

READING THE VOICE IN SELLER REVIEWS: AN ANALYSIS ON THE TRUST FEELING REVEALED IN REVIEWS

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ABSTRACT

There is substantial information embedded in seller reviews, which calls for an efficient way to read. This paper specifically analyzes the trust feeling embedded in seller reviews and its impacts on customers' perceived uncertainty and perceived risks in online transactions, based on the findings in a text mining over 500 reviews collected from ebay.com. To sum, we find that 1) seller reviews can be fairly explained by the trust feeling exposed in their content; 2) the three antecedents of trust (benevolence, competence and integrity) has a significant impact on perceived seller opportunism and uncertainty in online transactions.

INTRODUCTION

With the proliferation of e-commerce, the growing importance of customer reviews attracts attention not only from merchants but also researchers. While online shopping is growing in popularity and ease, there is uncertainty involved: Customers cannot pick up the product to examine it, and they don't know if the merchant is reliable or trustworthy. Much effort has been devoted into reducing this uncertainty, for example, by providing great information beyond simple textual information or hosting a forum of customer reviews. Customer reviews are broadly believed to be more reliable than merchant-supplied information, because they are generally written by prior customers who are assumed to be more objective. It has been commonly agreed that customer reviews have an effect on lessening the uncertainty in online transactions, however, there are still insufficient findings on explaining how this mechanism works.

Our study contributes to current literature in two ways. First, we apply text mining to extract customer opinions from the perspective of trust feeling. There are some prior studies working on interpreting customers' voice in customer reviews. However, most of them over-emphasize the importance of the sentimental characteristics of reviews. For example, some of the researchers cluster customer reviews based on the subjectivity in review content, and this subjectivity is measured by the proportion of adjective in the sentences [1]. Actually, in some cases, the viewpoints reviews are taking should be judged based on the context of the arguments, especially in neutral reviews. In some neutral reviews, reviewers did not mention many negative issues of the transactions in the reviews; instead, they wrote many compliments. However, those negative words can more represents reviewers' viewpoints than positive words, although the proportion of the negative words in the sentences is low. As a supplement, it would be helpful to consider the semantic features in the statements of reviews.

Second, a survey-based study is conducted to measure the impact of the findings in text mining on people's behaviors. The semantic patterns uncovered in text mining can only tell us the main topics embraced in reviews; however, it is still obscure that how these semantic features in reviews work on peoples' decision making. As mentioned in the beginning, customer reviews were initially created to help customers mitigate the uncertainty and risks in online transactions. The focal perceptions to investigate in this study are perceived uncertainty and risks, although there could be other perceptions such as purchase intention in the purchase decision making process. In the surveys, the reviews are manipulated based on the findings in text mining, and the perceptions are measured by the instruments adopted from the past literature.

THEORETICAL BACKGROUND

Hypotheses Regarding Perceived Risk

Perceived risk is one of the broadly discussed factors in the literature of e-commerce. Risks can be measured in several ways. Sometimes, researchers simply measure the perceived risk in general. For instance, these researchers ask the subjects directly the extent to which the subjects think the transaction is risky, is likely to cause trouble in the future, or is associated with a good chance of mistakes the decision maker would make [2]. Sometimes, researchers take a deeper look at the risks with exploration of their potential resources. For example, some of them measure risks in the format of financial risks, time risks, performance risks and social risks[2, 3]. The measure of perceived risk can vary as conditions change.

As stated by Pavlou et al. (2007), in principal agent theory risks are assumed to derive from sellers' hidden information and hidden actions. Hidden information technically refers to occasions when sellers intentionally hide the information about the products and transactions. Hidden action is when sellers break their promise by sending low quality or counterfeit products to customers. Using the principal agent theory, researchers proposed four types of risks in their study—perceived information asymmetry, fears of seller opportunism, information privacy concerns and information security concerns. By definition, perceived information asymmetry is equivalent to the risk of hidden information, since both result from the asymmetrical distribution of information between buyers and sellers. Fears of seller opportunism correspond to the risk of hidden actions resulting from activities such as quality cheating, contract default, and failure to acknowledge return or refund and so on. Meanwhile, information privacy concerns and information security concerns are more relevant to the risks related to the environment of websites[4]. Privacy and security concerns, while important and interesting, are not relevant to our focal questions, therefore, we take them out of our consideration and simply use the instruments in Pavlou et al.'s study to measure perceived information asymmetry and fears of seller opportunism. Formally stated, the relevant hypotheses are as follows:

H1: Perceived benevolence has a negative impact on perceived information asymmetry.

H2: Perceived benevolence has a negative impact on fears of seller opportunism.

H3: Perceived competence has a negative impact on perceived information asymmetry.

H4: Perceived competence has a negative impact on fears of seller opportunism.

H5: Perceived integrity has a negative impact on perceived information asymmetry.

H6: Perceived integrity has a negative impact on fears of seller opportunism.

Hypotheses Regarding Perceived Uncertainty

Uncertainty has been viewed as a barrier to e-commerce adoption[5]. To foster the development of e-commerce, many studies have been done to investigate the approaches to reduce this uncertainty in online transactions. For instance, Gregg and Walczak discover that increasing the quality of e-images can reduce both the uncertainty and perceived risks in online transactions[6]. Weathers et al. (2007) find that information vividness also has such a function on uncertainty[7]. In the context of customer reviews, Weathers et al. additionally find that the reviews written by third party are more effective at reducing uncertainty and enhancing information credibility with regard to search products, and product reviews provided by retailers are more effective at lowering uncertainty regarding to experience products[7]. Here the products such as MP3 players, music CDs, and PC video games, are viewed as experience products, and the products such as cell phones, digital cameras, and Laser printers, are viewed as search products [8]. Compared to experience products, which are typically rated subjectively, the quality of search products is easier to evaluate objectively.

There is some evidence that trust mitigates uncertainty. For instance, Gefen finds both knowledge-based familiarity and trust can help reduce the uncertainty and simplify the buyer-seller relationship in online transactions[9]. Kim et al. also claim that customers' trust can help reduce their perception of risks and foster their purchase intention[10]. On the basis of principal agent theory, Pavlou et al. proposed that four factors—trust, website informativeness, product diagnosticity and social presence—might help mitigate the uncertainty[4]. With the empirical tests of online book purchasing and online prescription filling, their hypotheses are validated. With a comprehensive understanding of the findings in literature, the rationale in our study is that trust has an effect on mitigating uncertainty, and this relationship is mediated by perceived risk. Therefore, we hypothesize that

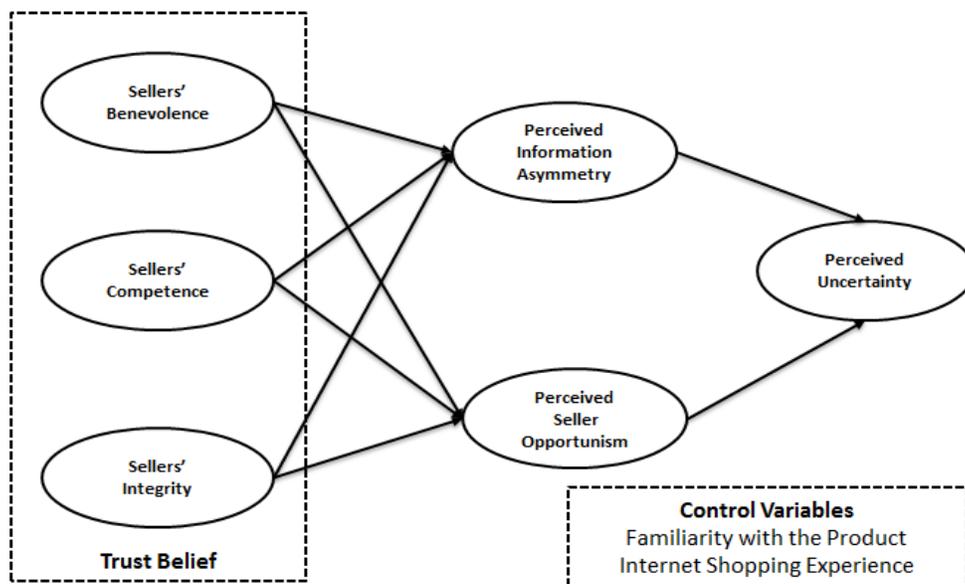


Figure 1. Research Model

H7: Perceived information asymmetry has positive impact on perceived uncertainty.

H8: Fears of seller opportunism has positive impact on perceived uncertainty.

Overall, the proposed measurement model, incorporating all the hypotheses proposed earlier, is presented in Figure 1.

THE FINDINGS FROM TEXT MINING

All of the reviews were manually collected from ebay.com. To increase the generality of reviews, we intentionally collected the reviews from different sellers. The merchandise these sellers sell includes shoes, clothes, CDs, collectables, and small furniture. To avoid the one-sidedness caused by unique performance of one specific seller, we collected only 10 reviews from each seller. In the end, we amassed 500 reviews in each of the three categories of reviews—positive, neutral, and negative. With the focus of this study on sellers and not products, 500 reviews in each category reveal sufficient information about sellers' performance in transactions.

Consistent with the common understanding, most of the positive reviews are compliments from prior customers. In contrast to positive reviews, most of the comments in negative reviews are complaints from prior customers. The topics of negative reviews ranged from poor service to poor quality of the products. Unlike either positive reviews or negative reviews, the emotion in neutral reviews is more complex. Overall, neutral reviews represent a negative attitude toward the transaction. But this kind of dissatisfied feeling is accompanied by a certain level of affirmative attitude toward the transaction. Therefore, neutral reviews have both positive comments and negative comments

SURVEY ADMINISTRATION

Data Collection

92 responses were received in the survey. Several steps were necessary to clean up data: 1) Delete incomplete responses (less than 20% completion rate). 13 incomplete responses were deleted, leaving 379 responses. 2) Delete non-first-time responses. The participants in the experiment were simultaneously recruited from several classes in a business school. To avoid duplicated responses, a question was intentionally asked at the end of each survey to check the uniqueness of that response. In this step, 20 non-first-time responses were deleted, with 359 responses remaining. 3) Delete the responses with strong evidence showing the participant's lack of attention on the survey. The participants were intentionally requested to choose "strongly agree" or "strongly disagree" in three questions to check that the participants at least carefully read the questions in the survey. 141 responses indicated a lack of attention to the survey questions and were deleted. After deleting responses in these three areas, 218 valid responses remain in the study.

Findings in Survey

The loadings of the instruments on the three antecedents of trust further indicate a good convergent validity of the measurement in the study. As mentioned earlier, the overall trust feeling is simply measured by one question — to which extent do you think this seller is trustworthy. As expected, the three antecedents of trust can well represent the overall trust by explaining 71.2% of the variation in the instrument of overall trust, and the significance of the paths from the antecedents to trust further prove it. Unique to the context of seller reviews, the path coefficients of the three antecedents to trust indicate not all the antecedents are equally important in forming the trust. The magnitude of the standardized path coefficients shows that perceived integrity has the strongest impact (0.604), perceived benevolence is the second (0.227), and perceived competence is the least (0.074). This also indicates that, although perceived benevolence and integrity are highly correlated, they are still distinctive from each other.

CONCLUSION

This study measured the effect of seller reviews from the trust-construction perspective. It was assumed that seller reviews semantically embody prior customers' trust belief in sellers, and this trust belief can impact the subsequent customers in future transactions. The results in text mining validate the first half part of the assumption. Although different reviews have different focuses in content, for instance, positive reviews focusing more on the compliments of sellers' good performance and negative reviews focusing more on the complaints of sellers' bad performance in transactions, it is still reasonable to adopt the three antecedents of trust to read the voice in seller reviews. The text mining additionally uncovers the semantic structure in seller reviews and paves the road for the subsequent behavioral study.

The main objective of the behavioral study is to test the second part of the aforementioned assumption—how do seller reviews impact customers? The focal perceptions of interest are the risks and uncertainty in online transactions. There are several expected findings as well as several unexpected ones. The risks in online transactions were measured in the format of information asymmetry (hidden information) and seller opportunism (hidden actions) based on the principal agent theory. Consistent with the theory, the uncertainty in online transactions is significantly comprised of concerns about the seller's potential hidden information and hidden actions. However, compared to seller opportunism, the concern on information asymmetry is negligible, which is understandable. With the easy access to internet, there is very little about the products they do not know, so hidden information is no longer a concern. On the contrary, customers worry more about the performance of the sellers.

The behavioral study additionally shows that, although readers can correctly sense the feelings on benevolence and competence in the reviews, the information on benevolence does not affect readers' perceptions of either risks or uncertainty at all. As for integrity, readers' perception does not change in accordance to the content. No matter the information on sellers' integrity is positive or negative, readers' perception remains negative. The path coefficients in the structural model confirm this finding. Compared to perceived competence, perceived integrity has a much stronger effect on lessening perceived risk, no need to mention perceived benevolence. A MANOVA additionally shows that, to differentiate sellers' integrity based on seller reviews, sellers' competence should be considered simultaneously.

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