

Interacting User-Generated Content Technologies: How "Ask Everyone" Affect Product Sales Together with Additional Reviews

Na Li

School of economics and management, Xidian University, Xian 710126, China

heyлина@foxmail.com

Abstract

With the rapid increase of online reviews, consumers' abilities to search for valid information are restricted to a certain degree, whereas the presence of "Ask Everyone" have made up for it to some extent. The paper takes Watsons store of the Tmall platform as the research object, and uses the hierarchical regression analysis method to research the impact of the questions in "Ask Everyone" on product sales together with the amount of additional reviews, as well as the moderate role of the questions in "Ask Everyone". The results show that the amount of questions in "Ask Everyone" have a significant positive impact on product sales; when the amount of questions in "Ask Everyone" is large, the positive impact of the amount of additional reviews on product sales will be weakened. The amount of questions in "Ask Everyone" moderate the relationship between the amount of additional reviews and product sales.

Keywords

Online reviews, additional reviews, "Ask Everyone", product sales.

1. Introduction

Online reviews are star ratings or open content reviews published by consumers or third-party websites, and are an important form of online word of mouth [1-2]. Compared with the product information provided by the merchant, online reviews are produced in the position of consumers and are therefore more likely to be trusted [3-4]. Many consumers will refer to online reviews before making purchases, and some consumers even think that buyer reviews are more relevant than expert reviews [1; 5-8]. Online reviews can be divided into initial reviews and additional reviews according to the time of the review produced. The additional review is the consumer's evaluation of the product in the form of text or pictures after the initial evaluation. It is an additional supplement to the product information by the reviewers, and makes up for the problem of inaccurate reviews caused by the short time and failure to expose the product shortcomings. Therefore, it is more valued by consumers.

With the rapid growth of review data, the existing reviews in the platform have become increasingly difficult to adapt to the needs of consumers to effectively query information. On the one hand, the overload of review information makes it difficult for consumers to make decisions efficiently [9-10]; on the other hand, sellers' cheating orders and competitors' deliberate slander are common, which make the reviews untrustworthy [11-13]. Therefore, the credibility of product reviews has been challenged. Because of the unavailability of reviews and less of trust, more and more e-commerce platforms have introduced an interactive user-generated content called "Ask Everyone" in recent years, enabling consumers to search the product information efficiently. This mechanism has not only been applied successively on domestic platforms such as Taobao, Tmall, and Meituan, but also has been widely developed abroad. Although the use of "Ask Everyone" has increased, little is known about how the mechanism affects product sales.

"Ask everyone" refers to a review mechanism where consumers ask for help on the product page before the purchase, and the seller and the system randomly invite a number of buyers to answer questions. At the same time, the system will identify and classify similar questions. It is convenient for consumers to make judgments based on their own circumstances. This review mechanism has significant advantages in resolving consumer doubts and helping consumers quickly mine effective information, saving consumers' reading costs. Due to the random nature of the respondents, "Ask Everyone" eased the crisis of trust in reviews and to some extent suppressed the dark side effects of online reviews.

Many scholars have conducted research on online reviews. Among them, online review research based on the characteristics of reviews has been quite comprehensive, such as text length [1; 6], review valence [2; 5; 11; 14; 15], emotional characteristics of reviews [14; 16-18], extremeness of reviews [4; 10; 13], subjective and objective expressions of reviews [9], etc. However, in the era of review information explosion, consumers have not paid much attention to the content of reviews, and the quantity of reviews will be the main decision factor. Compared to the initial reviews, additional reviews can provide more information. While referring to the review, consumers make good use of the "Ask Everyone" function, which will make information processing more effective, and will affect product sales as well. Based on the prior researches about online reviews, this paper explores how additional reviews as well as "Ask Everyone" influences products sales, which will enrich researches on online reviews. This research is of great significance to e-commerce websites and will help to design good mechanism.

2. Literature Reviews

2.1. Researches Related to Online Additional Review

Products may have different characteristics in different life cycles. As time goes on, consumers experience products deeply. Thus, the additional reviews are more valuable. Before buying products, consumers not only pay attention to the basic characteristics of the products, but also pay more attention to the follow-up experience of the products. Additional reviews can provide more information on product quality and stability. Compared with the initial reviews, additional reviews are more scattered, and their time distribution is mainly manifested by the long tail effect [22]. Meanwhile, additional reviews are more useful to consumers [21]. Existing studies have examined the perceived helpfulness of the additional reviews by the data analysis [19-22]. Therefore, the additional reviews are taken into account in our research, and initial reviews are not considered.

Quantitative characteristics are the easiest to observe, and their cumulative quantity reflects the popularity and attention of products [11]. Therefore, this paper takes the amount of the additional reviews as one of the independent variables. Earlier in the development of online reviews, some scholars used the length of reviews to measure the depth of information [23]. When reviews were not very popular, consumers paid more attention to reviews with longer words. It can be inferred that as the number of reviews surges, products with more reviews will be more concerned by consumers. There are still many examples of using the existing quantitative characteristics of the platform to measure an abstract concept in the field of online reviews. For example, some scholars use marketing models to measure the appraisal ability of reviewers based on the quantitative characteristics of the reviewer's most recent evaluation interval, number of reviews, and comment length [24]. Therefore, we use the amount of additional reviews to measure its impact on consumers' online shopping.

2.2. "Ask Everyone" and Fitness Uncertainty

With the growth of reviews and the unstructured review content, it is difficult for consumers to find target information from massive reviews. It is more likely that traditional reviews do not involve the targeted information that consumers expect. For example: When buying skin care products, we will worry about whether this product is suitable for my sensitive skin. When buying clothes, will we consider the size of this dress? Is it suitable to wear a small size for the height of 160cm? However, there are few people who buy products will comment on this type of problems. Because of individual differences, not everyone who posts a comment can answer that question. And "Ask Everyone" solves the problem by randomly inviting consumers who have purchased the product to answer this question. This new type of interactive user-generated content is effective in solving fitness issues. Despite its extensive development in the e-commerce website, it has not been studied in academia.

According to the theory of product differentiation, product differentiation can be divided into horizontal and vertical dimensions [25-26]. Horizontal differentiation means that different consumers have different preferences for the same attributes of the same product, such as color, size, taste, etc., which can be attributed to product fitness characteristics; vertical differentiation means that all consumers are biased towards good quality products when all attributes are the same, which is a characteristic of product quality dimensions. Therefore, the utility of consumers buying products can be expressed as [27]:

$$U_{ij} = \delta_j + \sum_k \beta_{ik} X_{jk} + \varepsilon_{ij} \quad (1)$$

δ_j represents the utility brought by the quality characteristics of product j , X_{jk} represents the utility brought by attribute k of product j to consumers, β_{ik} represents consumer i 's preference for attribute k , and ε_{ij} represents random error.

For all consumers, quality information can be described in terms of "good" and "bad". The constant δ_j can be used to define abstract quality utility, while the fitness utility requires a lot of information X_{jk} about the attribute k of product j . And different consumers' preferences for product attribute k also differ. Because of this, traditional review text does not necessarily include specific attributes that consumers care about. "Ask Everyone" will give consumers the opportunity to ask questions about product attributes that they care about, and reduce uncertainty about the fitness of the product, which can promote accurate product sales. However, the role of "Ask Everyone" in influencing product sales has not received much attention.

The Questions in "Ask Everyone" are often more specific, as mentioned above: Is this product suitable for sensitive skin? The answers are generally straightforward, such as "quite suitable". Obviously, "Ask Everyone" has much less emotional text than traditional comments, and it is more trustworthy, which is proved by the research [27]. Although online reviews are more comprehensive, "Ask Everyone" helps consumers find the target fitness answers in a relatively efficiently way. The questions in "Ask Everyone" are systematically merged and categorized. They help consumers quickly find the answers to their questions in a concise and clear way. In this study, we focused on the impact of the existing questions in "Ask Everyone" on product sales.

3. Research Hypothesis

3.1. Amount of Additional Reviews and Product Sales

Additional reviews are the subjective evaluation of consumers in the form of text or pictures after the initial evaluation, which allows consumers to see how buyers feel in different periods of product purchase. Additional reviews allow the reviewers to confirm or modify the initial review based on practical experience [28], which reflects the reviewer's responsible attitude

and the real purchase process [21]. Additional reviews allow consumers to see the additional use of the product in time, compare the continuous use of different products, and save a lot of time. Many scholars have explained the reasons for the perceived helpfulness of additional reviews [20; 21; 29; 30], all of which have shown that additional reviews are more perceptually useful.

Many researches have tested that the amount of additional reviews can impact on product sales positively, which is the foundation of our researches.

3.2. Amount of "Ask Everyone" and Product Sales

In the past, if customers had questions about the product, they could go to forums instead of asking on the e-commerce platform. Some scholars have specifically studied how to help users browse a large number of consumer opinions in order to find opinions related to their decision-making [31], which is also the earliest research combining interactive Q&A with online reviews. Other scholars have studied the satisfaction of information collectors with answers from the Q&A community [32]. With the development of e-commerce websites, "Ask everyone", an interactive user-generated content, is created, and allows consumers to participate in interactive discussions on the product purchase interface. And, unlike online forums, the respondent to the "Ask Everyone" question must have purchased the product, otherwise they would not be invited to answer the question. Therefore, "Ask Everyone" can be trusted by many consumers.

"Ask Everyone" allows consumers to ask buyers who have already purchased the product before purchasing it, and the seller and the buyers can answer the questions. This model based on communication with sales staff and members of social networks can reduce consumer purchasing uncertainty [33], and its reply-type feature is also easy to attract consumer attention [12; 28]. Traditional reviews tend to ignore certain fitness attributes of the product. Even after reading the reviews, it is impossible to know whether the product is suitable for them. Whereas "Ask Everyone" can reduce the uncertainty of the fit between consumers and the product, thereby promoting the product sales. Shrabastee et al. Researched the interactive Q&A of foreign e-commerce websites and found that the proportion of negative comments due to fitness issues has declined after the arrival of interactive Q&As [27]. It can be seen that "Ask Everyone" can increase the consumer-to-product matching and promote the accurate sales of products. On the other hand, the large number of "Ask Everyone" indirectly reflects the large number of product purchase groups, and consumers may rationalize their purchase behaviors, thereby increasing product sales. Therefore, we hypothesize:

H1: The amount of the questions in "Ask Everyone" influence product sales positively.

3.3. The Moderation of "Ask Everyone"

With the increase of online reviews, how "Ask Everyone" will influence the traditional review has not yet been noticed. The Elaboration Likelihood Model (ELM) developed by Petty and Cacioppo is widely used in the field of information processing and persuasion [34]. The theory points out that consumers have two paths to processing information. One is the central path, that is, consumers will think deeply based on the content of the information, and then change their attitudes. The other is the peripheral path, where consumers use peripheral information to change the external characteristics attitude, such as the reputation of the reviewer, the source of the information, etc. When the personal relevance of information is higher, the degree of consumer information processing participation is higher, that is, the elaboration of processing is high [34]. At this time, people process information more through the central path. When the elaboration of processing is low, the persuasion through the peripheral path is more effective [12; 34].

The number of additional reviews is a typical peripheral clue [34]. Due to the surge in reviews, consumers have less energy to process information and rely more on the peripheral clue of quantitative characteristics to make purchasing decisions. However, the information of "Ask Everyone" is relatively structured, and its appearance may increase the ability of consumers to process information. When the amount of questions in "Ask Everyone" is small, the information consumers get from them is extremely limited, and the traditional comment area is still the main source of information for consumers. Therefore, the effect of the number of additional reviews still plays an important role; and when the number of questions in "Ask Everyone" rises, it usually means that more consumers are paying attention to the product, or there is still a large degree of uncertainty about product fitness after reading product information and online review. At this time, because of the need for cognition, consumers will increase the elaboration of information processing [34], and pay more attention to "ask everyone", and the role of the peripheral clue, the amount of additional reviews, will be reduced [34; 35]. Therefore, when the amount of questions in "Ask Everyone" increases, the positive effect of additional reviews on product sales will decrease. Thus, we hypothesis:

H2: When the amount of questions in "Ask Everyone" are large, the relationship between the number of additional reviews and product sales will be weakened.

4. Research Design

Nelson divides products into search products and experiential products according to how easy it is for consumers to search for product information before buying [36]. Information about search products can be learned by consumers by reading product tags before purchasing products, while information about experience products can only be grasped through physical experience. Some scholars consider both the search and experience attributes of products [37], but most scholars believe that there must be an attribute in the product that prevails [1; 28]. Compared with search products, experiential products have higher search costs and are more subjective. Consumers value the degree of matching of product attributes with their own preferences, and many product attributes cannot be understood before purchasing. Therefore, when purchasing experiential products, consumers will spend more time searching information [1; 10; 12; 37; 38]. At the same time, consumers have greater uncertainty about the fitness of experiential products, and need to refer to the "Ask Everyone" section [27]. Therefore, we choose experiential products as the research object.

It has been confirmed that skincare is a typical experiential product [12; 22; 39], so we decided to take skincare as our research object. In addition, many scholars consider the impact of brands, for example: Liao believes that the role of brands can weaken the negative impact of product rating distribution bias on product sales [4]. Pan found that the impact of review ratings on books is different with the popularity of the books [40]. Wang also distinguished search products with different popularity to study online reviews [41]. This shows that brand is an influencing factor that we cannot ignore. At the same time, considering the number of consumer groups and the impact of product types, we chose the Watsons brand to conduct research and expand skin care products into the field of daily chemicals. Taobao is the largest e-commerce website with the most transaction volume and the most abundant review data in China. Due to the high safety requirements of consumers when buying daily chemicals, the Tmall store is more trustworthy. We take the products of Watsons in Tmall as research object.

Considering that the surge in reviews has reduced consumer attention to the review text, this paper does not consider the impact of the nature of review content. In addition, because the site does not distinguish between positive and negative reviews, we ignore the positive and

negative effects of reviews. Consumer ratings of products are only reflected in store ratings. Only the products in the Watsons Tmall flagship store can be selected to control product ratings and brand influence. The data collection time was April 28, 2017, and get 3,416 products' information. After screening, products with a monthly sales volume of less than 25 were removed, and 1,036 products that met the requirements of this study were obtained. And there are 22,999 additional reviews, and 16,432 questions in "Ask everyone".

In addition to the online reviews, there are also other factors affecting the product sales. Product prices, postage, and discounts all affect product sales. Generally speaking, if other factors are the same, the products with high price, high postage, and low concessions have relatively low sales. Therefore, we take the product price, whether it is free shipping, or whether it is a discount as the control variables. The variables are summarized in Table 1.

Table 1. Research Variables

Variables	Description
discount	0 denotes no discount; 1 denotes discount
postage	0 denotes no free shipping; 1 denotes free shipping
price	The actual product price of goods
sales	Monthly sales of goods
add_reviews	The amount of additional reviews of a certain product
Q&As	The amount of the questions in "Ask Everyone"

5. Data Analysis

5.1. Descriptive Statistical Analysis

Descriptive statistical analysis results are shown in Table 2. Descriptive statistical analysis shows that, in addition to prices, other variables have more or less significant correlations. There is a negative correlation between postage and sales, with a correlation of 0.66, which is consistent with our cognition, while the positive correlation between discounts and sales is weak, 0.30. The reason for this phenomenon may be that current e-commerce platforms frequently mark products as promotions. In the consumer's subconscious, this common phenomenon weakens the decision-making influence brought by the discount itself. Observing the correlation between the control variable and the dependent variable, it can be seen that when this article explores the impact of online reviews on product sales, it is reasonable to choose three factors: price, postage, and discount as the control variables.

In terms of independent variables, the correlation between the number of reviews, "Ask Everyone," Post Comment and Monthly Sales is above 0.7. We will explore their relationships in detail. In order to clearly explore the impact of online reviews on product sales, and at the same time strip the impact of control variables on product sales, we choose to use a hierarchical regression analysis method to add variables step by step in the regression model. In order to remove the trouble caused by different units between variables, the variables are standardized before the hierarchical regression analysis is performed.

Table 2. Descriptive Statistical Analysis Results

No.	Variables	Means	Std.	1	2	3	4	5	6	7
1	discount	.19	.39	1						
2	postage	.98	.14	-.30**	1					
3	sales	376.08	1341.92	.30**	-.66**	1				
4	price	66.73	82.57	.03	-.02	.00	1			
5	volume	1536.66	5399.15	.27**	-.49**	.71**	.02	1		
6	Q&As	15.86	47.19	.32**	-.45**	.71**	.08*	.74**	1	
7	add_reviews	22.20	97.37	.26**	-.52**	.70**	.05	.91**	.73**	1

Note: ** The correlation is significant at the 0.01 level (two-tailed); * The correlation is significant at the 0.05 level (two-tailed)

5.2. Results of Regression Model

We used hierarchical regression analysis to test the results. The analysis results of the model are shown in Table 3. At the same time, the multicollinearity problem of each model was tested, and the VIF values were less than 4, so there was no multicollinearity problem. After adding the variable of the number of additional reviews in model 1, the regression coefficient of the regression equation of model 2 is adjusted R² to 0.615, the change value of R² is 0.174, and the p value is <0.001. The entire equation explains 61.5% of the total variation. The model is Significant. The regression coefficient of the number of additional reviews is 0.491. Consistent with the judgment of prior studies, the number of additional reviews positively affect product sales. Similarly, after adding the number of questions in "Ask Everyone" on the basis of Model 2, the adjust R² in Model 3 is corrected to be 0.676, the change value of R² is 0.061, and the p value is <0.001, The model is significant. At the same time, the regression coefficient of the number of "Ask Everyone" is 0.370, indicating that the number of "Ask Everyone" has a significant positive effect on product sales. Therefore, H1 is supported.

After adding the product of the number of additional reviews and "Ask Everyone" in Model 3, the adjust R² in Model 4 is 0.684, the change value of R² is 0.008, and the p value is <0.001. The model is significant. At the same time, the regression coefficient of the product of the number of additional reviews and "Ask Everyone" is negative, p value <0.001, which shows that the number of "Ask Everyone" has a negative moderate effect on the relationship between the number of additional reviews and product sales. Thus, H2 is supported.

Table 3. Results of regression model

	Model 1	Model 2	Model 3	Model 4
constant	4.291	2.673	2.532	2.591
postage	-4.432***	-2.755***	-2.588***	-2.624***
discount	0.279***	0.139+	0.021	-0.024
price	-0.016	-0.033	-0.048**	-0.051**
add_reviews		0.491***	0.245***	0.341***
Q&As			0.370***	0.437***
add_reviews× Q&As				-0.021***
R ²	0.443	0.617	0.677	0.685
Adjust R ²	0.441	0.615	0.676	0.684
△R ²	0.443	0.174	0.061	0.008
F	273.322***	414.441***	4432.108***	373.679***

6. Discussion

6.1. Key Findings and Managerial Implications

This paper is based on Elaboration Likelihood Model (ELM). It is found that the number of "Ask Everyone" positively affects product sales, and negatively moderates the relationship between the number of reviews and product sales. "Ask Everyone", as a new type of interactive user-generated content, not only contributes to the increase in product sales, but also effectively improves consumers' information utilization.

Our results provide guidance for accurate sales of merchants and effective use of review information by consumers, and provide a theoretical basis for the design of e-commerce website mechanisms. When the number of "Ask Everyone" increases, consumers will draw more on the content of "Ask Everyone", and consider the advantages and disadvantages of the product from the central path. This mechanism helps consumers find information that matches their target questions, compares the answers of different buyers, increases the participation in information processing under mass reviews, and suppresses unrealistic purchase behavior caused by the persuasion of the number of reviews, thereby reducing customer returns and effectively saving social resources. On the other hand, the interactive comment mechanism of "Ask Everyone" has increased website traffic while increasing product sales. This structured information will increase the utilization of review resources and increase the customer's stay time on the e-commerce website, which is of great significance to the operation of the e-commerce website.

6.2. Limitations and Suggestions for Future Research

With the prevalence of online shopping, online reviews have a significant impact on product sales. Based on previous research on additional reviews, we further explored the impact of the interactive user-generated content of "Ask Everyone" on product sales, and the role of moderating the relationship between online review and product sales. Our research on the new comment mechanism of "Ask Everyone" is of great significance to enrich the current theoretical researches in the field of online reviews, and it can be used as a reference for the precise sales of merchants and the design of e-commerce platform mechanisms.

There are still shortcomings in this study. First, this study ignores the types of skin care product, which can be classified according to the length of the life cycle in the later stages. Second, our research depth of "Ask Everyone" is insufficient. This paper does not consider the impact of the content characteristics of the answers in "Ask Everyone", which can be considered in the future. Third, due to the difficulty of data collection, this paper only obtained cross-section data for analysis, which may have some endogenous problems. Despite its shortcomings, this paper first research on the "Ask Everyone" mechanism, which is still of some innovative significance, confirming that "Ask Everyone" provides consumers with more favorable channels for obtaining information, and indeed has a positive impact on product sales.

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