

Factors Influencing Chinese Readers' Evaluation of Magazines — Empirical Research Based on Reader Reviews of Chinese Amazon Website

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ABSTRACT

This paper takes the reader evaluation content of magazines on the Chinese Amazon website as the research object. Through a qualitative study of 5,710 pieces of randomly selected reader review information, a 3-level conceptual system of reader evaluation elements is established. Based on the multiple regression analysis of the overall evaluation and evaluation factors, this paper gives the influencing factor model of the overall evaluation of the magazine, and it is believed that magazines should stick to the strategy of "the content is king and the brand is the uppermost".

Keywords: reader reviews, online reviews, magazine, brand

I. INTRODUCTION

The positioning and development of magazines are inseparable from the understanding and satisfaction of readers' needs. Therefore, carrying out research on readers' needs and seeking a service mechanism to improve readers' satisfaction are the necessary measures for magazines to win the market. Reader research often uses a combination of social surveys and in-depth interviews to understand readers. [1] This method has a higher cost and a longer research cycle.

Book magazines have always been an important category of e-commerce websites. In addition to the price advantage of e-commerce sites (such as Amazon.com, Dangdang.com, JD.com, etc.) over traditional sales channels, the most notable feature is that they actively guide users to evaluate the purchased goods and their services, and then adjust the display and recommendation of the goods based on the feedback information. After years of operation, these sites have accumulated a large amount of user evaluation information. Therefore, how to use massive and free public reader evaluation online information has become a potential research topic.

II. PROPOSAL OF RESEARCH QUESTION

Through reading relevant literature, it is found that user evaluation information research is active year by

year and most of the research is conducted in the context of computer and management science. These studies mainly discuss the following three aspects: firstly, the mining of opinions on online product evaluation information. That is, through the development of comment mining methods, it is possible to automatically analyze the text content of a certain product review and find consumers' attitudes and opinions on the product. [2] Secondly, it explores the impact of product evaluation information on consumers. The results of this type of research indicate that the existing evaluation information occupies a dominant position in the users' online shopping decision. Online shopping users mainly consider user evaluation when making decisions, followed by website popularity and public praise. [3] Thirdly, it evaluates the effect of product ratings on product sales-related indicators. Most of these studies have established regression models or structural equation models [4] based on empirical data to examine the impact of customer ratings on product sales-related indicators. These studies have found that online product reviews have a certain effect on product sales. [5]

However, most of the commodities involved in the study are books, movies, TV shows, restaurants, hotels, clothing, electronic products, etc. There are few studies specifically aimed at online reviews by readers of magazines. The huge amount of data generated by the online reviews of magazine readers is not only of great commercial value to the merchants. In general, the main content elements and overall evaluation of the readers when reviewing the magazine must reflect the readers'

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concerns and have reference significance for the operation of the magazine.

In order to understand the factors that the readers pay attention to when buying a magazine and the impact of these factors on the evaluation of the magazine, this study collects online review texts for the magazine on the Amazon Chinese website. Through text analysis of the review content, a content element model of the reader evaluation magazine is constructed, and the content element of the review is coded in order to use multiple regression analysis to find the relationship between the content elements of the review and the readers' overall evaluation of the magazine and to construct a model of influencing factors for the readers' evaluation of the magazine. In short, the research questions are as follows: from what aspects does the reader evaluate the magazine? What factors have the greatest impact on the overall evaluation?

III. RESEARCH DESIGN

A. Data collection and sample extraction

In the magazine section of the Amazon website, readers can buy most of the best-selling journals, such as "Sanlian Lifeweek", "Southern People Weekly", "Phoenix Weekly", "Reader", etc. Amazon has designed a separate display page and review page for each issue of the magazine. The review page lists the number of reviews, the name of the reader, whether to buy the magazine, the reader's overall evaluation of the purchased journal (5 stars mean readers like it very much and 1 star means readers don't like it), and the date, title and detailed evaluation text of the comment. Compared with other shopping websites, the display page of Amazon's reader evaluation information is more transparent and rich. Therefore, this study selects the reader evaluation information of Amazon.com as the research object.

In December 2017, the researchers used the web crawling tool¹ developed by themselves to capture all the magazine review pages on the Amazon website that were publicly available for sale, stored them in the database, and then removed the review data of the electronic version of the magazine. The researchers then conducted simple random sampling from the remaining data and finally got 5,710 pieces of valid reader evaluation information, each of which contained the magazine name, reader name, review date, overall review, review title, and detailed review text.

B. Research methods

This research includes three stages: the identification of reader comment content elements, the quantitative coding of reader comment elements, the

readers' overall evaluation and the multiple regression analysis of comment content elements. First of all, it conducts a qualitative analysis of the readers' detailed review text, encodes the readers' evaluation content from the bottom up, summarizes the elements of the readers' evaluation of the purchased magazine, and counts the frequency of each of these elements. Secondly, on the basis of the previous step, it carries out 5 levels of manual coding according to the meaning expressed by the text review content to the specific aspects of the magazine, and converts the qualitative text information into data that can be quantitatively analyzed. Finally, it performs multiple regression analysis on reader evaluation elements and magazine overall evaluation, analyzes the impact of comment content elements on overall evaluation, and draws a relationship model between comment content elements and overall evaluation.

IV. DATA ANALYSIS

A. Analysis of evaluation content elements

Since the comments provided by readers are all textual in nature, the primary task of this study is to sort out the evaluation elements of readers' evaluation of magazines from fresh texts. Researchers read the original data carefully, and after familiarizing with the content of the data, carefully consider the meaning and interrelationships among them, extract the important core concepts in the data, conduct open coding and use these concepts to unify all the content of the data. [6] The process of open coding through reading materials is shown in "Table I":

¹ The gripping tool uses PHP's Curl function library.

TABLE I. EXAMPLES OF OPEN CODING PART OF READER EVALUATION CONTENT

Reader evaluation content	Evaluation elements
The pages have a strong smell of ink	Print quality
The book is professional as always and the illustrations inside are wonderful	Illustrations
The picture is beautiful, but there are too many advertisements	Number of illustrations and advertisements
This issue is good and I've been reading this magazine since childhood	Loyalty
There are not many books on financial management. This one is very interesting and see things from the angle of details	Topic selection, fun
When the book arrived, it was dusty and dirty with a lot of folds	Packaging protection
It is simple and easy to understand. I'm looking forward to the follow-up	Legibility
I bought it for its cover of this issue, and I haven't read it yet	Cover
The content is very mixed, not to mention a clear theme	Topic selection
The content is full of promotional ads, which is very boring	Topic selection, number of advertisements

After the open coding work, the reader evaluation elements obtained are: topic selection, illustration, thoughtfulness, legibility, fun, richness, practicality, positioning accuracy, advertising quantity, advertising quality, price ², supplement, gifts, printing quality, binding, typesetting, paper, format, cover, reader loyalty, packaging protection, sending out speed, delivery speed, changing and refunding processing, etc.

The next step is to classify and further analyze these evaluation elements according to a certain standard, combine similar evaluation elements, distinguish different data, find the necessary links between these evaluation elements and finally form a clear and concise concept tree. After categorizing the above evaluation elements, it is found that topic selection, illustration, thoughtfulness, legibility, fun, richness, practicality and positioning accuracy all belong to the magazine content; the advertising quantity and advertising quality belong to the magazine advertisement; the supplements and gifts are magazine promotion methods; the print quality, binding, typesetting, paper, format and cover belong to magazine forms; the packaging protection, sending out speed and delivery speed belong to distribution. Finally, a 3-level tree-like conceptual model was established (see "Fig. 1").

² The price here is not the selling price of the magazine, but the reader's subjective attitude towards the price of the magazine, that is, whether it is cheap or not.

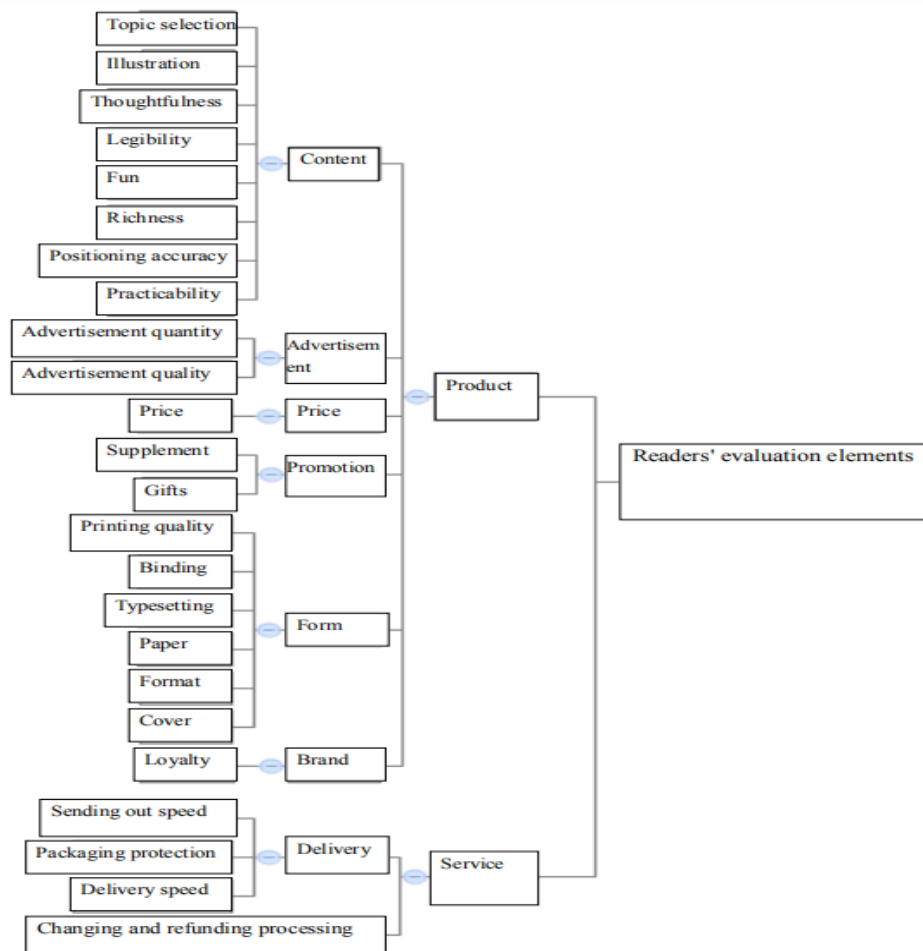


Fig. 1. Conceptual model of reader evaluation content elements.

Through the frequency analysis of the evaluation elements in the open coding, it is found that the frequency and proportion of different review elements vary greatly. As a cultural product, magazines receive the most comments on content, brand and form. The

price of the magazine itself and the advertisements in the magazine content are mentioned in the comments less frequently. Among the services provided by e-commerce websites, delivery is mentioned more often. The "Table II" provides more details.

TABLE II. FREQUENCY OF THE PRIMARY AND SECONDARY ELEMENTS IN THE CONTENT OF READER EVALUATION³

Primary coding elements	Secondary coding elements	Frequency
<i>Product</i>	<i>Content</i>	67.60%
	<i>Brand</i>	17.00%
	<i>Form</i>	14.30%
	<i>Price</i>	7.00%
	<i>Promotion</i>	3.10%
	<i>Advertising</i>	2.10%
<i>Service</i>	<i>Delivery</i>	8.80%
	<i>Changing and refunding processing</i>	0.10%

³ Since multiple evaluation elements may appear in the reader evaluation content, the cumulative percentage is greater than 100%.

A detailed analysis of the 3-level evaluation elements found that topic selection, loyalty, richness, practicality and positioning accuracy are the most frequent elements in readers' evaluation of magazine content. Readers rarely mention the advertisements that

appear in magazines and rarely comment on gifts and supplements as a means of promotion. The least mentioned is the changing and refunding processing. "Fig. 2" provides more details:

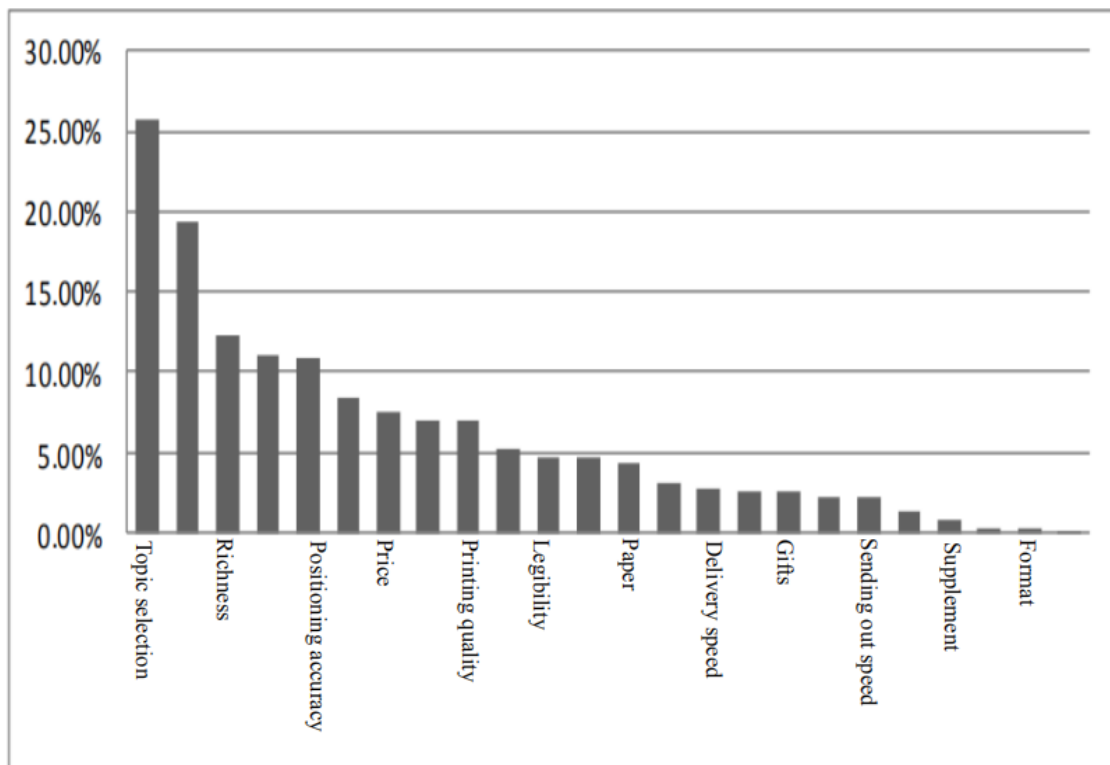


Fig. 2. Frequency of reader evaluation elements.

B. Quantitative coding conversion of comment elements

In order to explore the relationship between the reader's overall evaluation and the various evaluation elements, the researchers carried out a quantitative transformation of each piece of evaluation information. According to the proposed 3-level tree-like conceptual model, the evaluation elements mentioned in the reader's evaluation content are converted into corresponding manual coding, and the qualitative evaluation content is finally converted into a quantitative evaluation element score.

The coding level adopts Likert's 5-level scale, which divides the reader evaluation into 5 levels (from -2 to +2). "-2" indicates that the reader is very dissatisfied with a certain element of the magazine, for example: "It has a heavy ink smell, its print quality is poor and its typeface is difficult to recognize". Then, the score of the corresponding evaluation element "print quality" is set to "-2". "+2" indicates that the reader is very satisfied with a certain element of the magazine, for example: "The content is rich and I'll never get

bored reading". Then the score of the corresponding evaluation element "richness" is set to "+2". The evaluation elements that are not mentioned are uniformly coded as "0", indicating a neutral attitude.

This work is jointly completed by multiple researchers. After the coding is completed, a credibility test is conducted. The coding reliability value is 0.89, indicating a high credibility.

After using the statistical software SPSS 21.0 to calculate the average value of all secondary evaluation elements, it is found that the average value of the evaluation elements such as content, brand, form, price, delivery and promotion is greater than 0, indicating that the readers' evaluation of the purchased magazine in these aspects is positive; and the average value of the advertising elements is less than 0, indicating that the readers have a negative evaluation of the excessive advertising that appears in the purchased magazine. "Table III" provides more details:

TABLE III. AVERAGE VALUE OF READER EVALUATION ELEMENTS

	Average value	Standard deviation
<i>Content</i>	1.01	1.068
<i>Brand</i>	0.30	0.710
<i>Form</i>	0.13	0.640
<i>Price</i>	0.09	0.455
<i>Delivery</i>	0.06	0.536
<i>Promotion</i>	0.03	0.311
<i>Changing and refunding processing</i>	0.00	0.053
<i>Advertising</i>	-0.01	0.246

C. Regression analysis between reader evaluation elements and overall evaluation

The next step is to use statistical software SPSS 21.0 to perform multiple regression analysis on the above quantitative evaluation elements and overall evaluation data. The content, brand, form, price, promotion, advertising, delivery and changing and refunding processing of the secondary evaluation elements are treated as independent variables, and multiple regression analysis is performed using a step-by-step approach. The final multiple regression equation is as follows:

$$\text{Overall evaluation} = 0.641 \times \text{content} + 0.277 \times \text{brand} + 0.117 \times \text{price} + 0.098 \times \text{form} + 0.079 \times \text{delivery} + 0.065 \times \text{promotion}$$

The p value corresponding to each independent variable in this regression equation is less than 0.01, and the t test is passed, indicating that each evaluation element has a significant impact on the overall evaluation of the magazine. The VIF value corresponding to each evaluation element is less than 2 and close to 1, indicating that there is no collinearity between the evaluation elements, that is, the evaluation elements are independent of each other and have no correlation. The adjusted R^2 is 64.6%, indicating that this multiple regression equation can explain more than half of the variation in the overall evaluation. Considering the above evaluation indicators comprehensively, the model obtained by multiple regression analysis is generally acceptable. In addition, in the calculation results of the stepwise regression, because the explanatory power of the overall evaluation is too weak, the two evaluation elements of advertising and changing and refunding processing are eliminated. The detailed regression analysis calculation results are shown in "Table IV":

TABLE IV. REGRESSION ANALYSIS BETWEEN THE EVALUATION ELEMENTS AND THE OVERALL EVALUATION OF THE MAGAZINE

	Standard coefficient	t	p	VIF
<i>Content</i>	0.641	78.693	0.000	1.070
<i>Brand</i>	0.277	34.543	0.000	1.038
<i>Price</i>	0.117	14.768	0.000	1.020
<i>Form</i>	0.098	12.195	0.000	1.036
<i>Delivery</i>	0.079	9.946	0.000	1.016
<i>Promotion</i>	0.065	8.229	0.000	1.008

The $R^2 = 0.646$ and the approximate $R^2 = 0.646$

From the standard coefficients corresponding to each variable in the model, it can be seen that magazine content, brand and price factors have the greatest impact on the overall evaluation, and other factors have a smaller impact on the overall evaluation.

V. CONCLUSION

According to the results of this study on the content of Chinese Amazon website reader reviews, the focus of Chinese readers on magazines can be summarized as "content is king; brand is the uppermost". Judging from the frequency of each element of the reader review text, although readers comment on magazines with many aspects, the top two are content and brands, among which readers pay 67% attention to the content and 17% to the brand. Judging from the average value of these evaluation elements, the readers' evaluation of the magazine's content and brand is positive, which also shows that the quality of the magazines currently sold on Amazon.com is good and generally praised by readers. The results of multiple regression analysis between the overall evaluation and the various review elements show that the content and brand have the most prominent impact on the overall evaluation. For magazines, the use of promotional methods such as price reductions and gifts and supplements have little effect on improving the overall evaluation.

As a traditional media, the core value of a magazine lies in the positioning and type of the media. The business goal of a magazine is to make the magazine's positioning and type meet the needs of its target readers. Through reading the readers' evaluation content, it is found that, although the online information access is very convenient, some people still choose to read the paper version of the magazine and become a loyal reader of a magazine. Therefore, when actively seeking survival and development in the Internet era, magazines should continue to adhere to the concept that the content is king, maintain the consistency of content

positioning, meet the expectations of loyal readers, and attract new readers with the reputation formed by loyal readers.

At the same time, magazine operators should actively build their own brands. One of the main characteristics of the brand is that the number of regular customers is relatively high, as the readers' own comments say: "I'm always a loyal reader", "I almost buy every issue of Sanlian's book" and "I buy every issue of this book". Brands can not only maintain readers' loyalty, but also reduce readers' sensitivity to prices. When costs increase and prices increase, they are more easily recognized by readers. This can be seen in reader comments, such as, "Starting from this year, 'English Digest' changed from monochrome printing on offset paper to color printing on light-coated paper, and the retail price has also increased from 5 yuan to 8 yuan. But compared with other English publications, it is still not expensive". Some studies believe that assuming a certain degree of social responsibility should be the strategy of the magazine, which will help the interpersonal communication of the magazine brand, and will also have a good role in promoting the social recognition of the magazine's image. [7] A lot of praise from magazine readers for the topic selection can also be seen, for example: "This issue of Chinese National Geographic Magazine published an article about a small border war that took place during the Anti-Japanese War period. Chinese National Geographic Magazine never evades sensitive incidents. It dares to say and write. I want to give it thumbs up for being a moral magazine".

Although this research ensures the representativeness of the sample by taking all the data and then randomly sampling, there may still be sampling bias. The magazines sold on the Chinese Amazon website are selected and not all published magazines can be purchased on the Amazon website, which also make this research has certain limitations.

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