

The Influence of Customer Interaction in Virtual Brand Community on Brand Loyalty

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Abstract

Purpose: The main purpose of this study is to determine the relationship among the customer interaction and brand loyalty of virtual brand communities through the uses and gratification theory (UGT), this research mainly answer some research questions, a) the level of customer interaction in virtual brand community; b) the level of brand loyalty in virtual brand community; c) the relationship between the customer interaction and brand loyalty in virtual brand community. **Design/methodology:** This study chooses several different virtual brand communities established on different social platforms as the research objects, and studies their customer interaction and brand loyalty. **Findings -** This study divides the interaction into three dimensions: product information interaction, interpersonal emotional interaction and self-identity interaction, chooses virtual brand member interaction as independent variables, and constructs a theoretical model of brand member interaction based on the use satisfaction theory (UGT) and social identity theory. **Practice implication:** Brand community managers can draw on the results of this study and formulate corresponding strategies to improve customer loyalty to the brand.

Keywords: Virtual Brand Community, Customer Interaction, Brand Loyalty

Introduction

Nowadays, with the development of the communication technology and information systems, it become possible that customers interact with each other (Brodie et al., 2013; Schamari & Schaefer, 2015). Social media provides chance that build some new interaction forms between the customers and customers (Sashi, 2012). Virtual brand community is one of these new forms, and the interactive nature of digital media also allows customers to share

and exchange information with one another (Gambetti et al., 2015) and talk to companies (Mangold and Faulds, 2009).

Brand community refers to the social relationship group formed by the combination of people who use the same brand products. By 2012, more than 50 percent of the top 100 global brands had established online brand communities which are operated on a global scale (Manchanda et al., 2012). These virtual brand communities are home to a large number of consumer groups and potential consumers, whose influence and commercial value are increasingly evident. The establishment of virtual brand community has realized the high unimpeded information and brought great convenience to people's life (Muniz, 2001).

Alexandre & Koenig (2002) indicate that the involvement and communication of members in the brand community had a positive effect on improving their satisfaction with products and businesses. Increasingly, brand community has become an important platform for corporate culture communication and a key link between enterprises, brands and customers. Faced with the widespread homogenization of products, consumers are increasingly aware of the brand, and people are increasingly relying on online information to make purchasing decisions. For consumers, mastering as much information as possible can help them make better evaluation and purchase decisions. However, a large amount of information will reduce the quality of customers' decisions. Massive amounts of information and extremely low search costs have led to a growing shortage of attention resources for consumers (Hagel & Armstrong, 1997). Therefore, what kind of information is provided for customers and how to provide information becomes the problem that enterprises pay attention to.

Virtual brand community provides an important strategic platform for the cultivation of enterprise brand loyalty. Customer interaction helps to dig out a large number of consumer groups and potential consumers gathered in the community, which provides an important condition for enterprises to establish brand image and cultivate customer loyalty (Muniz & Guinn, 2001).

Previous studies on brand loyalty have mainly focused on the brand itself or the product itself to study how consumers produce brand loyalty, such as strengthening product quality, shaping brand personality, enhancing brand value, expanding consumer brand knowledge, promoting consumer satisfaction, trust or commitment to the brand. The emergence of virtual brand community has created a new mode of consumer brand loyalty. So the research on customer interaction and brand loyalty in virtual brand community is particularly important.

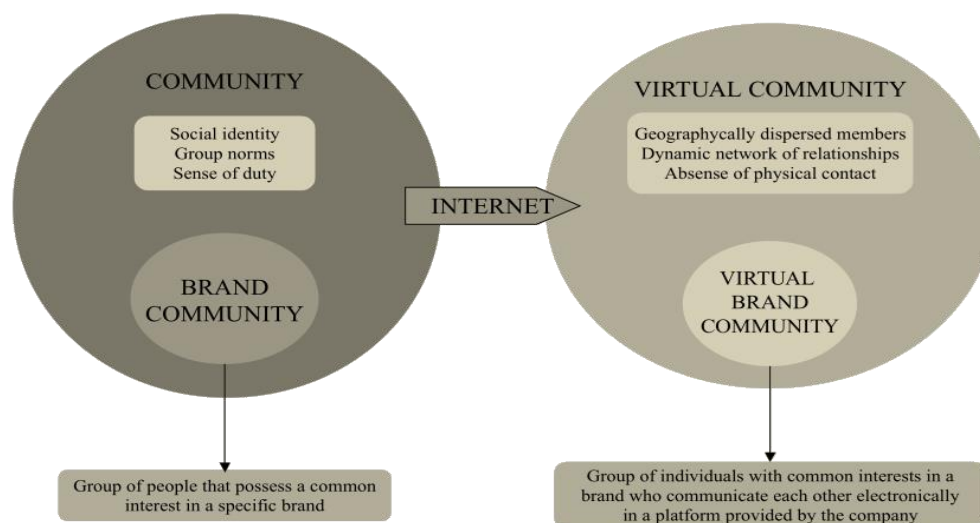


Figure 1: From off-line community to virtual community

Theoretical Development*Uses And Gratification Theory*

According to usage and satisfaction paradigms, the media helps consumers meet their social and psychological needs (Katz et al., 1973; Rubin, 1983). Individuals often seek the media in a goal oriented way to achieve a core motivation. One of the basic assumptions of this paradigm is that users are actively involved in media use and interact highly with communication media (Luo, 2002). Gratifications are provided by the attributes, the content provided by the medium, and the social and physical contexts with which each medium is typically associated (Katz et al., 1973)

The theory of "use and satisfaction" holds that the audience is an individual who contacts the media according to the specific demand motive and is satisfied in the process of contacting the media according to the specific demand. People are motivated to join the virtual brand community for different reasons (Bagozzi & DHukaia, 2006), and some researchers believe that uses and gratification theory is very useful in understanding why people join the virtual brand community (de Valck & Dambrin, 2007; Dholakia, 2004). Just as people join media choices, people are motivated to join virtual brand communities to meet different needs, the gratification of individual motives and needs in a virtual community will depend on the perceived value of being a member (Dholakia et al., 2004; Lee et al., 2003; Mathwick, 2006). It mainly includes the following values:

First is about functional values (such as advice, information and expertise), this value is defined as "value acquired from achieving a predetermined purpose" (Dholakia et al., 2004). Virtual communities enable individuals to send and receive information about topics of interest (information value). Consumers are bound to collect all kinds of information about a brand before they buy it, and then use the media itself to analyze and filter the information. Information provided in the virtual brand community is more reliable for many consumers than that provided by marketers (McAlexander et al., 2002). Mathwick (2006) recently demonstrated that website traffic and brand loyalty are generated primarily through information values created through virtual interactions.

As for social values (such as friendship, emotional support, self-esteem, social status, social improvement). In virtual communities, we can find people with similar problems and experiences. Virtual communities are social activities between people who interact online, and they convey the consumer value of interpersonal connections (Mathwick, 2006). Connecting with virtual communities is a social benefit for consumers because of identity and social integration (McWilliam, 2000). When consumers gain social status in the community, they can even gain social reinforcement value in the virtual community (Dholakia et al., 2004). In the virtual brand community, members can not only exchange information about the brand, but also exchange some shopping experience, shopping skills, shopping experience and even current affairs news. In the interaction between members, some more active members will become opinion leaders. This opinion leader may be a member or a brand merchant. Members get a sense of belonging and achievement recognized by the group at the same time of sharing experience, thus enhancing loyalty to the brand.

The third value is about entertainment value, entertainment comes from relaxation, through playing or interacting with others (Dhakaki et al., 2004). These experiences can include mobility (Shoham, 2004; Sicilia et al., 2005), because consumers are likely to like, show a high degree of interest and engagement with others, and feel the time pass quickly in their mutual interaction. If the customer is satisfied with the interaction process, it may affect the impression and loyalty of the customer, and they are willing to choose continue interaction

with other members in the virtual brand community, they tell their own experiences to others, influence others to join the virtual brand community together, and change "potential audience" into "actual audience".

As a new medium, virtual brand community not only breaks the restriction of traditional communication mode, but also satisfies people's fast-paced lifestyle, and meets the psychological needs of different groups, which improve the audience's participation consciousness and discourse right.

Social Identity Theory

Social identity theory holds that individuals classify themselves and others into different groups to illustrate their different identities with others. Tajfel (1978) defines social identity as "the individual realizes that he belongs to a particular group organization and that he is aware of the emotional and value significance of the identity of his own group members". Algesheimer et al (2005) argued that brand identity is the degree to which community members perceive themselves as members of the community. Brand community identity refers to a kind of social identity that customers define themselves based on brand. In recent years, a large number of studies have shown that customers have joined the virtual community because of their common brand hobbies. In the interactive communication process of the virtual community, there will also be the identification of the community. In the virtual brand community, customers will form a social network similar to the real society after long-term interpersonal communication. The process of customers participating in the brand community is a series of behaviors made by the social network.

Borgatti and Evert (1999) found that in the brand community characterized by frequent and intensive social interaction, members of the community have a high degree of interaction density and close contact with each other. Those active community participants are mostly brand loyalists, who have a profound understanding of brand culture and spirit, and actively share their own experience of brand and product consumption with others. In the process, they fully appreciate the information and resource benefits that the brand community brings to themselves, and at the same time, they get to communicate with other members and the fun of interaction. Krackhard (1992) study pointed out that the higher the density of social networks and the degree of social connections among members, the higher the degree of perceived value of the community, and can form a good social atmosphere. In the virtual brand community, the higher the frequency and degree of interaction among members, the higher the social interaction within the community, which makes the flow of information and other resources among members of the community more efficient, and the deeper the social interaction between members. In such a brand community, community members are easy to generate community identity.

When individuals identify themselves with their group, a social identity is activated, depersonalized process occurs, and, as consequence, the group's welfare becomes intertwined with the welfare of themselves (Reicher & Wetherell, 1987). Group identification leads members to a collectivist motivation, a desire to enhance the welfare of the group as a whole. The higher consumers' identification of brand community, the stronger their participation, the less normative pressure they feel from the community, and the more willing they are to participate in community activities, which enhances cooperation and helping among members, placing group's interests above their own (Zdaniuk & Levine, 2001).

Hypothesis

Product Information Interaction

Srinivasan (2002) holds that product information interaction is mainly manifested by the degree to which customers perceive that others actively share information and knowledge about products and brands, or that they actively share and communicate with others to discuss the degree of interaction between related products and brands, including product usage, purchase information and competitive products.

The communication efficiency of participants is achieved through interaction (Rice, 1987). Brand community activities can be carried out both online and offline, and these activities are mainly reflected by brand-related experience and interaction among members. Koh and Kim (2002) point out that the degree of interaction between members of a community is the key to the sustainable development of the brand community.

Mc Alexander and Koenig (2002) pointed out that increasing customer satisfaction and loyalty to the company and its products through the word-of-mouth effect of community members. In the same year, Srinivasan affirmed from an enterprise perspective that online community interaction played a pivotal role in building brand loyalty strategies. In 2002, scholars such as Srinivasan and Verona and Prandelli affirmed the influence of virtual brand community on improving customer satisfaction and cultivating customer loyalty strategy from the perspective of corporate strategy. Thorbjornsen et al (2002) also confirmed the impact of interactive means on consumer and brand relations. By tracking the degree, frequency and feedback of customers in the community, managers can grasp the dynamic demand of consumers to the greatest extent, and constantly innovate and tap new marketing points to improve the brand loyalty.

By reviewing the past literature, the following hypotheses 1 is obtained

H1: Products information interaction has significant influence towards brand loyalty.

Interpersonal Emotional Interaction

James and Hoffman (2012) pointed out that interpersonal emotional interaction mainly refers to the interaction between members of the virtual brand community around the expression and transmission of interpersonal emotions.

These experiences and interactions can increase the stickiness and credibility of consumers. According to Bagozzi and Dholakia (2006), interpersonal interaction between members and other brand enthusiasts not only affects their evaluation of product performance and brand awareness, but also relates to the cultivation of brand loyalty. Interpersonal interaction not only strengthens the common experience and shared emotions among customers, but also enables consumers to form a social relationship based on common interest in brands, and strengthens brand loyalty.

Grove and Fisk (2007) found that when visitors wait at the gate of the theme park, friendly communication between customers may alleviate the anxiety of waiting. Pang (2010) said that tourists in the same tour group will have deeper friendship as their journey unfolds when they build up a friendship during the journey. At the same time, this kind of good interaction will also make tourists more pleasant. Hu (2011) said in the study that the mutual help and interaction of tourists in the process of tourism can make tourists satisfied with the journey, and also reduce the probability of violation of group interests.

Mashuang (2015) draws the following conclusions through empirical research: customer interaction can promote customer trust in the community, and then improve customer

satisfaction with the brand. Specifically, in the virtual brand community, the more information the customer has about the product, the deeper the topic of discussion with other customers will be, and the more he will believe in the ability of the community and its brand, thus enabling him to have a higher loyalty to the brand.

By reviewing the past literature, the following hypotheses 2 is obtained:

H2: Interpersonal emotion interaction has significant influence towards brand loyalty.

Self-Identity Interaction

According to Baron and Parker (2000), self-identity interaction mainly refers to the discussion of ideas and opinions among members of the virtual brand community. Ramaswamy (2014) pointed out that the purpose of customer interaction includes projecting self-image, namely self-identity. This study believes that in the virtual brand community, whether or not customers express their views and opinions to others, whether or not they have received the recognition and support of the other side, the essence of the behavior is to find and establish self-identity.

Casa'etal (2007) believes that customer identity in the community and self-disclosure can promote good interaction between customers and stimulate the confidence of members of the community in products. In the long run, it is conducive to the development and durability of the brand community, which has a great effect on efficient customer relationship management and customer loyalty to the brand.

Liu (2012) believes that consumers' frequent interaction with the community, community perception and attitudes towards community ownership can play a significant role in brand loyalty when they join the virtual brand community. Yang (2013) believes that customer participation can make the relationship between enterprises and customers closer, deepen mutual understanding and trust, and thus form a long-term stable cooperative relationship with customers.

Ha and Perks (2015) research points out that brand community customers need not only brand and product information or resources in the process of experience interaction, but also high-quality experience. They want to be able to express their self-awareness and ideas in the community, which will make customers feel immersed in high-quality service, and their possibility of becoming community members will be improved. It will also make users more satisfied with the brand and have a sense of dependence, and eventually become loyal customers of the brand.

By reviewing the past literature, the following hypotheses 3 is obtained

H3: Self identification interaction has significant influence towards brand loyalty.

Methodology

Data Collection

This study will collect data mainly from online, when collecting data from virtual brand communities based on social media, it should get the consent of each brand community administrator. After obtaining the approval of the community administrator, first send a unified message in the group of the brand community to inform the community members that they are doing a research and need the help of each member to fill in the questionnaire and ensure that their answers are anonymous. Through Twitter, Weibo or WeChat, a personal message ("tweet") was sent to members of these brand communities, inviting them to

participate in the research. This information is also accompanied by links to online surveys. "As a member of the brand community, [@Twitter account], please help me answer this questionnaire [link to the questionnaire]," Through a random selection procedure, a certain amount of information is sent to members of each brand community. Questionnaire issuance and data collection are scheduled for one month. It takes about 10 minutes for respondents to complete the questionnaire.

Measure

This research is a quantitative study, the research instrument is the questionnaire. There are distinct advantages for using a questionnaire for a research, such as: questionnaires are low-cost, easy to administer, facility to collective management and allow confidentiality (Leary, 1995). The questionnaire is self-administered, the questionnaire is given to respondents and it was filled by themselves. The measurement in the questionnaire are formulated by adjusting the measurement verified in previous studies, changing some words to reflect the current research environment, using the definition of projects developed by virtual brand community, combine previous studies and incorporate them into the format of the questionnaire, and observing selected virtual brand community.

Results

Level of Product Information Interaction

SPSS was used to analyze the product information interaction in the brand community of the respondents. Eight events were listed in the "product information interaction" scale. On average, the degree of product information interaction is only moderate level ($M=3.49$, $SD=0.61$). "I will try to help others solve product/brand problems", this item is the most recognized by the respondents, and is the highest mean score ($M=3.84$, $SD=0.92$). However, the item of "I work with other customers in the community to diagnose and solve product/brand problems.", the mean scored is the lowest ($M=3.23$, $SD=0.93$), the results of this item is not satisfactory. This result is in line with Su Fenyuan's (2006) research results, because the community gathers a large number of users, so that these members of the community have the opportunity to find rich information in the community to solve their own problems, so members of the virtual community will share information with other users, and even take the initiative to provide information to others, enjoy the feeling of self-affirmation after joining the virtual community.

As show in Table 1. There are moderate to high level of product information interaction for most respondents, respectively 66% and 30.7%, while 3.3% respondents have low level of product information interaction. This shows that in terms of product information interaction, more respondents in the brand community mainly obtain information, share their own brand experience and free choice of content browsing. Members in the brand community are willing to help other members solve problems, but the degree of cooperation with others is weak. The community should take measures to strengthen cooperation among members. To a certain extent, it also shows that some community members play the role of "bystander" and are used to viewing and browsing information as spectators (Sloan et al., 2015). They are not interested in participating in interaction with other community members (Hu et al., 2017).

Table 1

The level of product information interaction (n=397)

Level of product information interaction	Frequency	%
Low (1-2.38)	13	3.3
Moderate (2.39-3.75)	262	66
High (3.76-5)	122	30.7

Level of Interpersonal Emotion Interaction

In the study of virtual communities, the need for interpersonal interaction is one of the motivations for users to join virtual communities. Members are eager to create good interpersonal relationships through interpersonal interaction within virtual communities. On average, their interpersonal and emotional interaction is moderate ($M = 3.53$, $SD=0.61$).

To some extent, respondents believed that other members of the community would do their best to help and encourage themselves, and when they encountered difficulties ($M = 3.8$, $SD=0.99$), this item scored the highest mean score. Respondents spend time in the community when they feel bored ($M = 3.53$, $SD=0.9$), so they have some interesting posts in the community ($M = 3.52$, $SD=1.2$). However, the item of "I have established a deep friendship with other members of the community." get lowest mean score ($M=3.35$, $SD=1.05$). Generally speaking, respondents are willing to communicate about interests, hobbies, life and other aspects in the community, and can produce a sense of pleasure and relaxation in the process of interaction.

As show in Table 2. Most of the respondents have moderate to high level of interpersonal emotional interaction, respectively 64% and 33.5%, while 2.5% of the respondents have low degree of interpersonal emotional interaction in the brand community. This shows that most respondents are willing to care and share happiness with other members of the community in order to create a harmonious virtual brand community, and are committed to maintaining positive interpersonal relationships (Baumeister & Leary, 1995). Members can form intimate relationships within the community as well as a good atmosphere of sharing and communication (Yusop, 2011). Interestingness is considered to be one of the purposes of communication and has the nature of providing pleasant internal dialogue for individuals.

Table 2

The level of interpersonal emotion interaction

Level of interpersonal emotion interaction	Frequency	%
Low (1-2.38)	10	2.5
Moderate (2.39-3.75)	254	64
High (3.76-5)	133	33.5

Level of Self Identification Interaction

Virtual brand community is not only a medium for exchanging information and social resources, but also a field for self identification (Baron & Parker, 2000). On average, their self identification interaction is moderate ($M = 3.54$, $SD=0.59$). To some extent, respondents think they are free to express different ideas with other members in the community ($M = 3.8$, $SD=1.06$), which scored the highest on the scale. Meanwhile, respondents think the views and opinions expressed by some members of the community can resonate with me ($M=3.61$, $SD=0.83$). The lowest mean scores are "I can realize collide and exchange ideas with other

customers in the community." and "By participating in the community, I will impress other members." both were ($M = 3.41, SD=0.96; M=3.41, SD=0.99$).

The data show that most of the respondents are willing to show their talents, knowledge and achievements in the brand community, and actively participate in the discussion of the community. They also hope to present their positive image in an exemplary manner. Through the nested dissemination of content and social relations generated by other members, they can arouse broad resonance among members, thereby affecting their subjective identity (Jung, 2011).

As show in Table 3. Most of the respondents had moderate to high level of self-identity interaction, respectively 64.7% and 32.5%, while 2.8% of the respondents have low degree of self identification interaction in the brand community. To some extent, this result supports Harper and Harper's (2006) view that self identification reveal is an interactive behavior, Active disclosure by one party in communication can stimulate disclosure by the other, and reduce the uncertainty among the communicators in the process of interaction, thus promoting the development of interpersonal relationships. Individuals are willing to express themselves to others through the Internet, thus compensating for the lack of poor interpersonal development in reality (Brunet eal & Schmidt, 2008).

Table 3

The level of self identification interaction

Level of self identification interaction	Frequency	%
Low (1-2.38)	11	2.8
Moderate (2.39-3.75)	257	64.7
High (3.76-5)	129	32.5

Results of Level of Brand Loyalty

On average, the brand loyalty of community members is moderate ($M = 3.55, SD=0.58$). Among them, respondents will buy other products and services of this brand ($M = 3.77, SD=1.08$), the highest mean score. Respondents prefer to spread the good side of the brand, when talking about the brand ($M = 3.65, SD=0.92$), the second highest mean score. Respondents indicated that they will buy the brand that the brand community is based on, and the next time when they buy the product ($M = 3.63, SD=1.15$). However, Occasionally respondent has the idea of attacking competing brands ($M = 3.36, SD=1.00$), which has the lowest mean score. The data show that all the members who join the brand community have strong sense of behavioral loyalty and intentional loyalty, while hostile loyalty is relatively weak. This may be because the virtual brand community is composed of brand enthusiasts, and the respondents are members of the community.

As show in Table 4. Most of the respondents had moderate to high level of brand loyalty, respectively 61.2% and 33.8%, while 5% of the respondents have low level of brand loyalty in the brand community. This also proves Schouten's view to a certain extent that consumers' unique experience from the brand community will affect consumers' attitudes towards brand community activities, thus affecting the level of consumers' brand loyalty. It shows that most consumers have higher brand loyalty when they join the virtual brand community, including their interaction with the community, perceived community value and identification with the community.

Table 4

The level of brand loyalty

Level of brand loyalty	Frequency	%
Low (1-2.7)	20	5
Moderate (2.7-3.8)	243	61.2
High (3.9-5)	134	33.8

Outcome Of Correlation Analysis

As shown in Table 5, the test results show that the correlation efficiency (r) is positive, and there is a positive and moderate linear relationship between the variables and dependent variables. And as shown in the table below, the significant (p) of all independent variables is zero, indicating that the value is less than 0.05 significant level. Therefore, all null hypothesis were rejected because the significance value was lower than the significant level.

Table 5

Pearson correlation test results

Independent variables	Interaction	
	r	Sig.value (p)
Product information interaction	0.76	0.00
Interpersonal emotion interaction	0.77	0.00
Self identification interaction	0.78	0.00

* $p < 0.05$ (There is significant positive relationship between two variables)

Based on the Hypothesis 1 put forward in this study that product information interaction influences brand loyalty in a virtual brand community, the alternative hypothesis (H1) is accepted. The study found that there were significant positive and moderate differences between product information interaction and brand loyalty after consumers joined the brand community [$r = 0.76$, $P(0.00) < 0,05$], as shown in the Table 5. It shows that product information interaction among members of virtual brand community can effectively improve the loyalty of members to the brand, which has positive significance for enterprise marketing and operation.

Based on the Hypothesis 2 put forward in this study that interpersonal emotional interaction influences brand loyalty in a virtual brand community, the alternative hypothesis (H2) is accepted. As shown in the Table 5, after consumers join the brand community, there is a significant positive and moderate difference between the interpersonal emotional interaction and brand loyalty among members [$r = 0.77$, $P(0.00) < 0,05$]. Therefore, this study finds that the promotion of interpersonal emotional communication and interaction among members of the community will improve consumer loyalty to the brand to a certain extent, which has a positive significance for the operation of the community.

Based on the Hypothesis 3 put forward in this study that self identification interaction influence brand loyalty in a virtual brand community, the alternative hypothesis (H3) is accepted. As shown in the Table 5, after consumers join the brand community, there is a significant positive and moderate difference between members' self-identity and brand loyalty [$r = 0.78$, $P(0.00) < 0,05$]. Therefore, this study believes that guiding members of the community to actively express their views in the community and to debate or discuss problems with other members can not only arouse resonance among members, but also improve brand loyalty of the brand.

Discussion and Implication*Implication Towards Practices*

This conclusion is of great significance to virtual brand community operators. The results show that customer interaction can have a positive impact on brand loyalty. So for enterprises and brands, first of all, enterprises should ensure the validity and connectivity of information within the brand community. To strengthen the connectivity of information exchange and improve the effectiveness of information, managers of virtual brand community should filter information effectively, such as dividing and categorizing pages according to information categories, so that members of the community can find the information they need pertinently, while other members who want to have emotional interpersonal communication in the community can also be satisfied, avoid mixing different kinds of information to reduce the quality of information. For some false or invalid information that affects the development of the community, managers should strive to eliminate it and ensure that members of the community trust and satisfaction with the community information (Hsieh, 2017).

However, in order to improve consumers' loyalty to the brand, it is not enough for operators to provide only some product information, brand information and some related information. Consumers can obtain this information from multiple channels. This kind of easily accessible information is difficult to induce members to have a sense of attachment and loyalty to the brand (Hsieh & Wei, 2017). To retain consumers and retain consumers' hearts with virtual brand community, the key is to let consumers actively participate in the community and interact with other consumers. They can obtain pleasant consumer experience through interactive experience, promote community members' identification with the community, and consequently have the willingness to maintain the brand, which can play a positive role in brand promotion and promotion.

Community managers can improve the interaction among members by establishing a good incentive mechanism. Through tangible material incentives, community managers can increase the frequency of interaction among members of the community, invisible material incentives, increase the high loyal members of the community, give the members of the brand community a common sense of purpose, form a sense of belonging, and can actively resist the temptation of competing brands. At the same time, community managers can find and cultivate opinion leaders in the community. These core members are concerned about supporting the brand building of enterprises, and have a strong sense of ownership. At the same time, they have a certain impact on potential customers, junior members of the community and members of the competitors' community.

Implication Towards The Theoretical Model

The results of this study further reflect the theory of use and gratification, which shows that people are motivated to join the brand community for different reasons, and the virtual brand community helps consumers meet their social and psychological needs (Bagozzi & Dholakia, 2006). This study also verifies this point. The use and gratification theory divides demand into several categories. Customers get functional value through interaction in virtual brand community, such as suggestions, product information and experience gained by community members. These functional values can be realized through interaction of product information. Secondly, social value. Consumers can obtain friendship, emotional support, self-esteem and social status through interpersonal and emotional interaction in the community. At the same time, through the interaction of self-expression and self identification in the community,

customers can obtain self-identification value, such as strengthening values, self understanding and so on (Lee et al., 2003).

The conclusion of this study also reflects the theory of social identity from the side. Social identity theory points out that when individuals identify themselves with their group, a social identity is activated, depersonalized process occurs, and, as a consequence, the group's welfare becomes intertwined with the welfare of themselves (Wetherell, 1987.). Through the theory of social identity, this study further confirms the deepening process of consumer-community-brand relationship based on consumer interaction. It also analyses and confirms the process of consumer's concern and participation in brand community, which can improve consumers' understanding of brand community.

Implication Towards Future Research

From the observation of the research process, some suggestions can further improve the interaction in the virtual brand community, so that the brand community can become a bridge between customers and customers and brands. It is important to point out that more than one third of the respondents visit the community no more than twice a week and stay in the community for no more than two hours. This may be due to many reasons, possibly because the content of the community is not attractive enough, which indicates that many consumers will only stay in the community for a short period of time, or simply browse the information in community, less consumers will spend more time and energy to interact and understand with other customers in depth. To solve this problem, community managers can conduct an in-depth study to investigate the reasons that attract customers to stay in the community and the factors that can motivate customers to interact in the community, such as interesting content that can arouse members' discussion and forwarding, or some lottery activities.

Another problem is that although customer interaction has a significant positive impact on brand loyalty, both the dimensions of customer interaction and the level of brand loyalty are only moderate. This may be due to the crisis of trust and security brought about by the characteristic of virtual in the network. In the virtual environment, consumers are reluctant to believe the suggestion of "network", and they think that the real goods are more real and reliable, in the virtual community, even if there are many people who praise and forward, it is difficult to have greater persuasion. In order to solve this problem, enterprises can conduct further research to compare the interaction and brand loyalty between offline brand community and online brand community.

Limitation and Future Research

Due to the complexity of the research and the limitations of personal energy, financial resources and time, there are many shortcomings in this study, which are mainly manifested in the following aspects: limitations of research methodology, limitations of the research subject, the selection of variables is not comprehensive enough.

These deficiencies in this study, which will be further improved and deepened in the future research. First, this study mainly selected four types of brand communities. In the future, research can select a broader virtual brand community, or other types of brand and samples to validate the model. Future research can also compare different types of brand communities to draw different conclusions. Selecting samples from different virtual communities of different scales and grades for horizontal comparison can give more complete and wider research conclusions (Hollebeek et al., 2017).

Second, this study mainly considers the impact of virtual brand community on brand loyalty from three dimensions, such as customer interaction, and does not explore the relationship between the three dimensions. Therefore, future research can further explore whether there is causal relationship between each dimension. In addition, some scholars have studied it from other perspectives (such as value, experience, space, etc.), so in the future, we can also study how the virtual brand community affects brand loyalty from a comprehensive perspective.

Third, this study is based on the virtual brand community, and does not involve the offline brand community, so we can make a comparative study between the virtual brand community and the offline brand community in the future. In addition, according to the different sponsors, the virtual brand community can be divided into the virtual brand community sponsored by the company, the virtual brand community sponsored by the consumers and the virtual brand community sponsored by the third party. It is also a worthwhile problem to compare the intentions and behaviors of the members of the different types of virtual brand community to brand loyalty and draw more pertinent conclusions.

Fourth, the dependent variable of this study is brand loyalty. In the field of brand research, brand extension, brand equity and brand personality are all important research variables (Yang & Patel, 2016). Future research can focus on the formation of virtual brand community, which can enrich the mechanism theory of brand community, and provide more powerful theoretical guidance for marketers to make full use of brand community to build brand (Van Herten, 2010).

Fifth, in terms of incentive mechanism of virtual brand community, because members of different needs levels have different effects on brand loyalty, members of different needs levels show different roles or different behaviors in the community (Peng, 2009). For example, some members only want to get product information in the community, and some members want to get good interpersonal relationship. Some members prefer to gain respect and self-fulfillment through self disclosure in the community. Future research can analyze members according to Maslow's hierarchy of needs theory (Son, 2015).

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