research. Moreover, this study only uses questionnaire items to measure
self-construal. In future studies, the manipulation of self-construal can be activated by stories before measured by questionnaire items.

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