The Influence of Online Customer Reviews on the Spread of Electronic Word-of-mouth

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Abstract: This study focuses on the impact of online reviews on electronic word-of-mouth (eWOM) communication, specifically the number, nature, and form of reviews and how publishing platforms promote eWOM by reducing purchase risk. Using a sample of 264 Chinese online consumers, the study analyses the data with SPSS 22.0 to reveal the moderating effects of online engagement and company reputation on the relationship between consumer reviews and purchase risk. The results show that review characteristics significantly affect consumers' purchase intention and eWOM communication, providing empirical support for eWOM management and marketing strategies. The study also points out directions for future research.

***Keywords*:** online reviews, eWOM, purchase risk

1. Introduction

In China, the online shopping user base is growing year-on-year, reaching 610 million by 2022. Clothing is one of the main online shopping categories, accounting for about 70.4% (Forward Intelligence, 2022). However, users face risks and uncertainties when purchasing apparel online, as they cannot experience the products in person. User-generated content such as online customer reviews (OCRs) has recently become commonplace. OCRs contain valuable information that helps companies develop business strategies and consumers make shopping comparisons (Sun et al., 2019). However, online shopping is risky due to information overload and false reviews that can lead to misinformation, affecting further eWOM activities. Risk perception is a key factor influencing purchase intentions (Lawrence & O'Connor, 2000). However, how potential purchasers form purchase risk judgements through OCRs is under-researched and the link between purchase risk and OCRs remains to be addressed.

This study aims to fill the research gap in digital marketing. First, the relationship between OCRs and purchase risk is examined. Second, it explores how purchase risk, as a mediating variable, affects the formation of eWOM and purchase intention. Additionally, the moderating role between online engagement and company reputation was analyzed. The study deepens the understanding as a marketing strategy to guide buyers and sellers to make better use of online reviews.

2. Theory and Hypotheses

2.1 OCRs and Purchase Risk

OCRs are often used as a form of Internet customer feedback and are usually posted on retail websites or social media. Prior to making a purchase, OCRs give potential customers more details about a product and help them reduce the uncertainty and risk they face in making decisions related to online purchases, as reading other people's recommendations can be seen as the digital equivalent of testing and trying out a product in a physical shop (Coppola, 2022).

First, consumers care about the number of review comments. Before making a purchase choice, around 70% of internet buyers generally read between one and six user reviews, and 15% will read more than 10 customer reviews. Additionally, 39% of internet consumers believe that a company needs a minimum of 100 reviews to be reliable (Statista, 2023). The number of OCRs tends to reflect the credibility and acceptance of a product (Lee, 2009; Zhang et al., 2014). Therefore, it stands to reason that consumers might interpret more reviews as indicating greater product importance and popularity. Second, positive reviews resulted in a lower overall level of perceived risk, which positively impacted purchase intentions (Yang, 2013). More than a quarter of respondents felt that positive reviews had the most influence on their decision to click to buy, which was the highest of all factors considered when shopping online such as speed of delivery, free shipping, and coupons. This is most likely because favorable OCRs enhance the link between customer emotional trust and their propensity to do online business as well as the link between their perception of integrity and their attitudes (Cheung et al., 2009). Third, the diversity of information presented on the Internet leads to a variety of online consumer review forms, like text, image

and video sharing. Mo et al. (2015) found that picture reviews reduced the risk of consumers purchasing experiential goods. This is because providing accurate and detailed visual information about a product can help buyers lower their perceived risk of shopping online and then make decisions. Finally, the comments and product reviews of customers can be posted on e-commerce websites, and social media (Boardman & McCormick, 2019). Customer attention and behavior change based on the webpage's content, functionality, and user objectives throughout the buying process. Pemarathna (2019) studying the effectiveness of Xiaohongshu's online reviews found that expanding user connection and community content, and lowering user perceived risk is crucial to increasing user purchase behavior in social media operations. Thus, this study proposes the following hypotheses:

H1: The number of OCRs positively impacts customers' perceived purchase risk.

H2: The nature of OCRs has an impact on consumers' perceived purchase risk.

H3: The form of OCRs has an impact on customers' perceived purchase risk.

H4: The platform of OCRs has an impact on customers' perceived purchase risk.

2.2 The Moderating Effect of Customer Online Engagement and Company Reputation

As shown above, OCRs can influence consumers' perceived purchase risk. However, online customer engagement and company reputation may have an extra impact on this relationship.

Customer engagement is the process by which companies interact with their customers through various channels to develop and strengthen the relationships (Briglia, 2020). Attention and purchasing intentions were strongly correlated with customer engagement in live digital marketing (Clement Addo et al.,2021). That is, the longer potential customers are exposed to the benefits of buying and following in likes, chats, visits and social commerce, the more likely they are to reduce their own risk of buying and thus the more inclined they are to purchase an item. In fact, interactions occur not only between anchors and customers, but also between customers. According to research, consumers have a greater impact on other customers' purchase decisions (Zheng et al., 2022), because social relationships and interpersonal interactions have a beneficial effect on consumer engagement. Thus, the hypothesis of this study is that

H5a: Online user engagement moderates the effect of the number of OCRs on customers' perceived purchase risk.

H5b: Online user engagement moderates the effect of the nature of OCRs on customers' perceived purchase risk.

H5c: Online user engagement moderates the effect of the form of OCRs on customers' perceived purchase risk.

H5d: Online user engagement moderates the effect of the platform of OCRs on customers' perceived purchase risk.

Customers' purchase decision is also impacted by company's reputation. Tran and Nguyen (2022) showed that reputation had a favorable influence on perceived trust and a negative impact on perceived risk in their research of customer behavior in online purchasing in Vietnam since they feel less risk while doing so. However, as reviews are one of the most significant elements affecting consumer purchasing behavior, it is easy for fraudsters to hire specialized reviewers or use automated methods or incentives to generate fake reviews to increase traffic and customer engagement, as well as to reduce the reputation of competitors (Salminen et al., 2022). Thus, when reputable firms have many positive reviews, people usually take them at face value, and conversely, when poor firms harvest many positive reviews, the authenticity of OCRs will be seriously questioned and raise the risk of consumer purchases. This study suggests the following based on its findings:

H6a: Company reputation moderates the effect of the platform of OCRs on customers' perceived purchase risk.

H6b: Company reputation moderates the effect of the form of OCRs on customers' perceived purchase risk.

H6c: Company reputation moderates the effect of the nature of OCRs on customers' perceived purchase risk.

H6d: Company reputation moderates the effect of the number of OCRs on customers' perceived purchase risk.

2.3 Spread of e-Word of Mouth

E-WOM has become an essential source of product information for buyers and is one of the most potent marketing strategies in social media. The impact of e-WOM messaging and perceived risk are positively correlated, according to a wealth of research in marketing (Amarullah1 et al, 2022; Yang, 2013). However, few research has looked at perceived risk as a factor affecting how e-WOM spreads. Some indirect evidence affirms the role of purchase risk for e-WOM. Lampert and Rosenberg (1975) found that people engage in more word-of-mouth activities when acquiring a product is seen as having less risk. In addition, Beisswanger et al. (2003) discovered there is no distinction between making judgments and advising people. This means that if the purchase risk is reduced due to online reviews, customer online engagement and company reputation, people will be more interested in buying and more active in spreading e-WOM to others. The following assumptions are put forth by this study based on the analysis above:

H7a: Perceived purchase risk through OCRs directly influences the spread of e-WOM among non-purchasers.

H7b: Perceived purchase risk through OCRs negatively influences customers' willingness to purchase.

H8: Perceived purchase risk through OCRs indirectly influences the spread of e-WOM among customers who are willing to purchase.

3. Methodology

3.1 Research Design

This study primarily utilized online questionnaires for data collection. The questionnaire aimed to capture genuine attitudes and behaviors by simulating real online clothing purchase scenarios, aligning respondent actions with survey responses to enhance research validity. The questionnaire targets Chinese online shoppers and is divided into four sections. Section one gathers demographic data and online clothing purchase habits to contextualize respondents relative to the study's goals. Section two evaluates online customer reviews across quantity, content nature, form, and platform, each with five items (Zhang et al., 2014; Weisstein et al., 2017; Tran, 2020; Sohn, 2017). Section three assesses customer engagement and company reputation, each with five items. Section four, adapted from Yang et al. (2016), measures purchase risk. The final section, drawing on Jain (2019), explores e-WOM spread mechanisms. Responses are rated on a five-point Likert scale, labeled from 1 (strongly disagree) to 5 (strongly agree).

3.2 Measurement

3.2.1 Control Variables

Control variables measure the characteristics of the respondents using demographic questions such as gender, age, education, monthly disposable income and occupation. Also, basic questions related to online clothing purchases such as how often respondents purchase clothing online and when they last purchased clothing using online consumer reviews are included.

3.2.2 Independent and Mediating Variable

As independent variables, this study uses four dimensions - number of reviews, nature of the content, the form of content and platform - to measure online customer reviews. Specifically, these dimensions include content (e.g., functional attributes or services), and valence (e.g., positive or negative) (Pipitwanichakarn & Wongtada, 2020). In addition, purchase risk is both a mediating and independent variable, and this study explores the spreading path of e-WOM by examining the effect of OCRs on purchase risk.

3.2.3 Moderating Variable

To better study consumer psychology and behavior, this study introduces customer engagement and company reputation as moderating variables from both internal and external reference levels, respectively. The former reflects how connected and involved customers feel with a company's offerings (Wongkitrungrueng & Assarut, 2020); the latter has been found to be a strong predictor of consumer attitudes and behavior (Kim and Lennon, 2013).

3.2.4 Dependent Variables

For the dependent variable, this study uses two transmission paths, indirect and direct, corresponding to consumers' purchases and non-purchase respectively, and uses 'purchase intention' as a mediating variable to capture the behavior of Chinese online customers in spreading e-WOM.

4. Analysis and Results

4.1 Descriptive Analysis

The online survey is created on China's professional questionnaire platform, Questionnaire Star, and shared on media applications in the form of posters or links. The data collection period takes 7 days. After excluding incomplete surveys, valid data is collected from a total of 264 respondents, of which almost all respondents have experience in online shopping, 54.5% are women and 45.5% are men. The age group with the highest number of respondents is between 18 and 25 years old (n = 156; 59.1%), and most of them have university or higher education (n = 213; 80.7%). To draw reliable conclusions for accepting or rejecting the hypothesis, SPSS 22.0 is used as a tool to analyze the collected data and 50 questionnaires were randomly selected for pre-test data analysis before conducting formal data analysis. Ultimately, the data are tested and compared through reliability testing, validity analysis, descriptive analysis, correlation analysis, linear regression analysis, and mediated Model 4 analysis.

4.2 Reliability Analysis

The purpose of the internal consistency assessment test is to analyze the connection among several items that relate to the same construct (Lehmann & Casella, 1998). After the revision of the questions, the total correlation of all questions is

above 0.4 and the reliability of all variables is above 0.7. Four of the topics in the number of reviews have an alpha reliability of 0.87, four of the topics in the nature of the content has an alpha reliability of 0.88, and five of the topics in the form of the content have an alpha reliability of 0.87. Platform has alpha reliability of 0.88 and 6 topics. Customer engagement consists of six questions with an alpha reliability of 0.84 and an overall reliability of 0.88. Risk has five questions with an alpha reliability of 0.77, while company reputation has four with an alpha reliability of 0.68. The four questions measuring purchase willingness have an alpha reliability of 0.86; The four questions measuring E-WOM have an alpha reliability of 0.88. The questionnaire is therefore valid.

4.3 Factor Validity Analysis

Factor analysis is a crucial method for establishing construct validity. Exploratory factor analysis was conducted on the variables by incorporating question items under one dimension at a time. Through this analysis, it was determined that for each variable, only one dominant dimension was obtained (with eigenvalues higher than 1), and the variance explained by these dimensions was more than 50%. This indicates that the variables are well - structured. The results of the KMO and sphericity tests (Table 4.3) showed that the KMO of each variable was above 0.5, and the chi - square of the spherical test was significant (less than 0.05), suggesting that the data could be effectively extracted as a common component and was suitable for further component analysis. Based on these results and the established criteria for convergent validity (where factor loadings above 0.4 and variance contributions above 50% are considered good), it can be inferred that the study variables are valid and the data are appropriate for subsequent regression analysis.

4.4 Correlation Analysis

This study used linear regression to analyze the correlation between the dependent variable purchase risk and the independent variables - Number of reviews, nature of content, form of content and platform. Table 4.4 gives the correlation coefficients between the variables for the entire sample. The sig value (p-value) is the key factor in the regression equation. The regression equation can be deemed statistically significant if the sig value is less than 0.05, which indicates that the independent variable is predictive of the dependent variable. If not, it is assumed that the independent variable is not predictive of the dependent variable. From the table, the standardized coefficient of number of reviews is -0.185 ($t=-3.748$, $P<0.001$), with a significant coefficient, and because the coefficient is less than 0, number of reviews inversely affects the size of risk; the standardized coefficient of nature of content is -0.229 ($t=-4.741$, $P<0.001$), with a significant coefficient, and because the coefficient is less than 0, nature of content inversely affects the size of Risk. The standardized coefficient for form of content is -0.289 ($t=-6.027$, $P<0.001$), with a significant coefficient, and because the coefficient is less than 0, form of content inversely affects the size of risk; the standardized coefficient for platform is -0.320 ($t=-6.486$, $P<0.001$), with a significant coefficient, and because the coefficient is less than 0, platform inversely affects the size of risk. Since all independent variables are significant, hypotheses H1-H4 can be proved.

The R-squared may be used to describe the overall model fit, with a bigger R-squared denoting a greater level of explanation of the dependent variable by the independent variable. The regression coefficient of the product term may also be used to show the moderating effect (Memon et al., 2019). The numbering in the first column of Table 4.5.1 represents the number of regression analyses. For Model 1, the independent variables are Number of Reviews, Nature of Content, Form of Content, Platform, and Customer Engagement; For Model 2, the independent variables are added to the previous model as Number of Reviews × Customer Engagement, Nature of Content × Customer Engagement, Form of Content × Customer Engagement, and Platform × Customer Engagement. Since the amount of change in the R-squared from model 1 to model 2 is significant, it can be assumed that the addition of a moderation term to model 2 improves the efficiency of the model.

As shown in Table 4.5.2, the coefficient on the interaction term 'Number of Reviews x Customer Engagement' is not significant ($p=0.420$, $t=0.807$), consequently, the moderating impact is minimal.. For the coefficient on the interaction term 'Nature of Content × Customer Engagement', the moderating effect is not significant as the coefficient of -0.042 is not significant ($p=0.410$, $t=-0.826$). For the interaction term 'Form of Content × Customer Engagement, the moderating effect is not significant as the coefficient of 0.087 is not significant ($p=0.063$, $t=1.867$). For the interaction term 'Platform × Customer Engagement', the coefficient of -0.220** is significant ($p=0.001$, $t=-3.521$), so the moderating effect is significant. From the simple effect plot (Figure 4.5.1), the effect of platform on risk is lower when customer engagement is high, which means that customer engagement can significantly increase the risk mitigating effect of platform, therefore hypothesis H5d is confirmed.

As shown in Table 4.5.3, for Model 1, the independent variables are number of reviews, nature of content, form of content, platform, and company reputation; For Model 2, the independent variables are added to the previous model as Number of Reviews × Company Reputation, Nature of Content × Company Reputation, Form of Content × Company

Reputation, and Platform × Company Reputation. Since the R-squared between models 1 and 2 changed significantly, it may be assumed that the addition of a moderation term to model 2 improves the efficiency of the model.

For the coefficient of the interaction term 'Number of Reviews × Company Reputation', considering that the coefficient is -0.095 (p=0.114, t=-1.587), the moderating impact is not significant. The coefficient on the interaction term 'Nature of Content × Company Reputation' is not significant (p=0.662, t=-0.438), so the moderating impact is minimal. For the interaction term 'Form of Content × Company Reputation', The coefficient of 0.177** is significant (p=0.003, t=2.968), indicating that the moderating influence is considerable; for the interaction term 'Platform × Company Reputation', as the coefficient of -0.004 is not significant (p=0.945, t=-0.069), the moderating impact is not significant. From the simple effects plot (Figure 4.5.2), Form of Content is less effective in marketing Risk when Company Reputation is low, which means that the form of online reviews is less effective in reducing risk when the company has a high reputation, so hypothesis H6b is confirmed.

4.5 Intermediary Model 4 analysis

This section was analyzed in Process using Model 4 with e-WOM as the dependent variable, risk as the independent variable, and purchase willingness as the mediating variable. Referring to Tables 4.6.1 and 4.6.2, the regression coefficients of the two regression models and their significance tests are presented in the regression coefficient tables. The first regression model has purchase willingness as the dependent variable; the second regression has e-WOM as the dependent variable. By looking at the significance (p column) it can be seen if there is an effect of each variable on the dependent variable, and whenever the p-value falls below 0.05 we can assume that the variable has a significant effect on the prediction. Specifically, risk has a regression coefficient of -0.39 (p<0.001) on e-WOM, as evidenced by H7a; Risk significantly reduces the likelihood of making a purchase (b=-0.48, p0.001), as evidenced by H7b; Purchase has a regression coefficient of 0.36 (p<0.001) for purchase on e-WOM, as evidenced by H8.

Table 4.6.3 shows a mediating effect of -0.1738 (se=0.0384). Because of its 95% confidence interval (LLCI=-0.2615, ULCI=-0.1026), it can be determined that 0 can be excluded and therefore the mediating effect is significant.

5. Conclusion

This study examines the impact of OCRs characteristics on clothing e-WOM through purchase risk, customer engagement, and company reputation. OCRs inversely affect purchase risk, with reviews reducing perceived risk and spreading e-WOM. Engagement moderates the platform's impact on risk, while reputation moderates content form's impact. Purchase risk directly and indirectly influences e-WOM, negatively affecting buying willingness but positively driving e-WOM spread for clothing. The findings of the research will serve as a crucial benchmark for companies' e-WOM management and marketing decisions as well as customers' purchasing decisions. Companies can optimize layout of OCRs to improve consumers' willingness to purchase and the effectiveness of word-of-mouth communication. For consumers, there is a need to screen and benefit from a variety of online reviews to make purchasing decisions that meet their needs.

The study's limitations include a narrow demographic scope, focusing on Chinese students aged 18-25, which restricts the generalizability of results. It specifically examined e-WOM in clothing, suggesting the need for broader product categories in future studies. The methodology was quantitative; future research should integrate qualitative methods for a comprehensive analysis. Additional research avenues include exploring OCRs' influence on e-WOM across cultures and investigating other factors, such as product attributes and market competition, that may mediate or moderate the OCR-e-WOM relationship.

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