



ISSN: 2617-6548

URL: www.ijirss.com



Social media-based online brand community characteristics' impact on consumer relationship formation: The moderating effects of platform initiator types

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Abstract

This research investigates the impact of online brand community characteristics on social media. Information quality, system quality, virtual interactivity, and rewards are modeled as key indicators examining their effects on two types of consumer relationships: consumer-brand and consumer-other-consumer relationships. This research further explores how these consumer relationships influence community identification and electronic word-of-mouth communication. Additionally, it examines the moderating effects of platform initiator types such as firm-initiated and consumer-initiated brand communities on the link between consumer relationships and community identification. A quantitative study was conducted using an online questionnaire distributed through Amazon Mechanical Turk, and data were analyzed using structural equation modeling. The findings indicate that forming social media-based online brand community characteristics as a latent construct is significantly influenced by information quality, system quality, virtual interactivity and rewards. These characteristics have a notable impact on both types of consumer relationships significantly influencing community identification and electronic word-of-mouth. Test results have also shown that the moderating effects of platform initiator types are significant only in the relationship between the consumer-other-consumer relationship and community identification. In firm-initiated brand communities, consumer-other-consumer relationships significantly influence community identification whereas in consumer-initiated brand communities, this relationship was not significant. Therefore, marketers are encouraged to establish branding strategies that align with the nature of the community to cultivate and sustain consumer relationships.

Keywords: Community identification, Consumer relationships, Electronic word-of-mouth, Online brand community, Social media.

DOI: 10.53894/ijirss.v8i1.3804

Funding: This research is supported by Kwangwoon University, Seoul, Korea (Grant number: 2023-0302).

History: Received: 14 May 2024/Revised: 8 November 2024/Accepted: 22 November 2024/Published: 1 January 2025

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Competing Interests: The authors declare that they have no competing interests.

Authors' Contributions: Conceptualization and design, data collection, data analysis, writing draft manuscript, writing revision and editing, A.G.; data analysis, review and supervision, Y.H. Both authors have read and agreed to the published version of the manuscript.

Transparency: The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

Institutional Review Board Statement: The Ethical Committee of the Kwangwoon University's College of Business, Seoul, Korea has granted approval for this study on 3 January 2023.

Publisher: Innovative Research Publishing

1. Introduction

The development of digital technologies including the innovation of the internet has enabled online communication platforms such as social media-based online brand communities to aid companies in facilitating interactions among their consumers [1]. These new communication tools have served as an avenue for consumers to express their personal opinions, share their experiences and meet with other like-minded consumers [2]. Social media-based online brand communities act as social platforms allowing consumers to establish relationships with others and exchange their brand-related consumption experiences within the community [3]. Social media-based online brand communities offer various benefits to consumers such as the opportunity to learn and have deeper knowledge about the brands they like as well as to build connections with other individuals who share similar interests [4].

Social media-based online brand communities provide a virtual space for encouraging consumers to actively participate in community activities and in influencing the consumers' overall brand community experiences shaping the way they form relationships with the brand and others [5]. In the context of brand communities on social media, community members have a high sense of identity and knowledge pertaining to the brand, they share common goals and a strong commitment to the brand [6, 7]. Existing studies addressing the issues of brand communities based on social media remain relatively limited despite the high adoption rate of social media and the positive aspects and benefits it provides to brands. Social interactions and the active participation of consumers within the community are indicators of its success and longevity [8, 9]. However, research on the underlying factors affecting consumer relationships within the community has received less attention in previous studies. Marketers are continuously confronted with the challenge of aligning their branding strategies with the complexities of fostering meaningful consumer relationships and deeper connections with them. Moreover, ensuring the quality of brand-related information shown and shared within these communities presents a continuing challenge impacting consumers' trust in the brand and overall community experiences. To fill in the research gap, this research aims to address the main question, "how do the characteristics of online brand communities affect consumer relationships within social media?"

Therefore, this research investigated the four components or characteristics of social media-based online brand communities and their effects on the two types of consumer relationships namely, consumer-brand relationships and consumer-other consumer relationships to address the notable issues pertaining to brand communities on social media. Furthermore, this study also examined the impact of consumer relationships (consumer-brand and consumer-other consumer relationship) on consumers' community identification. The impact of community identification on consumers' electronic word-of-mouth communications was also tested. Additionally, the moderating effects of the brand community platform initiators (firm-initiated and consumer-initiated) on the relationship between consumer-brand and consumer-other consumer relationship and community identification were also revealed in this study.

This paper is structured as follows: It begins with a literature review followed by a detailed explanation of the methodology, including the survey procedure, measurement items and research model. Next, the findings of the study are presented. This paper concludes with a discussion section that includes practical implications, limitations, and suggestions for future research.

2. Literature Review

2.1. Social Media-Based Online Brand Community

Social media usage has enabled the expansion of brand communities leading many brands to implement marketing strategies tailored to these communities [10]. A social media-based online brand community is a subcategory within the larger concept of online brand communities. It combines the aspects of both brand community and social media with the platform being the primary distinguishing factor [11]. Community or social interaction is the shared element present in both brand communities and social media [12]. Social media allows consumers to meet other individuals with a common interest in a brand and have social interactions with one another through the sharing of content in the form of videos or photos [13, 14]. Constructing and disseminating meaning constitute the fundamental elements within a brand community as emphasized by McAlexander et al. [12]. Conversely, according to Kaplan and Haenlein [13] social media revolves around the essential role of generating and sharing content [13]. The intersection of these two elements forms an associated relationship, fostering an environment ideal for the collective generation, sharing and interpretation of content and meaning among like-minded individuals commonly referred to as brand enthusiasts [15]. Companies utilize online communities to obtain information about consumers and get insights related to their brand consumption experiences to be able to improve their market offerings and services [16].

2.2. Social Media-Based Online Brand Community Characteristics

Many companies are turning to social media as a strategic tool for brand communication due to its efficiency, cost-effectiveness and extensive reach [13]. Social media has the unique capability of fostering communities through the features embedded on the platform such as the creation of groups in which online users can join. In these communities, consumers can join and engage even without owning a product from that brand [2, 3]. Unlike other virtual communities, consumers who join social media-based brand communities use their real identities instead of pseudonyms when they interact with other community members. This promotes greater transparency and authenticity as they develop connections with others in the community [17].

Social media brand community pages enable companies to directly engage with consumers by providing a wide range of information [18]. Social media platforms facilitate direct connections between brands and consumers allowing for timely and cost-effective communication that can influence consumer behavior and perceptions. The efficiency of social media

has prompted brands to establish strong online presence across platforms such as Facebook, Reddit and Instagram among others [13]. Social media-based brand communities transformed the conventional relationship between consumers and brands, shifting consumers from passive receivers of marketing messages to active participants involved in brand co-creation [19, 20]. Consumers are motivated to join these communities to satisfy their need for belonging and to connect with like-minded individuals who share similar interests and values. This social connection fosters a sense of community and belonging within the group that empowers consumers to create, participate in and nurture relationships within these communities on social media [21].

Four primary characteristics define social media-based brand communities: information quality, system quality, virtual interaction and rewards for participation [22]. Information and system quality are essential elements and environmental indicators that are crucial for the creation and design of effective social media brand communities and other online interactive platforms [23]. These attributes significantly impact consumer satisfaction and loyalty within social media brand communities [22]. Virtual interaction and rewards are the other two attributes that are important in fostering consumer relationships, boosting satisfaction and shaping consumers' positive attitudes towards brand communities on social media [23]. Virtual interaction was also shown to increase the consumers' commitment to continuously communicate with other consumers and participate in various community activities [24]. Rewards were also revealed to increase the consumers' level of engagement and interactions within the brand community based on social media [25].

2.3. Information Quality

A growing portion of information exchange transpires within these virtual environments as consumers allocate more of their time to social media-based brand communities. In terms of marketing communications, this entails that brand-related interactions and exposure to brand-related marketing campaigns occur on these social media platforms. Information quality is one of the characteristics of social media-based brand community that involves the observation and assessment of the consumers in terms of the quality of information shown on various social media sites and other online interactive platforms [26]. It also relates to the consumers' comparison of their expectations with the quality of information and the perception of the actual information received [27]. Consumers determine the quality of information presented on social media-based brand community based on its relevance, accuracy, accessibility, completeness, timeliness, consistency, and data richness [28]. For instance, in terms of relevance, information should be relevant to their needs and interests to capture consumers' attention. In addition, in terms of timeliness, information should not be outdated as it can lead to a loss of credibility and may not be useful for consumers' brand-related decision-making. Thus, social media-based brand communities that provide brand-related information that is updated, reliable and credible have more competitive advantages [22]. Consumers are also more inclined to engage in social media-based brand communities with high-quality information as they are perceived to be more attractive [29]. Moreover, brand communities on social media are less intrusive and less bothersome than certain traditional marketing approaches since consumers have greater control over their exposure to brand-related marketing communication content. Therefore, information quality enables consumers to have positive brand-related experiences which drive them to maintain long-lasting relationships and to participate more in various activities within the brand community based on social media [30]. Furthermore, social media-based brand communities with a high level of information quality increases consumers awareness of the brand allowing them to have a better understanding of the brand and make better decisions relating to the brand [31, 32].

2.4. System Quality

System quality is an important characteristic of social media-based brand communities as it shows consumers how quick and convenient it is to find information within the community [22]. Consumers are able to recognize and measure the quality of the system in terms of its functionalities such as error-free, technically sound, navigation, easy to learn, user friendly and flexible [29]. The seamless functionality and overall performance of brand communities on social media positively influence the user experience. When consumers perceive the system to be less complicated to use, the more likely it is for the system to be effective for the consumers [33]. A brand community based on social media that has a high system quality is perceived by consumers to be more helpful and effective in function especially when the information provided is reliable and accurate [34]. System quality is a primary element that gives consumers an initial idea relating to the brand and forms an overall impression of the company within the context of social media-based brand communities [35]. System quality relates to the visible aspects of social media sites as it influences consumers' decision-making on whether to respond favorably to the brand [36]. A robust system quality ensures that users or consumers can navigate the community effortlessly contributing to positive interactions, and information sharing. Therefore, if a system is well-designed, easy to use and with information presented in a comprehensive manner, companies would gain more benefits such as cost reduction, increased revenues, and high organizational efficiency [29]. Furthermore, a well-designed and user-friendly system fosters a sense of community cohesiveness making it conducive for consumers to form meaningful connections with the brand and with each other. System quality also ensures consumers' satisfaction, repeat purchase intentions and develops trust [34]. A social media-based brand community with high system quality makes it easier for consumers to recall the brand to efficiently connect with the brand and with other consumers and to spread positive electronic word-of-mouth within the community [37].

2.5. Virtual Interactivity

The attributes of a brand community on social media such as virtual interactivity play a crucial role in augmenting consumers' capabilities to engage within the virtual environment [38, 39]. In the digital realm, the quality of virtual

interactivity plays an essential role as consumers increasingly seek meaningful connections in the absence of face-to-face interactions. Virtual interactivity involves real-time communication exchanges and adjustments that can be made with the information presented in the community [40]. It is also the extent to which the parties involved such as the consumers and the host of the community can share and discuss important information related to the brand [22]. One of the examples include the ability of various industries such as travel organizations to directly communicate with their consumers and respond to their travel-related inquiries in real time and vice versa [34]. Furthermore, it has been indicated that virtual interactivity aids consumers in saving time and effort while seeking product information offering them the added benefit of enjoyment [41, 42]. Virtual interactivity implies the important tools that foster engagement between the parties involved and continuously discuss and provide brand-related updates in the brand community based on social media [43]. Virtual interactivity provides advantages that are beneficial for the operation and maintenance of social media-based brand communities including direct communication of the consumers to the brand and their ability to reinforce engagement levels within the community [44, 45]. The degree of virtual interactivity directly influences the depth and authenticity of relationships consumers form with the brand and fellow community members. Robust virtual interactivity facilitates active participation, enabling users to share experiences, opinions and feedback seamlessly. It transforms the brand community into a dynamic and responsive space where interactions transcend traditional boundaries, creating an environment conducive to relationship-building. Moreover, virtual interactivity is a crucial characteristic that facilitates e-satisfaction, e-trust, and motivates consumers to continuously interact and take part in community activities [23, 46].

2.6. Rewards

One of the primary drivers for the long-term sustainability of social media-based brand communities is to provide the necessary benefits that consumers seek to continuously interact with and maintain social relationships within these communities [47]. In the brand community based on social media, rewards are a vital factor that involves the monetary and psychological benefits that consumers obtain as proactive online users [22]. Consumers receive various rewards through their active communication and participation in the brand community based on social media and their relationship with the brand itself or the organization [48]. Incentives can take various forms including monetary advantages such as exclusive offers and loyalty programs, functional benefits like obtaining support and acquiring information, social benefits involving altruism and peer recognition, and psychological benefits that include membership and entertainment [34, 49-51]. Companies are encouraged to allocate financial means and psychological rewards to increase consumers' interests and desire to learn more about the products and services [52]. Companies that aim to increase consumers' awareness and knowledge of a brand generate more rewards for consumers to continuously interact with other consumers and take part in different community activities [52]. These rewards that consumers obtain are influential for their decision-making when deciding on a particular social media-based brand community to involve with among the competitive set in the minds of the consumers [50].

H₁: As the levels of information quality, system quality, virtual interactivity and rewards increase, the characteristics of the social media-based online brand community are strengthened.

2.7. Consumer-Brand Relationships

Relationship marketing is based on establishing, nurturing and improving the connections between consumers and brands [53]. Trust, a fundamental component of the consumer-brand relationship is cultivated when consumers hold confidence in a brand's ability to fulfill its promises [54]. Consumers develop relationships and connect with brands through engaging in dialogues and sharing various experiences including their brand consumption stories [52, 55, 56]. The exchange of brand-related experiences among community members further solidifies the brand's trustworthiness as consumers often place greater reliance on the experiences of their peers than on brand messages [57].

Brand communities on social media are communication tools that enable consumers to engage in dynamic, real-time conversations [15]. These interactive community platforms are facilitators of consumer-brand relationships, allowing both parties to familiarize themselves and establish connections that reinforce the relationship [23, 58, 59]. Participating in community activities enriches consumers' knowledge of the brand and its products by reducing information imbalances between the brand and consumers [15]. Active involvement in community activities by members enables other consumers to assess the firm's level of engagement and dedication to its customer base in enhancing their brand-related consumption experiences [60]. As a result, consumer expectations will align with the actual performance of the brand leading to an increase in consumer trust in the brand [61].

H₂: As social media-based online brand community characteristics strengthen the relationship between consumers and brands.

2.8. Consumer-other Consumer Relationships

Consumers are primarily driven to initiate social interactions with other consumers within the social media-based brand community through sharing their interests, exchanging information and contributing ideas to improve products and services [62]. Brand communities facilitated by social media platforms offer avenues for consumers to network, interact, and socialize with fellow brand supporters for various reasons, including product knowledge, personal interests, and professional connections (e.g., Burt [63]). Social media-based brand communities foster consumer relationships and community building, encouraging active consumer engagement. Brand communities on social media facilitate and enhance dynamic interactions and social connections among consumers, enabling them to share brand stories.

Consumers actively share their knowledge, information, and experiences related to a brand with other consumers through social media platforms. For instance, establishing connections with fellow brand supporters through interactions such as answering questions, discussing new topics, and contributing fresh insights to the community is crucial for consumers seeking prompt and comprehensive assistance regarding product usage [49]. When consumers can readily participate in discussions and offer instant responses, they experience a sense of being valued, acknowledged and connected to others within the community [64]. These social bonds can originate from both consumer-to-consumer interactions and engagements with brand representatives [65]. The strong relationships that consumers have with others enhance their overall community experiences and the credibility of the brand [7]. Establishing connections among consumers nurtures a sense of belonging and shared identity cultivating a more inclusive online community environment [66].

H₃: As social media-based online brand community characteristics strengthen the relationship between consumers and other consumers.

2.9. Community Identification

Community identification in brand communities on social media is the feeling of belonging, a sense of unity, and connection that members experience within the community [67]. Feeling a sense of belonging to the community helps consumers identify with the group and fosters a shared sense of connectedness among its members [68]. Social identity theory posits that individuals have a fundamental need to belong to social groups. This need for belonging is driven by the desire to fit in, feel accepted, and be part of something larger than oneself. When individuals identify with a group, they internalize the group's values, norms, and beliefs. Therefore, when consumers identify themselves with a brand community on social media, they can recognize other like-minded individuals who share similar values and interests as those within the community. These individuals with a strong sense of belonging in the community tend to experience more positive emotions through their social interactions. A strong community identification empowers consumers and reduces the likelihood of them experiencing unfavorable emotions while participating in the community.

Being a part of a group can provide individuals with a sense of purpose, identity, and social support. Consumers want to categorize themselves as in-group members of the brand communities on social media to gain access to the resources and benefits such as exclusive information, discounts and access to a network of other consumers who can provide them with support and advice. Members with a strong community identification not only align their values and beliefs with fellow community members but also actively promote the brand [69]. Community identification offers consumers a sense of security, aiding in the comprehension of acceptable behavioral boundaries within the community [70, 71]. Consequently, consumers are inclined to invest more time, effort, and enthusiasm in participating in various community behaviors which may include assisting others in collaborating in value creation and sharing word-of-mouth recommendations [72].

H₄: Consumer-brand relationship positively influences community identification.

H₅: Consumer-other consumer relationship positively influences community identification.

2.10. Types of Platform Initiators

Social media-based online brand communities can be categorized according to whom initiated the platform such as firm-initiated or consumer-initiated brand communities [22]. Firm-initiated brand communities are created and managed by the firm with the aim of establishing connections with their consumers and garnering insights from them to improve products and services. On the other hand, consumer-initiated brand communities are created by the passionate consumers of the brand and these communities show both the positive and negative consumer consumption experiences without removing unfavorable feedback relating to the products [22]. Consumer-initiated brand communities are not directly supported by the firm but are established by small groups or general consumers of a brand [22]. The differences between the two types of brand community platform initiators are shown in Table 1.

Table 1.

Differences between the two types of platform initiators.

Aspects	Firm-initiated brand community	Consumer-initiated brand community
Initiation	Initiated and operated by the firm.	Established by passionate and loyal consumers.
Purpose	Build linkages; gather insights and product information improve.	Share positive or negative experiences and foster enthusiasm.
Content management	Firm-managed and provides detailed product information.	User-driven and authentic content expression.
Feedback handling	Favorable feedback emphasized.	Openly displays both positive and negative feedback.
Membership	Firms offer support channels and are open to all consumers.	Formed by small groups or general consumers.
Motivations for participation	Potentially influenced by gains for the firm.	Driven by personal needs and career enhancement.
Community dynamics	More structured and firm-led initiatives.	Organic, fosters authenticity and deeper connections.
Influence on consumer behavior	Influenced by firm strategies and objectives.	Reflects voluntary consumer behaviors.

In terms of the information presented on the social media platforms, since firm-initiated brand communities are managed by the firm, they can provide detailed product-related information to their consumers and only show favorable consumer feedback relating to the products [22]. Service support communities are one of the examples of firm-supported brand communities. It is an online community that focuses on information exchange and consumers' solving problems for the better usage of the products. In service support communities, any consumers can freely join the community as it is a support channel that the firms offer to their consumers [73]. Consumer-initiated brand communities are established by general consumers who are loyal to the brand and who usually express their genuine enthusiasm and love for the brand. The organic environment in these communities strengthens consumers' commitment to the brand and enhances their trust in other community members. In these communities, consumers freely express their emotions and share their personal experiences with the brand which enables them to connect on a more profound level with others in the community. These community activities help consumers realize the similar interests and values they have with others enhancing their emotional connections not only with other consumers but with the brand as well. Consumers voluntarily participate in community activities to obtain various rewards such as satisfying their personal needs through the development of the products that they like [73]. Moreover, since consumer-initiated brand communities are established by general consumers, they naturally contribute to the community through the posting and sharing of product-related information. However, according to Jang, et al. [22] for the firm-initiated brand communities, consumers mostly participate and contribute to the community only if they are able to gain something out of it [22]. Therefore, in consumer-initiated brand communities, the effects of consumer relationships on community identification will be higher than in firm-initiated brand communities.

H_{6a}: In consumer-initiated brand communities, the effects of the consumer-brand relationship on community identification would be higher than in the firm-initiated brand communities.

H_{6b}: In consumer-initiated brand communities, the effects of consumer-other consumer relationships on community identification would be higher than the firm-initiated brand communities.

2.11. Electronic Word-of-Mouth

There has been a shift in word-of-mouth communications ever since the emergence of the Internet [74]. With the use of the Internet, electronic word-of-mouth involves the consumers' claims or statements relating to the products of the company and these are shown to other online users [75]. With its higher reach and greater accessibility, electronic word-of-mouth is recognized as an effective form of communication due to the natural and organic expressions of consumers when sharing their personal opinions regarding brands and services [76]. For example, product reviews are one form of electronic word-of-mouth communication which many consumers seek to find in the community to gather relevant information about the product [77, 78]. Before making any purchasing decisions, consumers find it helpful to obtain insights from others with real consumption experiences through product reviews [79, 80]. Moreover, electronic word-of-mouth can reduce the consumers' perceived risks and uncertainties that they recognize before purchasing products or services [76]. As consumers identify more closely with a brand community based on social media, their inclination to engage in electronic word-of-mouth activities also increases. Consumers are willing to actively involve themselves in community discussions and voluntarily share their brand-related consumption experiences with other consumers if they strongly identify with the community, thereby strengthening the reach and influence of electronic word-of-mouth communications [74].

H₇: Community identification positively influences electronic word-of-mouth.

3. Methodology

3.1. Participants and Survey Procedure

The participants of this study are composed of 564 members of social media-based brand communities. To gather data, an online survey was administered through Amazon Mechanical Turk in October 2023 leveraging this platform recognized for its utility in acquiring experimental data related to judgment and decision-making [81]. Given that the focus of this study is to investigate the moderating effects of platform initiators, specifically firm-initiated and consumer-initiated brand communities, two distinct sets of surveys were distributed, each tailored with a differently designed introduction section. For firm-initiated brand communities, a total of 281 participants completed the survey. On the other hand, for consumer-initiated brand communities, a total of 283 participants took part in the completion of the survey. To ensure a consistent understanding of the concept of "social media-based brand community" and to elucidate the distinctions between platform initiators, participants were provided with a concise definition, examples and links at the beginning of the survey. These provided links directed participants to examples of brand communities specifically the Starbucks community on Facebook and the Apple community on Reddit. To be eligible for participation, all participants were required to specify the name of the social media-based brand community they were affiliated with, ensuring their active membership in a brand community within the realm of social media. Moreover, as participants answered the following questions on the survey questionnaire, they were asked to keep in mind the brand community that they follow or are members of. The approach of the survey was presented as an opinion survey strategically designed to delve into consumer consumption experiences and behavior within the context of social media-based brand communities. The study sought to tap into consumer perspectives, preferences and consumption patterns within social media platforms by positioning the survey as an opinion-based inquiry.

3.2. Measures

The measurement scales for the constructs in this study were adapted from established sources to fit the study context. The constructs for information quality and system quality were measured using six items from Ahn et al.[82]. Virtual interactivity and rewards were assessed using four and two items, respectively from Jang et al. [22]. The consumer-brand

relationship and consumer-other consumer relationship construct utilized three items each adapted from McAlexander et al. [12] and Habibi et al. [15]. Community identification was measured using three items from Algesheimer et al. [83] and Mael and Ashforth [84]. The electronic word-of-mouth construct was evaluated through three items from Hur et al. [85]. All items were rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

3.3. Research Model

Figure 1 presents the research model illustrating the development of hypotheses and the relationships among the constructs that form the basis of this study. Unlike earlier studies on online brand communities, this study conceptualizes information quality, system quality, virtual interactivity, and rewards as reflective indicators of the latent construct of social media-based online brand community characteristics. Furthermore, the model examines the impact of these characteristics on several key outcome variables, including consumer-brand relationships, consumer-other consumer relationships, community identification and electronic word-of-mouth. This research is pioneering in its examination of the moderating role of platform initiator types such as firm-initiated versus consumer-initiated brand communities on the relationship between consumer relationships and community identification as depicted in Figure 1.

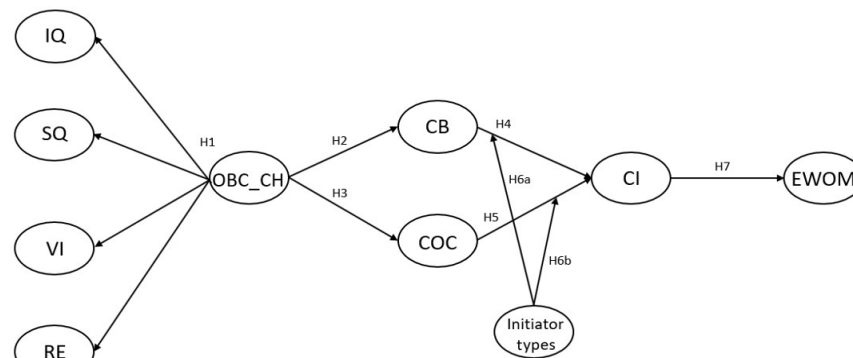


Figure 1.

Research model.

Note: IQ: Information quality, SQ: System quality, VI: Virtual interactivity, RE: Rewards, OBC_CH: Online brand community characteristics, CB: Consumer-brand relationship, COC: Consumer-other consumer relationship, CI: Community identification, EWOM: Electronic word-of-mouth.

4. Results

Several key fit indices were used to evaluate the fitness of both the measurement and structural models in this study. The chi-square value (CMIN) was examined to assess the overall model fit. The goodness-of-fit index (GFI) measured how well the proposed model matched the observed data while the comparative fit index (CFI) and root mean square error of approximation (RMSEA) provided additional insights into the model's fit. These indices collectively allowed for a reliable evaluation of the model's fitness.

4.1. Measurement Model

An advanced statistical technique, structural equation modeling (SEM) was conducted using AMOS 20 to thoroughly examine the entirety of the available data in this study. Confirmatory factor analysis (CFA) recognized for its effectiveness in evaluating the reliability of each measurement item and assessing the convergent validity was conducted as part of this analytical approach [86, 87]. Each measurement item for every construct was examined and the associated factor loadings were assessed to analyze the existing complete data used in this study and to ensure the item reliability. The list of measurement items for each construct utilized in this study along with their respective factor loadings is presented in Table 2.

Table 2.
Convergent validity.

Constructs	Items	Factor loadings	C.R. (Critical ratio)	P	AVE	Construct reliability
Information quality	Information quality 6	0.737			0.542	0.877
	Information quality 5	0.733	17.528	***		
	Information quality 4	0.751	17.992	***		
	Information quality 3	0.698	16.617	***		
	Information quality 2	0.759	18.195	***		
	Information quality 1	0.739	17.682	***		
System quality	System quality 6	0.682			0.518	0.866
	System quality 5	0.719	16.145	***		
	System quality 4	0.725	16.277	***		
	System quality 3	0.72	16.166	***		

Constructs	Items	Factor loadings	C.R. (Critical ratio)	P	AVE	Construct reliability
Virtual interactivity	System quality 2	0.743	16.651	***	0.496	0.798
	System quality 1	0.729	16.358	***		
	Virtual interactivity 4	0.733				
	Virtual interactivity 3	0.682	16.443	***		
	Virtual interactivity 2	0.711	17.209	***		
	Virtual interactivity 1	0.691	16.694	***		
Rewards	Rewards 2	0.659			0.473	0.642
	Rewards 1	0.716	14.532	***		
Consumer-brand relationship	Consumer-brand relationship 3	0.721			0.529	0.771
	Consumer-brand relationship 2	0.718	16.771	***		
	Consumer-brand relationship 1	0.742	17.339	***		
Consumer-other-consumer relationship	Consumer-other-consumer relationship 3	0.759			0.559	0.792
	Consumer-other-consumer relationship 2	0.715	17.19	***		
	Consumer-other-consumer relationship 1	0.768	18.653	***		
Community identification	Community identification 3	0.698			0.482	0.736
	Community identification 2	0.656	15.031	***		
	Community identification 1	0.726	16.572	***		
Electronic word-of-mouth	Electronic word-of-mouth 3	0.704			0.522	0.766
	Electronic word-of-mouth 2	0.738	16.379	***		
	Electronic word-of-mouth 1	0.725	16.099	***		

Note: ***, significant at $p < 0.01$ level.

The average variance extracted (AVE) and the construct reliability were examined as detailed in Table 2 to confirm the internal consistency and convergent validity of the constructs employed in this study [88, 89]. Test results indicated that the final measurement model for all lower-order constructs demonstrated an acceptable fit to the data with the following goodness-of-fit statistics: $X^2(377) = 835$, $X^2/df = 2.22$, $p = 0.000$, $GFI = 0.909$, $CFI = 0.955$, $RMSEA = 0.046$ [89].

4.2. Structural Model

The structural model demonstrated a satisfactory goodness-of-fit with the following statistics: $X^2(396) = 940$, $X^2/df = 2.37$, $p = 0.000$, $GFI = 0.896$, $CFI = 0.946$, $RMSEA = 0.049$ [89]. The four components such as information quality, system quality, virtual interactivity, and rewards were used as reflective indicators allowing for the testing of hypothesis 1 to examine the effects of social media-based brand community characteristics. The full model results revealed that rewards had the least significant influence as shown in Table 3 of the four components. Hypotheses 2 and 3 which explored the effects of these characteristics on consumer-brand and consumer-other consumer relationships were supported indicating significant impacts. Additionally, hypotheses 4 and 5 showed that both consumer-brand and consumer-other-consumer relationships significantly influenced community identification. Finally, hypothesis 7 concerning the effect of community identification on electronic word-of-mouth was also supported as presented in Table 3.

Table 3.
Results of structural equation modeling analysis (Full model).

Hypotheses	Unstandardized regression weights	Standardized regression weights	S.E. (Standard error)	C.R	P	Hypothesis testing
H1: OBC_CH to IQ	1.067	0.961	0.077	13.908	***	Supported
H1: OBC_CH to SQ	1.116	1.001	0.082	13.687	***	Supported
H1: OBC_CH to VI	1.154	1.002	0.081	14.175	***	Supported
H1: OBC_CH to RE	1.000	0.890			***	Supported
H2: OBC_CH to CBR	1.062	0.987	0.077	13.859	***	Supported
H3: OBC_CH to COC	1.125	0.906	0.082	13.638	***	Supported
H4: CBR to CI	0.533	0.543	0.093	5.760	***	Supported
H5: COC to CI	0.417	0.490	0.082	5.086	***	Supported
H7: CI to EWOM	0.963	0.951	0.063	15.337	***	Supported

Note: ***, significant at $p < 0.01$ level.

Hypothesis 6 analyzed the moderating effects of brand community platform initiators such as the firm-initiated brand community and the consumer-initiated brand community on the relationship between consumer relationships (both the

brand and other consumers) and their community identification. Using the complete dataset, depending on the participants' brand community classification, participants (N=564) of this study were divided into two groups: firm-initiated brand community (N=281) and consumer-initiated brand community (N=283) groups. This study conducted a multiple-group analysis using the structural equations model (SEM) to compare these two groups. The full model was split into two individual models (firm-initiated and consumer-initiated) to test the moderating effects of brand community platform initiators.

Table 4.

χ^2 difference between the unconstrained model and the measurement weights model.

Models	χ^2	DF	GFI	CFI	RMSEA
Unconstrained	1665.632	792	0.831	0.917	0.044
Constrained measurement weights	1677.288	814	0.831	0.918	0.043

A multiple-group confirmatory factor analysis was conducted to assess measurement equivalence between the firm-initiated and consumer-initiated groups. As shown in Table 4, the chi-square difference between the unconstrained model and the measurement weights model was 11 (22) which is below the cut-off value of 33.924 at the $p = .05$ significance level. These results confirm that measurement equivalence was established between the two groups.

Table 5.

Critical ratios for differences between parameters.

Comparison	CBR – CI (Consumer-initiated)	COC – CI (Consumer -initiated)
CBR – CI (Firm-initiated)	-1.658	1.883
COC – CI (Firm-initiated)	-1.579	2.122

Note: CBR: Consumer-brand relationship, COC: Consumer-other consumer relationship, CI: Community identification.

This study has also conducted pairwise parameter comparisons to compare the two groups (firm-initiated and consumer-initiated) and to examine their structural relationships using AMOS 20. The test results have shown that the firm-initiated brand community group was the same as the full model. The results of the consumer-initiated brand community group were the same as the full model except for the relationship between the consumer-other consumer relationship and community identification. In comparison to the full model, the effects of the consumer-other consumer relationship on community identification were not significant. Pairwise parameter comparisons were conducted to compare the effects of the consumer-brand and consumer-other-consumer relationship on community identification between the two groups. Among all the paths, only the path between consumer-other-consumer relationship and community identification showed a critical ratio value higher than the cut-off value of 1.965 as shown in Table 5. Therefore, the type of social media-based online brand community platform initiators is shown to have a moderating effect on the relationships between consumer-other-consumer relationship and community identification.

5. Discussion

According to the results of this study, when running the full model and firm-initiated models, test results have shown that the formation of online brand community characteristics as a latent construct (hypothesis 1) is strongly influenced by the information quality, system quality, and virtual interactivity and with rewards having the least influence for both models. In the full model, the difference in the influence each component has is in the order of virtual interactivity, system quality, information quality and rewards. On the other hand, for the firm-initiated model, the difference in the influence each component has is in the order of system quality, virtual interactivity, information quality, and rewards. These results are attributed to the nature and interrelatedness of each component. For example, information quality can also be related to system quality. Consumers are more inclined and driven to find information within the community when there is seamless functionality of the system that makes it convenient and helpful for them. Since system quality pertains to the visible aspects of the brand community platforms, consumers can easily navigate the information they need that positively enhances their overall community experiences. Moreover, as related to virtual interactivity, when the information provided is relevant, comprehensive and on time, this fosters active real-time communication exchanges among the parties involved such as the consumers and the firm. Having high system qualities in brand communities encourages consumers to involve themselves in community interactions and activities, making the community a responsive space to share brand-related experiences with others. Furthermore, the various rewards that consumers obtain from the community facilitate continuous interactions and long-term relationships with the brand and with other consumers. Therefore, all these four components collectively influence the formation of online brand community characteristics. Moreover, the results of this study revealed that online brand community characteristics have a significant effect on the two types of consumer relationships such as the consumer-brand (hypothesis 2) and consumer-other-consumer relationship (hypothesis 3). The results imply that as the characteristics of the online brand community are strengthened due to the continuous interactions and active participation of the consumers relating to community activities, consumers consequently form deeper relationships with the brand as well as with other consumers or members within the community. Consumers continuously rely more on the real brand-related consumption experiences of others and in the process of learning from them, this enhances their understanding of the brand and reinforces the trustworthiness of the brand. The continuous interactions of consumers within the community also enable them to strengthen their social relationships.

Consumer-brand (hypothesis 4) and consumer-other-consumer relationship (hypothesis 5) have a significant effect on community identification. Consumers connect with the community as their relationships improve. For instance, when consumers receive assistance with regard to the usage of the products from other consumers and obtain quick responses in relation to their brand-related concerns, consumers eventually feel valued, recognized, and accepted as part of the community. The positive emotions that consumers feel through the accumulation of interactions help strengthen the social ties between consumers and the brand make them feel a sense of belonging, connection with others, and unity within the community. Community identification was also shown to have a significant effect on consumers' electronic word-of-mouth (hypothesis 7). This result is in line with the findings of [González-Soriano et al. \[90\]](#) who examined the effect of consumers' identification on the generation of electronic word-of-mouth on social media. [Qiao et al. \[91\]](#) also found that community identification has a significant effect on consumers' opinion giving or electronic word-of-mouth in virtual brand communities. As consumers identify with the community, they share the values and beliefs with other community members promoting a more comfortable environment for consumers to participate in community interactions. As a result, consumers would invest more time and effort to advocate for the brand through spreading positive word-of-mouth communication activities especially to those that are not part of the brand community.

When running the consumer-initiated brand community model, test results have shown that the formation of online brand community characteristics as a latent construct is strongly influenced by information quality, system quality, virtual interactivity, and rewards. Among the four components of online brand community characteristics, the difference in the influence each component has is in the order of virtual interactivity, system quality, rewards, and information quality. In the consumer-initiated brand community group, the influence of rewards has become greater than that of information quality. The rewards in a consumer-initiated brand community are perceived in a different way than the rewards obtained in a firm-initiated brand community. In the consumer-initiated brand community, consumers have control over the community management and operation. Therefore, the reward given is accepted as an intrinsic rather than an extrinsic reward, and this strengthens the characteristics of the online brand community by encouraging participation in activities and interactions within the community. On the other hand, in the case of a firm-initiated brand community, the subject of management and control is with the company. Thus, when rewards are given, consumers accept them as extrinsic rewards. Consumers perceive extrinsic rewards as something that hinders the autonomy of the members who participate because they want to hang out with "other consumers similar to me" who love the same brand. For this reason, rewards in firm-initiated are the least influential factor among the four components that make up the online brand community characteristics. Moreover, online brand community characteristics have a significant effect on the two types of consumer relationships such as the consumer-brand and consumer-other consumer relationship. Consumer-brand relationships have a significant effect on community identification. Community identification has a significant effect on consumers' electronic word-of-mouth. However, the relationship between the consumer-other consumer relationship and community identification was not significant in the consumer-initiated brand community group as compared to the full model and firm-initiated models.

Hypothesis 6 analyzes the moderating effects of brand community platform initiators. This study conducted a multiple-group analysis to statistically verify the difference in the relationship between the consumer-other-consumer relationship and community identification according to the brand community platform initiators. The moderating effects of the types of brand community platform initiators between the two groups in relation to consumer-other consumer relationship and community identification path were confirmed. The significance in the relationship between the consumer-other consumer relationships and community identification within firm-initiated brand communities suggests that consumers may perceive a stronger sense of belonging and shared identity when the community is initiated by the company itself. In a firm-initiated brand community, as consumers' relationship with the brand is deepened and their relationship with other members is deepened, consumers identify themselves with the community. The relationship with the brand deepens in the process of interacting with the brand and exerting influence on the brand through community activities. Consumers satisfy their social needs by gaining the opportunity to influence the brands they admire. Social hierarchy arises in the process of deepening relationships with other members. Consumers with a high level of participation acquire social status within the community. Therefore, consumers acquire social status and influence over the brand through the community. In this way, in the process of satisfying the social needs of consumers, one identifies with the community. Furthermore, in firm-initiated brand communities where the firm takes an active role in community initiation, the result suggests that the firm's strategic efforts play a crucial role in shaping interpersonal connections among community members. This could be attributed to the structured nature of firm-initiated brand communities marked by curated content, guided interactions, and a defined brand narrative that fosters a sense of shared identity among consumers, strengthening the link between consumer-other consumer relationships and community identification. These elements collectively contribute to creating a structured environment that nurtures consumers' feeling of belonging within the community. This finding highlights the potential influence of firm-led initiatives in cultivating a cohesive and interconnected community environment where relationships among consumers contribute significantly to the overall community identity.

On the contrary, in consumer-initiated brand communities, consumer-other-consumer relationships did not have a significant effect on community identification. This result implies that the consumer-other-consumer relationship is different from the consumer-brand relationship. Consumer-other-consumer relationships are more human-centered and have relational properties as compared to consumer-brand relationships. Members participating in consumer-initiated brand communities do not consider the benefits such as social benefits and status that accrue from enhanced relationships with other consumers which can only be acquired through the community. Moreover, consumer-initiated brand communities have the characteristic of voluntarily coming together due to the consciousness of kind which recognizes that they are similar to each other. Therefore, it is recognized that the social benefits obtained from consumer-initiated brand

communities are not provided by the community but instead, are obtained through one's own voluntary activities. For this reason, the enhanced relationships with other consumers do not equate with the community. In firm-initiated brand communities, consumers perceive the social benefits obtained by the consumer-other-consumer relationship as being acquired through the artificial environment created by the company. Consumers of the firm-initiated brand communities will lose the opportunity to acquire social value without a brand community provided and supported by the company. Therefore, consumers would only identify with the community that provides an opportunity for them to pursue those unmet needs. Furthermore, the organic settings of communities initiated by consumers themselves may suggest the lack of a centralized brand narrative and the inherent diversity of consumer interests may weaken the impact of interpersonal relationships on the overall community identification. The self-driven nature of consumer-initiated brand communities may lead to a more dispersed sense of identity with individual connections among consumers holding less sway over the collective identification with the community. These findings emphasize the need to consider the nature of brand community initiation in understanding the varying degrees of influence that consumer relationships exert on community identification within the context of social media platforms.

6. Conclusion

This research aims to investigate the impact of online brand community characteristics within the domain of social media. The results imply that as the levels of information quality, system quality, virtual interactivity and rewards increase, the characteristics of the online brand community are also strengthened. Among these four components, rewards have the least influence on both the full model and firm-initiated model. However, the influence of rewards has become greater in the consumer-initiated model. Therefore, marketers should place emphasis on these certain components as they collectively influence the formation of the online brand community characteristics. For example, consumers can be encouraged to learn more about the products through their active participation in community activities by providing various rewards which consumers can obtain such as exclusive offers or social benefits. Moreover, test results prove that online brand community characteristics have a significant effect on the two types of consumer relationships. As consumers engage in various activities, they consequently form deeper relationships with the brand and others. Thus, marketers can enhance consumers' involvement in community practices by using brand use that helps express their real brand-related consumption experiences and in the process, accumulate their knowledge with regards to the brand and consequently reinforce social relationships with others in the community. The consumer-brand and consumer-other-consumer relationship was also revealed to have a significant effect on community identification which in turn influences electronic word-of-mouth. Marketers should ensure continuous community interactions among consumers by providing them with quick assistance they need in relation to their brand-related concerns as it makes them feel valued and accepted in the community. Consumers' positive impression of the community through these social interactions would make them advocate for the brand even to those that are not members of the community. Furthermore, the moderating effects of the brand community platform initiator types (firm-initiated and consumer-initiated) on the relationship between the consumers-other consumer relationship and community identification were also confirmed. Test results revealed that consumers perceive a stronger sense of belonging and shared identity when the community is initiated by the company itself. Therefore, marketers should empower consumers by giving them the opportunities to share their opinions relating to product developments and allowing them to influence the focal brand through the innovative ideas they share and present within the community. Moreover, marketers can also satisfy consumers' social needs by encouraging them to actively participate in community activities which can eventually accrue their social status within the community.

This study offers valuable insights into the formation of social media-based online brand community characteristics and their subsequent effects on consumer relationships. It is crucial to acknowledge certain limitations of this study. One limitation lies in the generalizability of the findings since this study solely focused on the brand communities existing within the platforms of social media. Future research could further explore and compare other diverse platforms including traditional websites of online brand communities. Additionally, this study did not test the effects of consumer communications such as those positive as opposed to negative communication exchanges and how it might influence consumers' social relationships, brand community experiences and their overall behavior within a social media-based online brand community. Furthermore, investigating the impact of emerging technologies on shaping social media-based brand communities may also be an avenue for future research. Exploring the temporal aspects of these relationships such as how they evolve over time could provide a longitudinal perspective.

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