

The Relationships Between Virtual Brand Community Values and Consumers' Purchase Intention: The Mediating Role of User Participation Behavior

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Abstract. This research delves into the nuanced dynamics of virtual brand communities, specifically examining their impact on consumers' purchase intentions. Positioned within the conceptual framework of consumer engagement, the study scrutinizes the mediating function of user participation behavior. A hypothesized model posits that user participation behavior serves as a mediator in the relationship between the consumer perceived value of virtual brand communities and online purchase intentions. A statistical insignificance is observed in the direct impact of virtual brand community value on purchase intentions, as disclosed by an empirical study conducted via an online survey. The investigation engaged 433 participants from virtual brand communities in China. Nevertheless, path analysis unveils a discernible pattern wherein the value of virtual brand communities significantly shapes user participation behavior, subsequently exerting a notable impact on purchase intentions. This study contributes to an enriched comprehension of the intricate interplay within virtual brand communities, shedding light on the pivotal role of user engagement as a comprehensive mediator. The study offers valuable insights for marketers seeking to refine strategies for enhancing consumer engagement and influencing purchase behavior within the realm of virtual brand communities.

Keywords: Virtual Brand Community, User Participation Behavior, Perceived Value, Purchase Intention

1. Introduction

In the dynamic landscape of contemporary marketing, the emergence of digital technology and the rise of social media have profoundly changed the way consumers interact with brands (Madupu & Cooley, 2010; Xu et al., 2021). This shift is particularly evident in the booming field of virtual brand communities, where consumers actively participate, interact, and collaborate to create value. Global events such as the COVID-19 pandemic have accelerated paradigm shifts in consumer behavior (Mohammed & Ferraris, 2021). The pandemic has not only reshaped social norms, but also accelerated the development of online platforms for business purchases, social interaction, and information consumption. The embargo and social distancing measures implemented during the COVID-19 period have led to an unprecedented increase in online consumer engagement. This surge has given rise to new models of digital engagement that have fundamentally changed consumer perceptions and preferences.

The rise of social media and virtual brand communities (VBCs), described as online communities without geographical constraints, formed around structured social relationships among brand enthusiasts (Muniz & O'Guinn, 2001), has transformed the manner in which individuals engage with brands (L. V. Casaló et al., 2008). Consumers are now active contributors and collaborators in shaping brand values and connotations, rather than solely passive recipients of brand-related information (Dolan et al., 2015; Gebauer et al., 2013; Maslowska et al., 2016). Users within virtual brand communities share information through virtual networks, exchanging their viewpoints and insights on the design, development, production, and consumption of products. In doing so, they generate value for the community (Liao et al., 2020). This research aims to enhance the expanding pool of knowledge by exploring the correlations among values in virtual brand communities, consumer behaviors, and intentions to purchase. Emphasis is placed on unraveling the intricate network of relationships influencing decision-making processes of consumers in the digital era, with a specific focus on the mediating role of user participation behavior.

Over the past decade, there has been a dramatic increase in academic attention to the multifaceted relationship between virtual brand communities and consumer behavior. The literature is replete with studies exploring the impact of various antecedents on social media marketing, brand loyalty (Almohaimmeed, 2019; H. Kaur et al., 2020; Luo & Ye, 2019a), brand trust (Akrouf & Nagy, 2018; L. Casaló et al., 2007; L. V. Casaló et al., 2008; H. Chen, 2012), user satisfaction (Carlson, Rahman, et al., 2019; S.-C. Chen & Lin, 2019; Dovaliene et al., 2015), and purchase intentions (Al-Haddad et al., 2022; Y. Bu et al., 2022; Cheung et al., 2021; Dewi & Annas, 2022; Gan & Wang, 2017). As outlined in earlier research, virtual brand communities (VBCs) function as robust platforms for fostering consumer interaction (Hollebeek et al., 2014a; Muniz Jr & Schau, 2005). These communities provide brands with significant chances to amplify and enrich consumer engagement (Brodie et al., 2013; Schamari & Schaeffers, 2015; Wirtz et al., 2013).

The concept of user participation behavior emerges as a pivotal mediator in this dynamic landscape. Previous investigations, exemplified by the work of Kumar and Nayak (2019) and Mohammed & Ferraris (2021) have delved into the engagement patterns of passive members within online brand communities, employing the psychological ownership theory as a focal point. The studies by Wang et al. (2021) and Liu et al. (2020) extend lead-user theory to virtual brand communities, shedding light on the roles of flow experience, trust, and self-congruity in shaping user interactions. One notable study by Alhabash et al. (2015) emphasizes the transition from online interactions, such as likes, shares, and comments, to offline behavioral intentions. Although its focus is on general online behavior, this article extends the discourse to the specific domain of VBCs, clarifying how user participation in these communities translates into tangible results, such as purchase intentions. Notable studies by Alhabash et al. (2015) and Barger et al. (2016) emphasize the mediating effects of online behaviors on offline intentions, establishing a link between virtual engagement and real-world actions. Subsequent research by Carlson et al. (2019) and Bu et al. (2022) delves into experiential aspects, investigating the impact

of brand page experience and customer experience on loyalty. As social media evolves, studies by Chen et al. (2017) and Chen and Zhang (2022) focus on user participation and engagement behaviors, emphasizing the enduring significance of customer relationships in the digital era. Other studies explore grassroots online sellers' live streaming effects, the relationship between consumer-brand identification, brand community, and loyalty, and the role of consumer participation in virtual brand communities. This body of work, including studies by Casaló et al. (2008), Hollebeek et al. (2014b, 2017), Chen et al. (2014), and Dolan et al. (2015), collectively provides a comprehensive understanding of the multifaceted nature of consumer engagement within virtual brand communities.

Furthermore, Annamalai et al. (2021), extend the exploration into sports clubs, emphasizing the strategic importance of social media content in driving fan engagement.

This research expands the conceptual framework by acknowledging that principles of engagement transcend conventional content strategies, encompassing the inherent values embedded within virtual brand communities. Drawing upon the foundational research by Bagozzi and Dholakia's (2006) on customer participation within small group brand communities, this paper navigates the intricacies of user engagement within virtual contexts. Brodie et al. (2011, 2013, 2019) conduct exploratory analyses on consumer engagement, while Bu et al. (2020) provide an in-depth analysis of customer preferences for communities or brands, complementing a broader understanding of user behavior in engaging with virtual brand communities.

The utilization of virtual brand communities has emerged as an efficacious strategy for companies to address the diverse requirements of consumers, enhance purchase intentions, and foster brand allegiance. Furthermore, the cultivation of consumer value co-creation behaviors in virtual brand communities hinges on the significance of relationship marketing (T. Chen et al., 2018). Relationship marketing denotes a series of marketing endeavors directed towards initiating, advancing, and sustaining effective communication within relationships. It is acknowledged that the establishment of connections with customers enables companies to comprehensively grasp their needs and tailor the provided services accordingly, ensuring customer satisfaction and engendering loyalty (Q. Bu et al., 2020; H. Kaur et al., 2020; Luo & Ye, 2019b; X. Zheng et al., 2015).

However, there has been limited research providing a thorough comprehension of the correlation between the value of virtual brand communities and consumer intentions to make a purchase, particularly in the context of the mediating influence of user participation behavior. This study endeavors to conduct empirical research, specifically examining whether the value inherent in virtual brand communities can elevate consumers' inclination to make purchases, and scrutinizing the potential intermediary role played by user participation. This paper combs the related literature on virtual brand community value, user participation behavior and consumer purchase intention, and establishes a theoretical framework of "virtual brand community value-user participation behavior-consumer purchase intention", and uses user participation behavior as a mediating variable to explore the impact of community value on consumers' purchase intentions. The research of this article is based on the existing relatively fast-growing virtual brand communities in China, such as Weibo, Taobao Group, Zhihu Group, Baidu Tieba, Huawei community, Apple community, Mi Home, Lenovo Forum, and so on.

Through in-depth exploration of the value of the virtual brand community, a theoretical model of the value of the virtual brand community and the purchase intention of consumers is constructed, and the positive effect of community value on the purchase intention of consumers is explored, and user participation behavior is used as an intermediary variable. The greater the value perception, the more frequent the participation behavior, and ultimately promote the purchase intention.

The study provides a nuanced contribution to unraveling the intricacies of Virtual Brand Communities (VBC). Initially, it scrutinizes the perceived value within VBC across four dimensions: functional value, social value, psychological value, and hedonic value. Subsequently, the research

conceptualizes three facets of social capital and integrates them with customer behaviors within VBC, specifically examining browsing behavior, interactive behavior, and creative behavior. Thirdly, a second-order method is employed to analyze mediator variables. The primary goal is to investigate and validate the impact mechanism of users' perceived value on purchase intention within the rapidly evolving virtual brand community of China. Additionally, the study explores the mediating effect of user participation behavior. The ultimate objective of the findings is to provide insightful guidance for corporate marketers and managers, aiding them in formulating effective marketing strategies to enhance services by influencing consumers' perceived value and engagement behavior. Leveraging the value role of virtual brand communities can enable companies to more efficiently manage customer relationships, amplify the value of brand assets, and augment consumer purchase intentions by enhancing the user value experience. This, in turn, influences consumer brand loyalty, fortifies brand building, and enhances brand management, thereby elevating market competitiveness for enterprises.

2. Literature Review

2.1. Brand community

Research on brand communities spans a significant timeline. Initially rooted in customer communities, the evolution of brand communities was highlighted by Friedman (1993). He noted a transformation in customer communication, transitioning from general product discussions to dialogues centered around specific brands. This evolution resulted in the metamorphosis of customer communities into brand-centric communities.

The foundational definition of a brand community was coined by Muniz and O'Guinn (2001). They characterized it as a specialized, non-geographically confined community built on structured social relationships among brand enthusiasts. McAlexander (2002) contributed by interpreting brand community as a social aggregation of brand users and their interconnected relationships. The concept of brand community has expanded to encompass not only the brand and customers but also brand-related stakeholders (Upshaw & Taylor, 2001). Bagozzi and Dholakia (2006) refined the definition, describing a brand community as a group of customers sharing enthusiasm for a brand, possessing a well-developed social identity. Members engage collectively to achieve goals and express mutual sentiments, fostering a sense of commitment.

Central to prior research is the customer-centric model emphasizing the pivotal role of customers in brand communities. Participants derive utilitarian and hedonic values from their involvement (McAlexander et al., 2002). Muñiz and Schau (2007) demonstrated how community members integrate the brand into their online identities, using symbols and meanings associated with the brand community. Participation in brand communities fulfills the need for identification. Schau (2009) highlighted the support role of brand community members, acting as a *de facto* service department by assisting and resolving each other's brand-related issues. Zaglia (2013) emphasized the convenience of obtaining product information from brand communities, asserting their superiority over other sources. The brand community emerges as a haven for loyal customers, enhancing loyalty through mechanisms such as oppositional loyalty and integration (McAlexander et al., 2002a; Muniz & O'Guinn, 2001). Ultimately, brand communities foster trust and loyalty, influencing purchasing decisions.

2.2. Virtual brand community and perceived value

According to Muniz and O'Guinn (2001), brand communities (BC) are online communities where people interact and create a strong social bond with the brand, even when they are not physically there. As noted by Lima et al. (2019), content production and consumption enhance the cultural capital of the brand and the community, hence maintaining engagement within the Virtual Brand Community (VBC) (Brodie et al., 2011). Perren and Kozinets (2018) contend that social media platforms, which are made possible by the internet, alter socializing, communication, and decision-making processes that are based on peer relationships (Carlson, Wyllie, et al., 2019; Chih et al., 2017;

Waseti & İrfanoğlu, 2022). The content's nature, which is swapped via social networks and provides a variety of triggers for member involvement (such as knowledge, entertainment, personal identity, brand preferences, etc.), is an essential part of this dynamic (Carvalho & Fernandes, 2018a).

Virtual brand communities are defined by Kozinets (2002) as online discussion boards, personal homepages, or blogs where customers share their opinions and experiences with brands. According to Sicilia and Palazon (2008), virtual brand communities are online spaces created by businesses to foster lasting relationships with customers who have comparable passions. Social media platforms function as a nexus connecting companies and social media, with communities such as Myriam (2018) concentrating on particular organizations. A vital aspect of this dynamic is the structure of the material, which is shared via social networks and offers a range of motivations for member participation (education, amusement, sense of self, brand preferences, etc.) (Carvalho & Fernandes, 2018b).

Previous studies on virtual brand communities have mainly concentrated on value dimension classification. Y. Wang & Fesenmaier (2004) divided brand community value into functional, social, psychological, and hedonic dimensions in their study on online travel communities. Li (2017) further separated the values of the virtual brand community into four categories: financial, social, entertainment, and informational. Li (2017) attested to perceived value's favorable influence on purchase intention as well as its important function as a catalyst for brand promotion. Kaur (2018) suggested social, emotional, and cognitive values for online communities around brands. Hope and Albert (2009) emphasized the importance of branded virtual communities, particularly practices that encourage ongoing and productive user participation. The three facets of perceived value are hedonic, social, and self-fulfilling. The happiness people feel in their social lives is known as hedonic value (Kuo & Feng, 2013). As stated by M. Li et al. (2021) social value includes the friendships that people build as their relational networks and sense of community belong grow. Users' sense of self-actualization is correlated with the respect and recognition they receive from their community interactions. As virtual brand communities facilitate the creation and sharing of user-generated content, consumers create value within virtual brand communities and between organizations and their customers, meeting the needs and interests of the user community. Table 1 summarizes the perceived value of virtual brand community by several authors.

Table 1: Summary virtual brand community perceived value

Reference	Main idea
Fesenmaier (2004)	Functional value, social value, psychological value and hedonic value can effectively promote users' participation in the community, because they are transformed from information receivers to contributors.
Schau et al. (2009)	The value of virtual brand community is reflected in specific practices and promoted the long-term and effective participation of users in the community.
Jiao et al. (2018)	Cultural differences affect consumers' attitudes towards and use of virtual brand communities and identified two value types of consumers' participation in virtual brand communities, namely, social value and information value.
P. Kaur et al. (2018)	Studied the consumption value of virtual brand community users and their intention to continue to participate in the community by using the consumption value theory, and proposed that virtual brand community has cognitive value emotional value and social value, among which emotional value is the most influential to users' intention to continue to participate in the community

Fesenmaier's (2004) comprehensive four-dimensional model for online community value plays a crucial role in understanding the dynamics and significance of virtual brand communities. Recognized widely for its logical and authoritative nature, this framework offers a methodical approach to classifying the perceived value present within these communities. The four dimensions—Functional

Value, Social Value, Psychological Value, and Hedonic Value—offer a nuanced understanding of community dynamics.

A fundamental component of virtual brand communities, functional value (Cox, 2007) represents the useful advantages that users desire for tasks like making purchases, using product services, and exchanging information. Community members engage for tangible, pragmatic advantages aligning with the utilitarian aspects of the consumer within the context of virtual brand communities. Social values studied by Dovaliene et al. (2015) place a strong emphasis on interpersonal interactions, including the creation and maintenance of social bonds via dialogue and interaction. It includes reciprocal help, encouragement, and the slow process of building more trust among members of the community, all of which are essential to long-term viability. The study of Kumar & Nayak (2019) mentioned that psychological value explores emotional and identity-related aspects, with a particular emphasis on how members might establish a strong sense of identification and belonging. Brand growth and enterprise are strengthened when community identity is expressed, as it results in psychological fulfillment. The objective of hedonic value is to infuse joy and exhilaration into the digital realm by highlighting sensory and enjoyable attributes (J. Chang et al., 2022). A pleasant and engaging community and brand experience are greatly enhanced by this dimension, which enables members to take on different roles, look for emotional stimulation, and find delight outside of real-life situations.

In conclusion, the majority of research endeavors have adopted a four-dimensional classification system for assessing the value of online community brands, affirming its validity and rationale. (Y. Wang & Fesenmaier, 2004). Therefore, in order to explore the functional, social, psychological, and hedonistic values of perceived value within virtual brand communities, this paper also makes use of this dimensional division.

2.3. User participation behavior in virtual brand community

User participation behaviors encompass activities such as information sharing, information search, and interpersonal interactions within virtual environments. Mollen and Wilson (2010) characterize user involvement in the digital realm as the emotional and cognitive commitment to nurturing a favorable brand association through the communication of brand values on websites or other computer-mediated platforms. Rao et al. (2022) underscore the significance of interacting with the engaged object, distinguishing between online brand engagement and simple participation by emphasizing instrumental and experiential values.

Dholakia et al. (2004) assert that consumer participation in virtual communities is influenced by factors like compliance, internalization, and identity, presenting the social impact model of virtual community participation. Pagani and Mirabello (2011) identify content behavior and social interaction behavior as the primary activities of SNS users, encompassing activities such as posting images, showing interest in friends' content, and establishing new relationships. Research on user participation in virtual brand communities explores user needs, specific participation behaviors, factors influencing participation, and motivations (Agnihotri et al., 2012; Dai & Gu, 2017; Ding et al., 2020).

Cermark et al. (2014) confirm the relationship between customer attitude, service delivery behavior, and user participation. Claycomb and Lengnick (2001) define engaged users as those actively generating service value, either alone or with service staff. Van Doorn and Lomen (2010) describe user participation behavior as representing an extended relationship beyond simple transactional behavior. They suggest user participation as a vital metric for assessing customer indicators. In summary, user participation behavior involves users actively participating in creating and providing goods or services, driven by specific goals or tastes, applicable across manufacturing and service sectors. Bianchi & Andrews (2018) characterize customer engagement as the active physical, cognitive, and emotional participation in interactions with a service organization. Vivek et al. (2012) delineate consumer engagement as an individual's participation and affiliation with an organization's products and activities. Hollebeek (2011) outlines customer brand engagement as the extent of customer motivation, brand

significance, and context-specific mental states during brand interactions, encompassing cognitive, affective, and behavioral aspects.

To fully grasp the significance of user participation behavior in service and virtual brand community contexts, it's essential to understand its various dimensions. Ridings et al. (2006) classify user participation into diving and watering behaviors, differentiating between active interaction and contribution and passive consumption of information. Vivek and Delonia (2010) note that users in virtual brand communities are motivated by social interaction and entertainment. Bateman et al. (2011) categorize user participation into reading, responding, and discussing based on psychological perception. Chen and Lu (2014) distinguish between social and content participation, further categorizing them into contributions from personal and group relationships, content creation, and content transmission.

Dai and Gu (2017) investigate user participation in short video social applications, defining it as the level of active involvement encompassing browsing, interacting, and content creation. Kumar (2020) posit that personalized content fosters interaction and communication among community members with common interests. Furthermore, technological progress improves community services, satisfying users' needs for social connection and collaborative support (C.-W. Chang & Hsu, 2022). This leads to perceived benefits such as hedonic enjoyment, social connection, and self-fulfillment for community members through innovation in technology, user interaction design, and personalized content. According to Yang et al.(2018), people tend to exhibit positive intentions when they believe that the benefits of an activity outweigh the costs, which is consistent with their browsing, interaction, and content behaviors. Participation in virtual business communities (VBCs) is the term used to describe the informational (publishing needs, exchanging information, etc.) and social (communicating emotions, building connections, etc.) behaviors that users engage in within VBCs for specific reasons (P. Zhou et al., 2022). Table 2 summarizes the user participation behaviour of virtual brand community by several authors.

Table 2: Summary user participation behavior

Reference	Main idea
Ridings et al. (2006)	Divide this into diving behaviors and watering behaviors. Divers browse the community information one-way to meet their own needs, while water divers actively interact with other users and create content.
Vivek et al. (2012)	Social interaction and entertainment is what motivates users to participate in virtual brand communities. Interacting members gain a lot of value from the community, which encourages them to participate more actively in the community.
Bateman et al. (2011)	Analyzed from the perspective of psychological perception that different psychology affects the participation behavior of community members, and defined user participation behavior into three categories: reading, replying and discussing.
Chen and Lu (2014)	User participation on social media is categorized into content and social participation, with four dimensions: content creation, dissemination, personal relationship contribution, and group relationship contribution.
Dai and Gu (2017)	In the study of short video social applications, the analysis points out that in the Internet virtual environment, users' participation behavior is expressed as their active degree in the community, including browsing community information, interacting with other users and creating content.

User behavior in virtual community environments is categorized by the degree of participation, ranging from low-level activities like browsing to high-level actions like creation and management

(Bagozzi & Dholakia, 2006; Dai & Gu, 2017). According to the survey, the complexity of user participation in virtual community environments shows differences at different levels (Betzing et al., 2020). Elementary tasks such as reading and browsing contrast with more complex participation such as supervising and generating content (Revilla-Camacho et al., 2015). The present survey intentionally embraces categorization based on the level of participation, dividing user behaviors into different domains of participation that include browsing activities and creative endeavors. By Dai and Gu (2017), user interaction on social media can be divided into three distinct categories: browsing the web, sharing material, and creating content. Inspired by the summary's demarcation method, this nuanced classification allows for a thorough comprehension of the various aspects that users' participation in virtual communities' entails.

Within the realm of user engagement in virtual communities, Dai (2017) classifies three distinct behavioral types and furnishes an exhaustive framework for comprehending and classifying user participation. Predominant among them is the surfing activity, denoting the user's solitary pursuit of information. This signifies the preliminary phase of user involvement in the virtual sphere, entailing actions such as searching, reading text, and bookmarking pertinent items. Beyond mere acquisition, Dai (2017) characterizes interactive behavior as the dynamic interchange among users, encompassing activities like responding, messaging, and disseminating content. The interactive and communicative aspects of user participation are highlighted by these acts. Lastly, proactive content creation and other user-contributed actions are examples of creative activity. This dimension includes providing original content, participating actively in community events, and other behaviors that contribute to the virtual community's generative elements (Dai & Gu, 2017; Kwon, 2020; J. Liu & Gao, 2022). These actions, in essence, draw boundaries around the range of user interaction, offering a more complex understanding of the diverse ways people engage in virtual worlds. Hence, our research employs the categorization approach of browsing, interactive, and creative actions for user engagement on social platforms, aligning with the framework introduced by Dai and Gu (2017).

2.4. Purchase intention in virtual brand community

The research in this article is grounded in the existing and rapidly expanding virtual brand communities in China, such as Weibo, Zhihu Group, Huawei community, Apple community, Mi Home, Lenovo Forum, and others. The complexity of purchase intention within virtual brand communities is influenced by a myriad of factors, encompassing beliefs, attitudes, social class, market conditions, empowerment metaphors, smartphone advertising, transcendent customer experiences, perceived value, and the decision behavior of online consumers (Y. Bu et al., 2022; Y. Huang & Lu, 2020; Prentice et al., 2019; X. Yang, 2022; N. Zhang et al., 2021; R. Zheng et al., 2022).

Purchase intention gauges the likelihood that customers will express an intent to acquire a specific product or service in the future or be willing to do so (Wu et al., 2011). Earlier studies have suggested that an increase in purchase intention corresponds with a higher likelihood of making an actual purchase. Favorable brand interactions contribute to positive purchase intentions on the part of the consumer. Fishbein and Ajzen's (1977) Theory of Reasoned Action (TRA), focusing on attitudes, beliefs, and social influences, provides a framework for examining purchase intentions in virtual brand communities. Henry (2005) investigates the ways in which consumer empowerment and socioeconomic class metaphors affect these populations' shopping habits. The impact of smartphone advertising on purchase intentions is evaluated by Martins et al. (2019), underscoring the changing nature of mobile technology. Marketing tactics in virtual environments are informed by Schouten et al.'s (2007) exploration of transcendent consumer experiences within brand communities.

Wang et al. (2007) emphasize the importance of perceived value in virtual brand communities and its impact in online consumer decision-making. Wood and Scheer (1996) emphasize that reducing perceived risk can have a favorable effect on these groups' purchase inclinations. Zeithaml's (1988) Means-End Model emphasizes the value proposition and tackles customer issues, offering perspectives

on shaping purchase intentions. Zhong's (2013) research explores the influence of brand interactions and the overall community experience on perceived value within virtual brand communities. Zhou et al. (2022) investigate the impact of the Theory of Planned Behavior on purchasing behavior in social media, crucial information for marketers optimizing strategies in online communities presented as social media platforms.

3. Hypotheses Development

3.1. Perceived value and purchase intention

The association between perceived value and the inclination to make a purchase is a crucial aspect of consumer behavior extensively explored in marketing literature. Originating in the collaborative efforts of psychology and marketing in the 1990s, the concept of perceived value encompasses the consumer's subjective assessment of a product's overall worth, weighing its perceived benefits against its price. And purchase intention signifies a customer's readiness or inclination to acquire a specific product or service. Gaining insight into the interplay between these concepts is essential for a comprehensive understanding of the factors that influence customer decisions.

As posited by Zeithaml (1988) substantiated by subsequent research, the influence of perceived value becomes evident as a crucial determinant of consumers' intentions to engage in a purchase. When consumers perceive a product or service as offering significant value relative to its cost, their likelihood of expressing a positive intention to proceed with the purchase increases. Cao et al. (2022) further underscore this relationship, emphasizing the cognitive evaluation consumers undertake when contemplating a purchase, considering factors such as spending power, purchase cost, and knowledge reserve.

Hapsari et al. (2016) underscored the emotional and subjective facets of perceived value, characterizing it as a personalized evaluation of a product or service's quality. This individualized judgment can significantly shape consumers' decision-making processes, thereby impacting their inclination to make a purchase. Tuncer et al. (2021) explored the notable influence of perceived value on consumers' readiness to make a purchase, recognizing its pivotal role in consumer decision-making.

In the realm of virtual brand communities, as noted in the investigations by Schau et al. (2009) and Li et al. (2017), the perceived value arising from participation in these communities positively affects purchase intentions. This indicates that the perceived value derived from tangible products and virtual brand experiences collectively molds consumers' choices in making purchases. Additionally, Riva et al. (2022) underscored that perceived value holds a profound sway on purchase intentions in everyday scenarios and assumes a crucial role in shaping consumer behavior. According to Tam (2004), one important aspect that influences consumers' intention to buy is their perception of value. Expanding on this, L.-D. Chen & Tan (2004) claimed that the quality of services and websites affects consumers' perceptions of online platforms, which in turn shapes their intents to make purchases online. Using this viewpoint as an extension, Huang & Lu (2020) found that brand attitude acted as a moderator in the relationship between purchase intention and perceived value.

A review of the literature indicates that consumers attribute a distinct perceived value to virtual brand communities. Consequently, this perceived value plays a crucial role in influencing their propensity to make purchases from affiliated brands. The relationship between perceived value and purchase intention is complex and multifaceted. Consumers tend to indicate a willingness to make a purchase when they perceive a heightened value in the products or services offered. Therefore, understanding and effectively managing perceived value become crucial for marketers aiming to influence and optimize consumer purchase decisions. Hence, we propose the first hypothesis *H1*:

H1. Virtual brand community perceived value (including functional, social, psychological, and hedonistic value) is positively related to the consumer purchase intention.

3.2. Perceived value and user participation behavior

Users actively engage in virtual brand communities when discerning value, manifested in diverse forms such as information, social interaction, entertainment, and exclusive benefits (Zhihong et al., 2015; T. Zhou, 2011). Their motivation to participate includes seeking value through updates on products, industry insights, or expert opinions. Social interaction fosters a sense of belonging, motivating participants to strengthen community ties. Perceived value, linked to trust and credibility (L. Casaló et al., 2007), shapes user engagement as users believe their participation contributes to a trustworthy community. Active participation, rooted in perceived value, fosters brand loyalty and advocacy. Users who perceive value are likely to become advocates, promoting the brand (Zhihong et al., 2015). Perceived value evolves with user engagement, creating a dynamic relationship in virtual brand communities.

According to Hollebeek and Chen (2014b), consumer engagement behaviors are shaped by perceived values, which come before and influence how people connect with companies, products, and services. Chen (2017) investigated the positive impact of perceived value on purchase intentions in the context of WeChat and found that user engagement is influenced by perceived brand value. According to Y. Wang & Huang (2017) research on mobile short films, where perceived value influences user participation and attitudes, consumers determine engagement through perceived value. In live streaming commerce, Gan and Wang (2017) stress the significance of perceived value in increasing customer satisfaction and engagement. The social impact model is introduced by Dholakia et al. (2004), who also highlight the critical role that perceived value plays in community participation.

The empirical study by Zhao et al. (2018) highlights the social and service value as factors that positively impact user engagement when examining perceived value. Previous research has shown that perceived value positively impacts user engagement on social media, which reinforces the importance of perceived value (J. Jin et al., 2015; Ko et al., 2005; Pletikosa Cvijikj & Michahelles, 2013). Madupu and Cooley (2010) offer valuable perspectives on the factors that drive engagement in virtual brand communities, emphasizing knowledge, self-awareness, social interaction, and amusement. The use of expectation confirmation theory by Yin Meng and Li Qi (2017) highlights how users' persistent participation in microblogging environments is influenced by the value of information and enjoyment. In conclusion, understanding and enhancing the perceived value within virtual brand communities are pivotal for cultivating and sustaining active user participation. Brands that effectively align their community offerings with the value perceived by users have the potential to create dynamic, engaged and loyal virtual brand communities. Hence, we propose the second hypothesis *H2*.

H2. Virtual brand community perceived value (including functional, social, psychological, and hedonistic value) is positively related to the user participation behavior (including browsing, interactive, creative behavior).

3.3. User participation behavior and purchase intention

The correlation between user participation behavior and purchase intention underscores the substantial influence of customer engagement (Prentice et al., 2019), virtual community interaction (Cheung et al., 2021), and co-creation behavior (Y. Bu et al., 2022) on consumers' attitudes and behaviors. The findings elucidate the multifaceted impact of customer engagement, virtual community interaction, and co-creation behavior on consumer attitudes and behaviors. Cermak et al. (1994) posit that heightened customer engagement fosters positive purchase intentions and cultivates robust business relationships. Bergkvist and Bech-Larsen (2010) accentuate the role of virtual community interaction in shaping judgments regarding products and brands, thereby influencing subsequent purchase decisions. Ho (2014) advances the proposition that participation in virtual brand communities directly affects user behavior, exerting a discernible influence on both purchase decisions and word-of-mouth behaviors. Kuo & Feng (2013) emphasize the predictive power of product information garnered through community interaction on purchase intentions. L. Chen et al. (2020), applying motivation-behavior

theory, assert that interaction within online virtual brand communities positively impacts purchase intentions, elucidating the psychological underpinnings of such behaviors.

Moreover, Tuncer et al (2021) contend that co-creation behavior engenders heightened customer satisfaction and purchase intentions by empowering consumers as active contributors to value creation. Bu et al. (2022) extend the discourse by framing customer participation as an intrinsic facet of value co-creation within influencer marketing, wherein active involvement significantly elevates purchasing intent. In conclusion, these scholarly viewpoints collectively validate the significant impact of user engagement in influencing favorable consumer attitudes and intentions for making purchases. Consequently, we posit the third hypothesis *H3*.

H3. User participation behaviour (including browsing, interactive, creative behaviour) is positively related to the consumer purchase intention.

3.4. The mediating role of user participation behavior

A detailed analysis of the intricate link between consumer purchase intentions and perceived value in virtual brand communities involves exploring the mediating role of user participation behavior. This examination delves into the complex relationship between consumer purchase intentions and perceived value in virtual brand communities by scrutinizing the mediating function of user participation behavior. Studies like Hollebeek & Chen (2014b), Chen (2017), and Wang & Huang (2017) have emphasized the significance of perceived value in determining various user engagement behaviors, such as information-seeking, self-awareness, social interaction, and overall satisfaction from community interactions.

According to studies by Madupu & Cooley (2010) and Yin Meng & Li Qi (2017), user participation behavior is also shown in parallel. As a result of the perceived value that can be derived from virtual brand communities, this behavior involves engaging in community activities, forming relationships with other members, and forging a bond with the brand. As indicated by Bu et al. (2022), engaging in influencer marketing significantly heightens the intention to make a purchase, highlighting the pivotal role that active community involvement plays in shaping consumer attitudes towards purchasing. In summary, the actions of users participating in virtual brand communities constitute a vital mediating element, transforming the perceived value within these communities into concrete consumer intentions to make a purchase. For marketers looking to strategically navigate and capitalize on the nuances of consumer decision-making within virtual brand communities, this nuanced understanding has important practical implications. The perceived value within the virtual brand community can positively impact the intention to purchase. Concurrently, it can also have a positive influence on the behavior of user participation. Moreover, the involvement of users in participation behavior is suggested to function as a mediator between perceived value and purchase intention. Therefore, we propose the last hypothesis *H4*.

H4. User participation behaviour (including browsing, interactive, creative behaviour) positively mediates the relationship between virtual brand community perceived value (including functional, social, psychological, and hedonistic value) and consumer purchase intention.

Thus, the conceptual framework Figure 1 is presented below.

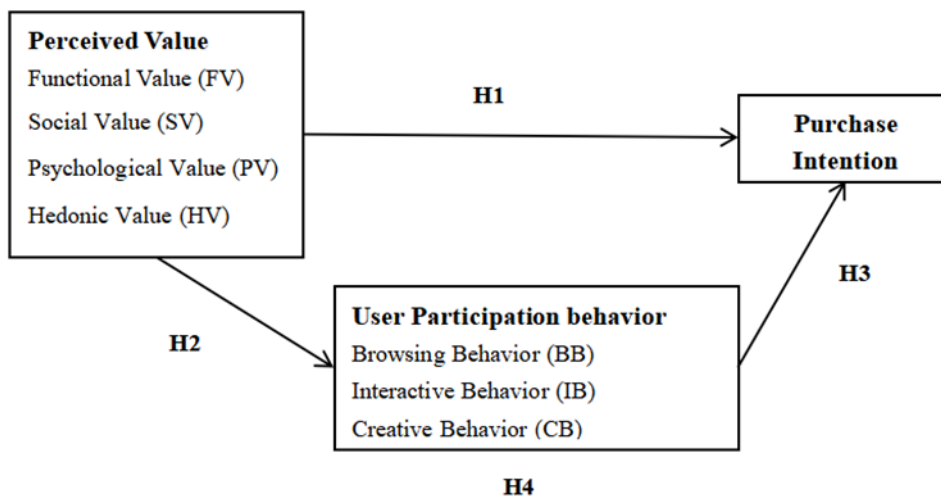


Fig.1: Conceptual Framework

4. Research Methodology

4.1. Operationalization and measurements

We created measurement items using established scales from existing literature, adjusting measures to a team-based referent-shift format where applicable. Questions in the analysis were presented on seven-point Likert scales, ranging from 1 (strongly disagree) to 7 (strongly agree). The initial surveys were in English, but recognizing the Chinese virtual brand community, we translated the questionnaire into Chinese for better participant comprehension. The translated English and Chinese questionnaires were then distributed separately to their respective participants.

We operationalized the variables under investigation through items derived from existing literature. The measurement scale utilized in this study integrated elements from prior research while adapting certain items. All assessments were conducted using seven-point Likert scales (1= Strongly disagree, 7= Strongly agree). Our final analytical model incorporated 29 items, as outlined in Table. Furthermore, we collected basic demographic information from respondents, encompassing details such as gender, age, and education, which are summarized in Table 3.

Table 3: Measurement scale

Functional Value (L. Jin, 2007; Y. Wang & Fesenmaier, 2004)
(1) The virtual brand community can provide me with information and knowledge about the product.
(2) The user experience posted by other community members allows me to have a better product experience.
(3) I hope to get advice from others to help me solve the problem faster.
(4) Participate in community activities as a member to get discounts, priority services and other benefits.
(Cronbach's $\alpha = 0.874$, composite reliability = 0.876, AVE = 0.640)
Social Value (L. Jin, 2007; Y. Wang & Fesenmaier, 2004)
(1) I made some friends with the same interests in the virtual brand community.
(2) I can be recognized by the community members in the virtual brand community.
(3) Through interaction, social relationships can be established, and my interpersonal circle can be expanded.
(4) Participating in community activities can enrich my social life.
(Cronbach's $\alpha = 0.877$, composite reliability = 0.881, AVE = 0.650)
Psychological Value (L. Jin, 2007; Y. Wang & Fesenmaier, 2004)
(1) I feel a sense of belonging in the virtual brand community.

(2) I have a sense of participation in the brand or company through interaction.

(3) I am proud to contribute my knowledge.

(4) I can meet the needs of other members, help others, and have a sense of accomplishment.

(Cronbach's $\alpha = 0.864$, composite reliability = 0.852 , AVE = 0.623)

Hedonic Value (L. Jin, 2007; Y. Wang & Fesenmaier, 2004)

(1) Browsing and communicating in the virtual brand community makes me feel very happy.

(2) Logging into the community or participating in the community's activities when I'm bored will make me happy.

(3) I enjoy my "role" in the virtual brand community.

(Cronbach's $\alpha = 0.877$, composite reliability = 0.882 , AVE = 0.715)

Browsing Behavior (Dai & Gu, 2017; Koh et al., 2003)

(1) I often read posts in virtual brand communities.

(2) I will always follow the new updates in the forum.

(3) I often bookmark or share content in the virtual brand community.

(Cronbach's $\alpha = 0.893$, composite reliability = 0.899, AVE = 0.691)

Interactive Behavior (Dai & Gu, 2017; Koh et al., 2003)

(1) I often provide useful information/content to community members.

(2) I actively respond to posts from other members of the community seeking help.

(3) I often help members of the community solve problems.

(4) I care about other members in the community.

(Cronbach's $\alpha = 0.850$, composite reliability = 0.856, AVE = 0.600)

Creative Behavior (Dai & Gu, 2017; Koh et al., 2003)

(1) I often post in the virtual brand community.

(2) I often participate in online or offline events in virtual brand communities.

(3) I often participate in voting and internal testing in the virtual brand community.

(4) I try my best to stimulate the enthusiasm of other members to participate in the community.

(Cronbach's $\alpha = 0.858$, composite reliability = 0.863, AVE = 0.614)

Purchase intention (Fishbein & Ajzen, 1977; Zhong, 2013)

(1) I am willing to buy products that have been informed by the community.

(2) If I learn more about a product through the virtual brand community, it will increase my likelihood of buying the product.

(3) I would recommend this brand to my friend.

(Cronbach's $\alpha = 0.879$, composite reliability = 0.883 , AVE = 0.717)

Model fit: $\chi^2=787.563$, $df=359$, $\chi^2/df=2.194$, GFI=0.891 , NFI=0.903, CFI=0.944, RMSEA=0.053

4.2. Sampling and data collection procedure

This empirical research uses questionnaires to obtain data to verify the model. The research questionnaire is distributed online through www.wenjuanxing.com, mainly for some mature brand community in China, such like Weibo, Taobao Group, Zhihu Group, Baidu Tieba, Huawei community, Apple community, Mi Home, Lenovo Forum, and so on. The survey objects are mainly online community users, and some virtual brand community user groups. The user group is a group formed spontaneously by brand or product enthusiasts. The group members have a good understanding of the brand and are willing to communicate and share with other members, which meets the requirements of this survey.

Based on IBM SPSS Statistics v.20 highlighted the demographic characteristics (N=433). 5. The sample consisted of 445 individuals. However, I eliminated some questionnaire results with short answer time and extremely unreasonable data. Finally, the sample consisted of 433 individuals: male

represented 52.0%, female represented 48.0%. And 70.7% of them were between 18 and 24 years old, 52.4% had a bachelor's degree, 28.9% had a master's degree. It shows that the majority of people involved in virtual brand communities are young, and they grow up in the environment of the Internet and have a more preference for online networking. Also, people with higher education are more willing to communicate and share knowledge in virtual communities. However, 55.4% of them have joined the virtual brand community for less than one year or 1-2 years, and 58% of them just logged in it 1 or 2 days per week, in addition, the average visiting time of users is 34.9% within 30 min-1 hours, indicating that the development of the virtual brand community in China has just started, so the time for users to join the community is mostly short, and user activity in the virtual brand community is generally low. The details are presented in Table 4.

Table 4: Demographic profiles of respondents

Demographic	Value	Frequency	%
Gender	Male	225	52.0
	Female	208	48.0
Age	Under 18 years old	77	17.8
	18-20 years old	115	26.6
	20-22 years old	99	22.9
	22-24 years old	92	21.2
	Over 24 years old	50	11.5
Education	High school	77	17.8
	Bachelor	227	52.4
	Master	125	28.9
	Doctor	2	0.5
	Other	2	0.5
Favorite type of virtual community	Electronic products	119	27.5
	Fashion makeup or clothing	141	32.6
	Sports	82	18.9
	Automobile	68	15.7
	Other types	23	5.3
Time to join the virtual brand community	Under 1 year	101	23.3
	1-2 years	139	32.1
	2-3 years	78	18.0
	3-4 years	85	19.6
	Over 4 years	30	6.9
Log in to the virtual brand community per week	1 day	106	24.5
	2 days	145	33.5
	3 days	79	18.2
	4 days	72	16.6
	Over 4 days	31	7.2
Average time per visit	Under 30 mins	81	18.7
	30 mins-1 hour	151	34.9
	1-2 hours	93	21.5
	2-3 hours	79	18.2
	Over 3 hours	29	6.7

5. Data Analysis and Results

5.1. Measurement model

The scrutiny of the measurement model entails a dual examination of validity, encompassing both discriminant and convergent validity, and reliability, with assessments from two primary perspectives. The differentiation of diverse constructs and indicators establishes their distinctiveness, while convergent validity scrutinizes whether indicators share a substantial portion of variance and converge on the same concept (Hulland, 1999). This study employed comprehensive measures as follows: initially, composite reliability (CR) and internal consistency reliability (Cronbach's alpha, α) assessed reliability, with an expectation that α surpasses 0.70, as suggested by Fornell and Larcker (1981). Both constructs exhibited α values and CR values exceeding 0.70, indicating a high level of scale reliability. Second, individual item reliability was appraised during the convergent validity test, where accepted items should outperform error variance (Fornell & Larcker, 1981). All factor loadings surpassed the 0.5 threshold (Hair et al., 2013), signifying high validity for the remaining individual items. Convergent validity underwent further evaluation by examining average variance extracted (AVE), with a suggested threshold of 0.50 (C.-C. Huang & Jiang, 2012). Table 3 illustrates that all constructs achieved good convergent validity. Consequently, the above analysis substantiates the discriminant validity among the variables.

Scale validation commenced with an assessment of reliability using Cronbach's alpha coefficients. The coefficients ranged from 0.893 (BB) to 0.850 (IB), all surpassing the recommended threshold of 0.7 (Nunnally, 1978). Confirmatory factor analysis (CFA) was subsequently conducted to derive scores for composite construct reliability. As indicated in Table 5, the composite reliability of each construct varied from 0.899 (BB) to 0.852 (PV), with all values surpassing the suggested threshold of 0.7 (Bagozzi, 1980). These findings affirm that all multi-item scales exhibit sufficient internal consistency, enabling further analysis of the structural model. Additionally, all average variance extracted (AVE) estimates, detailed in Table 5, exceeded 0.4.

Table 5: Confirmatory factor analysis results

Factor's Name	Items	Factor loading	AVE	CR	Chronbach's α
Functional Value	FV1	0.787	0.640	0.876	0.874
	FV2	0.839			
	FV3	0.853			
	FV4	0.714			
Social Value	SV1	0.742	0.650	0.881	0.877
	SV2	0.849			
	SV3	0.886			
	SV4	0.738			
Psychological Value	PV1	0.740	0.623	0.852	0.864
	PV2	0.787			
	PV3	0.886			
	PV4	0.735			
Hedonic Value	HV1	0.799	0.715	0.882	0.877
	HV2	0.925			
	HV3	0.806			

Browsing Behavior	BB1	0.811	0.691	0.899	0.893
	BB2	0.906			
	BB3	0.863			
Interactive Behavior	IB1	0.727	0.600	0.856	0.850
	IB2	0.828			
	IB3	0.856			
	IB4	0.673			
Creative Behavior	CB1	0.737	0.614	0.863	0.858
	CB2	0.839			
	CB3	0.850			
	CB4	0.696			
Purchase intention	PI1	0.821	0.717	0.883	0.879
	PI2	0.915			
	PI3	0.799			
Model fit: $\chi^2=787.563$, $df=359$, $\chi^2/df=2.194$, $GFI=0.891$, $NFI=0.903$, $CFI=0.944$, $RMSEA=0.053$					

Descriptive statistics and correlations. Table 6 presents descriptive statistics for crucial variables. Our survey findings reveal that the average values for functional, social, psychological, and hedonic values were 5.411, 5.259, 5.302, and 5.221, respectively, on a 1 to 7 scale. This indicates a distinct perception of the virtual brand community's value among respondents. Regarding the levels of BB, IB, and CB, their respective mean values were 5.266, 5.322, and 5.329, on the 1 to 7 scale, showcasing predominantly active participation from the respondents in the community.

Furthermore, the correlations of the aforementioned variables and others to be examined in our proposed causal model are presented in Table 7. As illustrated in Table 7, noteworthy positive correlations exist among all variables, with coefficients ranging from 0.481 to 0.305. These findings align with our anticipated outcomes.

Table 6: Descriptive statistics

Variable	N	Mean	Std.Dev.
Functional Value	433	5.411	0.984
Social Value	433	5.259	1.050
Psychological Value	433	5.302	1.018
Hedonic Value	433	5.221	1.179
Browsing Behavior	433	5.266	1.218
Interactive Behavior	433	5.322	1.017
Creative Behavior	433	5.329	0.999
Purchase Intention	433	5.801	1.115

Table 7: Correlations

	FV	SV	PV	HV	BB	IB	CB	PI
FV	1							
SV	0.447**	1						
PV	0.443**	0.403**	1					

HV	0.406**	0.305**	0.432**	1				
BB	0.405**	0.312**	0.330**	0.349**	1			
IB	0.431**	0.347**	0.383**	0.381**	0.361**	1		
CB	0.417**	0.393**	0.467**	0.367**	0.387**	0.460**	1	
PI	0.473**	0.350**	0.406**	0.390**	0.410**	0.481**	0.427**	1

Note(s): **p < 0.01, FV(Functional Value), SV(Social Value), PV(Psychological Value), HV(Hedonic Value), BB(Browsing Behavior), IB(Interactive Behavior), CB(Creative Behavior), PI(Purchase intention)

5.2. Structural equation modeling

AMOS 23.0 was employed for calculations, utilizing the maximum likelihood method for estimation. The outcomes are visually presented in the Figure 2 depicted below. In general, the Figure 2 below reveals that the $\chi^2/df = 1.839$ ($df = 504$), falling below the threshold of 3. Other indices, including GFI = 0.891, NFI = 0.888, CFI = 0.945, and RMSEA = 0.044. These composite indicators align with established research norms, indicating that the model exhibits a favorable fit (Byrne, 2001).

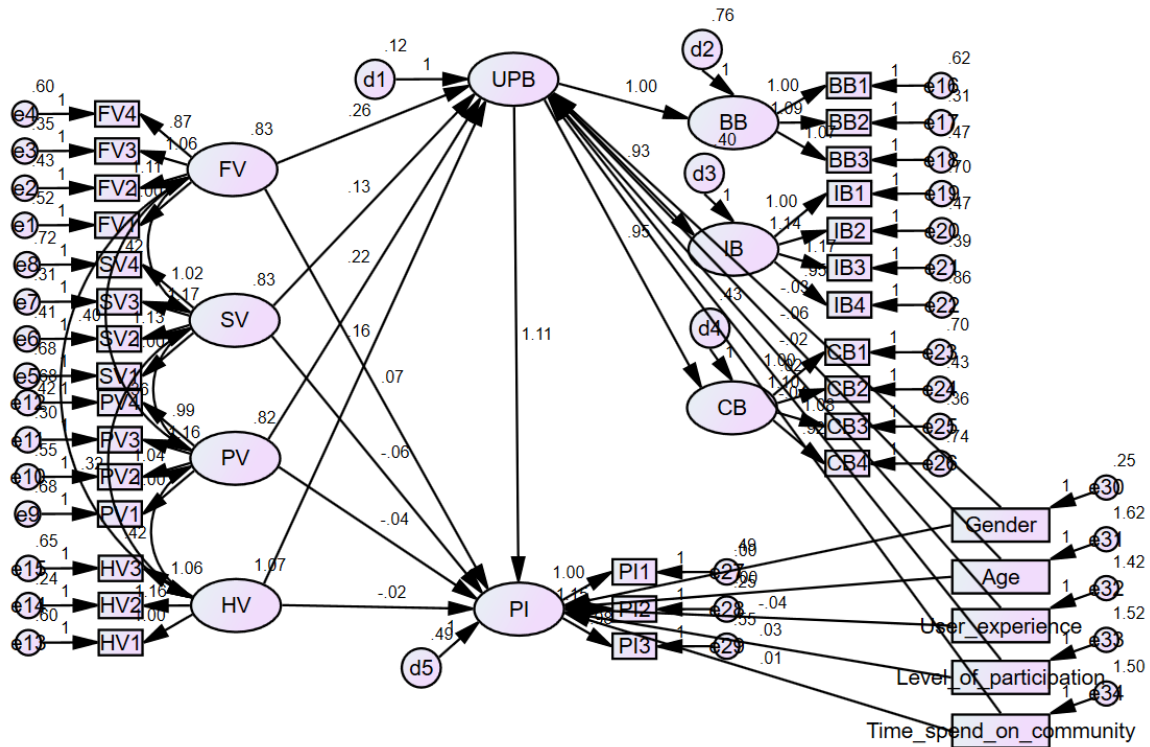


Fig.2: Structural equation modeling

5.3 Path coefficient and conclusion

To examine our research hypotheses, we conducted a path analysis on the causal model illustrated in Figure 1. The outcomes of the primary path are succinctly outlined and displayed in Table 8. Specifically, for the analysis of the user participation behavior variable, we employed the second-order model for simplification.

According to the empirical results, the relationship between perceived functional value and online purchase intention is insignificant ($\beta = 0.071$, $p > 0.05$). Similarly, the social value also fails to show a

significant impact on purchase intention ($\beta = -0.061, p > 0.05$). Moreover, the influence of the psychological value and hedonic value on purchase intention is also not significant ($\beta = -0.036, p > 0.05$; $\beta = -0.023, p > 0.05$). Thus, the initial H1 is opposite of the empirical results.

The assumption of perceived functional value exerting a significant positive influence on user participation behavior ($\beta = 0.259, p < 0.05$) is affirmed. Similarly, the social value significantly and positively influences user participation behavior ($\beta = 0.130, p < 0.05$), thus supporting the hypothesis. The psychological value significantly positively impacts user participation behavior ($\beta = 0.219, p < 0.05$) is validated. The hedonic value significantly and positively affects user participation behavior ($\beta = 0.159, p < 0.05$), further substantiating the hypothesis. Thus, the initial H2 is supported.

Moreover, we observe the empirical results of a second-order model with mediating variable. From the results we can find that as first-order latent variables, the browsing behavior, interactive behavior, and creative behavior have significant relationships with user participation behavior respectively. And we find that the user participation behavior significantly and positively impacts purchase intention ($\beta = 1.112, p < 0.05$), validating the H3.

In general, the study concludes that the value of a virtual brand community does not significantly influence consumers' purchase intention. Thus, H1 are not supported. However, through path analysis we can clearly see that the value of virtual brand community has significant effect on user participation behavior, and the user participation behavior has significant effect on consumers' purchase intention. Thus, H2 and H3 are both supported. Which means, the user participation behavior plays a complete intermediary effect between value of virtual brand community and consumers' purchase intention, the H4 is supported.

Table 8: Path coefficient

Path	Estimates
<Main effects>	
FV → UPB	0.259** (0.050)
SV → UPB	0.130** (0.043)
PV → UPB	0.219** (0.047)
HV → UPB	0.159** (0.038)
UPB → BB	1.000
UPB → IB	0.931** (0.107)
UPB → CB	0.951** (0.109)
UPB → PI	1.112** (0.281)
FV → PI	0.071 (0.100)
SV → PI	-0.061 (0.074)
PV → PI	-0.036 (0.090)
HV → PI	-0.023 (0.070)
<Control variables>	
Gender → UPB	-0.028 (0.058)
Age → UPB	-0.060 (0.023)
User experience → UPB	-0.022 (0.024)
Level of participation → UPB	0.016 (0.023)
Time spend on community → UPB	-0.042 (0.024)
Gender → PI	-0.002 (0.091)
Age → PI	0.002 (0.039)
User experience → PI	-0.038 (0.038)
Level of participation → PI	0.035 (0.037)
Time spend on community → PI	0.006 (0.039)
Note(s): **p < 0.01, FV(Functional Value), SV(Social Value), PV(Psychological Value), HV(Hedonic Value), UPB(User Participation Behavior), BB(Browsing Behavior), IB(Interactive Behavior), CB(Creative Behavior), PI(Purchase intention)	

6. Discussion

Users can actively participate in the brand's virtual community and gain access to valuable content and high-quality information using it as a dynamic communication channel. In a digital environment similar to other social media platforms, value creation and value perceived by users are important components. Users gain from the exclusive content that improves their knowledge and overall experience in addition to the sharing of insights and experiences (L. Chen et al., 2021; Habibi et al., 2014; Wong & Lee, 2022; N. Zhang et al., 2021). By adapting to the dynamics of social platforms, marketers can develop effective strategies that emphasize the importance of creating a positive community culture. The interplay between perceived value and the establishment of value becomes pivotal, shaping users' subjective assessments and contributing to the community's recognition as a valuable resource (Bianchi & Andrews, 2018; Madupu & Cooley, 2010; Santos et al., 2022; N. Zhang et al., 2021). A virtual brand community is not just a communication platform, but also a strategic center that contributes to a thriving and influential online ecosystem through active engagement and the creation of valuable content.

Virtual brand communities are considered efficient communication channels where users can actively participate and, in return, gain access to high-quality information and valuable content. Comparable to other social platforms, the assessment of users' perceived value and the generation of value stand out as pivotal facets within virtual brand communities. The hypothesis H1, as mentioned, suggests that virtual brand community value has no direct and significant effect on consumers' purchase intention. However, H2 and H3 are supported, indicating that user participation behavior serves as a complete mediating role. This suggests that the derived value from virtual brand communities does not exert a direct influence on purchase intention but rather operates indirectly through its effects on user participation behavior. This finding aligns with H4, which states that virtual brand community value affects consumers' purchase intention indirectly by influencing user participation behavior. In essence, the value created within these communities is not a direct driver of purchase intention; rather, it shapes how users engage within the community, and this, in turn, influences their likelihood of making a purchase.

In the marketing realm, it becomes evident that a nuanced understanding of the dynamics within virtual brand communities is paramount for success. Contrary to direct influence on purchase decisions, these communities serve as platforms where user participation behavior plays a pivotal role, subsequently shaping consumers' intentions to make a purchase. The focal point, therefore, should extend beyond the mere provision of valuable content within these communities. Brands should strategically prioritize fostering a positive and engaging environment, as it significantly impacts user interactions. The emphasis is not solely on content creation but also on actively encouraging and facilitating meaningful interactions among users. This multifaceted approach is essential to maximize the community's impact on purchase behavior. Ultimately, virtual brand communities should be viewed as more than communication channels; they should be recognized as strategic hubs where positive user experiences and community engagement converge to influence purchasing decisions.

6.1. Theoretical and practical implications

The user's interaction within a virtual brand community encompasses various values, each influencing their purchase intention differently (N. Zhang et al., 2021; R. Zheng et al., 2022). Functional value manifests in purposeful searches for product information, offering users a foundational understanding that sparks the desire to buy (Cox, 2007). Hedonic value, on the other hand, emerges from the joy and enjoyment users experience in the community (J. Chang et al., 2022). As users assume new roles, stimulating emotional needs, they cultivate positive feelings that significantly shape their community and brand experience, impacting consumption intention. Psychological value is rooted in users' sense of belonging, meeting their psychological needs, fostering community loyalty, and subsequently enhancing purchase intention (ShiYong et al., 2022). Social value, meanwhile, arises from emotional communication and interpersonal relationships forged among users, especially those sharing common

interests (Carlson, Wyllie, et al., 2019; C.-B. Zhang et al., 2021; J. Zhang et al., 2019). Active participation and stable behavior in such communities contribute to increased identification and trust, ultimately promoting purchase intention.

Despite the deepening research in virtual brand communities, the focus has predominantly been on brand loyalty, value co-creation, and knowledge sharing, leaving a gap in understanding the value aspect (Carlson, Rahman, et al., 2019; de Valck et al., 2009; Habibi et al., 2014). This study seeks to address this gap by investigating the connection between user participation behavior and consumers' intent to make purchases, furnishing a theoretical framework to improve the operational dynamics of virtual brand communities. Additionally, it offers guidance to enterprises in crafting effective marketing strategies for brand establishment.

In our daily encounters, the virtual brand community integrates social dimensions into users' quests for information and engagement. Beyond rudimentary product inquiries, individuals seek a sense of identity and affiliation, aspiring to actively contribute to causes aligned with their enthusiasm and attain integral membership status (S.-C. Chen & Lin, 2019; N. Wang et al., 2022; Yoshida et al., 2021; N. Zhang et al., 2021). Augmenting the value of virtual brand communities and fostering highly engaged communities are paramount for companies seeking to bolster consumers' inclination to make purchases and incite tangible purchase behavior. To achieve this, adopting a user-centric model is paramount. Companies should prioritize building relationships, attending to shared spiritual needs and values. In the age of mobile internet dominance, social networking has become integral, placing heightened significance on interpersonal connections. The virtual brand community, structured as a network, shifts away from a company-centric information transmission model, achieving decentralization, nurturing key users, and organically influencing the broader user base.

Furthermore, the establishment of interactive platforms and seamless communication channels is crucial. This ensures effective communication between companies and users, as well as among users themselves. Organizing a spectrum of online and offline community activities serves to continually enhance user engagement. Lastly, refining the operational mechanism of the virtual brand community is essential. Encouraging users to actively generate high-quality original content is pivotal. A stringent review and screening mechanism, applicable to both informational and user-generated content, is crucial to impede the proliferation of uniform content. This all-encompassing approach guarantees the ongoing evolution and vitality of virtual brand communities, cultivating an environment supportive of sustained user interest and brand allegiance.

6.2. Limitations and future research

Limitations of the research object. This article selects several representative and mature virtual brand communities as the research objects, but the virtual brand communities also include other industries. It remains to be seen whether our findings can be applied to virtual brand communities in other sectors and whether they are fully applicable to communities that are not yet fully mature in their development. **Limitations of research tools and sample size.** When collecting data, So jump App is mainly used to allow organizations to issue online questionnaires for specific users. During the collection process, there may be cases where the filling is not serious, which affects the data results. We ignore the specific mechanisms of community value on consumer behavior, but at the same time consumer behavior also influences community value, which should be further explored in future research.

In future research, considering the elements of domestic and foreign cultural differences, combined with the development of China's virtual brand community, the value dimensions will be more refined, so that the structural model will be more complete, and the theory will be further developed.

During the data collection phase, employing a diverse array of methods is advisable to mitigate errors arising from questionnaire collection. It is necessary to divide the users of the virtual brand community, and to classify users with different levels of participation, which can improve the quality of data and the scientific nature of statistical analysis.

Conclusion

In conclusion, the empirical examination of the intricate interplay involving consumers' perceived value, user participation behavior, and online purchase intention has yielded significant insights. In contrast to the expected outcomes posited in H1, the study failed to uncover empirical support for the assertion that consumers' perceived value substantially impacts online purchase intention. Nonetheless, the verified positive direct influence of perceived value on user participation behavior, aligning with the empirical validation of H2, underscores the impactful role of perceived value in shaping consumers' dynamic engagement within virtual brand communities. Additionally, the empirical support for H3 emphasizes the consequential positive effect of user participation behavior on purchase intention, highlighting the essential role of consumer involvement in guiding tangible purchase decisions. Noteworthy is the validated mediating function of user participation behavior, as articulated in H4, shedding light on its crucial role in establishing a cohesive connection between perceived value and purchase intention within the empirical model. Collectively, these findings significantly contribute to our refined understanding of the intricate dynamics that govern consumer behavior within the context of virtual brand communities.

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