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# Research on Online Evaluation of Consumer Purchase Intention Based on Data Analysis

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**ABSTRACT**
Based on real market research, the impact of online evaluation of cross-border e-commerce on online purchase intention was analyzed. Twelve questions are listed from four aspects, namely, basic problems, consumers' purchase status on cross-border e-commerce platforms, the importance attached to online evaluation, and the impact of online evaluation on consumers' purchase intention, such as quantity, quality and timeliness. According to gender, age, monthly disposable income, etc., the basic level was investigated. According to the survey results, reliability and validity analysis, T-test analysis, one-way ANOVA, correlation analysis and regression analysis have been analyzed, and it is concluded that online evaluation has an impact on the intention of network buyers.Enterprises should attach importance to the marketing value of online evaluation and check the content quality, quantity and timeliness of online evaluation.
***Keywords:*** *Cross-border e-commerce, Online evaluation, Online purchase intention.*

## 1. INTRODUCTION

Under the background of the global epidemic crisis, China's traditional foreign trade industry has suffered from a lot, among which cross-border e-commerce has shown a good momentum of development because of the advantages of few intermediate links, low prices and high profit margins. Although cross-border e-commerce platforms have great potential for development, China's cross-border e-commerce is still in its early stage, which are many problems.One of the main disadvantages is that buyers cannot see the real objects. Many people choose to buy by watching the reviews and buyers' shows. Therefore, factors such as the number of comments, the referability of comments and the characteristics of commenters have been studied for their influence on consumers' choice of cross-border e-commerce platforms for consumption[4].

In recent years, a large number of studies have been conducted on the impact of consumer evaluation on consumer purchase. Fu Meiju and Cheng Yanxia (2019) used empirical research to discuss the impact of online comments on consumers' purchase intention based on the characteristics and perceived usefulness of online comments and the technology acceptance model[1]. At the same time, some constructive suggestions are put forward to influence consumers' purchase intention. The research background, current research status and the related influences of the two acting receptors on online comments were proposed by Hao Jiazheng (2019), which provides relevant references for the research on the influence of online comments in the field of selling and buying[2].

To sum up, based on the study of existing literature, it can be found that online evaluation affects customer loyalty, product evaluation, purchase decision, purchase authorization and product acceptance. In a virtual community environment, consumers pay attention to reviews, and part of their product information is replaced during the decision-making process[5]. Alternatively, the usability of the online evaluation is evaluated.Taking Amazon online shopping website as the background to collect actual data, the statistical analysis of the researcher shows that the more active online evaluation is, the higher the sales volume of related products will be[6]. Meanwhile, the timeliness of online evaluation and the valuable evaluation can be provided in online evaluation, which will also affect consumers' purchase intention. The model is shown in Figure 1 below:

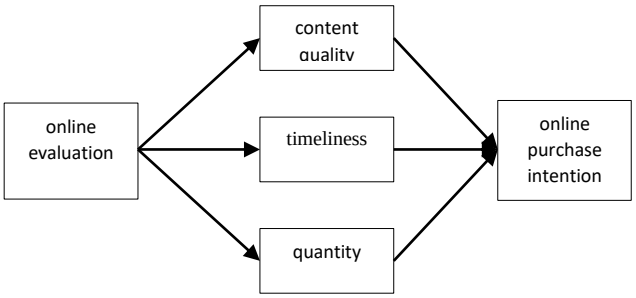


**Figure 1** (a) the influencing factors of online purchase intention

In terms of basic issues, consumers' purchasing status on cross-border e-commerce platforms, the importance

attached to online evaluation, and the impact of online evaluation's quantity, quality and timeliness on consumers' purchasing intention, 12 questions were listed and investigated in terms of gender, age, monthly disposable income and other basic aspects. This time, 357 questionnaires were actually collected, and 314 valid questionnaires lasted for half a month. The mobile phone data were true and reliable, which met the relevant standards and requirements of the questionnaire survey. Meanwhile, we can adopt results.

## 2. DATA ANALYSIS

### *2.1. Analysis of the basic situation of the respondents*

In the basic survey, it is concluded that females account for 2/3 and 62.42% of the total gender survey, among which the respondents are mainly young people aged 18-30 years old, accounting for 77.39%. In this age group, they mostly use mobile phones for online shopping, followed by those under 18 at 10.83 percent. Meanwhile, those aged between 30 and 40 account for 7.96% and 3.82%, respectively. The monthly income of respondents mainly distributes 1000-300 yuan, which accounts for 50%.Those with less than 1,000 yuan account for 23.25% and those with 3,000-5,000 yuan account for 14.65%, those with 5,000-8,000 yuan and those with more than 8,000 yuan account for only a minority of 7.96% and 4.14%.

2.2 Impact of online reviews on willingness to buy

In order to know whether consumers know about cross-border e-commerce platforms and whether they have purchased things on them, the survey was conducted. Among them, 79.62% of the respondents had the experience of buying goods on cross-border e-commerce platforms, which indicates that most people know about cross-border e-commerce shopping platforms and use them. Also, 20.38 percent of the respondents have not purchased anything on cross-border e-commerce platforms.

According to the survey, 85.67 percent of consumers look at online reviews before buying a product, and then decide whether to buy the product or not. Only 14.33 percent of consumers did not review online reviews before purchasing goods, reflecting the importance of online reviews to consumers.

The emphasis of respondents on online evaluation in various aspects was analyzed, as shown in Figure 2:

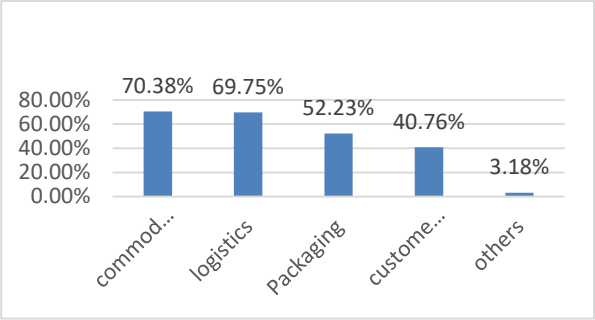


**Figure 2** Histograms of types evaluated online

The four aspects listed in Figure 2, the consumers surveyed attach more importance to the evaluation of commodity quality and logistics, which account for 70.38% and 69.75% respectively. Packaging of goods and customer service of sellers accounted for less, accounting for 52.23% and 40.76% respectively. On the whole, consumers attach more importance to the evaluation of commodity quality, among which the better the quality of the product is, the more favorable impression it can attract consumers.

The emphasis of respondents on the number of online evaluations was analyzed, as shown in Figure 3:

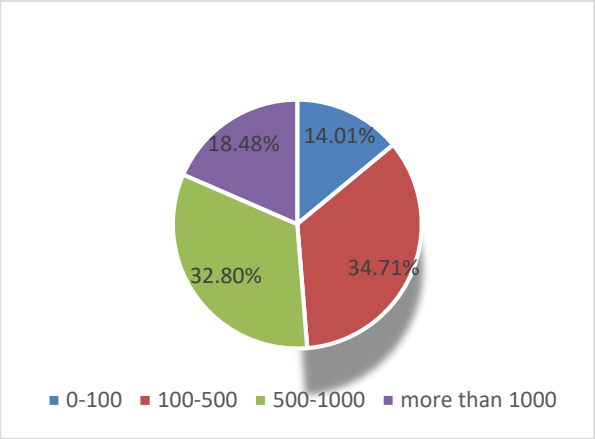


**Figure 3** number histogram of online evaluations

According to the survey, 67.51% of consumers believe that products with an online evaluation volume of 100-1000 are the most trustworthy. 18.48% of consumers believe that the number of online reviews should be more than 1,000 for such products to be credible. 14.01 percent of consumers do not attach much importance to the number of online reviews.

***2.3 Reliability and validity analysis***

The reliability and validity of questionnaire results must be analyzed before statistical analysis. Only when the credibility and validity are within the acceptable range, the statistical results of the questionnaire are valuable, which is necessary for further analysis.

***2.3.1 Reliability Analysis***

Reliability refers to the reliability of measured data, which mainly refers to the consistency and stability between the content actually measured and the content that should be measured. Also, the reliability coefficient is a quantitative index that describes the measurement of reliability and this is expressed in terms of the correlation coefficient. The higher the reliability, the greater the consistency between multiple measurements.SPSS statistical analysis software is used to analyze the internal consistency of the questionnaire mainly through Alpha reliability coefficient method. Therefore, the overall questionnaire reliability analysis is shown in Table 1 and Table 2 below.

**Table 1 Reliability statistics**

| Cronbach's Alpha | Item |
|---|---|
| .946 | 12 |

Reliability analysis was performed on the title of the quantity in the questionnaire, and Cronbach's Alpha reliability coefficient was 0.946, which was greater than 0.8. The scale is highly reliable and the questionnaire has internal consistency, which can be further analyzed.

**Table 2 Total statistics**

| Item | The deleted scale mean of the item | The scale variance of the item deleted | Total correlation of corrected items | Cronbach's Alpha value of item deleted |
|---|---|---|---|---|
| A1 | 41.00 | 78.920 | .759 | .941 |
| A2 | 41.08 | 78.655 | .752 | .941 |
| A3 | 40.93 | 78.133 | .753 | .941 |
| A4 | 40.62 | 80.115 | .675 | .944 |
| B1 | 41.03 | 78.616 | .795 | .940 |
| B2 | 41.07 | 79.136 | .804 | .940 |
| B3 | 40.65 | 80.375 | .695 | .943 |
| C1 | 41.07 | 79.232 | .783 | .940 |
| C2 | 40.81 | 78.634 | .760 | .941 |
| D1 | 40.98 | 80.476 | .741 | .942 |
| D2 | 41.09 | 80.648 | .723 | .942 |
| D3 | 40.82 | 80.049 | .743 | .942 |

### *2.3.2 Validity Analysis*

Validity refers to the degree of accuracy or validity of measurement, in which the ideal validity requires no measurement error. SPSS statistical analysis software was investigated through KMO and Bartlett spherical test factor analysis. Structural validity analysis was analyzed. The quality validity analysis of this content is shown in Table 3. The timeliness validity analysis is shown in Table 4. The quantitative validity analysis of comments is shown in Table 5, and the influence validity analysis of purchase intention is shown in Table 6.

**Table 3 KMO and Bartlett inspections**

| KMO | Bartlett | | |
|---|---|---|---|
| .818 | Approximate chi-square | Df | Sig |
| | 518.990 | 6 | .000 |

Structure validity: KMO and Bartlett's test table is shown in Table 2 above. As seen in Table 3, the KMO value is 0.818, which is greater than 0.7. Bartlett's spherical test approximate chi square =518.990, DF =6, Sig<lt 0.001, indicating that the scale is suitable for further factor analysis.

**Table 4 KMO and Bartlett tests**

| KMO | Bartlett | | |
|---|---|---|---|
| .698 | Approximate chi-square | Df | Sig |
| | 322.882 | 3 | .000 |

**Table 5 Table 5 KMO and Bartlett inspections**

| KMO | Bartlett | | |
|---|---|---|---|
| .500 | Approximate chi-square | Df | Sig |
| | 118.202 | 1 | .000 |

**Table 6 KMO and Bartlett inspections**

| KMO | Bartlett | | |
|---|---|---|---|
| .717 | Approximate chi-square | Df | Sig |
| | 376.632 | 3 | .000 |

Structure validity: KMO and Bartlett's test table is shown in Table 6 above. As shown in the table, the KMO value is 0.717, which is greater than 0.7. Bartlett's spherical test approximate chi square =376.632, DF =3, Sig<0.001.This indicates that the scale is suitable for further analysis of factors. Factor analysis is shown in Table 7 below:

**Table 7 Matrix Table**

| Item | Element |
|---|---|
| | 1 |
| A1 | .850 |
| A2 | .853 |
| A3 | .844 |
| A4 | .771 |
| B1 | .878 |
| B2 | .867 |
| B3 | .808 |
| C1 | .884 |
| C2 | .884 |
| D1 | .887 |
| D2 | .879 |
| D3 | .840 |

***2.4 T Test analysis***

The purpose of the independent sample T-test is to test whether two independent samples have the same mean value. At a certain significance level, whether there is a comparative difference between the mean values obtain ed by the two samples.

*2.4.1 impact of online evaluation on the willingness of women and men to buy*

**Table 8 Statistics**

| | | gender | N | mean value | standard deviation | Standard error of mean |
|---|---|---|---|---|---|---|
| willingness to buy | | men | 118 | 10.6186 | 2.91157 | .26803 |
| | | women | 196 | 11.3163 | 2.20766 | .15769 |

As shown in Table 8, there are 118 males and 196 females in the survey data, among which the mean values are 10.6186 and 11.3163, respectively. In table 9 below, Levene of the variance equation on the left is to test whether the two samples have equal variance, in which the significance level sig of the statistical value F is tested. With a value of 0.002, it can be concluded that the variance of the two samples is significantly different. Therefore, T value with unequal variance should be selected for the subsequent T-test of mean variance. Among them, the significance probability of the two-sided T-test is 0.026, less than 0.05, and a conclusion can be drawn: There is a significant difference in the influence of online evaluation on the purchase intention of men and women, and the influence of online evaluation on women is greater than that on men.

**Table 9 Independent sample tests**

| | | Levene test of variance equation | | t test of mean equation | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig.(bilateral) | Mean value difference | Standard error values | 95% confidence interval for difference | |
| | | | | | | | | | Low limit | Upper limit |
| willingness to buy | Assumption of equal variance | 9.704 | .002 | -2.400 | 312 | .017 | -.69768 | .29072 | -1.26969 | -.12567 |
| | Assumption of variance | | | -2.244 | 197.793 | .026 | -.69768 | .31098 | -1.31094 | -.08442 |

***2.5 Univariate ANOVA analysis***

**Table 10 Quality of content**

| Content quality | | quadratic sum | Df | mean square | F | significance |
|---|---|---|---|---|---|---|
| Intergroup | | 1197.021 | 15 | 79.801 | 30.447 | 0.00 |
| Group within | | 781.058 | 298 | 2.621 | | |
| Total | | 1978.080 | 313 | | | |

**Table11 Evaluation timeliness**

| | | quadratic sum | Df | mean square | F | significance |
|---|---|---|---|---|---|---|
| Intergroup | | 1288.797 | 11 | 117.163 | 51.334 | 0.00 |
| Group within | | 689.282 | 302 | 2.282 | | |
| Total | | 1978.080 | 313 | | | |

**Table 12 Number of evaluations**

| | | quadratic sum | Df | mean square | F | significance |
|---|---|---|---|---|---|---|
| Intergroup | | 1297.093 | 8 | 162.137 | 72.618 | 0.00 |
| Group within | | 680.987 | 305 | 2.233 | | |
| Total | | 1978.080 | 313 | | | |

The above three tables are one-way anova in which table 10 analyzes the quality of content, Table 11 analyzes the timeliness of evaluation, and Table 12 analyzes the quantity of evaluation. The analysis results of the three independent variables demonstrates that the content quality, evaluation timeliness and quantity of online evaluation are significantly linked with purchase intention.

***2.6 Correlation analysis***

**Table13 Relevant tables**

| | Online evaluation of content quality | Online evaluation timeliness | Number of online evaluations | willingness to buy |
|---|---|---|---|---|
| Online evaluation of content quality | 1 | | | |
| Online evaluation timeliness | .865** | 1 | | |
| Number of online evaluations | .820** | .852** | 1 | |
| willingness to buy | .761** | .798** | .799** | 1 |

**.There was a significant correlation at the.01 level (bilateral).

In Table 13, the content quality that can be evaluated online, the timeliness of online evaluation and the quantity of online evaluation have a high correlation coefficient R. Therefore, it can be seen that the content quality, timeliness and quantity of online evaluation are significantly correlated with consumers' willingness to buy goods.

***2.7 Regression analysis***

Regression analysis is a method to deal with the correlation between independent variables and dependent variables. In this way, the causal relationship between variables can be found from a quantitative perspective, so that the influence of the changes of some factors on other factors can be judged.

**Table14 Table 14 Online evaluation content quality, online evaluation timeliness and online evaluation quantity influence purchase intention**

| independent variable | Non-standardized coefficient | | Standard coefficient | t | Sig. |
|---|---|---|---|---|---|
| | B | standard error | trial version | | |
| (Constants) | 1.757 | .363 | | 4.841 | .000 |
| Online evaluation of content quality | .109 | .047 | .154 | 2.333 | .020 |
| Online evaluation timeliness | .327 | .071 | .334 | 4.619 | .000 |
| Number of online evaluations | .538 | .088 | .388 | 6.142 | .000 |

As shown in Table 14, the test results of the regression coefficient show that the content quality, timeliness and quantity regression coefficient of online evaluation are 0.109, 0.327 and 0.538 respectively, where the T value is equal to 2.333, 4.619 and 6.142 respectively. The P values corresponding to the timeliness of online evaluation and the number of online evaluation are: $P<0.05$. The timeliness of online evaluation and the quantity of online evaluation have a positive effect on the purchase intention, and the effect is proved to be significant. The P value corresponding to the content quality of online evaluation is: $P>0.05$. The time efficiency of online evaluation and the number of online evaluation have a positive impact on consumers' purchase intention, and the impact is significant. In online ratings of content quality, changes in consumer buying intentions cannot be predicted. Among them, the influence on purchase intention is the online evaluation quantity (0.388), the online evaluation timeliness (0.334) and the content quality of the online rating (0.154), which is determined by the degree from high to low.

## 3. Conclusions

In the paper, the analysis draws the following conclusion: when consumers shop online, the information they get is incomplete[3]. If consumers want to know more about a product, they must refer to the comments of other consumers before they buy it. In the survey, more respondents think that pictures are more important than online opinions and text content. In this way, consumers know more about the actual situation of the product; In addition, recent and valuable reviews and referential reviews also influence consumers' purchase choices. For consumers, online reviews can actually influence them, making their buying decisions easier and more reliable. According to the survey, most of the respondents would choose not to buy the product because of the negative comments in the online reviews of the website. This shows that online evaluation plays an important role in consumers' purchasing decisions[7].

It is very important for sellers of cross-border e-commerce online sales platform to improve their popularity and competitiveness through online evaluation. Therefore, we offer the following suggestions: Enterprises should attach importance to online evaluation; The quality, quantity, and timeliness of online reviews also influence consumers, who make purchasing decisions. Enterprises should grasp the quality of line evaluation, real and effective evaluation, so as to give consumers the right decision and this can give corresponding rewards. Consumers are encouraged to express their feelings of use to

attract more consumers; Therefore, timeliness of online comments plays an important role. Enterprises should attach importance to the timeliness and refer ability of online evaluation. Enterprises should pursue the quantity of online evaluation and the evaluation with reference significance, so that the better online evaluation can be used to improve their competitiveness..

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