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An Empirical Study for Online Supplemental Reviews Impact on Consumers' Purchase Intention

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Abstract

In order to let buyers and sellers make more sensible buying or selling decisions based on the E-WOM. This paper explored the relationship between the online supplemental reviews and buyers' purchase intention by empirical study. Dataset included 281 valid questionnaires, and investigation of the research questions relied on the statistical procedures of analysis of variance. Based on research, the conclusion suggested that the buyers' purchase intention was influenced by more supplemental reviews than by the original reviews. Moreover, when the original reviews are positive or neutral, the positive supplemental reviews will enhance purchase intention; on the contrary, it will be weakened when two types of reviews are negative. Besides, the relationship between different reviews and purchase intention was found to vary as a function of review sentiment as well as product types.

Key words: Original reviews; Supplemental reviews; Product type; Purchase intention

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INTRODUCTION

With the development of the Internet technology, there are some special characteristics about social activities on the

Internet. For example, directed to multiple individuals, available to other consumers for an indefinite period of time, and anonymous (Thorsten, Kevin, Gianfranco, & Dwayne, 2007). As a main form of E-WOM, online reviews break through the limitation of traditional word-of-mouth communication, and change the way of consumer behavior greatly. Because of the long time-span, individuals could present their personal thoughts and reactions of products or services by on-line supplemental reviews, show the information to others more comprehensively and objectively, for example, since August 3, 2012, we can add supplemental reviews from 90 days to 180 days after you bought something in TaoBao.com. Therefore, on-line supplemental reviews are paid more attention by potential buyers.

On the on-line shopping site, the supplemental reviews are further description for the original reviews. Hence, this paper seeks to answer the following research questions: (1) Are there any differences between original reviews and supplemental reviews for consumer behavior? (2) How do supplemental reviews relate to the purchase intention across review sentiment? (3) With the interaction of two types of reviews, is there any influence for consumers' purchase intention? (4) How does the intention vary as a function of supplemental reviews sentiment? Which type of product is affected more strongly?

The remainder of the paper is structured as follows. The next section reviews the related literature and proposes the hypotheses. Which is followed by the methods of data collection and analysis. Results are presented next, followed by the conclusion and enlightenment respectively.

1. HYPOTHESES

It is a primary resource for potential consumers to read relevant opinions expressed by buyers who have the previous shopping experiences (Dellarocas, 2003). Consumers' purchase intention will be stronger when the reviews are more thorough and comprehensive (Park,

Lee, & Han, 2007). Supplemental reviews could add more details according to consumers' experiences. And there are three differences between original reviews and supplemental reviews: (1) Compared to original reviews, supplemental reviews which contain deeper opinions were made posteriorly. (2) The quantity of supplemental reviews is less than original reviews. A part of consumers may make comments because of the incentive methods by sellers, however, they are deficient in energy to make a second comment. (3) Consumers share experiences of their own accord, the content are specific, so supplemental reviews are more credible and reliable than original reviews. Thus, we hypothesize:

H1: All else being equal, supplemental reviews have a greater impact on consumers' purchase intention than original reviews.

On-line reviews are mainly comprised with original reviews and supplemental reviews, provide consumers and sellers with highly important references. However, the review sentiments of these types are not always consistent. This paper groups two types of reviews with 9 types (3(original reviews: positive; neutral; negative) \times 3(supplemental reviews: positive; neutral; negative)). When original reviews and supplemental reviews are both positive, it means that products or services stand the test of time, and consumers are more satisfied. But a study shows that negative reviews are more influential than positive reviews or neutral reviews (Yang & Mai, 2010). Therefore, consumers' purchase intention will be affected badly in the case of positive original reviews and negative supplemental reviews. On the contrary, potential consumers' purchase intention will be intensified with negative original reviews and positive supplemental reviews. It will be more credible when consumers make neutral original reviews, but consumers are more likely to buy something with positive supplemental reviews. Thus, we hypothesize:

H2: The interaction with original reviews and supplemental reviews affect consumers' purchase intention.

H2a: All else being equal, with original reviews are positive or neutral, consumers' purchase intention will be stronger when positive supplemental reviews are provided compared with neutral supplemental reviews.

H2b: All else being equal, with original reviews are negative, consumers' purchase intention will be weak when negative supplemental reviews are provided compared with neutral supplemental reviews.

Some studies have shown that E-WOM was only grouped into two kinds of word-of-mouth (Ma, 2014; Ma, 2015; Sen & Lerman, 2007). However, neutral reviews could strengthen the reliability of information source as well as the brand attitude, it implied that neutral reviews

are more persuasive compared with extreme reviews (Eisend, 2006). But Forman, Ghose, and Wiesenfeld (2008) have an opposite opinion with books reviews in Amazon as a case. The lack of consensus suggests the product types other than sentiment that could be related to consumers' purchase intention.

According to attribution theory, different sentiment of word-of-mouth would make asymmetric effects for consumers while buying different natures of products (Sen & Lerman, 2007). Consumers prefer to consult with objective reviews when they bought experimental products (Ford & Smith, 1990), hence, this paper considers that neutral reviews are easy to be accepted than extreme reviews. On the contrary, the information about search products is objective and specific and verified easily. Therefore, extreme reviews are more reliable for search products (Ford & Smith, 1990). Thus, we hypothesize:

H3: All else being equal, supplemental reviews sentiment affect consumers' purchase intention, the influence of the practices differs by the search or experience orientation of the product. Consumers' purchase intention will be stronger when extreme reviews of search products are provided compared to neutral reviews are provided. However, this effect will be attenuated for experiential products.

2. METHODS

2.1 Pretest

Search products include vitamin (Lee & Shin, 2014), mobile phone, PC and digital camera (Zhao & Han, 2015) and so on; Experience products include wine, books and skin care (Chua & Banerjee, 2016). 10 respondents were invited to have a group interview. Consequently, we chose mobile phone as a search product and skin care as a experience product. These items subjected to expert and respondent judgment were initially generated. There were two reasons: (1) These two products are bought frequently on the Internet, and have many on-line reviews; (2) Consumers should take more energy to make purchase decision when bought these products. The study was a (original reviews: positive, negative, neutral) \times 3(supplemental reviews: positive, negative, neutral) \times 2(product types: search, experience) experimental design conducted to test H1, H2, and H3.

We chose some reviews with supplemental reviews from Taobao.com. These reviews were divided into three types review—positive, negative, and neutral. 18 groups reviews were created for each product. We adopted the same length of text without pictures with minimal interference and all of reviews were real.

According to 18 groups of reviews, the study designed 6 types of questionnaire. Subjects were randomly assigned to one of the six conditions for pretest (n=40). The questionnaires were presented with five-point Likert

items. According to results, the questionnaire had a good reliability ($0.800 < \text{coefficient } \alpha < 0.890$) and was suitable for factor analysis ($KMO > 0.50$, $\text{Sig} < 0.01$). Importantly, the sentiments were made in with-group design, and products were made in between-group design.

2.2 Measures

Based on the result of the pretest ($n=40$), reviews sentiment was measured with two items: (1) Overall, I think the sentiment is positive/negative/neutral. (1.strongly disagree-5. strongly agree); (2) These reviews tend to persuade someone of buying. (1.strongly disagree-5.strongly agree). Refer to pre-existing literature (Mitra & Reiss, 1990; Bei & Chen, 2004), product types were measured with the item: when can you get the product quality information? Get totally before buying/get totally after buying. As indicated earlier (Li, 2010; Huang & Lao, 2013), purchase intention was measured with two five-point items: based on the information provided about this product, (1) These reviews have influence on your purchase intention; (2) I will recommend my friends this product.

2.3 Data Collection

Subjects were asked to read the situation: You want to buy a mobile phone (a set of skin care), and you are ready to consult the given reviews before buying. Then, they were randomly assigned to one of the six conditions and answered questions. Finally, subjects should offer their demographic information (Gender, age...). After excluding 19 cases containing missing or inconsistent information, the dataset ($n=281$) include 120 men and 161 women.

2.4 Data Analysis and Result

The four items were entered into a principle components analysis (PCA) to examine the dimensionality of the entire set of items. Such a procedure is preferred to the application of a confirmatory factor analysis at this stage, as the PCA takes more adequately into consideration the exploratory state of the typology of purchase intention. Four factors with eigenvalues (>1) were extracted using the latent roots criterion and a Varimax rotation. All factors showed strong reliability (See Table 1). Four factors were tested by PCA, the results showed that these factors were suitable to do factor analysis ($KMO=0.831$; $\chi^2=5118.574$; $\text{Sig}<0.01$). From the above, the study had good validity after using Varimax rotation, and factor loadings were greater than 0.5 between the common factors (See Table 2).

Table 1
All Factors Showed Strong Reliability

Factor	Original reviews	Purchase intention1	supplemental reviews	Purchase intention
Cronbach's α	0.867	0.872	0.871	0.887

Table 2
Rotated Factor Matrix

	Rotated Factor Matrix			
	1	2	3	4
A1	.173	.921	.235	-.119
A2	.170	.824	.292	.298
Y11	.207	.499	.652	.443
Y12	.218	.391	.859	-.002
B1	.892	.233	-.004	-.124
B2	.891	.173	.085	.243
Y21	.124	.114	.273	.863
Y22	-.083	.050	.479	.802

Note. A: Original reviews; B: Supplemental reviews; Y: Purchase intention; Y11, Y12: Purchase intention before referring the additional reviews; Y21, Y22: Purchase intention after referring the additional reviews.

We compared means for the control condition test. Difference in review sentiments indicated that they were perceived as in the post-test study. Respectively, original reviews were perceived significantly ($M_{\text{positive}}=3.94$, $M_{\text{neutral}}=3.33$, $M_{\text{negative}}=2.52$, $t=80.68$, $p<0.01$), the same as supplemental reviews ($M_{\text{positive}}=3.86$, $M_{\text{neutral}}=3.21$, $M_{\text{negative}}=2.50$, $t=82.402$, $p<0.01$). Meanwhile, products nature was perceived strongly by the respondent ($M_{\text{search}}=1.77$, $M_{\text{experience}}=3.33$, $t=74.112$, $p<0.01$). In conclusion, the reviews sentiments and product types were manipulated successfully in the study.

Reviews sentiments (original reviews and supplemental reviews) and product types were set as independent variables; Purchase intention was set as dependent variable. To test H1 and H2, Total number of votes attracted was calculated by Mean and Standard Deviation (See Table 3). Regardless of product type, a significant difference in purchase intention was found across review sentiment: positive original reviews ($M=3.16$) were lower than positive supplemental reviews ($M=3.46$); the neutral original reviews ($M=3.23$) and negative original reviews ($M=2.68$) were exceeded respectively supplemental reviews with the same sentiment ($M_{\text{neutral}}=2.91$; $M_{\text{negative}}=2.42$). When the original reviews were positive, subjects in the positive supplemental reviews' condition perceived the purchase intention as stronger than subjects in the neutral supplemental reviews' condition ($M=3.55$ and 2.79). When the original reviews were negative, subjects in the negative supplemental reviews' condition perceived the purchase intention as lower than subjects in the neutral supplemental reviews' condition ($M=2.26$ and 2.71). When the original review were neutral, subjects in the positive supplemental reviews' condition perceived the purchase intention as stronger than subjects in the neutral supplemental reviews' condition ($M=3.57$ and 3.12). Thus, the purchase intention was manipulated successfully. In order to verify the significance of the results, the subjects' responses on the manipulation checks were also examined. These were averaged for an ANOVA test. The result showed that effect between positive and neutral supplemental reviews' condition was different

when original reviews were positive (0.76) ($F=17.410$, $p<0.01$); As well as the effect between negative and neutral supplemental reviews' condition where original reviews were negative (0.45)($F=82.808$, $p<0.01$). The study also showed that the effect between positive and neutral supplemental reviews' condition were different when original reviews were negative (0.45)($F=27.433$, $p<0.01$). Thus, these results support H1 and H2.

Second, for conducting analyses to test H3, we measured the influence of supplemental reviews sentiment and product types on consumers' purchase intention ($F=12.88$, $p<0.01$). About search product, the purchase intention of positive reviews ($M=3.31$) was more significant than neutral reviews ($M=2.84$) and negative reviews ($M=2.35$). About experience product, there was the same result in the condition: the purchase intention of positive reviews ($M=3.31$) was greater than neutral reviews ($M=2.97$) and negative reviews ($M=2.49$).

However, As the dataset showed: about search product, the difference of effect between positive reviews and negative reviews ($M=0.96$) was smaller than the difference of effect in the condition of experience product ($M=1.11$). On the other hand, about search product, the difference of effect between positive reviews and neutral reviews ($M=0.63$) was higher than the difference of effect in the condition of experience product ($M=0.47$). The analysis proved that supplemental reviews exercise a greater influence on consumers' purchase intention across product types. For search product, the supplemental reviews with extreme sentiment had a greater affect on purchase intention than neutral reviews. And experience product had the similar result. However, compared with search product, the influence of positive reviews and negative reviews on the consumers purchase intention had a more significant effect. The results are shown in the Table 3 and Figure 1. Thus, these results support H1 and H2 partly.

Table 3

supplemental reviews		Search product			Experience product			Total
		positive	neutral	negative	positive	neutral	negative	
Original reviews	positive	3.63 (0.89)	2.99 (1.07)	2.49 (1.19)	3.46 (1.03)	2.59 (0.94)	2.08 (1.21)	3.16 (0.94)
	neutral	3.38 (0.92)	2.96 (1.02)	2.47 (1.20)	3.76 (0.82)	3.27 (0.91)	2.77 (1.24)	3.23 (0.98)
	negative	2.84 (0.92)	2.47 (1.03)	2.01 (1.17)	3.56 (0.91)	2.94 (1.15)	2.51 (1.44)	2.68 (1.31)
total		3.31 (0.95)	2.84 (1.05)	2.35 (1.20)	3.60 (0.91)	2.97 (1.04)	2.49 (1.33)	

Note. Between parentheses: Standard deviation; Outside of parentheses: Mean

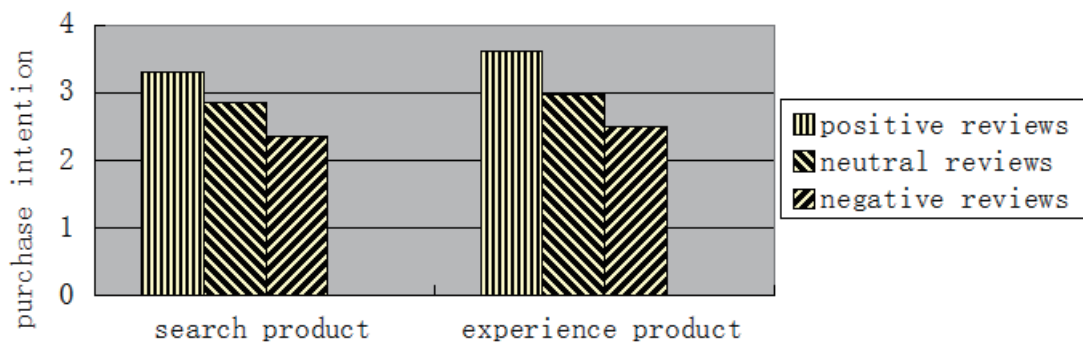


Figure 1
Interaction Plot for Purchase Intention as a Function of Supplemental Reviews Sentiment and Product Type

CONCLUSION

This paper seeks to answer the research question: With search/experience product, is there any difference in consumers' purchase intention as a function of original reviews and supplemental reviews. The findings emerge from the research described in this paper. First, compared with original reviews only, supplemental reviews have a deeper influence on consumers' purchase intention. Second, when the original reviews are positive or neutral, compared with positive supplemental reviews, neutral

supplemental reviews could affect purchase intention more strongly; when the original reviews are negative, compared with neutral supplemental reviews, negative supplemental reviews could weaken purchase intention further. Finally, supplemental reviews influence on customers' purchase intention via product type. Specifically, for search product, extreme supplemental reviews have stronger influence on purchase intention. And there is the similar result for experience product, but the effect is greater between positive reviews and negative reviews.

There are too many on-line reviews when we

buy something on line. So the research suggests that consumers should pay more attention to supplemental reviews. In addition, no matter what type of product the seller has, they should remember that positive supplemental reviews can attract more customers to visit your goods; In contrast, negative supplemental reviews have a terrible impact on sales. On the other hand, neutral supplemental reviews can't be neglected, this kind of reviews have an obvious impact on experience product. Thus, the seller has to control the quantity and quality of all kinds of reviews carefully. In a word, the seller should provide consumers with high-quality goods or services encourage them to present more supplemental reviews. And provide consumers with convenient complaint channels, solve the problem timely and effectively.

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