



The Effects of Online Brand Community Members' Interactions on Values, Participation, and Brand Loyalty: The Mediating Effects of Virtual Interactivity*

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Abstract

Purpose: This study identified the effects of the three types of consumer interactions on the utilitarian and hedonic values experienced by community members, their degree of participation, and brand loyalty. In addition, the mediating effect of virtual interactivity between the interactions that occur within the online brand community and the value experienced by community members was also identified. **Research design, data and methodology:** An online survey was distributed, and the data gathered was analyzed using structural equations modeling. **Results:** Test results showed that product-information interaction has a positive effect on utilitarian value and interpersonal interaction has a positive effect on hedonic value. Human-computer interaction was found to have a negative effect on hedonic value and no significant effect on utilitarian value. Furthermore, it was revealed that among the three types of interactions, virtual interactivity had a mediating effect only in the relationship between human-computer interaction and hedonic value. Moreover, utilitarian values experienced by community members affected their level of participation which ultimately enhances brand loyalty. Hedonic value did not affect their level of participation within the online brand community. **Conclusions:** When marketers establish online brand community strategies, they must place elements that can directly help the use of brands and products.

Keywords : Community Interactions, Utilitarian Value, Hedonic Value, Participation, Brand Loyalty, Virtual Interactivity

JEL Classification Code: M30, M31, M37

1. Introduction

Online brand community is a social platform where consumers meet with other like-minded individuals who share similar interests for a certain brand. It is a form of communication strategy for brands to communicate their

market offerings to their consumers and to strengthen their relationship with them. Online brand community serves as a marketing channel for brands to attract potential consumers and to establish long-term consumer relationships. It also provides a means for consumers to learn and have a deeper understanding pertaining to the brand. Online brand

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communities provide a place for consumers to freely express their opinions about the product, to take part in influencing the innovation and improvement of products and even the creation of value. Therefore, many firms are continuously establishing an online presence such as the online brand community, to draw more consumers to love the brand, to enhance consumer brand experiences, and to simply engage with them (Weirtz & Ruyter, 2007).

In the context of online brand communities, consumers are involved in different types of interactions (Luo et al., 2016). These interactions are essential in shaping the overall value experienced by consumers relating to the brand. As consumers are increasingly spending more time in online brand communities, the accumulation of interactions among them poses many challenges for companies. In the virtual environment, it is necessary for companies to continuously satisfy the needs of consumers and provide them with favorable brand experiences.

It has been evident that the continuous interactions of consumers are essential factors for the long-term existence and effective functionalities of online brand communities (Kozinets, 2006; Luo et al., 2016). However, previous research on the interactions that occur within the online brand community remains relatively scant. Therefore, this study investigated the effects of the three types of consumer interactions on the utilitarian and hedonic values experienced by community members, their degree of participation, and brand loyalty. In addition, this study also identified the mediating effect of virtual interactivity between the interactions that occur within the online brand community and the value experienced by community members.

2. Literature Review

2.1. Online Brand Community Interactions

With the emergence of information and communication technologies, the continuous rise of influential platforms such as online brand communities have been very crucial for most companies especially for facilitating interactions among their consumers (Hollebeek et al., 2017). An online brand community enables the consumers of a brand to communicate and develop social connections with other consumers without having any geographical constraints (Muniz & O'guinn, 2001), allowing for a solid foundation of relationships between brands and consumers for their long-term goals (Thompson & Sinha, 2008). The advent of these online brand communities serves as an interactive medium for consumers and communities to co-create, share, and express their personal opinions about a brand, and discuss their brand-related consumption experiences (Kietzmann et

al., 2011). Therefore, online brand communities have become an essential platform for brands to strengthen their relationships with consumers and allow them to take part in brand co-creation (Tsai et al., 2012).

Consumers are mainly driven to initiate social interactions with other consumers in the community in the form of sharing their interests, exchanging information, and providing ideas for the betterment of products and services (Anderson & Weitz, 1992). According to Jang et al. (2008), consumer interactions in online brand community involve the information exchange between the consumers of the community and the brand supporting the community. Therefore, consumers are perceived to be interactive when there is continuous information exchange and user responsiveness in the community (Kim & Lee, 2019). Online brand communities become successful when they allow consumers to freely interact with others, post reviews relating to the brand, earn rewards, receive and as well as contribute updated and credible information regarding the brand (Islam & Rahman, 2017). Moreover, consumers also ensure community interactions through sharing brand-related information and brand experiences, advocating brands, products, and companies, socializing with other community members, and participating in group activities (Kim & Lee, 2019).

The three dimensions of consumer interactions in the online brand community are product-information interaction, interpersonal interaction, and human-computer interaction (Luo et al., 2016). Product-information interactions pertain to the consumer communications of product-related knowledge such as the usage of the product, the technology, and its market information (Nambisan & Baron, 2009). Interpersonal interactions relate to the one-on-one consumer communications that is crucial for establishing and developing the social connections and community relationships among the consumers of online brand community (Dholakia et al., 2004; Preece, 2001; Wang & Chen, 2012; Zaglia, 2013; Zhou, 2011; Zhou et al., 2012). Human-computer interactions refer to the interfaces between the consumer and the computer, and it also relates to the consumers' perceptions towards the website (Hoffman & Novak, 1996; Jee & Lee, 2002; Voorveld et al., 2010; Wang & Chen, 2012; Zhao & Lu, 2012). These three dimensions reflect the actual interaction experiences of consumers that help establish and develop long-term relationships within the online brand community (Zaglia, 2013; Zhou et al., 2012).

2.1.1. Product-Information Interactions

Consumers visit and interact in online brand community to obtain practical benefits from other community members through sharing product related information and usage experiences to learn knowledge and solve problems relating

to the products (Balasubramanian & Mahajan, 2001; Nambisan & Baron, 2009; Yen et al., 2011). Product-information interaction pertains to the consumers sharing product information and personal experiences and discuss the technical issues of the product to be able to solve the problems when the product is in use (Jang et al., 2008; McAlexander et al., 2002; Nambisan & Baron, 2009). The consumers of online brand community are eager and enthusiastic in communicating their product consumption experiences with other consumers (McAlexander et al., 2002). Through these consumer interactions, online brand community hold a valuable collective information and knowledge pertaining to the product and its usage (Nambisan & Baron, 2009; Wasko & Faraj, 2000). In product-information interactions, consumers' discussion topics involve product usage, knowledge about the brand, technology, and market information, which give consumers the opportunities to gain utilitarian benefits (Hertel et al., 2003; Nambisan & Baron, 2009). As consumers discuss the issues about the product, it increases their product understanding and knowledge (Nambisan & Baron, 2009). These in-depth consumer interactions help solve the problems and issues relating to the product (Algesheimer et al., 2005).

H1: Product-information interaction activities positively impact the utilitarian value.

2.1.2. Interpersonal Interactions

Interpersonal interactions are the person-to-person communication among peer consumers, and essential for establishing and developing social relationships (Nambisan & Baron, 2009). The high level of interpersonal interaction creates an atmosphere of active communication and mutual aid (Yadav & Varadarajan, 2005). Online brand communities that facilitate interpersonal interactions, make it easier for consumers to get to know each other and make friends (Muniz & O'guinn, 2001). Therefore, consumers can get social benefits from closer relationships. When consumers get quick responses or feedbacks and have close interactions with other consumers in the community, it represents that those consumers receive attention and recognition from others (Kuo & Feng, 2013). In online communities, consumers occasionally enjoy special interactive experiences. When interpersonal interactions are high, consumers can share intriguing experiences with other consumers, giving them a sense of joy. This joyful feeling can quickly spread throughout the community (Nambisan & Baron, 2009). Nambisan and Baron (2009) also stated that when online brand communities have high interpersonal interactions, members tend to perceive hedonic benefits from these social interactions. Moreover, interpersonal interactions in online brand communities can bring about

affective benefits such as the fun, enjoyment and "aha" moments (Nambisan & Baron, 2009).

H2: Interpersonal interaction activities positively impact the hedonic value.

2.1.3. Human-Computer Interactions

Human-computer interactions pertain to the consumers' website experiences through navigating within online community environment and its usability (Chitturi et al., 2008; Mathwick & Rigdon, 2004; Nambisan & Baron, 2007). It reflects the responsiveness of the community and the immediate feedback from the receiver (Te'Eni, 2001). Human-computer interaction can be attained through variety of strategies which include the information and graphic presentation, page navigation and design, search functionality, link use and predictive systems (Andrews et al., 2002). In a computer-mediated environment, consumer interactions are emphasized through the friendliness of the platform and its channel capacity which can offer consumers a full-service experience (Nambisan, 2002). There are more opportunities to acquire knowledge and product related information when consumers have good website experiences that can ease their participation in community discussions and gain utilitarian benefits (Fiore et al., 2005; Nambisan & Watt, 2008). A website that provides accurate and complete information to the consumers in an easy-to-interpret form is perceived to be more effective in function and helpfulness for consumers (Barreda et al., 2015). Human-computer interactions also reinforce social ties and engender senses of belonging that can result to more social benefits (Boneva et al., 2006; Bryant et al., 2006). A well-designed website can attract customers to visit the site more often and stay longer per visit that can develop brand loyalty (Wang et al., 2013). Consumers can gain more hedonic benefits through the effective website layouts that entail pleasant and enjoyable online brand community experiences (Song & Zinkhan, 2008; Fiore et al., 2005).

H3a: Human-computer interaction activities positively impact the utilitarian value.

H3b: Human-computer interaction activities positively impact the hedonic value.

2.2. Utilitarian and Hedonic Value

Consumers join, interact, and participate in online brand communities to gain utilitarian and hedonic values (Schau et al., 2009). In the context of information technology or information system, utilitarian value is related to enhance individuals' task performance to fulfill specific goals, while hedonic value is associated with increasing individuals' pleasurable experience of performing a particular behavior

(Hsu & Yen, 2016). Dholakia et al., (2004) stated that consumers participate and interact in virtual communities to obtain and share information to accomplish specific tasks, such as solving problems and validating decisions (i.e., utilitarian value), and to receive fun and relaxation through interacting with others (i.e., hedonic value). Consumers seeking benefits in an online brand community find it adequate to participate and interact due to the rewards that it provides (Islam & Rahman, 2017). These rewards affect customers' behavior in choosing a particular brand community among the competitive set and drive them to engage with such communities for co-creative activities (Van Doorn et al., 2010; Füller, 2010). Rewards may comprise of functional benefits such as information and support, social benefits including peer recognition, kinship, and altruism and psychological benefits which include membership and entertainment (Dholakia et al., 2009; Füller, 2010; Wirtz, et al., 2013; Barreda et al., 2015).

By interacting in online brand communities, consumers gain utilitarian values in the form of acquiring the needed information and support regarding their favorite brands and hedonic values by gaining pleasure through sharing their passion towards the brand (Zaglia, 2013). In consumer communities, functional benefits are derived from the direct, information-based support that the consumer receives from his interactions in the community to solve a specific issue relating to the brand (Dholakia et al., 2009). Information that is relevant, sufficient, detailed, valuable, and from credible sources enables consumers to attain an enhanced awareness of the brand and make better decisions related to the brand (Zhang & Watts, 2008; Zheng et al., 2013). Online brand communities with information that are updated, credible, and reliable earn an apparent competitive advantage as it provides consumers with great experience enhancing their positive brand influence and eventually their participation intentions and long-lasting relationships with brand communities (Jang et al., 2008; Dessart et al., 2015). The interactions in online communities allow the consumers to engage in dialogue with others about brand related concerns, including pre-purchase decision-making and potential causes and solutions of problems (Dholakia et al., 2009). In online brand community, consumers help each other and fix each other's problems regarding the brand, thereby, assisting the support service department of the firm (Schau et al., 2009). When offering assistance, help or support to others, consumers recount their personal experiences, outcomes, and stories that extends community participation and deepens their knowledge base for an effective usage of the product (Dholakia et al., 2009).

In online brand communities, consumers also derive benefits from being able to network and interact, that is, to socialize and form relationships with other community members for various product-related, personal, and/or

professional reasons (e.g., Burt, 1997). In order to receive assistance quickly and fully, it is essential for consumers to get to know other members through interactions in the form of answering questions, discussing new topics, and contributing new knowledge to the community (Dholakia et al., 2009). When consumers can easily discuss with other consumers and quickly respond to questions, they perceive attention and recognition from peer members (Te'Eni, 2001; Kuo & Feng, 2013). These social benefits may derive from consumer-to-consumer interactions and as well as consumer-provider interactions (Zeithaml & Bitner, 1996). Consumers are involved in interactions to get certain benefits and incentives (Van Doorn et al., 2010) that eventually enhance their participation in online brand communities (Islam & Rahman, 2017).

2.3. Virtual Interactivity

Interactivity theory asserts that the functions of interactivity and multimedia characteristics play a vital role in enhancing the various dimensions of relationship building with consumers in the virtual environment (Di Pietro et al., 2012; Fiore et al., 2005). The key interactivity theories including the telepresence, identify the structure of the media such as websites as critical contributor to the capability of the online users to interact (Hausman & Siekpe, 2009; Song et al., 2008). Virtual interactivity is in which online users have the tendency to participate in altering the content of the website in real time (Steuer, 1992). For instance, in the travel industry, the use of virtual communities enables consumers and travel organizations to directly communicate with one another, exchanging, inquiring, and providing travel-related information in a timely manner (Barreda et al., 2015). This allows consumers to share information in such websites and implies the important tools that enhance interactivity with and between the online users (Chan & Li, 2010).

In online brand community, virtual interactivity connects consumers to the brand (Duncan & Moriarty, 1998), and strengthens consumers' interactivity intentions (Madhavaram et al., 2005). It is also indicated that virtual interactivity is crucial for developing e-satisfaction (Ho & Lee, 2015), e-trust (Merrilees & Fry, 2003), and motivates consumers to stay and participate in the online community (Islam & Rahman, 2017). Virtual interactivity provides utilitarian benefits of saving time and effort, reducing risk, control, better product information, and increasing the likelihood of finding superior alternative (Klein, 1998). Virtual interactivity is also accredited with providing hedonic benefit of enjoyment (Koufaris et al., 2001; Koufaris, 2002).

H4: Virtual interactivity mediates the relationship

between online brand community members' interactions and the values experienced by the community members.

H4a: Virtual interactivity mediated the relationship between product-information interaction activities and the values experienced by members.

H4b: Virtual interactivity mediated the relationship between interpersonal interaction activities and the values experienced by members.

H4c: Virtual interactivity mediated the relationship between human-computer interaction activities and the values experienced by members.

2.4. Participation

Participation in an online brand community is an important aspect for the firms to ensure as it is an indicator of its success and is relevant for its long-term survival (Casaló et al., 2007; Koh & Kim, 2004; Zhou et al., 2013). Participation pertains to the community members who take part in community activities that help to keep hold of the community for a longer time (Malinen, 2015; Tsai et al., 2012). Participation also relates to the community activities executed by the members with the common approach of having intentions in a group level (Dholakia et al., 2004). These activities are the regular contributions of the members in the online brand community which include actively searching for and exchanging of information, posting more messages, quickly responding to other members' queries, and spending more time in the community (Chen et al., 2015; Nonnecke et al., 2006; Sun et al., 2014).

Most of the community members join and participate to meet others with common interests, values, and as well as to address their concerns about the specific issues relating to the product especially when they feel that it is relevant to them (Hagel & Armstrong, 1996; Rheingold, 1993). Previous research has indicated that the need for information is one of the motivations for consumer participation in an online brand community (Romm et al., 1997; Chan et al., 2004). Members can fulfill a variety of needs from their community interactions and gain utilitarian benefits of obtaining information and receiving material rewards to a more hedonic benefits of social interactions with other community members (Coelho et al., 2018). Community members participate to share their product-related experiences or to acquire information and learn more about the product from other users or from the company (Wirtz et al., 2013). Other than simply asking and answering questions, community members appreciate the process of discussions and online dialogue with others around the topics of interest in which they find a valuable space to have access for knowledge and in providing solutions and receiving feedbacks on their ideas (Wasko & Faraj, 2000). Community members find it fun to participate because

helping others gives them satisfaction and enjoyment (Wasko & Faraj, 2000).

There are a variety of benefits that community members receive from their participation in the online brand community. Previous research has indicated that community members can have access to expert advice, get various viewpoints and insights from others, helps in enhancing their own reputation, can have more professional contacts, improve their professional status, develop a positive self-image, and have greater confidence in their own knowledge (Christensen & Raynor, 2003; Constant et al., 1994; Hall & Graham, 2004; Herring, 1996; Lakhani & Hippel, 2004; Lampel & Bhalla, 2007; Lerner & Tirole, 2002; Wasko & Faraj, 2000). Other benefits also highlight the community members' desire to help others and build a strong community, achieve their collective goals, keeping and maintaining the existence of the community, having the sense of companionship, altruism, empathy, and reciprocity (Blanchard & Markus, 2004; Constant et al., 1994; Constant et al., 1996; Hall & Graham, 2004; Lakhani & Hippel, 2004; Preece, 1999; Preece & Ghazati, 1998; Wasko & Faraj, 2000; Wasko & Faraj, 2005).

The members' participation also provides advantages to the company and the online community itself as it is crucial for the community's integration and unity (Madupu & Cooley, 2010), for the quality of brand relationship and brand knowledge (Flavián & Guinaliu, 2006; Kang et al., 2014; Muniz & O'guinn, 2001), and in preventing the community substitution problems (Wirtz, et al., 2013). The quality of relationships among community members is also integral in fostering brand loyalty that consequently intensifies their relationship with the firm (McAlexander et al., 2002). As members actively participate in community activities, other consumers can infer the degree of the firm's involvement and commitment towards its customer base and in enhancing their brand-related consumption experiences (Rishika et al., 2013). The accumulation of interactions has the tendency for greater trust with the brand that leads to brand loyalty (Algesheimer et al., 2005).

H5: Utilitarian value positively impacts participation.

H6: Hedonic value positively impacts participation.

2.5. Brand Loyalty

Previous research indicated that making consumers loyal to the brand is one of the main functions of a brand community (McAlexander & Schouten, 1998; McAlexander et al., 2002; Muniz & O'guinn, 2001; Schau et al., 2009; Zhou, 2011). Brand loyalty pertains to the consumers' deeply held commitment to consistently re-buy or re-patronize their preferred products or services in the future (Oliver, 1999). In the online platform contexts, it refers to

the consumers’ favorable attitude toward the website, the product, or the brand with repeat purchase behavior (Anderson & Srinivasan, 2003).

Many companies are continuously looking for different methods to amplify and build brand loyalty as it provides a competitive advantage to firms (Winters & Ha, 2012) and has a positive influence on firm performance (Pihl, 2013). One of the ways to build and strengthen brand loyalty is to engage consumers in an online brand community (Dessart et al., 2015). When an online brand community satisfy a particular need of a consumer, it is possible to generate favorable brand-relationship perceptions, that leads to a higher level of brand community engagement, which in turn lead to higher brand loyalty outcomes (De Vries & Carlson, 2014).

H7: Participation positively impacts brand loyalty.

3. Research Methods and Materials

3.1. Methodology

Data were collected using Amazon Mechanical Turk in April 2021. Amazon Mechanical Turk is a source of experimental data in judgment and decision-making (Paolacci et al., 2010). It is a crowdsourcing web service that facilitates the completion of tasks through human intelligence (Paolacci et al., 2010). All participants (N=315) were members of online brand communities. To ensure that all these participants know the concept of “online brand community,” we provided a brief definition, examples, and links of the online brand community at the start of the survey. To be eligible to take part in this study, we asked the participants to indicate the name of the online brand community that they are a member of. Overall, the survey was presented as an opinion survey which aims to have an in-depth understanding of consumer behavior within the context of online brand community. The measurement scales included in this survey were adopted from previous studies (Table 1).

3.2. Tables and Figures

Table 1: Measurement Model and Results

Construct	Items	Factor Loadings	C.R.
Product Information Interaction	My community interactions contained large amount of information about product usage	.621	9.116

Luo et al. (2016)	(e.g., features, updates).		
	My community contained large amount of information about product technology (e.g., standards).	.596	8.864
	My community contained large amount of information about product market (e.g., competing products, pricing).	.555	
Interpersonal Interaction	I generally receive quick reaction/feedback from other members on my ideas and contributions.	.556	9.168
Luo et al. (2016)	I always have close and intensive interactions with other members of online brand community.	.594	9.690
	There are plenty of two-way communications (e.g., communicate experiences, feeling) among members.	.613	
Human Computer Interaction	My community's navigation and contents or links are very convenient to use.	.462	8.158
	My community's design (e.g. color, layout) is very friendly.	.543	9.170
Luo et al. (2016)	My community provides different ways (e.g. symbols, modules, video) to communicate with others.	.548	
Utilitarian Value	The content on the brand community is useful.	.579	8.696
Chen and Tsai (2020)	The content on the brand community is beneficial.	.613	9.091
	The content on the brand community is practical.	.598	
Hedonic Value	The content on the brand community is fun.	.476	7.341
	The content on the brand community is exciting.	.570	8.152
Chen and Tsai (2020)	The content on the brand community is pleasant.	.471	
Participation	I actively participate in the community's activities.	.682	8.329
	I spend a lot of time engaging in the community's activities.	.648	8.091
	I provide feedback related to participation in the community's website.	.525	
Brand Loyalty	I spend a lot of time using my brand community, compared to other brand communities.	.577	8.888
	I say positive things about my brand community to other people.	.649	9.692
	I recommend my brand community to someone who seeks my advice.	.580	
	I encourage friends and others to do business with my brand community.	.621	9.382

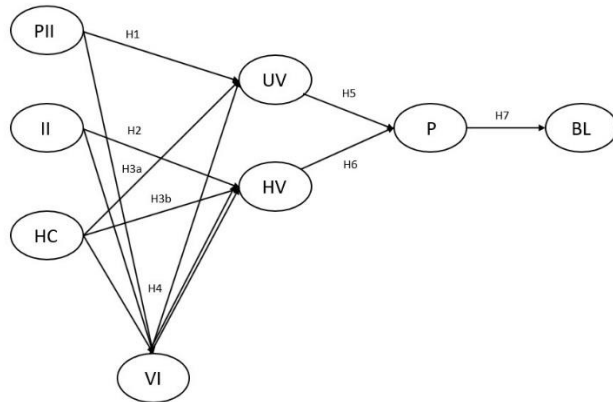


Figure 1: Research Model

4. Results and Discussion

Structural equations modeling was conducted using AMOS 20. Confirmatory factor analysis was conducted with the full data. The measurement model was estimated by investigating reliabilities of individual items, a convergent validity of the measures associated with each construct, and a discriminant validity between constructs (Fornell & Cha, 1994; White et al., 2003). Each measure’s loading on its respective construct was examined to test item reliability. All measurement items in the model were included for the analysis. All items and their associated factor loadings are shown in Table 1. Internal consistency and convergent validity of the constructs were confirmed by Cronbach’s alpha with a minimum of .70 (Cronbach & Furby, 1970; Nunnally, 1978), the average variance extracted (AVE) with a minimum of .50 (Fornell & Larcker, 1981; Bagozzi & Yi, 1988), and the construct reliability with a minimum of .70 (Fornell & Larcker, 1981). The final measurement model exhibited satisfactory goodness-of-fit statistics (Bagozzi &

Yi, 1988); $X2(65) = 419$, $X2/df = 2.23$, $p = .000$, $GFI = .890$, $CFI = .907$, $RMSEA = .063$.

The structural model showed satisfactory goodness-of-fit statistics (Bagozzi & Yi, 1988); $X2(67) = 595$, $X2/df = 2.09$, $p = .000$, $GFI = .873$, $CFI = .898$, $RMSEA = .059$. Hypothesis 1, hypothesis 2, and hypothesis 3 were tested. To test the effects of the three types of interactions on utilitarian and hedonic values, virtual interactivity was excluded from the full model. The result showed that Hypothesis 1, Hypothesis 2, and Hypothesis 3b were supported. Among the three paths, human-computer interaction was proved to have a negative effect on hedonic value. Hypothesis 3a, the effect of human-computer interaction on utilitarian value was not supported (Table 2).

Table 2: Results of SEM analysis

Path	Path Coefficient	C.R	
H1: PII → Uti_V	.74	**3.97	Supported
H2: II → Hed_V	.58	*2.48	Supported
H3a: HC → Uti_V	.13	2.80	Not supported
H3b: HC → Hed_V	-.24	*-3.52	Supported

Note: (**p < .001, *p < .01)

In order to analyze the mediating effect of virtual interactivity (hypothesis 4), correlation analysis was conducted between product-information interaction (hypothesis 4a), interpersonal interaction (hypothesis 4b), human-computer interaction (hypothesis 4c), and virtual interactivity variables. Through correlation analysis, virtual interactivity was confirmed to be set as a mediator between product-information interaction and utilitarian value and human-computer interaction and hedonic value. Therefore, hypothesis 4a and hypothesis 4b were not supported. Table 3 shows the implied correlations between the constructs.

Table 3: Correlations Between Constructs

Constructs	1	2	3	4	5	6	7	8
1. Human-Computer Interaction (HC)								
2. Interpersonal Interaction (II)	.480							
3. Product-Information Interaction (PII)	.032	.009						
4. Virtual Interactivity (VI)	.034	.158	.002					
5. Hedonic Value (HED_V)	.032	.012	.011	.003				
6. Utilitarian Value (UTI_V)	.167	.053	.001	.021	.002			
7. Participation (PART)	.071	.107	.000	.010	.013	.036		
8. Brand Loyalty (BL)	.056	.071	.000	.009	.007	.030	.007	

Among the four paths, virtual interactivity only mediates the relationship between human-computer interaction and hedonic value. As supported in Hypothesis 3b, human-computer interaction was proved to have a negative effect on hedonic value. However, when virtual interactivity was included as a mediator between the two constructs, the effects of human-computer interaction on hedonic value were dropped in magnitude. With virtual interactivity as a mediator in the model, the effects of human-computer interaction on hedonic value became non-significant ($p=.373$). Therefore, hypothesis 4c was partially supported.

Hypothesis 5 and Hypothesis 7 were supported. Utilitarian value has a positive effect on participation, and participation has a positive effect on brand loyalty. However, hypothesis 6 was not supported. Hedonic value did not show a significant effect on participation (Table 4).

Table 4: Results of SEM analysis

Path	Path Coefficient	C.R	
H5: Uti_V → Part	.89	**4.98	Supported
H6: Hed_V → Part	.05	.42	Not supported
H7: Part → BL	.97	**7.42	Supported

Note: (** $p < .001$, * $p < .01$)

This study identified the effects of interactions that occur within an online brand community on the utilitarian and hedonic values experienced by community members, their degree of participation, and brand loyalty. In addition, the mediating effect of virtual interactivity between the three types of interactions and the values experienced by community members was also identified.

Hypothesis 1, hypothesis 2 and hypothesis 3 tested the relationship between online brand community members' interactions and the values experienced by community members. Results showed that product-information interaction has an effect on utilitarian value (hypothesis 1) and interpersonal interaction has an effect on hedonic value (hypothesis 2). In addition, human-computer interaction was found to have a negative effect on hedonic value (hypothesis 3b) while not affecting utilitarian value (hypothesis 3a).

Among the three types of interaction in which online brand community members are involved, product-information interaction is an activity to exchange information related to products and their use. Members of the online brand community perceive product-information interaction activities as the most reliable source of information. When members engage in these activities, it leads them to have a more satisfying brand-related experiences. Accordingly, the members who are involved deeply in product-information interaction activities, experience higher levels of utilitarian values.

In this study, interpersonal interaction was found to have a positive effect on hedonic value. One of the main motives for users to participate in an online brand community is to share a brand-related experience with like-minded consumers who recognize the consciousness of kind and feel similar to themselves. Interpersonal interaction is an interactive activity among members and these activities include not only brand-related but also non-brand-related ones. Members of the online brand community pursue social values within the community through interpersonal interaction activities, and experience hedonic value in this process.

Human-computer interaction is an element related to the website experience provided by the online brand community. This study showed that human-computer interaction activities had a negative effect on the hedonic value. The hedonic value that consumers pursue through participating in online brand community activities is mainly based on social attributes. For example, hedonic value is enhanced when users form a community with other consumers who feel similar to oneself. However, human-computer interaction relates to the functional aspects of the website, such as excellent graphics and aesthetic elements. Instead of consumers pursuing a sense of community, it gives them the perception that the online brand community is still a virtual space.

Hypothesis 4 analyzed the mediating effect of virtual interactivity between online brand community interactions and the value experienced by members. Test results showed that, among the three types of interactions, virtual interactivity had a mediating effect only in the relationship between human-computer interaction and hedonic value. Virtual interactivity is an element related to the efficiency of the website perceived by users and plays a role in enhancing the functionality of the website. Virtual interactivity and human-computer interaction are different in that virtual interactivity is the responsiveness of the website perceived by users, whereas human-computer interaction is a type of interactive activity. The mediating effect of virtual interactivity provides meaningful suggestions to marketers composing the online brand community. In order to provide hedonic value to users, it is important to engage users in human-computer interaction activities, for example, through colorful graphics or attractive designs. However, prior to such interactive activities, if the functional and efficient aspects of the website are not properly designed and user convenience is not improved, members of the online brand community will be provided with negative experiences related to the hedonic value. Therefore, marketers should offset the negative effect of human-computer interaction on hedonic value by arranging the virtual interactivity elements in the online brand community.

Hypothesis 5 and hypothesis 6 analyzed the effect of the

utilitarian value and hedonic value experienced by online brand community members on participation. Results showed that, utilitarian value affected the participation, whereas hedonic value did not. This can be interpreted due to the natural characteristics of online brand communities. One of the main factors for consumers to join online brand communities is information search. Today's digital native consumers tend not to trust sources of information they do not have control over, such as marketers, experts, and brand-owned media. Members who have experienced utilitarian value through engaging in interaction activities perceive it as the most reliable and practical helpful information for brand-related experiences. Therefore, in this process, utilitarian value increases participation, and ultimately brand loyalty is enhanced. On the other hand, even though members of the online brand community acquired social values through hedonic value, if it does not relate to brand experiences, which is the most fundamental factor that makes members participate in the online brand community, this will not lead to continued participation.

5. Conclusions

Therefore, when marketers establish online brand community strategies, they must place elements that can directly help the use of brands and products. This is most closely related to brand use practice among the four value creation practices of online brand community. For example, customizing, one of brand use practices, is an activity in which members of an online brand community pursue a more satisfying consumption experience by modifying the original brand in their own way (Schau et al., 2009). As such, vivid information based on real consumers' experiences can only be provided within a group with a high sense of fellowship, such as an online brand community. Online brand community members participate more actively in the community when they receive utilitarian value through reliable and practical information, and brand loyalty is also enhanced in this process.

This study investigated the effects of interactions occurring within any online brand community that exists in the virtual environment. Future research can focus on only one specific type of brand communities such as those established on social media or in traditional websites. According to the type of platform, the interactions and value experience by members may vary due to its different characteristics such as graphic designs and functionalities.

The nature of interactions among members may also be explored. The current study did not examine the effects of positive interactions versus negative interactions in the online brand community. For example, when members encounter unpleasant conversations, negative messages, or

rude behavior from others, it may have a negative impact on the brand image and overall brand experiences of members. Therefore, to improve consumer interactions, further studies are needed to explore ways in mitigating such issues in the online brand community.

Furthermore, future research may also explore the period of membership among community members. New members may be more involved in interactive activities to learn more about the products and to form relationships with others as compared to older members. Based on the period of membership, the quality of interactions and the value experience by members in the online brand community might vary.

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