Investigation on the Impact of Content Marketing and Interactive Perception on Brand Loyalty in Online Brand Communities

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Abstract: The impact of online brand community content marketing and interactive perception on brand loyalty is a topic of great concern. With the increasing demand for brand loyalty from people, brands need to pay more attention to interaction and emotional connection with users to enhance their loyalty. Online brand community content marketing and interactive perception are effective means to help brands achieve this goal. Based on this theory, this article conducted a deep study on the impact of online brand community content marketing and interactive perception on brand loyalty. Through comparative experiments, it could be concluded that the brand loyalty score was significantly enhanced when conducting community content marketing and interactive perception. The impact of online brand community content marketing and interactive perception on brand loyalty was multifaceted. By establishing a good brand image and values, strengthening emotional connections, increasing user engagement and word-of-mouth effects, etc. Users could enhance their sense of identification and loyalty to the brand. Brands should strengthen strategies for online brand community content marketing and interactive perception to enhance brand loyalty and market competitiveness.

1. Introduction

With the continuous development and popularization of internet technology, online brand communities have become one of the important means of brand marketing. In online brand communities, brands can guide users to develop a sense of identity and loyalty through publishing content, interacting with users, and other means, thereby enhancing brand value and market competitiveness. Therefore, studying the impact of network brand community content marketing and interactive perception on brand loyalty has important background significance, which can provide scientific marketing strategies for brands and improve brand loyalty and market share. As consumers' demands for brand loyalty continue to increase, brands need to constantly innovate marketing methods to meet user needs. Studying the impact of network brand community content marketing and interactive perception on brand loyalty can promote marketing innovation and

provide new marketing ideas and practical experience for brands. The network brand community is an important platform for interaction between brands and users. Studying the impact of network brand community content marketing and interactive perception on brand loyalty can promote interaction between brands and users, strengthen emotional connections between brands and users, and improve brand loyalty. Studying the impact of network brand community content marketing and interactive perception on brand loyalty has important background significance and positive implications for brand marketing and development.

Community content marketing and interactive perception of network brands are one of the main methods to enhance brand loyalty. By shaping a good brand image, enhancing emotional connection, and enhancing word-of-mouth effects, users can better enhance their loyalty to the brand. The research goal of Bilgin Yusuf was to investigate the role of social media marketing in brand awareness, brand image, and brand loyalty. On this basis, an analysis was also conducted on the impact of factors such as brand cognition and brand image on brand loyalty [1]. The research goal of Bernarto Innocentius was to examine the positive effects of brand awareness, brand image, and brand trust on brand loyalty in order to provide suggestions for coffee shop managers to enhance brand loyalty [2]. The purpose of Marliawati Annisa's research was to examine the impact of brand experience and brand image on brand loyalty from the perspective of brand trust. The experimental subjects were 116 respondents who used non probabilistic research methods. Through a questionnaire survey, the following conclusions were drawn: There was a significant positive correlation between brand experience and brand loyalty, while there was a significant positive correlation between brand image and brand loyalty, but it was not significant; brand experience was an important factor in promoting brand loyalty through brand trust [3]. The social content marketing and interaction perception of network brands have a significant impact on brand loyalty.

Network brand communities can increase user engagement and increase user awareness of the brand by providing valuable information and interacting with users. Such investment and attention can be transformed into brand loyalty, and increase consumer recognition and trust. Hanaysha Jalal Rajeh aimed to explore the impact of social media market characteristics (interactivity, relevance, entertainment, information, etc.) on brand loyalty in the fast food industry. The required information came from a customer count survey of fast food restaurants in the United Arab Emirates. The results showed that most social media marketing characteristics had a positive impact on brand loyalty. At the level of detail, interaction and perceptual correlation had a positive effect on brand loyalty [4]. In today's marketing strategies, the role of social media was becoming increasingly evident. This new technology provided enterprises with new mechanisms and communication tools, enabling them to communicate with real and potential customers. Ebrahim Reham Shawky attempted to explore how social media marketing behavior could influence brand loyalty through brand trust and brand equity from the perspective of social media [5]. However, they did not conduct a detailed analysis on the relationship between community content marketing, interactive perception, and brand loyalty, and only briefly summarized it.

In order to verify the correlation between network brand community content marketing and interactive perception and brand loyalty, this article calculated brand loyalty based on sentiment analysis method. In the experimental section, comparative experiments were used to analyze brand loyalty scores before and after community content marketing and interactive perception intervention. Based on the experimental results, it could be concluded that community content marketing and interactive perception could effectively improve brand loyalty ratings. The innovation of this paper was that the content marketing and interactive perception of network brand community needed cross platform interaction, including social media, WeChat official account and other platforms. This cross platform interaction could make it more convenient for users to participate in brand activities and interactions, thus improving loyalty and brand influence.

2. Investigation on Brand Loyalty Algorithms

2.1 Emotional Evaluation Algorithm

Formula for emotional polarity analysis:
The emotional polarity analysis formula can be used to calculate the emotional polarity score of user comments and comments, reflecting the user's emotional state towards the brand. Dictionary based methods can be used for sentiment analysis of user comments.

$$SP = \frac{\sum_{i=1}^{n}(score_i \times weight_i)}{\sum_{i=1}^{n} weight_i} \tag{1}$$

Among them, $score_i$ represents the emotional score of the i-th word; $weight_i$ is the weight of the i-th word; n is the number of words in the comment; SP is the score of emotional polarity analysis.

Formula for calculating brand loyalty:
Brand loyalty can be calculated based on user behavior and feedback in the community [6-7].

$$LC = \frac{\sum_{i=1}^{n}(PV_i \times SA_i)}{\sum_{i=1}^{n} PV_i} \tag{2}$$

Among them, PV_i is the participation value of the i-th user; SA_i is the loyalty score of the i-th user; n is the number of users in the community; LC is the brand loyalty score.

Loyalty prediction model formula:
The loyalty prediction model can be used to predict user loyalty scores and develop corresponding marketing strategies based on the predicted results.

$$L = \beta_0 + \beta_1 D_1 + \beta_2 D_2 + \beta_3 D_3 + \beta_4 D_4 + \delta \tag{3}$$

Among them, L represents the user's loyalty score; β_0 represents a constant term; β_1 to β_4 represent the coefficients of independent variables D_1 to D_4, respectively; δ represents the error term. The independent variable can be selected from factors such as user behavior, user profile data, etc., and a prediction model can be established through regression analysis and other methods.

2.2 Improvement Plan for Network Brand Loyalty

With the rapid development and popularization of the Internet, network brand community content marketing and interactive perception have become hot topics in the marketing field [8-9]. Network brand community content marketing refers to making users better understand the brand and establish brand image and values through publishing valuable content, sharing brand stories, displaying brand culture and other ways on social media, WeChat official account, APP and other platforms [10-11]. The perception of network brand community interaction is achieved by interacting with users, responding to their concerns and needs, thus enhancing the emotional connection between the brand and users, and enhancing users' trust and loyalty to the brand [12-13].

The impact of network brand community content marketing and interactive perception on brand loyalty is multifaceted [14-15]. Network brand community content marketing can help brands establish a good image and values. By publishing valuable content, sharing brand stories, and showcasing brand culture, brands can help users better understand the brand, and establish brand

image and values. This image and values can generate a sense of identification among users, thereby enhancing brand loyalty [16-17].

The interactive perception of network brand communities can strengthen the emotional connection between brands and users. Brands can respond to users' concerns and needs through interaction with them, enhancing the emotional connection between the brand and users. This emotional connection can be transformed into brand loyalty, allowing users to trust and love the brand more [18-19].

Network brand community content marketing and interactive perception can also improve user engagement and word-of-mouth effects, thus promoting brand loyalty. By posting interesting content and interacting with users, it is possible to increase user engagement and brand awareness. At the same time, positive feedback and recommendations from users can also bring more users and further enhance brand loyalty.

The development of network brand community content marketing and interactive perception has also brought some innovative points. Firstly, personalized customization has become a new trend. Network brand community content marketing and interactive perception can be personalized and customized to users through user profiling and data analysis. Brands can provide customized services and content based on user needs and interests, enhancing user engagement and loyalty. Secondly, community-based interaction has also become a new way. Network brand community content marketing and interactive perception can be achieved by establishing a community-based interactive platform, allowing users to better participate in brand construction and operation. This type of community interaction can enhance users' sense of belonging and identification, thereby enhancing brand loyalty.

Diversified content, data analysis and feedback, and cross platform interaction have also become innovative points in network brand community content marketing and interactive perception. Brands need to provide diverse content, including images, videos, audio, text, and other forms, to meet the needs and interests of users. Meanwhile, data analysis and feedback can help brands better understand user needs and reactions, further enhancing brand loyalty. Cross platform interaction can make it more convenient for users to participate in brand activities and interactions, thereby improving loyalty and brand influence.

In future development, brands need to continuously innovate and further improve brand loyalty and market competitiveness through personalized customization, community-based interaction, diversified content, data analysis and feedback, and cross platform interaction.

3. Experimental Design on the Impact of network brand Community Content Marketing and Interactive Perception on Brand Loyalty

3.1 Experimental Design

Participant recruitment:
Users who voluntarily participated in this experiment were recruited from social media platforms. Participants are required to be at least 18 years old and have more than six months of experience using the brand's products or services.

Construction of experimental and control groups:
The subjects were randomly divided into two groups. The experimental group used online brand community content marketing and interactive perception intervention, while the control group did not use any intervention methods and only conducted a questionnaire survey.

Intervention measures:
When participating in the brand community, the experimental group would accept marketing activities and interactive forms provided by the brand, such as brand announcement of new product

information and conducting user surveys. The control group only needs to complete the questionnaire survey.

Data collection:

After receiving intervention, participants would fill out a brand loyalty questionnaire, including their understanding of the brand, their level of liking, and whether they would choose it.

Through the above experimental design, the impact of network brand community content marketing and interactive perception on brand loyalty can be explored, providing reference for brand owners to develop more effective brand marketing strategies.

3.2 Data Evaluation

This article adopted the form of a questionnaire survey for analysis. Four experimental groups and four control groups were selected for testing, with the experimental group being Group A and the control group being Group B. They were tested for brand loyalty scores before and after intervention by separately accepting marketing activities and engaging in interactive forms provided by the brand, as well as marketing activities and interactive forms provided by the brand. The experimental results are shown below.

(1) Exploring the impact of network brand community content marketing on brand loyalty.

The brand loyalty scores of the experimental group and the control group before and after receiving content marketing intervention are shown in Figure 1.

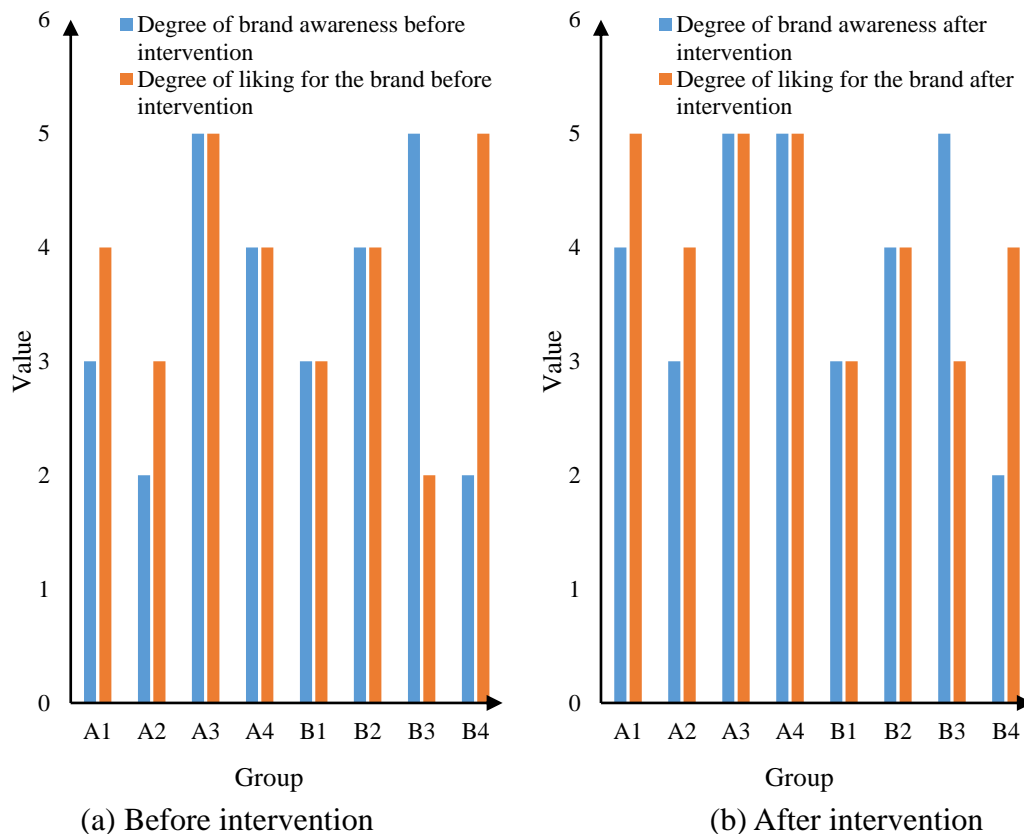(a) Before intervention   (b) After intervention

Figure 1: Brand loyalty scores before and after content marketing intervention in the experimental and control groups.

As shown in Figure 1, Figure 1 (a) shows the brand loyalty scores of the experimental group and the control group before receiving content marketing intervention, while Figure 1 (b) shows the brand loyalty scores of the experimental group and the control group after receiving content

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marketing intervention. From Figure 1, it could be seen that the brand awareness scores of the experimental group before content marketing intervention were 3, 2, 5, and 4, and the brand favorability scores were 4, 3, 5, and 4, respectively. After conducting content marketing interventions, the brand awareness scores were 4, 3, 5, and 5 respectively, and the brand favorability scores were 5, 4, 5, and 5 respectively; it could be seen that brand loyalty scores improved after content marketing interventions, while there was no change in the control group. This also indicated that marketing interventions had a significant impact on brand loyalty.

(2) Exploring the impact of network brand community interaction perception on brand loyalty
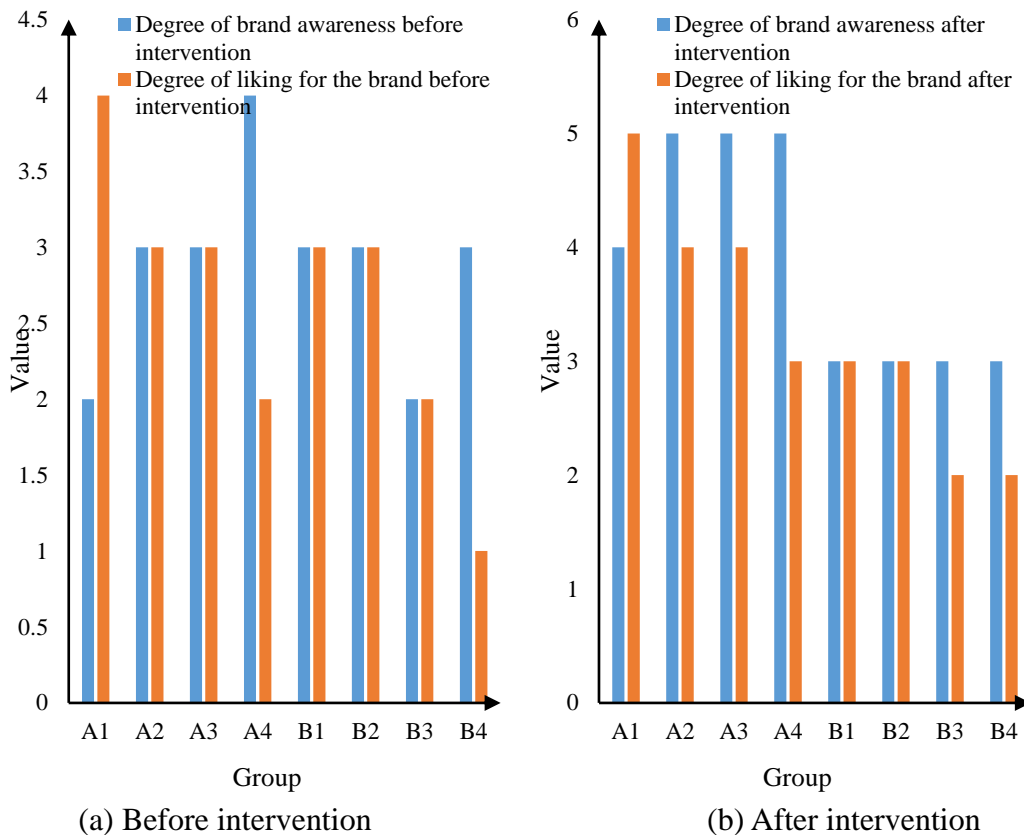

(a) Before intervention

(b) After intervention

Figure 2: Brand loyalty scores before and after community interaction perception intervention in the experimental and control groups.

As shown in Figure 2, Figure 2 (a) shows the brand loyalty scores of the experimental group and the control group before receiving community interaction perception intervention, and Figure 2 (b) shows the brand loyalty scores of the experimental group and the control group after receiving community interaction perception intervention. From Figure 2, it could be seen that the brand awareness scores of the experimental group before community interaction perception intervention were 2, 3, 3, and 4, and the brand liking scores were 4, 3, 3, and 2, respectively. After conducting community interaction perception intervention, the brand awareness scores were 4, 5, 5, and 5 respectively, and the brand favorability scores were 5, 4, 4, and 3 respectively; it could be seen that brand loyalty scores improved after community interaction perception intervention, while there was no significant change in the control group. This also indicated that interactive intervention had a significant impact on brand loyalty.

(3) Exploring the interactive impact of network brand community content marketing and interactive perception on brand loyalty
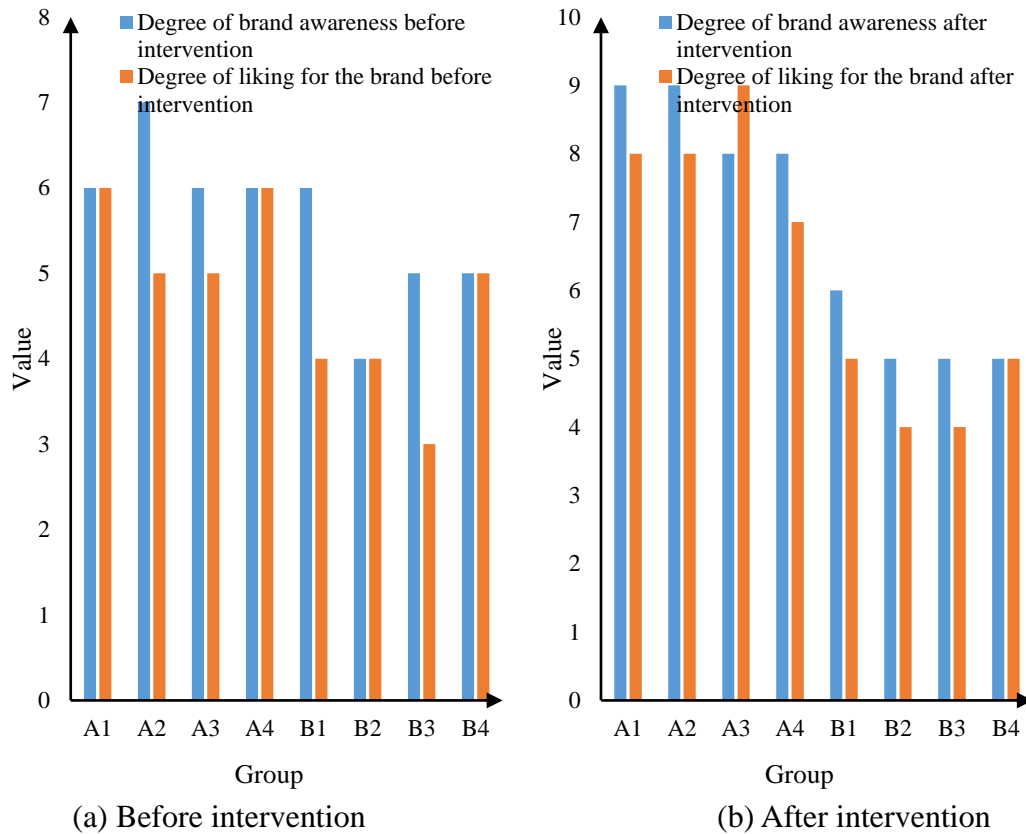
Figure 3: Brand loyalty scores before and after community content marketing and interactive perception intervention in the experimental and control groups.

As shown in Figure 3, Figure 3 (a) shows the brand loyalty scores of the experimental and control groups before receiving community content marketing and interactive perception interventions, while Figure 3 (b) shows the brand loyalty scores of the experimental and control groups after receiving community content marketing and interactive perception interventions. From Figure 3, it could be seen that the brand awareness scores of the experimental group before community content marketing and interactive perception intervention were 6, 7, 6, and 6, respectively, and the brand liking scores were 6, 5, 5, and 6, respectively. After conducting community content marketing and interactive perception interventions, the brand awareness scores were 9, 9, 8, and 8, and the brand favorability scores were 8, 8, 9, and 7, respectively; it could be seen that brand loyalty scores improved after community content marketing and interactive perception intervention, while there was no significant change in the control group. This also indicated that marketing and interactive intervention had a significant impact on brand loyalty.

In order to test whether the impact of marketing and interactive interventions on brand loyalty is influenced by participants' personal characteristics (such as age, gender, education level, etc.), this article selected 4 participants from the experimental group and 4 participants from the control group for testing. The experimental results are shown in Table 1.

Through experimental design and data analysis, it was concluded that marketing and interactive interventions had a significant impact on brand loyalty. The experimental group showed an improvement in brand awareness, liking, and willingness to choose the brand after intervention, while the control group showed no significant changes. This result indicated that network brand community content marketing and interactive perception had a positive impact on brand loyalty. The impact of participants' personal characteristics on intervention effectiveness was not significant.

There was no significant difference in brand loyalty scores between the experimental group and the control group among participants of different ages, genders, and educational levels before and after intervention. This indicated that the effects of marketing and interactive interventions on brand loyalty were generally applicable, and were not influenced by the personal characteristics of participants.

Table 1: The relationship between participants' personal characteristics and interactive interventions on brand loyalty

	Age	Gender	Education level	Brand loyalty score before intervention	Brand loyalty score after intervention
A1	20	Female	Master	80	90
A2	35	Male	Undergraduate	70	85
A3	28	Female	Undergraduate	85	95
A4	45	Male	High school	75	88
B1	27	Female	Master	75	80
B2	32	Male	Undergraduate	78	82
B3	22	Female	Undergraduate	80	84
B4	50	Male	High school	72	78

4. Conclusions

The experiment of this article aimed to explore the impact of network brand community content marketing and interactive perception on brand loyalty, and examine the impact of participants' personal characteristics on the impact effect. The experimental results of this article indicated that network brand community content marketing and interactive perception had universality in brand loyalty, and brands could adopt this marketing strategy to improve brand loyalty. This conclusion provided an effective marketing strategy for brand owners, which could enhance brand loyalty by increasing brand awareness, liking, and user motivation to choose a brand. Overall, the experimental results of this article indicated that network brand community content marketing and interactive perception had a significant impact on brand loyalty, and were not affected by the personal characteristics of participants. This study provided an effective marketing strategy for brand owners, which could enhance brand loyalty while increasing brand awareness and reputation.

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