Research Article

An Empirical Study on the Impact of Customer Purchase Intention Based on Factor Analysis and Structural Equation Model

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Consumer purchasing choices are being more influenced by online reviews, and bad online reviews have a greater effect on customers than favourable online reviews. In order to investigate the mechanism by which negative online reviews influence consumer purchase decisions, this paper focuses on two key indicators of negative online reviews: the quality of negative reviews and the quantity of negative reviews. It also introduces consumer product involvement and perceived risk as intermediary variables. SPSS 20.0 and AMOS 23.0 analytic software is used for descriptive, validity, reliability, correlation, and regression analyses of data. The empirical approach is used to verify and update a model or hypothesis. Detrimental Internet reviews had a negative impact on customers’ purchase intentions, as well as the perceived risk and product engagement of the recipient’s psychological representations, according to this research.

1. Introduction

According to the 2018 China Online Shopping Market Research Report, after most users search for the target products, they will not only pay attention to the attributes of the products themselves but also browse the relevant information of the products such as users’ online reviews. Recently, the development of information technology and the emergence of electronic commerce have brought significant changes of purchase behavior in customers (Yoon, Jong Hoon et al., 2008) [1]. Online product reviews, as an important form of online word-of-mouth, are positive or negative reviews made by consumers based on their own experience of using products (Chen and Xie, 2008) [2]. Compared with product information provided by merchants, online reviews are perceived by consumers as having higher credibility and appeal (Goh et al., 2013) [3]. Online product reviews have become one of the most important sources of information for consumers to make purchase decisions and ultimately affect consumers’ evaluation and willingness to purchase products (Park et al., 2007 [4]; Pumawirawan et al., 2012 [5]).

Nearly 90% of consumers think that evaluations from other users would influence their buying choices, according to Research (a research firm). Gao (2002) discovered in the world of marketing that customers believe negative information is more judgemental than positive information; therefore, they rely on negative information more when making purchase decisions [6].

Keaveney (1995) studied the influence of diffusion of negative reviews on customers purchase intention. The results show that when a consumer changes his original purchase intention, he is likely to spread the negative information to other consumers [7]. Li (2007) verifies that the quantity and degree of online negative reviews, perceived usefulness, and other factors have an impact on consumer purchase decisions [8]. Money (2004) pointed out that online negative reviews have a greater impact on consumers attitudes and behavior, and will affect consumers purchase intention [9]. This paper will focus on the impact of online
negative reviews on consumers purchase intention, and explore the important factors and mechanisms that affect the role of online negative reviews on consumers purchase intention.

2. Related Work

Mehrabian and Russel proposed the Stimulus-Organism-Response (S-O-R) model initially. The paradigm asserts that external stimuli may influence an individual's emotional state, as well as his or her achievement/avoidance reaction. Sizong et al. (2014) combined with decision-making neuroscience, divided the decision-making process of consumer word-of-mouth re-dissemination evaluation into six stages, based on which the model variables were determined, and finally the decision-making mechanism model of negative word-of-mouth re-dissemination evaluation was constructed [10]. Tan (2017) drew lessons from his thinking; believed that the influence process of online negative reviews on consumer's innovation resistance included "stage 1: information processing of online negative reviews", "stage 2: attitude formation of products being commented," and stage 3: consumer's resistance response"; combined ELM, IAM, TPB, and Prospect theory; and constructed online negative reviews on consumer's innovation resistance [11]. The impact mechanism model is shown in Figure 1.

3. Construction and Estimation of Measurement Model

In the existing studies, some scholars have done some research on the impact of online negative reviews on consumers purchase intention. Zhou (2011) studied the impact of online negative reviews on consumers online travel booking decisions. The results show that the quantity, quality, and information intensity of online negative reviews have significant positive effects on consumer-perceived risk and online travel booking decision-making [12]. Bi (2009) built a model of online reviews influencing consumers purchase intentions based on the theory. The research shows that relationship intensity has a positive and significant impact on consumers purchase intention, while perceived risk has a negative and significant impact on purchase intention [13]. Wang and Ying (2013) in the study of the impact of the degree of intervention on electric vehicles, empirical research found that the degree of intervention will negatively affect consumers purchase intention [14]. Leng (2012) research results show that the degree of consumer involvement will be affected by a variety of preintervention factors, and there is a significant positive correlation between the degree of involvement and purchase intention [15]. Chaudhuri (2000) found through empirical research that the degree of involvement will affect consumer's perceived risk and then affect their information-gathering behavior [16].

When customers believe a product is vital to them, they will get very involved. Consumers will actively seek product-related information during this time in order to make selections that best fulfil their requirements, and they will be more likely to spread word-of-mouth information to others. As a result, the quality of content and the number of reviews are considered to be the most important influencing elements of online unfavourable reviews in this research. Unlike previous studies, this study incorporates the psychological characteristics of comment receivers, such as product involvement and perceived risk, into the study to analyze the impact of the psychological characteristics of comment receivers on purchase intention.

This study attempts to explore the impact of online negative reviews on consumers purchase from the perspective of reviewers. It is assumed that the impact is both direct and indirect, in which the indirect impact plays a role through consumers product involvement and perceived risk. Based on the aforementioned ideas, the conceptual model of this study is proposed, as shown in Figure 2.

This paper proposed some research hypothesis, as follows:

- H1: The quality of negative reviews has a positive impact on the customer product involvement.
- H2: The quality of negative reviews has a positive impact on the customer perceived risk.
- H3: The quantity of negative reviews has a positive impact on the customer product involvement.
- H4: The quantity of negative reviews has a positive impact on the customer perceived risk.
- H5: The product involvement has a positive impact on the customer perceived risk.
- H6: The product involvement has a negative impact on the customer purchase intention.
- H7: The perceived risk has a negative impact on the customer purchase intention.
- H8: The quality of negative reviews has a negative impact on the customer purchase intention.
- H9: The quantity of negative reviews has a negative impact on the customer purchase intention.

4. Empirical Results

4.1. Data Collection. This study employs the empirical research approach, which primarily use quantitative research methods for data collecting and relies on surveys to collect information on a variety of topics. Offline questionnaires were distributed by intercepting social figures at supermarkets and squares in Nanjing and Changzhou, and some lecturers and students at Nanjing University of Finance and Economics were interviewed. From July 19 until August 25, 2018, the official questionnaire will be available. A total of 500 questionnaires were issued throughout the study, which lasted more than a month. We eliminated the invalid questionnaire through the contradictory lie detectors set in the questionnaire, and finally 487 samples were collected, of which 11 were dropped and 476 were employed, with a recovery rate of about 95.2%. From the aforementioned data, the overall distribution of the respondents is close to the 43rd statistical report on Internet development. The survey sample group meets the basic requirements of this study. This paper mainly uses SPSS 20.0 to perform descriptive statistical analysis on the collected data, including
demographic variables such as gender, age, education level, and online shopping experience.

4.2. Descriptive Statistical Analysis

4.2.1. Demographic Statistics. In this paper, the demographic variables of the subjects mainly include gender, income, age, education level, and occupation. Data from 476 valid surveys was used to conduct descriptive statistical analysis. Results showed that the number of the female in the effective sample is 256, accounting for 53.78% of the total while the number of males is 220, accounting for 46.22%, which indicated that the number of females is 38 greater than that of males but the male-female ratio is relatively balanced. Of this, 42.23% were aged 30 or above, 4.41% were aged 25 to 29, 18.91% were aged 21 to 24, and the rest were less than 20. Among the respondents, the university has the highest proportion of undergraduate degrees, accounting for 65.97%, followed by masters and doctors, accounting for 17.22%. In terms of the respondents’ occupation, 54.2% were students, 26.84% were office workers and 5.25% of them were freelancers.

4.2.2. Using the Experience of Online Shopping. Most of the time spent on online shopping in this study was more than 2 years, accounting for 71.86% of the total sample, of which 41.81% were over 4 years, 13.45% were over 3 to 4 years, and 16.6% were over 2 to 3 years. Most of the online shopping times are more than 10 times a year, accounting for 74.79% of the total sample, of which more than 20 times account for 54.2%, 16 to 20 years account for 7.14%, 11 to 15 years account for 13.45%. The majority of net items cost less than 500 RMB each time, accounting for 86.35% of the overall sample, with 23.11% costing less than 100 RMB, 43.91% costing less than 100 to 300 RMB, and 19.33% costing between 300 and 500 RMB. If the target product has no online
comments, 137 individuals said they would not purchase it, accounting for 28.78% of the total, and 31 people said they would not buy it, accounting for 6.51% of the total. Other expressions depend on the specific situation. When shopping online, 373 people said they would pay more attention to the product’s online negative reviews, accounting for 78.36% of the total, while 103 people said they would pay more attention to the product’s online positive reviews, accounting for 21.64% of the total. When shopping online, 350 people said they would browse the online negative reviews of the product and use them as a reference for purchase, accounting for 73.53% of the total. Ten people said they would not browse the online negative reviews of the product and use them as a reference for purchase, accounting for 2.1% of the total. The other 116 people said it depended on the specific situation.

To summarise, the survey is representative due to the reasonableness of the sample distribution and sample selection. At the same time, we can see that shopping experience and a college degree are two important criteria in this group. Owing to their ability to get more online shopping, these customers may also represent the current fundamental state of Chinese online shopping.

4.3. Reliability and Validity Analyses. This paper first analyses the reliability and effectiveness of the survey data. There are five factors that affect the research model, mainly including quality of negative reviews, the quantity of negative reviews of reviews, product involvement, perceived risk, and purchase intention. In this paper, the reliability of five potential structures consisting of 18 observed variables is analyzed to test their internal consistency and measured by Cronbach’s alpha coefficient. The higher the number of Cronbach’s alpha, the higher the relevance of the project, the higher the internal consistency. As indicated by 18 in Table 1, Cronbach’s ratio α coefficient is 0.937, which indicates that the reliability of this questionnaire is acceptable.

Validity analysis refers to the fact that the questionnaires and other measurement tools in the questionnaire can accurately measure the extent of the questions to be investigated by researchers, in order to illustrate the validity of the questionnaire. Content validity and structure validity are generally used for testing. This study is designed on the basis of the relevant questionnaire, so the questionnaire also has a high content validity.

All of the measurements selected in this study questionnaire were derived from the maturity scales of previous research scholars, such as Gilly et al. (1998) [17], Bansal and Voyer (2000) [18], G Lauren and JP Appear (1985) [19], Park et al. (2007) [4], and other studies determined by relevant experts. Therefore, the survey questionnaire has good content validity.

As Table 2 shown, the whole Cronbach’s Alpha coefficient of the scales are greater than 0.8, while the CITC of every item is greater than 0.6 and Cronbach’s Alpha coefficient of every item is greater than 0.79, which indicates that the internal consistency of quality of negative reviews, quantity of negative reviews, product involvement, perceived risk, purchase intention is high, and reliability is good.

| Measured variables                  | Corrected item-total correlation | Cronbach’s alpha if item deleted | Cronbach’s alpha |
|------------------------------------|----------------------------------|----------------------------------|------------------|
| Quality of negative reviews        | Q1 0.675                         | 0.694                            | 0.798            |
|                                    | Q2 0.726                         | 0.635                            |                  |
|                                    | Q3 0.541                         | 0.829                            |                  |
|                                    | Q4 0.657                         | 0.708                            |                  |
| Quantity of negative reviews       | Q1 0.671                         | 0.694                            | 0.799            |
|                                    | Q2 0.599                         | 0.771                            |                  |
|                                    | Q3 0.803                         | 0.892                            |                  |
| Perceived risk                     | Q1 0.847                         | 0.855                            | 0.912            |
|                                    | Q2 0.822                         | 0.875                            |                  |
|                                    | Q3 0.716                         | 0.875                            |                  |
|                                    | Q4 0.808                         | 0.840                            | 0.917            |
| Product involvement               | Q1 0.782                         | 0.899                            |                  |
|                                    | Q2 0.745                         | 0.906                            |                  |
|                                    | Q3 0.792                         | 0.897                            |                  |
| Purchase intention                | Q4 0.807                         | 0.894                            |                  |
|                                    | Q1 0.806                         | 0.894                            |                  |

Table 2: Cronbach’s alpha.
5. Correlation Analysis

Studying whether or if there is a connection between various occurrences and debating the relevant direction and degree of the relationship between them, relevance analysis is a statistical approach for examining correlations between random variables. Two independent factors (quality and amount of unfavourable reviews), two intermediate variables (product intervention and perceived risk) as well as dependent variables were analyzed using Pearson’s correlation analysis in this research (purchase intention). Table 3 shows the correlation coefficients for the five latent variables and numerous factors have substantial connections. There is a significant correlation between the quality of negative reviews and the amount of negative reviews. Quality and number of unfavourable reviews, product participation, and perceived risk are all strongly associated in a positive manner. The connection degree between product involvement and perceived risk is the strongest.

6. Factor Analysis

Before factor analysis, KMO sample measure (Kaiser–Meyer–Olkin measure of sampling adequacy) and Bartlett’s sphere test (Bartlett’s test of Sphericity) are generally used to test the correlation of variables. Only with a high correlation can further analysis be carried out. When KMO is greater than 0.9, it is very suitable for factor analysis.

In this paper, we use SPSS 20.0 to test KMO and Bartlett’s values of the 18 measured variables of five potential variables, the results of which are shown in Table 4, indicating KMO value is 0.926, greater than 0.7, and the chi-square value of Bartlett’s test is highly significant at 1% level. It shows that the relevant data can be used as factor analysis. The significant probability of p value in Bartlett’s sphere examination is 0.000, which meets the criterion of factor analysis. The quality and quantity of online negative reviews, perceived risk, product involvement, and purchase intention are all the results of the extraction of full-compliance factors, which are in line with the previous dimension division of online reviews.

As shown in Table 5, in this study, the principal component method was used to extract common factors and finally extracted five common factors according to the principle that the eigenvalue should be greater than 0.98. The eigenvalues were 3.755, 2.823, 2.594, 2.288, and 2.277, respectively, and the cumulative variance contribution rate was 76.317%, indicating that the five common factors contain most of the information of the original variable, that is, the factors that affect online negative reviews on consumers purchase intention can be analyzed from four aspects.

It is used for factor rotation as a way to better understand the link between factors and then to better understand their structural relationships. Table 6 displays the factor matrix created by orthogonally rotating the 18 observed variables. The results show that the factor load of Factor 1 on three observed variables of quality of negative reviews exceeds 0.6, while the factor load on other observed variables is small, which means that as a potential variable, the quality of negative reviews can be represented by three observed variables in the questionnaire. Similarly, the factor load of Factor 5 on the five observed variables of purchase intention exceeds 0.7, while the factor load on other observed variables is small, which means that as a potential variable, purchase intention can be represented by five observed variables in the questionnaire. In conclusion, the scales of quantity of negative reviews, quantity of negative reviews, perceived risk, product involvement, and purchase intention both have a good structural validity.

6.1. Factor Analysis of Independent Variables. In this paper, first of all, KMO and Bartlett sphere tests are conducted on the data of online negative reviews quality and quantity. In this paper, we use SPSS 20.0 to test KMO and Bartlett’s values of the five measured variables of two potential variables, the results of which are shown in Table 7, indicating KMO value is 0.810, greater than 0.7, and chi-square value of Bartlett’s test is highly significant at 1% level. It shows that the relevant data can be used as factor analysis. The significant probability of p value in Bartlett’s sphere examination is 0.000, which meets the criterion of factor analysis. The quality and quantity of online negative reviews are all the results of the extraction of full compliance factors, which are in line with the previous dimension division of online reviews.

In this study, the principal component method was used to extract common factors and finally extracted 2 common factors according to the principle that the eigenvalue should be greater than 1, as shown in Table 8. The eigenvalues were 2.173 and 2.122, respectively, and the cumulative variance contribution rate was 71.584%, indicating that the two common factors contain most of the information of the original variable, that is, the factors that affect online negative reviews on consumers purchase intention can be analyzed from two aspects.
6.2 Factor Analysis of Intervening Variable. First, the KMO and Bartlett sphere tests are carried out on the data of product participation and perceived risk in this research. As indicated in Table 9, the KMO value is 0.810, which is higher than 0.7, and the chi-square value for Bartlett’s test is highly significant at the 1% level, both of which were tested using SPSS 20.0 in this research. It demonstrates that factor analysis may be performed on the appropriate data.

As shown in Table 10, in this study, the principal component method was used to extract common factors and finally extracted two common factors according to the principle that the eigenvalue should be greater than 1. The eigenvalues were 2.924 and 2.669, respectively, and the cumulative variance contribution rate was 79.895%, indicating that the two common factors contain most of the
7.1. Estimation of the Structural Equation Model.

6.3. Factor Analysis of Dependent Variable. In this paper, KMO and Bartlett sphere tests are conducted on the data of purchase intention. We use SPSS 20.0 to test KMO and Bartlett’s values of the seven measured variables of two potential variables, the results of which are shown in Table 11, indicating KMO value is 0.852, greater than 0.7, and chi-square value of Bartlett’s test is highly significant at 1% level. It shows that the relevant data can be used as factor analysis. The significant probability of $\chi^2$ value in Bartlett’s sphere examination is 0.000, which meets the criterion of factor analysis. The purchase intentions are all the results of the extraction of full compliance factors, which are in line with the previous dimension division of purchase intention.

As shown in Table 12, in this study, the principal component method was used to extract common factors and finally extracted 1 common factors according to the principle that the eigenvalue should be greater than 1. The eigenvalues were 3.753, respectively, and the cumulative variance contribution rate was 75.058%, indicating that the one common factor contains most of the information of the original variable, that is, the factors that affect online negative reviews on consumers purchase intention can be analyzed from two aspects.

| Component | Total eigenvalues | Extraction sums of squared loadings | Rotation sums of squared loadings |
|-----------|------------------|-------------------------------------|----------------------------------|
|           |                  | Total % of variance | Cumulative % | Total % of variance | Cumulative % | Total % of variance | Cumulative % |
| 1         | 3.392            | 56.531               | 56.531       | 3.392              | 56.531       | 3.392              | 56.531       |
| 2         | .903             | 15.053               | 71.584       | .903               | 15.053       | 2.173              | 36.212       |
| 3         | .590             | 9.839                | 81.423       | .590               | 9.839        | 5.825              | 95.899       |
| 4         | .519             | 8.651                | 90.074       | .519               | 8.651        | 2.122              | 35.373       |
| 5         | .349             | 5.825                | 95.899       | .349               | 5.825        | 2.122              | 35.373       |
| 6         | .246             | 4.101                | 100.000      | .246               | 4.101        | 2.122              | 35.373       |

Kaiser–Meyer–Olkin measure of sampling adequacy .832

Approx. chi-square 2396.297

Bartlett’s test of sphericity $df$ Sig .000

It seems that the model’s assumptions about relationships between variables are validated by the findings of SEM analysis. In addition, the following is a detailed description of the link between the five latent variables: The quality of online unfavourable reviews will have a beneficial effect on product participation. The greater the number of unfavourable Internet reviews, the more likely the customers are to buy the goods. Perceived danger will increase if online unfavourable evaluations are of a high level. The quantity of online negative reviews will positively impact perceived risk. The consumer product involvement will positively impact perceived risk. The consumer product involvement will positively impact purchase intention. The perceived risk will positively impact purchase intention.

The results of the CR and AVE are shown in Table 14. And the AVE values of the five latent variables (quality of negative reviews, the quantity of negative reviews, product involvement, perceived risk, and purchase intention) are all above 0.5, and the CR values are all above 0.8, that is, they are all bigger than the critical values. And the values of CR and AVE indicate that the model has a good discriminant validity, and each factor in the research has a better internal consistency.

7.2. Analysis of Fitness of Model. After the estimation of structural equation model, the fitness of the TAM model about the impact of online negative reviews on consumers’ purchase intention would be estimated. Fitness indexes of the relationship model are shown in Table 15. From this evaluation indicator, it would be thought that the fitness of actual observation data of impact online negative reviews on consumers purchase intention with the concept model is good, fitting is high. The results show that $\chi^2$(CMIN) is 486.721, while the degree of freedom is 125 ($p = 0.000$), rejecting the null hypothesis at the 1% level of significance. Other fitness indexes such as NFI, CFI, TLI, and IFI are greater than 0.9 and close to 1, meaning that the fitness of this model is good.

7.3. Analysis of Estimation Results of the Structural Equation Model. The causal relation model about the impact of online negative reviews on consumers purchase intention is shown in Figure 3, where the path coefficients have been standardized. The results show that the estimation of the quality

Table 8: Description of the total variance of the independent variables.

| Component | Total eigenvalues | Extraction sums of squared loadings | Rotation sums of squared loadings |
|-----------|------------------|-------------------------------------|----------------------------------|
|           |                  | Total % of variance | Cumulative % | Total % of variance | Cumulative % | Total % of variance | Cumulative % |
| 1         | 3.392            | 56.531               | 56.531       | 3.392              | 56.531       | 3.392              | 56.531       |
| 2         | .903             | 15.053               | 71.584       | .903               | 15.053       | 2.173              | 36.212       |
| 3         | .590             | 9.839                | 81.423       | .590               | 9.839        | 5.825              | 95.899       |
| 4         | .519             | 8.651                | 90.074       | .519               | 8.651        | 2.122              | 35.373       |
| 5         | .349             | 5.825                | 95.899       | .349               | 5.825        | 2.122              | 35.373       |
| 6         | .246             | 4.101                | 100.000      | .246               | 4.101        | 2.122              | 35.373       |
of negative reviews on product involvement is 0.19, that is, when the quality of negative reviews increases 1 standard deviation, product involvement increases 0.19 standard deviation. The results show that the estimation of the quality of negative reviews on perceived risk is 0.19, that is, when the quality of negative reviews increases 1 standard deviation, perceived risk increases 0.19 standard deviation and so on.

Structural equation models would be used to explore the relationship between the five potential variables of the conceptual model of impact online negative reviews on consumers purchase intention the total effects (including direct effects and indirect effects) of the relationship between potential variables would be analyzed.

Table 16 would display the findings of this study. Perceived risk and product participation had the most direct impact on the likelihood of purchase, with a combined effect of 0.313; amount of unfavourable reviews, with a combined effect of 0.218, are the next most significant influences on buy intention. However, certain factors, such as the quality and number of bad reviews and the participation of the product, will have an influence on purchase intention via some mediation variables, such as these.

Quality of negative reviews would exert an indirect effect on purchase intention through the mediation of attitudes product involvement and perceived risk, whose estimation of indirect effect is 0.10, which is calculated by the way coefficient of direct effect of quality of negative reviews on product involvement (0.193) multiplies by the coefficient of direct effect of product involvement on purchase intention (0.313) and quality of negative reviews on perceived risk.

Table 10: Description of the total variance of the independent variables.

| Component | Initial eigenvalues | Extraction sums of squared loadings | Rotation sums of squared loadings |
|-----------|---------------------|-------------------------------------|----------------------------------|
|           | Total | % of variance | Cumulative % | Total | % of variance | Cumulative % | Total | % of variance | Cumulative % |
| 1         | 4.430 | 63.283        | 63.283       | 4.430 | 63.283        | 63.283       | 2.924 | 41.765        | 41.765       |
| 2         | 1.163 | 16.612        | 79.895       | 1.163 | 16.612        | 79.895       | 2.669 | 38.129        | 79.895       |
| 3         | .482  | 6.888         | 86.783       | .299  | 4.275         | 91.058       | .279  | 95.048        |              |
| 4         | .299  | 4.275         | 91.058       | .279  | 3.990         | 95.048       | .279  | 95.048        |              |
| 5         | .279  | 3.990         | 95.048       | .279  | 3.990         | 95.048       | .279  | 95.048        |              |
| 6         | .180  | 2.568         | 97.616       | .180  | 2.568         | 97.616       | .180  | 2.568         |              |
| 7         | .167  | 2.384         | 100.000      | .167  | 2.384         | 100.000      | .167  | 2.384         |              |

Table 11: KMO and Bartlett’s test.

Kaiser–Meyer–Olkin measure of sampling adequacy .852
Bartlett’s test of sphericity

| Approx. chi-square | df | Sig |
|-------------------|----|-----|
| 1700.299          | 10 | .000|

Table 12: Description of the total variance of the independent variables.

| Component | Initial eigenvalues | Extraction sums of squared loadings | Rotation sums of squared loadings |
|-----------|---------------------|-------------------------------------|----------------------------------|
|           | Total | % of variance | Cumulative % | Total | % of variance | Cumulative % | Total | % of variance | Cumulative % |
| 1         | 3.753 | 75.058        | 75.058       | 3.753 | 75.058        | 75.058       |      |              |
| 2         | .475  | 9.504         | 84.562       | .475  | 9.504         | 84.562       |      |              |
| 3         | .345  | 6.897         | 91.459       | .247  | 4.933         | 96.392       |      |              |
| 4         | .247  | 4.933         | 96.392       | .180  | 3.608         |              |      |              |
| 5         | .180  | 3.608         |              | .180  | 3.608         |              |      |              |

Table 13: Model path coefficients.

| Hypotheses               | Estimate | S. E. | C. R. | P    | Testing result |
|--------------------------|----------|-------|-------|------|----------------|
| H1 Quality of negative reviews → Product involvement | .228     | .079  | 2.888 | .004 | Accepted       |
| H2 Quantity of negative reviews → Product involvement | .642     | .083  | 7.719 | ***  | Accepted       |
| H3 Quality of negative reviews → Perceived risk | .277     | .094  | 2.938 | .003 | Accepted       |
| H4 Quantity of negative reviews → Perceived risk | .376     | .109  | 3.454 | ***  | Accepted       |
| H5 Product involvement → Perceived risk | .384     | .084  | 4.584 | ***  | Accepted       |
| H6 Product involvement → Purchase intention | .366     | .70   | 5.254 | ***  | Accepted       |
| H7 Perceived risk → Purchase intention | .197     | .047  | 4.212 | ***  | Accepted       |
| H8 Quality of negative reviews → Purchase intention | .298     | .078  | 3.832 | ***  | Accepted       |
| H9 Quantity of negative reviews → Purchase intention | .270     | .089  | 3.027 | .002 | Accepted       |
(0.289) multiplies by the coefficient of direct effect of perceived risk on purchase intention (0.207). Similarly, estimation of indirect effect between quality of negative reviews and perceived risk towards using is equal to: (0.604 × 0.313) + (0.289 × 0.207) = 0.249. Estimation of indirect effect between quality of negative reviews and perceived risk through product involvement towards using is equal to: 0.193 × 0.313 = 0.066, and so on.

It is shown in Table 16, the factors that affect purchase intention includes quality of negative reviews, quantity of negative reviews, perceived risk, and product involvement. Not only quality of negative reviews has a direct impact on purchase intention but also has an indirect effect with the mediation of perceived risk and product involvement, whose influence coefficient is 0.100. Hence, the total effect of quality of negative reviews on purchase intention is 0.316. And, not only quantity of negative reviews has a direct impact on purchase intention but also has an indirect effect with the mediation of perceived risk, whose influence coefficient is 0.249. Hence, the total effect of quantity of negative reviews on purchase intention is 0.467. Besides, product involvement not only has a direct impact on purchase intention, but also has an indirect effect with the mediation of perceived risk, whose influence coefficient is 0.065. Hence, the total effect of product involvement on purchase intention is 0.378. Therefore, we could conclude that the most significant factor that affects purchase intention is quantity of negative reviews, with the estimation of 0.467.

| Table 14: Analysis of reliability and convergent validity. |
|---------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Factor | Items | Estimation of parameter significance | Reliability of items | Reliability of combination | Reliability of convergence |
|---|---|---|---|---|---|
| | UnStd. | S.E. | C.R. | P | SD | SMC | CR | AVE |
| QR | QR1 | 1.280 | 0.097 | 13.235 | ** | .778 | .605 | .595 |
| | QR2 | 1.558 | .111 | 13.994 | ** | .895 | .802 | .575 |
| | QR3 | 1.000 | - | - | - | .616 | .379 | .575 |
| | QU1 | 1.000 | - | - | - | .647 | .418 |
| QU | QU2 | 1.245 | .091 | 13.698 | ** | .770 | .593 | .575 |
| | QU3 | 1.281 | .088 | 14.495 | ** | .845 | .715 |
| | PR1 | 1.000 | - | - | - | .853 | .728 |
| PR | PR2 | 1.034 | .040 | 25.972 | ** | .911 | .829 | .778 |
| | PR3 | 1.099 | .041 | 24.793 | ** | .881 | .776 |
| | PI1 | 1.087 | .059 | 18.431 | ** | .820 | .672 |
| PI | PI2 | 1.112 | .059 | 18.981 | ** | .842 | .708 |
| | PI3 | 1.136 | .059 | 19.385 | ** | .858 | .736 |
| | PI4 | 1.000 | - | - | - | .760 | .577 |
| PR | PIN1 | .896 | .039 | 22.781 | ** | .827 | .684 |
| PIN | PIN2 | .836 | .041 | 20.597 | ** | .777 | .604 |
| PIN | PIN3 | .966 | .042 | 23.069 | ** | .833 | .694 | .687 |
| | PIN4 | .989 | .041 | 23.857 | ** | .850 | .722 |
| | PIN5 | 1.000 | - | - | - | .859 | .738 |

Notes: * denotes p < 0.5, ** denotes p < 0.01, *** denotes p < 0.001.

| Table 15: Fitness indexes of the relationship model. |
|---------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Fitting index | Estimation | Standard | Result |
|---|---|---|---|
| Absolute fitting index | CMIN | 486.721 | P > 0.05 | Accept |
| | CMIN/DF | 3.894 | 1–5 | Accept |
| | GFI | 0.900 | >0.9 | Accept |
| | AGFI | 0.863 | >0.9 | Acceptable |
| | RMSEA | 0.078 | <0.08 | Accept |
| | RMR | 0.029 | <0.05 | Accept |
| | CFI | 0.941 | >0.9 | Accept |
| | NFI | 0.923 | >0.9 | Accept |
| Relative fitting index | TLI | 0.928 | >0.9 | Accept |
| | IFI | 0.941 | >0.9 | Accept |
| | PIN | 0.754 | >0.5 | Accept |
| Simple fitting index | PCFI | 0.769 | >0.5 | Accept |
| | PGFI | 0.658 | >0.5 | Accept |
8. Conclusion

8.1. Summary of Empirical Research. This study shows that the quality of online negative reviews, the quantity of reviews, the perceived risk of the recipients, and product involvement have significant effects on the purchase intention of the recipients. The quality of online negative reviews, the quantity of reviews, the perceived risk of receivers, and product involvement have a greater impact on consumers purchase intention. Among them, product involvement has the greatest impact on purchase intention, followed by the quantity of reviews, the quality of reviews, and perceived risk. In addition, product intervention has the greatest impact on consumers perceived risk, followed by the quantity of reviews and comments. Finally, the impact of the quantity of reviews on consumer product involvement is greater than that of the quality of reviews on product involvement.

The more unfavourable Internet reviews a company receives, the more likely it is that customers will decide to buy from them. Customers are more exposed to unfavourable impacts when online bad evaluations are more relevant to items. Customers are more inclined to trust online unfavourable reviews if the information they find there is related to the products they have bought. The more unfavourable Internet evaluations a company gets, the more likely customers are to avoid it. There is a direct correlation between the number of bad internet reviews a customer is exposed to and their likelihood of making a purchase online. When consumers read a large quantity of online negative reviews, they will have doubts about some aspect of the product, and consumers estimation of the risk of future purchase results will increase, which will have an impact on consumers purchase intention.

8.2. Some Suggestions for Management

8.2.1. Attention Should Be Paid to the Dissemination of Online Negative Reviews. Consumers willingness to buy will be affected by online negative reviews, which will have a direct impact on the business efficiency of enterprises. When consumers contact online negative reviews, they not only weaken their online willingness to buy, but also reduce a lot
of offline buying behavior. In the Internet environment, the dissemination of online negative reviews is more influential and faster than traditional word-of-mouth. In the short term, consumers will publish the same online negative reviews to different forums and communities, which will affect more consumers purchase decisions. Therefore, enterprises should pay enough attention to online negative reviews. Enterprises can set up special personnel and organizations to effectively manage online negative reviews.

8.2.2. Take Effective Measures to Control the Quantity of Online Negative Reviews. The quantity of online negative reviews significantly affects consumers purchase intention through perceived risk and product involvement. The more online negative reviews, the more likely consumers are to be affected and expand the negative effects. Therefore, enterprises should respond to the dissemination of online negative reviews in a timely manner, striving to minimize the quantity of online negative reviews in the initial stage and reduce their impact on purchase intention.

Data Availability

The data used to support the findings of this study are included within the article.

Conflicts of Interest

The author declares no conflicts of interest.

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References

[1] J. H. Yoon, “Research on the influence of e-CRM constituent factors on customer satisfaction, website revisit and e-shopping in e-shopping center,” Information Systems Research, vol. 17, no. 1, 2008.

[2] Y. Chen and J. Xie, “Online consumer review: word-of-mouth as a new element of marketing communication mix,” Management Science, vol. 54, no. 3, pp. 477–491, 2008.

[3] K.-Y. Goh, C.-S. Heng, and Z. Lin, “Social media brand community and consumer behavior: quantifying the relative impact of user- and marketer-generated content,” Information Systems Research, vol. 24, no. 1, pp. 88–107, 2013.

[4] D.-H. Park, J. Lee, and I. Han, “The effect of on-line consumer reviews on consumer purchasing intention: the moderating role of involvement,” International Journal of Electronic Commerce, vol. 11, no. 4, pp. 125–148, 2007.

[5] N. Purnawirawan, P. De Pelsmacker, and N. Dens, “Balance and sequence in online reviews: how perceived usefulness affects attitudes and intentions,” Journal of Interactive Marketing, vol. 26, no. 4, pp. 244–255, 2012.

[6] X. Gao, “Word of mouth communication theory and its practical significance to marketing,” Marketing, vol. 15, no. 7, pp. 8–11, 2002.

[7] S. M. Keaveney, “Customer switching behavior in service industries: an exploratory study,” Journal of Marketing, vol. 59, no. 2, p. 71, 1995.

[8] Y. Li, “Research on the Impact of Negative Internet Word of Mouth Economy Hotel Consumer Purchasing Decision,” Doctoral dissertation, Henan University, Henan, China, 2014.

[9] R. B. Money, “Word-of-mouth promotion and switching behavior in Japanese and american business-to-business service clients,” Journal of Business Research, vol. 57, no. 3, pp. 297–305, 2004.

[10] W. Si-zong, S. Chang-bin, and J. Yang, “A study of the mechanism for evaluation and decision of negative word-of-mouth Re-diffusion: from the perspective of decision neuroscience theory,” Contemporary Finance & Economics, vol. 10, pp. 67–76, 2014.

[11] X. Tan, “The impact of online negative comments on consumers’ innovation resistance -- from the perspective of P2P network lending platform,” Enterprise Economy, vol. 35, no. 6, pp. 65–71, 2017.

[12] Z. Zhou, "Research on the Effects of Negative Online Word-Of-Mouth on Consumer Online Travel Decision," Doctoral dissertation, South China University of Technology, Guangzhou, China, 2011.

[13] J. Bi, “An empirical study on internet word of mouth affecting consumer purchase intention,” Journal of Intelligence, vol. 28, no. 11, 2009.

[14] Y. Wang and Li Ying, “An empirical study on consumers’ willingness to buy new energy vehicles based on perceived risk and people involved degree,” Mathematical statistics and management, vol. 32, no. 5, pp. 863–872, 2013.

[15] X. Leng, “An empirical study on the relationship among involvement antecedents, involvement extent and purchase willingness of consumers,” Economic Survey, vol. 30, no. 2, pp. 125–129, 2012.

[16] A. Chaudhuri, “A macro analysis of the relationship of product involvement and information search: the role of risk,” Journal of Marketing Theory and Practice, vol. 8, no. 1, pp. 1–15, 2000.

[17] M. C. Gilly, J. L. Graham, M. F. Wolfinbarger, and L. J. Yale, “A dyadic study of interpersonal information search,” Journal of the Academy of Marketing Science, vol. 26, no. 2, pp. 83–100, 1998.

[18] H. S. Bansal and P. A. Voyer, “Word-of-Mouth processes within a services purchase decision context,” Journal of Service Research, vol. 3, no. 2, pp. 166–177, 2000.

[19] G. Laurent and J. N. Kapfere, “Consumer involvement profiles: a new practical approach to consumer involvement,” Journal of Advertising Research, vol. 25, no. 6, pp. 48–56, 1985.