The Impact of Virtual Brand Community Atmosphere on Extroverted Knowledge Co-creation

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Abstract: *With the continuous development of the Internet and community economy, more and more companies are establishing virtual brand communities to attract customers to participate in corporate knowledge co-creation. This study explores the mechanism of virtual brand community atmosphere on customers' participation in extroverted knowledge co-creation using community belonging as a mediating variable, and finds that: The free, sharing, supportive, rewarding, and innovative atmosphere of virtual brand community have significant positive effects on extroverted knowledge co-creation; community belonging plays a mediating role in it.*

Keywords: *virtual brand community atmosphere; community belonging; extroverted knowledge co-creation*

1. Introduction

With the development of the Internet, not only has the technological level of science and technology changed, but also the behavior of consumers has changed. Traditional marketing considers that consumers and enterprises are separated from each other, and consumers can only passively accept the products and services provided by enterprises, but nowadays consumers have a close connection with enterprises and will even actively participate in the co-creation process of enterprises. With the emergence of concepts such as joint innovation and open innovation, co-creation is gradually introduced into the field of knowledge management. At the same time, consumers' needs are becoming more and more unique and personalized, and consumer knowledge becomes more and more important.

In addition, as one of the most essential characteristics of a community, community belonging makes community members feel more like insiders and contribute to the development of the community. Although customers in virtual brand communities are not employees, they have a lot of heterogeneous knowledge about products and services. Therefore, if companies can create a good atmosphere within the virtual brand communities and promote the participation of customers in extroverted knowledge co-creation by enhancing the sense of community belonging among community members, the community will have more incentive to innovate and develop.

Current research on atmosphere has mostly focused on the influence of organizational climate on employees' behavior, which refers to employees' perceptions of some activities, events and procedures in an organizational environment [1], while virtual brand community atmosphere is a set of quantifiable and perceived community traits that can influence the behavior of community members. There is a lack of systematic theoretical guidance for virtual brand community operators to enhance customers' participation in extroverted knowledge co-creation through building a community atmosphere.

Therefore, this paper conducts a more in-depth theoretical of the specific mechanisms of virtual brand community atmosphere on customer participation in extroverted knowledge co-creation, using community belonging as a mediating variable.

2. Literature review

2.1 Virtual brand community atmosphere

According to theoretical studies in organizational behavior, the behavioral performance of individuals is influenced by both individual and environmental characteristics. Litwin and Stringer proposed that organizational climate is a set of measurable attributes in the work environment [2]. In the field of

marketing, Kotler first introduced the concept of "atmosphere" and pointed out that the offline business atmosphere influences the process of consumer purchase decisions [3]. Eroglu considers the influence of traditional offline store atmosphere on buyer behavior and argues that this effect also occurs in the online environment [4]. In this paper, we extend the research context from within corporate organizations to virtual brand community. Virtual brand community atmosphere is the perceptions of community members about the idiosyncratic elements of the community environment through their participation in the events, activities, and procedures of the virtual brand community [5].

In order to investigate more deeply the influence of virtual brand community atmosphere on community members' attitudes and behaviors, this study further explores the dimensions of virtual brand community atmosphere through a dimensional study of literature-tracking organizational climate. Wang Duanxu integrated the existing related literature and divided organizational climate into two main properties: supportive organizational climate and controlling organizational climate [6]. Chang Yaping divided the virtual brand community dimensions into free, supportive, innovative, rewarding, and sharing dimensions through the in-depth interview method [5]. In this study, we believe that latter's atmosphere dimension division meets the research objectives, so this study mainly adopts its variable dimension division.

2.2 Community Belonging

American psychologist Maslow defined belonging as the degree to which an individual or collective identifies with and relates closely to a thing or phenomenon. In the study of community, McMillan argued that community belonging refers to the feeling of being part of a community that members have when they are invested in it [7].

Referring to existing research and combining the specific context of customers' online participation in virtual brand community, this paper defines community belonging as a psychological feeling of belonging to a community that arises from a customer in the virtual brand community.

2.3 Extroverted knowledge co-creation

Co-creation, which first appeared in the field of value, adds a new dynamic to the producer/customer relationship by involving customers directly in the production or distribution of value. Prahalad and Ramaswamy proposed that co-creation is the process of co-creation of value between the firm and its customers and suggested that the process of co-creation does not always occur within the firm. Fuchs et al. argued that product innovation increasingly requires complex knowledge, which the firm cannot possess in its entirety, so this knowledge can only come from external participating subjects, and a network of cooperative innovation relationships between them and the firm is thus formed, so that they can freely share the ideas they possess and create new knowledge together. Fan Jun extended the scenario of enterprise-customer cooperative innovation to virtual environment, and divided knowledge co-creation into introverted knowledge co-creation and extroverted knowledge co-creation [8]. Extroverted knowledge co-creation is based on customer logic, which means that customers use the knowledge and resources provided by the company to merge with the knowledge and skills they possess, and then develop new knowledge.

3. Research model and hypothesis

3.1 Model construction

In this paper, S-O-R theory is used to explain the relationship between various variables. The members of a virtual brand community are connected to each other, so when they feel the warmth and care from the community, they will have a deeper affection for the community and thus a deeper sense of belonging. This sense of belonging drives customers to engage in extroverted knowledge co-creation behaviors.

3.2 The impact of free atmosphere on community belonging

The impact of free atmosphere on the sense of belonging to a community is mainly achieved by eliminating the tension perceived by members. The removal of tension is an important motivation for consumers to use online media [9]. Freedom is the ability to express one's true intentions without violating

basic principles and norms. If members are not free to express their opinions, they will leave the community [10]. An atmosphere of freedom enables community members to express their opinions freely, Such communications can reduce the uncertainty of community members, maintain consistency with other members of the community, and thus have a greater sense of belonging to the brand community.

3.3 The impact of sharing atmosphere on community belonging

Sharing refers to the willingness and ability of members to share information and experiences among themselves. Access to brand-related information is an important motivation for members to participate in brand communities, while a sharing atmosphere refers to the willingness of community members to share relevant information and resources, and the continuous state of sharing brand-related information and resources in the community. The sharing behavior of community members within the community is also an important type of pro-social behavior, which can strengthen members' status and self-confidence, increase their self-esteem level, and create a psychological sense of belonging to the community.

3.4 The impact of supportive atmosphere on community belonging

A supportive atmosphere means that community members not only get material support from the virtual brand community in terms of brand and product information, but also get emotional support from other members of the community. A supportive atmosphere satisfies the positive emotional needs of members, including happiness and joy. In virtual brand communities, emotional help and support from other members of the community can strengthen members' sense of belonging to the brand community [11]. In addition, the care and help among community members can help members to solve their problems to some extent and eliminate their negative feelings toward the brand, thus strengthening the sense of belonging to the community.

3.5 The impact of rewarding atmosphere on community belonging

Reward atmosphere is the ability of community members to receive certain rewards and financial benefits for their contributions to the community and their participation in activities within the community. The benefits received through participation in a virtual brand community have a positive impact on members' sense of community [12]. The positive feedback provided by rewards indicates the correct community behaviors to community members, which can eliminate anxiety about participating in community activities and thus positively influence community belonging.

3.6 The impact of innovative atmosphere on community belonging

An innovative atmosphere in the virtual brand community provides a steady and continuous renewal of products or services, while also encouraging community members to propose new ideas and participate in the company's innovation activities. Innovative atmosphere helps to stimulate active engagement of community members and enhance the connection among community members, thus increasing their emotional attachment and affection for the brand community and creating a stronger sense of community belonging [13]. In addition, the innovation of virtual brand communities also reflects the uniqueness of brand communities, which helps strengthen the positioning of brand communities in consumers' minds, and promotes members' greater identification and attachment to the communities [14], resulting in a greater sense of belonging to the communities.

3.7 The impact of community belonging on extroverted knowledge co-creation

A sense of community belonging is one of the most essential characteristics of a community. Shan Jingjing believed that community belonging would promote community members' willingness to have a long-term connection with the community and to participate in the construction and development of the community [15]. Therefore, this paper inferred that the stronger the sense of community belonging of customers, the more willing they are to participate in extroverted knowledge co-creation behaviors and contribute to the construction and development of the community.

3.8 The mediating role of community belonging

According to the field theory, the emotional responses and behaviors of individuals are influenced by their own traits and stimulation by environmental factors. With the perception of free atmosphere, sharing

atmosphere, supportive atmosphere, rewarding atmosphere, and innovative atmosphere, community members will develop a sense of belonging to the virtual brand community, and as a result, customers will develop positive psychological perceptions and promote out-of-role behaviors, and customers will be more willing to participate in the activities of the community, provide knowledge for the construction and development of the community, and participate in extroverted knowledge co-creation behaviors.

4. Research conclusion and Enlightenment

4.1 Research conclusion

The continuous development of social media has also led to the emergence of virtual communities, and many enterprises have created and operated their virtual brand communities. At the same time, in the era of knowledge management, knowledge has become a key competitive resource, and it is often difficult for individual enterprises to perform the role of knowledge creation alone, so guiding customers to participate in the knowledge co-creation process of virtual brand communities has gradually attracted the attention of enterprises.

The five dimensions of virtual brand community atmosphere: free atmosphere, sharing atmosphere, supportive atmosphere, rewarding atmosphere, and innovative atmosphere all have a significant effect on community belonging. Community belonging has been shown to have a significant positive effect on customers' participation in extroverted knowledge co-creation behavior. The existence of community belonging means that customers have a stronger connection with the virtual brand community, and they feel that they are part of the community and are willing to contribute to the development of the virtual brand community, which also generates a certain herding effect and motivates customers to participate more actively in the knowledge co-creation activities of the community.

4.2 Management enlightenment

(1) Focus on creating a good virtual brand community atmosphere. As an open online interactive platform, the internal operation mechanism of virtual brand communities is different from that of organizations, and the connection between customers and communities is loose, relying mainly on the informal system and atmosphere. Therefore, for enterprises or community managers, they should pay attention to the operation of virtual brand communities, especially the creation of virtual brand community atmosphere, in order to gain more heterogeneous knowledge from customers.

(2) Strengthen community members' sense of community belonging. Companies or community managers should realize that there is no hierarchical or contractual relationship between customers and the community, so it is important to make customers feel that they belong to the community. In addition to creating a community atmosphere as mentioned above, companies should also take various ways, such as enhancing customers' experience in the community, strengthening customers' identification and satisfaction with the brand and the community, to continuously strengthen customers' sense of community belonging in the virtual brand community.

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