

Psychological empowerment and user satisfaction: Investigating the influences of online brand community participation

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ABSTRACT

The exponential growth of online brand communities has created a platform where empowered consumers can share knowledge and experiences and participate in community activities. Drawing from psychological empowerment theory, this study proposes a comprehensive framework integrating both social and functional views to investigate the determinants that enhance psychological empowerment and user satisfaction, which consequently influence online brand community participation. By shedding light on the explanatory path routes and highlighting the underexplored and distinctive role of psychological empowerment, this study provides theoretical contributions to illustrate how an enabling environment can be cultivated to drive consumer participation in brand value co-creation.

1. Introduction

The exponential development of social media and online communities has created prominent opportunities for consumers to connect and interact [1]. Enabled by the pervasiveness of technology, individuals can easily access online platforms, thus transforming these online communities into places where consumers can participate in information exchange and online content creation. Among these communities, online brand communities (OBCs) are online communities where individuals who share mutual brand interests can interact to obtain brand-related information, share brand experiences, and foster relationships with the brand and with other community members [2]. For example, in Lego Mindstorms, which is a Lego OBC, members participate in providing innovative product ideas and enhancing the robotic programming design [3], and Microsoft leverages a support program that is provided by its customers on its OBC [4, 5]. Comparable examples can be found in brands from numerous categories. It is thus apparent that marketers can obtain competitive advantages from creating and maintaining a successful OBC [6]. The OBC, which initially started as a text forum where consumers can share knowledge and provide queries about a brand, has progressively blossomed into a rich platform where individuals co-create enhanced value for brands [7, 8]. Hence, firms need to obtain further understanding of factors that can enhance member participation,

such as empowerment. When members are encouraged by an empowering environment, they may actively participate in the company-hosted brand community, which creates value beyond what the firm anticipates.

Although OBCs are numerous and continue to proliferate, not all OBCs are active and successful in driving participation because the level of interaction and participation among OBCs varies widely. Past studies of why individuals participate in information sharing indicate that an individual's perceived experience of the usage process of an OBC has a substantial impact on his or her behavior [9, 10]. Many past studies have mainly emphasized the functional effects of the online environment, such as perceived ease of use, perceived usefulness, website qualities and characteristics [11], and their influence on user satisfaction, and subsequent continuous usage [12–14]. However, we contend that by examining not only the functional effects but also the social effects that influence the experienced psychological state we can gain a more comprehensive perspective. Psychological empowerment, which is rooted in the organizational disciplines, is an important construct that is widely adopted to illustrate an enhanced intrinsic motivation toward work orientation [15]. The organizational studies have generated numerous discussions on the concept of empowerment [16–18]; however, its implications have drawn limited attention in the online community literature. Psychological empowerment is defined as the process

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of enabling, which “implies creating conditions for heightening motivation for task accomplishment through the development of a strong sense of personal efficacy” ([16], p.474). Thus, psychological empowerment shows a psychological state that is cultivated by the environment [15]. Past research has asserted that empowerment is a process through which an individual’s belief in his or her self-efficacy is enriched [19]. Hence, in the context of OBC, an empowered individual is very likely to be driven by enhanced motivation to participate in information sharing and idea generation. We propose that psychological empowerment can complement the understanding of user satisfaction and functional qualities, to provide a more comprehensive knowledge of the driving factors that motivate individuals to share information in OBC. Thus, the present study draws from the theory of psychological empowerment to provide insight into how the combined effects of psychological empowerment and user satisfaction encourage participation in OBCs.

Hence, this research proposes a comprehensive framework that integrates a social and functional path to examine the perceived experiences that facilitate participation and word of mouth (WOM) in an OBC. One path illustrates the social path, where social support facilitates psychological empowerment and drives participation and WOM about OBCs. The functional path is driven by IT qualities, which asserts that user satisfaction is the key component leading to participation and WOM. To our knowledge, the possible combined effects of both psychological empowerment and user satisfaction have not been previously examined to provide a holistic perspective. Thus, we propose the following research questions: *What are the social factors that influence the establishment of psychological empowerment in OBCs which in turn drives participation and WOM? What are the functional factors that influence the formation of user satisfaction in OBCs which subsequently impact participation and WOM?*

In an attempt to address the aforementioned questions, drawing from psychological empowerment theory [16, 18], this research attempts to illustrate how online community social support and technical qualities in the environment of OBCs enhance psychological empowerment and user satisfaction, which subsequently facilitates participative and WOM intentions. By shedding light on the explanatory path routes and highlighting the underexplored effect of psychological empowerment, this study aims to provide theoretical contributions and advance the research understanding of OBCs.

2. Theoretical background

2.1. OBC

An OBC is “an online, or virtual environment where members share information about a common brand” ([20], p.281). More specifically, a brand community is defined as “a specialised, non-geographically bound community, based on a set of social relationships among admirers of a brand” ([21], p.412) or “any group of consumers with a shared enthusiasm for the brand and a well-developed social identity, whose members engage jointly in-group actions to accomplish collective goals and/or express mutual sentiments and commitments” ([22], p.45). Two types of OBCs have been widely investigated: company-hosted brand communities and consumer-hosted OBCs [23]. Many scholars have investigated company-hosted OBCs [8, 14, 24–26], such as Dell’s IdeaStorm [27], Apple, and Xiaomi OBCs [28], Sony PlayStation and the Microsoft [29], Lego Mindstorms [3], and Microsoft OBCs [4, 5].

Consequently, past studies have mainly identified several types of influential factors posited in these models. The first stream of research emphasizes technical systems. For instance, the perceived usefulness and perceived ease of use of Facebook pages can enhance users’ attitudes and fan page loyalty [30], brand satisfaction, and intention to follow [31]. Dissatisfaction with information quality and service quality, expectation disconfirmation, and person-brand unfit cause followers’ discontinuance intentions for Facebook pages [32].

The second stream of studies focuses on the social system that

influences OBC participation. For example, social identification affects customer engagement and purchase intentions in online tourism brand communities [33]. Consumer-brand identification and consumer-community identification facilitate customer loyalty [34]. Brand community identification, self-brand connection, and brand loyalty engender oppositional referrals and negative intentions toward a competing brand on OBCs [29]. Social-interactive engagement generates social identity and brand love on Facebook pages [35]. Bridging social capital, bonding social capital, and maintaining social capital on social media-based brand communities lead to life satisfaction [36]. The third stream of antecedents includes more individual-related factors, such as self-expressiveness [37], self-presentation [38], and individual psychological ownership [25]. An examination of prior research reveals that the interaction of social and functional facilitators may influence an individual’s satisfaction with participation in OBCs. Based on prior studies, this study adopts a holistic approach that integrates both social and functional influences and further examines an important and overlooked factor: empowerment. Empowerment has roots in the organizational disciplines, and its nature is distinctive from identification and engagement. Psychological empowerment, which is enabled by the environment, refers to an individual’s enhanced intrinsic motivation to contribute and accomplish tasks. OBCs constitute online environments where interaction and social support are likely to foster a sense of psychological empowerment. Thus, the present study provides fresh insight by proposing a comprehensive framework that discusses OBC by integrating functional and social views with further examination of the role of empowerment in promoting satisfaction and participation. Appendix A summarizes past studies on company-hosted OBCs.

2.2. Empowerment theory

Empowerment theory [16, 18] suggests that people’s behaviors are affected by the interaction between external environmental factors and internal cognitions, perceptions and attitudes. The literature defines empowerment as an enabling process whereby “enabling implies creating conditions for heightening motivation for task accomplishment through the development of a strong sense of personal efficacy” [16]. In addition, researchers have regarded empowerment as a motivational driver to escalate an individual’s self-efficacy [19]. Grounded in organizational disciplines, past research has defined empowerment as an enhanced intrinsic motivation toward work orientation [15]. Empowerment is a multidimensional construct that includes four dimensions [17]. *Meaning* refers to the situation of a fit between the goals and values of an individual and the work. *Competence* is characterized by one’s perceived self-efficacy to perform work-related skills and activities and is comparable to personal mastery. *Self-determination* indicates a person’s capability to make selections and decisions [39]. Furthermore, self-determination illuminates individuals’ independence in undertaking the initiation of means and approaches to accomplishing tasks. *Impact* indicates that individuals have influence, effect and impact in the work environment to influence others [17, 39, 40, 41]. Hence, the conception of psychological empowerment encapsulated by these four cognitive dimensions illustrates an energetic psychological state toward one’s task role, indicating that an individual not only shows more autonomy in his or her own tasks but is also able to express a greater extent of “voice” in influencing activities and exert an impact on the environment [42].

Recent studies have examined psychological empowerment in a social media context. For instance, Li [43] posits that active engagement in social media usage facilitates psychological empowerment. Furthermore, scholars reveal that social media facilitates consumer empowerment and subsequently fosters positive outcomes, such as reviews and recommendations, trust and the intention to use [44]. Thus, the present study draws from the theory of psychological empowerment to provide insight into how an enabling environment can be cultivated to encourage participation in OBCs.

Psychological empowerment illustrates people's psychological state, which is influenced by the content and nature of an environment [15], such as social support [45]. Previous studies have shown that social support is an important social value that individuals obtain from online communities [46–48]. Social support indicates a perceived experience when individuals feel a sense of caring, relatedness, and understanding when receiving responses in a social group [46]. Social support brings kind and warm support to individuals, which provides an enabling environment that helps to build more intimate relationship quality and foster a sense of psychological empowerment. People tend to feel more empowered in a supportive environment than in a nonsupportive environment [39]. In a friendly, supportive environment, individuals tend to feel relaxed and feel good about themselves; thus, they are more likely to express themselves and feel empowered. However, in an unfriendly and nonsupportive environment, individuals tend to feel insecure and reserved, which prohibits self-expression. The perceived experience of social support and relatedness provided in a community that reflects people's perceptions of their own environment in association with themselves may exert substantial impact on the cultivation of psychological empowerment. Thus, this study proposes that social support in OBCs is likely to foster psychological empowerment.

Empowerment is conceptually different from constructs frequently examined in past studies on OBCs, such as community engagement and prominence. We use a Venn diagram (Fig. 1) to illustrate the similar and distinctive related antecedent concept between empowerment, community engagement, and prominence. As illustrated in the Venn diagram, self-efficacy and relatedness are the core antecedent components that are similar among empowerment, community engagement, and prominence. The unique dimensions belonging to empowerment are meaning and impact, which can be explained by the nature and characteristics of OBC. Impact indicates that individuals can exert influence in the OBC environment to affect others [17, 39–41]. In OBC, consumers can use their knowledge to provide advice to other members, influence their purchase intention or provide feedback to the brand [49]. Consumers may gain status as they exert influence over other members at OBC during the knowledge-sharing process. Meaning refers to the situation of a fit between the goals and values of an individual and an OBC [39]. In OBCs, community members have shared brand passion, thus have a shared vision, interest, values, or language [50, 51]. This quality

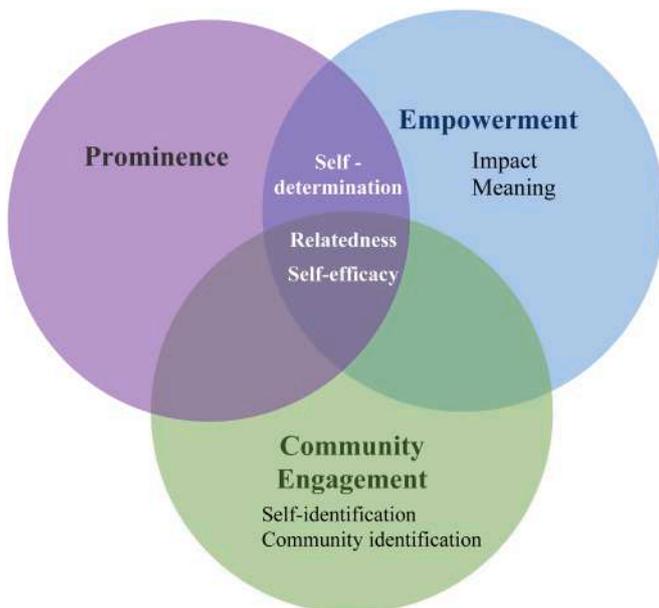


Fig. 1. The three-circle Venn diagram illustrates the similar and different concepts associated with psychological empowerment, prominence, and community engagement.

of shared understanding can motivate groups of people to seek collective goals and accomplish tasks of common interest [51]. Value congruence can reduce misunderstandings and promote mutual understanding, thereby facilitating the exchange of ideas and experience [50]. Taken together, the environment of an OBC which generates a mutual sense of community provides a platform that allows individuals to exert impact and influence over members who have shared passion toward a focal brand. Thus, making OBCs a particularly enabling environment for fostering empowerment in comparison with online communities that are not centered around a brand.

3. Research model and hypothesis

3.1. Social factors

Social support indicates “an exchange of resources between at least two individuals perceived by the provider or recipient to be intended to enhance the well-being of the recipient” ([52], p.31). A prior study postulated that social support has multiple dimensions [53], which can be generally characterized into two types: action-facilitating support and nurturant support [54]. Action-facilitating support refers to providing help to individuals to solve problems, such as providing information that is needed. Nurturant support refers to providing emotional support, approval, and esteem support that deliver a sense of caring and warmth. We posit that these two types of social support are likely to drive empowerment in OBCs. Individuals often seek to obtain information regarding brand-related product usage; thus, responsiveness from others can be seen as providing action-facilitating support, which helps them to solve problems and gain needed information. In the online setting, body language and facial expression are absent; thus, the feeling of action-facilitating support for the person who posts a message or content is experienced only via other individuals' perceived responsiveness and willingness to interact. Demonstration of caring refers to the extent to which the company with the OBC displays caring and nurturing to the members of this community [55]; in other words, a brand showing warmth and recognition can be seen as providing nurturant support. Prior study in OBC shows that social support source from other customers and firm influence satisfaction [28]. This result is in line with findings in the organizational literature indicating that social support received from supervisors and coworkers contributes to the satisfaction of workers [56]. Therefore, building upon the above thinking, the present study adopts perceived responsiveness and demonstration of care to show the social support that drives empowerment in OBC.

3.1.1. Perceived responsiveness and psychological empowerment

An online community is built upon user postings and reciprocal responses to carry a conversation; hence, responsiveness plays a vital role in influencing the interactive dynamics and sustenance of the online community. Responsiveness indicates that, for the user, the environment is characterized by a greater sense of goodwill and kindness, which results in the perception of cooperative intentions [57]. Business responsiveness, including response volume, speed, and length, positively correlates with the review volume of user-generated content [58]. Being responsive was found to be a fundamental factor in community trust, confidence, and loyalty [59]. Users who experience higher responsiveness show higher purchase intention and trust [60]. As such, perceived responsiveness is likely to increase reciprocal social support and further lead to users' trust with community members. Past studies show that perceived social support can generate customer satisfaction and citizenship behavior in the Apple and Xiaomi OBCs [28].

In fact, prior studies have found that a trusting and supportive environment acts as a motivator and facilitates a sense of empowerment in various contexts [45, 61]. Therefore, if users experience the perceived responsiveness of an OBC environment, they tend to form a sense of psychological empowerment because of the sharing and encouraging

environment in the OBC.

H1: The perceived responsiveness of OBCs has a positive impact on psychological empowerment.

3.1.2. Demonstration of caring and psychological empowerment

Demonstration of caring indicates the degree to which the company with the OBC shows caring and nurturing to the members of this community [55]. This concept draws from communal relationships [62] that exemplify a behavior driven by nurturing, understanding, and caring for others' needs and showing concern for the wellbeing of others. Communal relationships are illustrated by trust and reciprocity in close relationships, such as those with friends and family [62].

In contrast, exchange relationships are often represented by relationships that are instrumental and economic in nature and that show limited emotional investment [62]. Previous studies have asserted that the trust of an employee toward an organization facilitates the employee's sense of autonomy. The trust that is facilitated by support in the work environment, especially by management, is a critical antecedent to individuals' sense of self-determination, which leads to psychological empowerment [63]. Brand community members establish relationships with all elements involved in a brand community, which include the product, the brand, the marketers and the other customers [64]. Thus, the trust, perceived caring and nurturing of the company are likely to affect the perceived experience in the OBC environment, which may lead to psychological empowerment. Empowerment theory asserts that the environment's enabling process facilitates the establishment of psychological empowerment [18]. Psychological empowerment, as a psychological state created by impact, self-determination, competence, and meaning, can be facilitated through an enabling environment [17]. For example, employee communication style (sentiment, task-oriented, and proactiveness) facilitated collective user sentiment and gave rise to creativity and participation in Dell's IdeaStorm brand community [27]. Therefore, when an individual perceives the company of the OBC as nurturing and friendly, as shown through a sense of caring in the OBC interactions, this establishes a communal relationship. This trusting, communal relationship is likely to contribute to the enabling process in the OBC environment, which in turn fosters psychological empowerment.

H2: OBCs that show caring have a positive impact on the establishment of psychological empowerment.

3.2. Functional factors

Functional factors are described as the utilitarian benefits obtained from a product [65]. In online communities, these refer to the efficiency and/or the ease of information exchange and commercial transactions [66]. The functional factors in OBCs are the IT qualities that establish a system environment that facilitates interactions among members. The extant literature documents information and system characteristics as core elements of information systems that determine user satisfaction [67, 68]. Information quality and system quality are primarily used to denote the environment of information systems [67, 69]. System quality denotes the preferred characteristics of the information system [67] and reflects the degree of the technical soundness of the information system ([70], p.212), which includes facets such as clear layout, effective navigation, and reliability [71]. Information quality denotes the desired characteristics of the outcome generated from the information system [67], i.e., the information system output quality, which includes dimensions of completeness, accuracy and currency [71]. Thus, based on the above literature, the current research adopts information quality and system quality as the functional factors that facilitate user satisfaction in OBC.

3.2.1. Information quality and user satisfaction

In the e-commerce context, information quality denotes the e-commerce system's output performance, which includes content quality, relevance and personalization measures [11]. User satisfaction is defined as customers' reactions to or feelings about their experiences with all facets of the e-commerce system [72]. Information quality determines user satisfaction [11, 68]. Prior research has revealed that user satisfaction in e-tailing systems can be enhanced through information quality in different contexts such as online shopping [73], e-learning [74], mobile catering apps [13] and, more relevantly to this research, in the contexts of online communities [75, 76]. For instance, informational benefits affected perceived community attitude and, consequently, purchase intentions and brand recall on the Nike, H&M and Zara Facebook pages [77]. The informativeness of the message, the structure of the message and the type of reward have an impact on fans' number of likes and replies on Facebook pages [78]. The perceived similarity, source credibility and information quality of brand microblogging affect community commitment, which in turn facilitates participation and brand loyalty [79]. A meta-analytic study revealed that information quality correlates positively and strongly with user satisfaction [69]. Based on the above, in an OBC, a consumer's perception of information quality is likely to facilitate the level of user satisfaction.

H3: Information quality has a positive impact on user satisfaction.

3.2.2. System quality and user satisfaction

In e-commerce contexts such as an OBC, system quality reflects the system performance, including flexibility, reliability, usability, and usefulness [11]. An essential antecedent of user satisfaction is system quality [67, 68]. Past research has revealed that system quality is correlated with satisfaction in the contexts of online tax filing system [80], mobile business applications [81], mobile catering apps [13], online shopping [73], and mobile purchasing [82]. Furthermore, the strong correlation of system quality with user satisfaction was verified by a meta-analytic study [69]. More relevant to the current research context, user satisfaction has been found to be positively correlated with system quality in the information exchange virtual communities [75, 76] and virtual travel communities [83]. In the context of business-to-business financial service virtual communities, system quality facilitates satisfaction via perceived ease of use and perceived usefulness [84]. Furthermore, it is found that system quality influences behavioral intention to use the online community via user satisfaction [85]. Therefore, it is anticipated that in an OBC, an individual's perception of system quality can facilitate user satisfaction.

H4: System quality has a positive impact on user satisfaction.

3.3. User satisfaction and psychological empowerment

User satisfaction reflects an individual's reaction to or feeling about whether his or her experience with the overall OBC is satisfactory [72]. Empowerment theory asserts that the environment's enabling process facilitates the establishment of psychological empowerment [18]. The enabling process involves creating facilitating conditions for heightened motivation toward task accomplishment via the development of a sense of self-efficacy [17]. When the technical features (system quality and information quality) of an OBC make users feel satisfied with their OBC interaction experiences, this can enable users to easily and efficiently interact on the platform and can facilitate heightened motivation to complete tasks in the OBC. Prior studies have shown that a supportive environment acts as a motivator and can facilitate a sense of empowerment in various contexts [43, 86]. Therefore, when an individual experiences the enabling effect resulting from satisfaction with OBC interaction experiences, this enhances psychological empowerment.

H5: User satisfaction has a positive impact on psychological empowerment.

3.4. Psychological empowerment and participation

Psychological empowerment refers to the enabling process rooted in the environment that drives an individual's innate motivation to complete a task [15, 16]. Participation in the OBC can be divided into two types: lurkers and posters. Lurkers are passive or noninteractive members, whereas posters are active or interactive members [87, 88]. This research focuses on active members as they interact with other members to create content and contribute to the OBC. Empowerment correlates the strength and competencies of the individual with the individual's voluntary assistance in the community [89]. Furthermore, psychological empowerment increases organizational citizenship behavior [90]. An individual with psychological empowerment shows greater motivation and ability to exert an impact among community users. This increased perception of self-efficacy can influence the sense of obligation and ownership toward the brand community [91], which then increases the individual's degree of participation. This process indicates that individuals will have higher motivation to participate in sharing experiences and information. A previous study indicated that perceived empowerment facilitates customers' intention to participate in virtual new-product development tasks [92].

H6: Psychological empowerment has a positive impact on participation in OBCs.

3.5. Psychological empowerment and word of mouth

In the OBC context, a previous study asserted that consumers are semi-employees [93] because consumers may actively engage in promoting the brand. Advocacy (i.e., encouraging others) suggests that individuals in an OBC promote it through WOM recommendations [93]. WOM is different from participation behavior as the former occurs outside of communities, whereas the latter involves active content creation and dissemination within communities [31]. Past studies have indicated that active participation is different from WOM [14, 94]. Empowerment can lead to WOM behavior from both observers and participants of OBCs when a firm involves them in the product design process [14, 94]. Past studies have indicated that consumer empowerment fosters consumer reviews and recommendations on social media [44]. Hence, it is likely that psychological empowerment will facilitate the WOM intention of consumers in the OBC.

H7: Psychological empowerment has a positive impact on word of mouth in OBCs.

3.8. User satisfaction and participation

User satisfaction reflects an individual's reaction to or feeling about whether the usage experience is satisfactory [72]. Satisfaction has been regarded as a positive response to environmental cues [95]. User satisfaction can further facilitate the net benefits of using the system [11]. Similarly, the e-commerce systems success model postulates that user satisfaction is related to the other net benefits of system use [96]. Net benefits include various types of impact from system use, including the impact on individuals, the impact on the group or OBC, and organizational impact. Individual impact includes learning product knowledge and gaining emotional support from other members [59]. Regarding the impact on communities, members' participation level is a crucial factor in the sustainability and development of online communities [59]. Members can show participation by sharing experiences and information about their mutual interests, which fosters group cohesion. This behavior facilitates knowledge sharing, idea dissemination, members' emotional support [97], and the value of the community [98]. Previous

studies have indicated that user satisfaction is a key factor for member loyalty in virtual communities [75] and users' continuous intention to participate in online communities [99]. Therefore, it is likely that in an OBC, an individual's user satisfaction can also facilitate participation.

H8: User satisfaction has a positive impact on participation in OBCs.

3.9. User satisfaction and WOM

User satisfaction can generate net benefits of system use [11]. Net benefits comprise several types of impacts from system use, such as the impact on individuals, the impact on the group or OBC, and organizational impact. Advocacy (promoting the OBC by WOM) [93] corresponds to organizational impact as attracting new members to the OBC can help organizations expand markets [11]. Past studies have indicated that consumers with high satisfaction tend to disseminate positive experiences to other consumers [100]. Past research in IS has revealed that satisfied users tend to be loyal [101] and disseminate eWOM [13]. Thus, in a similar vein, it can be expected that in an OBC, an individual's user satisfaction is likely to generate WOM.

H9: User satisfaction has a positive impact on WOM in OBCs.

The research framework is shown in Fig. 2.

4. Research methodology

4.1. Samples

Starbucks, Microsoft, and Sony are widely recognized for their success in building a highly interactive OBC where members show active participation through information sharing and idea generation, which contributes value to the brand innovation process. Therefore, this study recruited OBC members from My Starbucks Idea, Sony PlayStation, and Microsoft Xbox as our survey respondents.

My Starbucks Idea is an OBC where customers can submit their ideas and vote and make comments on others' submitted ideas. By using two forms of participation, commenting and voting, users can convey their preferences to the brand [102]. The "My Starbucks Idea" brand team participates in the interactive conversation so that OBC members know that they are listened and feel encouraged to develop more ideas [103]. My Starbucks Idea was launched in 2008; by 2019, customers had submitted over 150,000 ideas by 2019, and the company has already implemented more than 300 ideas [102, 104]. The Microsoft Xbox community had 65 million active users in 2019 [105]. The "Microsoft Xbox community" provides a platform where customers can provide suggestions to improve product offers and help Microsoft become a more innovative corporation. By submitting ideas, voting and commenting on each other's ideas, members are able to collaborate to generate useful gaming knowledge. SonyPlayStation had 94 million active users in 2019 [106]. SonyPlayStation provides a highly interactive platform including customer support and innovation crowdsourcing communities where members can offer suggestions, share information and generate ideas. The discussions and shared information provide value to the brand, which facilitates the creation of innovative product ideas for Sony PlayStation [107].

Members of these OBCs were recruited, and participants were requested to click on a link in Amazon's Mechanical Turk to complete a survey. Participants were presented with the qualifications for participation and instructions to complete the survey before they were provided with access to the survey hyperlink. Respondents received monetary rewards for completing the survey. In terms of the survey design, the front page described the aim of this study, the OBC definition, and the assurance of respondent confidentiality, followed by questions on key variables. Respondents were thanked for their participation once they completed the survey. The initial sample included 310

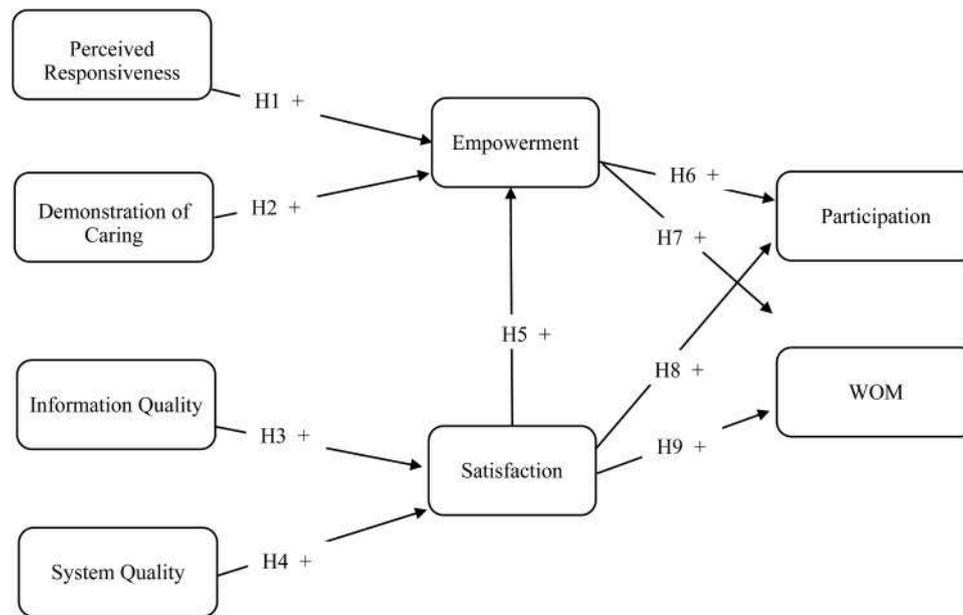


Fig. 2. The research framework.

survey responses. Of those, 2 with incomplete answers and 11 indicating the respondent had no interaction experience with other members of OBCs were deleted, resulting in 297 survey responses with usable data for the analysis. The sample was 38% female. The largest age range in the sample was below 30 (50.2%), followed by 31–40 (36%); 13.8% of participants were over 40. Regarding education level, most respondents had college education (56.2%), followed by higher secondary school (23.6%), graduate school (18.9%), and others (1.3%). Respondents were recruited from My Starbucks Idea (32%), Microsoft Xbox (21.5%), and Sony PlayStation 46.5%). Regarding their interactions (post frequency) in the selected OBCs, most members created posts one to three times a week (35.4%), followed by four to six times (21.5%); 15.2% of members created posts daily.

4.2. Measures

The items measured demonstration of caring [55], perceived responsiveness [57], system and information quality [71], satisfaction [73], psychological empowerment [17], participation [59] and WOM [108]. The items used in this research were all adapted from previous scales to be applicable to the OBC context. The reliability of these scales has been established previous studies. The degree of adaptation is modest as only the research context is changed to the OBC and the original sentences of the measurement items are retained. Psychological empowerment has four subdimensions of self-determination, self-efficacy, impact, and meaning and is a second-order construct. Five-point Likert scales were used.

4.3. Analytical methods

The data were analyzed using partial least squares structural equation modeling (PLS-SEM) with SmartPLS 3.0 software. As the research model included both reflective and formative constructs, PLS-SEM was suited for the analysis. As this research examined antecedents of psychological empowerment, which is a second-order composite-formative, first-order reflective construct, a two-stage approach was used following Ringle et al. [109]. The first stage was the assessment of the measurement model, and the second stage was the evaluation of the structural model.

PLS-SEM estimates measurement and structural models [110]. The measurement model describes the relationships between the indicators

and constructs. In the reflective measurement model, discriminant validity, convergent validity, and reliability were assessed. In the composite-formative measurement model, multicollinearity, weights, composite loadings, and the statistical significance of weights and loadings were assessed. In this research, the relationships between second-order psychological empowerment and its first-order constructs were modeled as composite-formative, whereas the relationships between the other constructs and their items were modeled as reflective. PLS is used for Model estimation. The research hypotheses were tested using the structural model, which describes the relationships among constructs. Furthermore, the OBC type (Sony PlayStation, Microsoft Xbox, and My Starbucks Idea) was included as a control variable influencing dependent constructs. As this control variable has three levels (Sony PlayStation, Microsoft Xbox, and My Starbucks Idea), two dummy variables are included in the PLS-SEM model following Hair et al. [110]. Reference coding is used where My Starbucks Idea is set as the reference group. Dummy 1 represents Sony PlayStation group and dummy 2 denotes Microsoft Xbox group. A nonparametric bootstrap procedure was used by PLS-SEM to test the statistical significance of the coefficients. The number of valid observations (i.e., 297 in this study) must be smaller than the number of bootstrap samples. Five thousand bootstrap samples were used in this research [110]. This research reports the results following the guidelines suggested by Benitez et al. [111].

5. Results

5.1. Measurement model

For reflective measurement models, as CR estimates and alpha coefficients all surpass 0.7 [110] and the values of Dijkstra-Henseler's ρ_A are all greater than 0.709 [111], construct reliability is acceptable. Furthermore, the AVE of all constructs are greater than 0.5 (see Appendix B), providing empirical evidence for convergent validity. Indicator reliability is achieved as the factor loadings range from 0.72 to 0.91 greater than the 0.709 threshold and are all significant on a 0.001 level [111]. The loading-cross-loading criterion, Fornell and Larcker's criterion, and HTMT ratio were used to assess discriminant validity. As shown in Appendix C, an item's loadings on its own constructs are all greater than all of its cross-loadings with other constructs. From Appendix D, the square root of the AVE estimate of each construct is greater than the correlation of the specific construct with any of the

other constructs [111, 112]. From Appendix E, the Heterotrait-Monotrait (HTMT) ratios are all smaller than 0.90 [111, 113]. Furthermore, bootstrap confidence intervals for HTMT ratios were constructed and did not include 1 [110, 111]. Thus, discriminant validity is achieved.

The composite-formative measurement model was assessed. As shown in Appendix B, the VIF values for the indicators range from 1.50 to 1.98 far below the recommended threshold of 5, indicating that multicollinearity is not severe. Furthermore, all weight and loadings were in the expected sign and were significant at a 5% significance level.

5.2. Structural model

The structural model is evaluated based on the estimates of the path coefficients, the significance of the path coefficients, the coefficient of determination (R^2), and the effect size (f^2) [111]. The bootstrapping technique in SmartPLS 3.0. was used to run the structural model. VIF values are lower than 5 (i.e., 1.32~1.69) which lessens the collinearity concerns among the predictor constructs ([110], p.194). The results of the structural model were shown on Appendix F. It describes the relationships from functional and social factors to participation and WOM via empowerment and satisfaction.

The effects of the control variable (represented by dummy 1 and dummy 2) on dependent constructs are statistically nonsignificant (p -values>0.10) except the effect of dummy 2 on user satisfaction, which indicates compared to Starbucks Idea group, Xbox OBC members have lower user satisfaction.

From Fig. 3, the estimates of all path coefficients for the hypothesized relationships range from 0.28 to 0.45 and are all significant at a 5% significance level. The results are briefly summarized below. Perceived responsiveness and demonstration of caring positively influence empowerment, which supports H1 and H2. Information quality and system quality positively influence user satisfaction, which supports H3 and H4. Empowerment is positively influenced by user satisfaction, supporting H5. Empowerment positively influences participation and WOM, supporting H6 and H7. User satisfaction has positive effects on

participation and WOM, supporting H8 and H9. Hence, the results support all the hypotheses.

The f^2 effect sizes were calculated for all construct relationships in the structural model, indicating the change in the R^2 value when a specified exogenous construct is omitted from the model [114]. The f^2 values of user satisfaction on empowerment, participation and WOM were 0.22, 0.19 and 0.11, respectively. The f^2 values of psychological empowerment on participation and WOM were 0.23 and 0.15, respectively. Thus, these results show the validity of the empowerment perspective in predicting consumer participation and WOM in the OBC. Furthermore, the f^2 values of system quality and information quality on satisfaction were 0.27 and 0.18. The f^2 values of perceived responsiveness and demonstration of caring on psychological empowerment were 0.16 and 0.12, respectively. These results show that the functional and social antecedents of user satisfaction and empowerment have adequate effective size.

R^2 values of the endogenous constructs are assessed. The threshold values for substantial, moderate, and weak predictive power are 0.67, 0.33, and 0.19, respectively [112]. The results indicated that R^2 value for empowerment is 0.58, for satisfaction 0.54, for participation 0.53, and for WOM 0.42, showing the predictive power somewhere between moderate to substantial.

5.3. Common method variance

Because self-reported data were used in this research, the degree of common method variance (CMV) must be evaluated, following Harman's one-factor test. Harman's one-factor test is widely used to examine the degree to which items are influenced by CMV. The CMV is substantial if either only one factor is extracted from a factor analysis or if the first factor extracted explains a large portion of the variance of all items [115]. The results of the exploratory factor analysis indicated that seven factors were extracted, and the first factor extracted accounted for only 12.97% of the total variance in the items. Thus, the degree of CMV is not severe. In addition, following Rönkkö and Ylitalo [116], a PLS marker variable approach is conducted. Two items collected in the

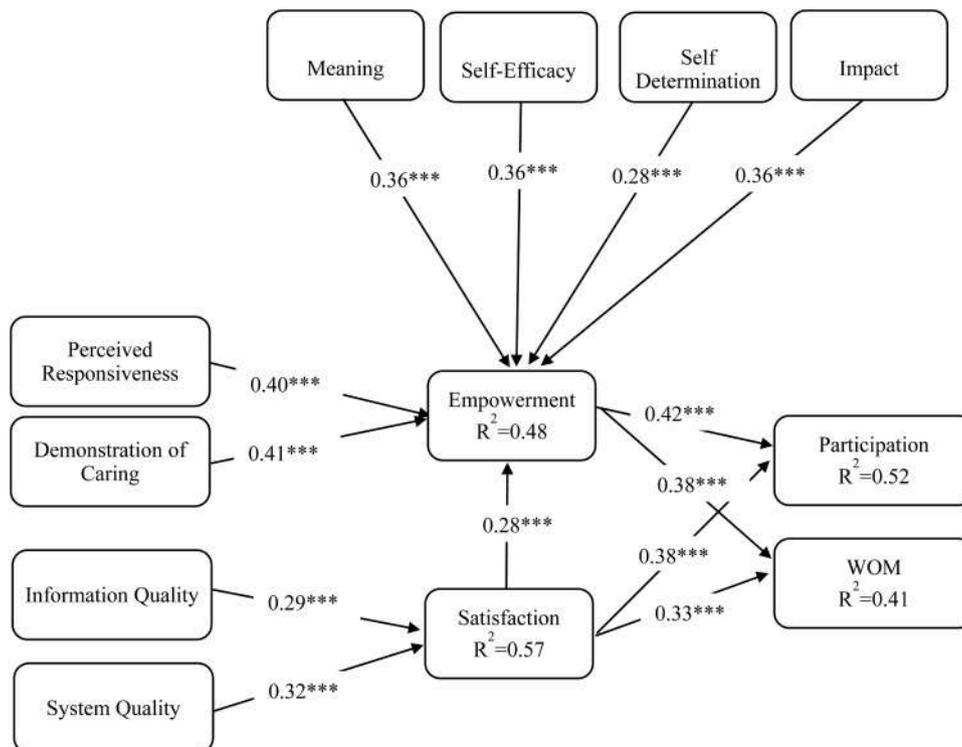


Fig. 3. The path model.

survey but not used in testing the original model are used as marker indicators as these are minimally correlated with other study items. A method construct with two marker variables is included in the model as an exogenous construct predicting all endogenous constructs. The results indicate the path coefficients in the original model are all significant in the model with a method construct. For the model with a method construct, the path coefficients of the key construct relationships are summarized as follows. Perceived responsiveness ($\beta = 0.28, p < 0.001$) and demonstration of caring ($\beta = 0.26, p < 0.001$) positively influence empowerment. Information quality ($\beta = 0.32, p < 0.001$) and system quality ($\beta = 0.39, p < 0.001$) positively influence user satisfaction. Empowerment is positively influenced by user satisfaction ($\beta = 0.32, p < 0.001$). Empowerment positively influences participation ($\beta = 0.41, p < 0.001$) and WOM ($\beta = 0.37, p < 0.001$). User satisfaction has positive effects on participation ($\beta = 0.38, p < 0.001$) and WOM ($\beta = 0.30, p < 0.001$). These results indicate that CMV is not a concern in this research.

5.4. Alternative model results

Additional analyses were conducted for three competing models. Competing model 1 removed all mediators in the proposed research model. Competing model 2 included mediators and allowed the paths from antecedents to outcomes. Competing model 3 included cross effects where perceived responsiveness and demonstration of caring were allowed to influence user satisfaction and information quality and system quality were allowed to influence empowerment and intrastage effects where the path from participation to WOM was included in the proposed research model. The results are summarized in [Appendix G](#). For competing model 1, all antecedents significantly influence the outcomes with the exception of information quality. For competing model 2, all the path coefficients in the original model are significant when the direct effects from the antecedents to the outcomes are considered. For competing model 3, perceived responsiveness and demonstration of caring have no cross effects on satisfaction. Information quality has no cross effect on empowerment, whereas service quality has a significant cross effect on empowerment. Participation has a significant intrastage effect on WOM. Other relationships in the original model remain when cross- and intrastage effects are considered. Although the cross effect of system quality on empowerment is significant, this has no clear theoretical basis. The effects of participation on WOM are not the focus of this study as this study focuses on identifying the drivers of participation and WOM in OBCs.

6. Discussion

Past studies have lay emphasis on the functional effects of the online environment which can influence user satisfaction, and subsequent continuous usage [12–14]. However, we propose that by examining not only the functional effects but also the social effects that influence the experienced psychological state we can gain a more comprehensive perspective. The present findings provide conceptual insights and contribute to the literature by exemplifying an empowerment perspective and highlight the role that psychological empowerment plays in complementing the understanding of user satisfaction and functional qualities, to provide a more comprehensive knowledge in promoting OBC participation. The findings reveal both social and functional factors determine perceived experiences in an OBC. Specifically, perceived responsiveness and demonstration of caring are the social factors that facilitate the creation of psychological empowerment. Information quality and system quality are the functional factors that drive the establishment of user satisfaction. User satisfaction facilitates empowerment, and both psychological empowerment and user satisfaction influence consumers' participation and WOM behaviors in OBCs. Key implications for theory and practice are discussed below.

6.1. Theoretical implications

Current research provides several important theoretical implications. First, the findings of this study indicate that the facilitation of consumer empowerment relies on the establishment of a supportive social environment in OBCs. The role of social factors in driving empowerment has received little attention in the context of OBCs. Thus, this research contributes by identifying the importance of social support in OBCs and by further identifying that the determinants of social support come from perceived responsiveness and demonstration of caring. The former is social support from other group members, whereas the latter comes from the company itself. Past studies have discussed the individual level of social support that drives perceived empowerment, for example, members' emotional support and sense of belonging [28] and the social interactions among different roles [117].

The present research contributes by emphasizing that in OBCs, individual-level support alone is insufficient to explain the source of the enabling effect of empowerment. We posit that companies that actively provide social support for members also play an important role in facilitating empowerment. This company-level support can be accomplished by showing caring for members and building a comfortable social space where consumers can easily share ideas with each other. Companies play a supportive role in facilitating members' social interactions to facilitate consumer empowerment [118], especially in the OBCs where members have a shared passion, vision, and values toward the focal brand. For instance, OBCs such as Intuit, Starbucks Ideas, Dell IdeaStorm, Marriott Travel Brilliantly, Lego CUUSOO and Heineken Ideas Brewery establish a supportive social environment in OBCs to facilitate co-innovation where members can obtain intangible encouragement and tangible rewards based on their contributions [119, 120]. This is consistent with past studies in the organizational context reporting that social support from coworkers and supervisors work together to drive satisfaction among workers, which in turn produces affective commitment toward the work [121]. Therefore, the current research contributes the academic field by highlighting the importance of the social support that participants in OBCs receive from both individual members and the company. Together, these types of support play a crucial role in building a sense of empowerment, which in turn facilitates more participation in co-creation and WOM.

Second, the present research contributes by emphasizing the role of user satisfaction in creating heightened motivation among OBC members, which facilitates empowerment and participation. Prior studies on online communities have emphasized the role of IT qualities in facilitating consumer satisfaction. User satisfaction is influenced by the IT environment, which is composed of the quality of information and system characteristics [67, 68, 76, 83]. Consistent with prior studies, the findings of this study reveal the role of IT qualities in facilitating user satisfaction in the OBC context. However, this research further indicates that user satisfaction with overall OBC experiences is the key factor influencing how IT qualities facilitate a sense of empowerment. Our findings show that user satisfaction resulting from the IT environment shaped by desired IT characteristics can facilitate users' participation in OBCs. Furthermore, the present study further contributes to a better understanding of this concept by showing that user satisfaction, which is influenced by IT features, creates a facilitating environment for heightened motivation to engage in accomplishing tasks, which can in turn result in a sense of empowerment that influences participation.

Third, compared to prior studies focusing on engagement and prominence (e.g., [122]), empowerment is an overlooked concept that has a unique and even more profound role in driving participation in OBC. The conception of psychological empowerment encapsulated by self-determination, competence, meaning, and impact illustrates an energetic psychological state with regard to one's task role. The key distinction among empowerment and engagement and prominence is the encapsulation of meaning and impact components in the concept. Meaning refers to the fit between the goals and values of an individual

and the work. Impact indicates that individuals have influence, effect and impact on the work environment to influence others [17, 39–41]. In OBCs, the meaning component is relevant, as members have consciousness of kind and common interest in the focal brand [51, 123]. The impact component is relevant as members often show moral responsibility by showing behaviors to develop the brand and help other consumers [51, 123]. Empowerment, which encapsulates self-determination, competence, meaning and impact components, creates a distinctive energetic psychological state that is crucial in driving OBC members to participate in co-creation activities. By finding intrinsic value and meaning in participating in co-creating brand value, OBC members are more likely to initiate and participate in creating brand-related content via writing articles and reviews or by contributing to the brand through rating brands, participating in brand conversations, and providing comments on brand videos or other related items [124]. Past studies have indicated that user empowerment can facilitate knowledge-sharing behaviors [86] and active communication among members [86]. In the OBC context, empowerment is related to value co-creation practices that involve more than knowledge sharing, such as members' sharing news about the brand in the OBC. Empowerment further includes more active WOM behaviors, as members can inspire others by sharing satisfactory personal brand experiences and openly declaring themselves to be users of a particular brand [125]. These self-initiated behaviors contribute to generating new product ideas and recommendations for product modifications [125]; for example, MyStarbucks Ideas members participate in value co-creation by proposing innovative product ideas. These behaviors in OBCs are driven by consumers' shared values and passion regarding the brand as the core element of the OBC [51], and this is seldom seen in non-OBCs. As a result, this study elucidates the distinctiveness and significant role of empowerment in OBC in driving participation in brand value co-creation, where consumer can create value beyond what the firm anticipates.

6.2. Managerial implications

Based on the research findings, this study identifies a number of noteworthy managerial implications that require attention. Among the predictors, the demonstration of caring is a key driver of psychological empowerment. Hence, practitioners can create a communal relationship with OBC members by interacting with them as friends. A family-like atmosphere can be established by posting messages that encourage members to help each other and provide emotional support. Practitioners can post warm messages to display care for their members and can create personalized interactions with active members. Furthermore, all consumers can be categorized into different subgroups, and senior and active members should be assigned to each subgroup to show care and support to other members. Senior and active members in each group can host online and offline activities to share experiences, which can not only enhance friendship among members but also benefit idea generation in value cocreation. Moreover, brands can conduct social listening on the OBC using tools such as Hootsuite and Mention to monitor hot topics and better learn members' needs. With this knowledge, brands can create posts and responses that meet the needs of members and show caring for their members.

Second, because perceived responsiveness facilitates psychological empowerment, practitioners can increase responsiveness perception in an OBC by setting up chatbots. Specifically, if members have product usage problems, they can chat with a chatbot to quickly solve their problems. For questions that cannot be solved by the chatbot, practitioners can assure members that the questions will be responded to within a reasonable time frame by a knowledgeable service agent. The service agent is different from the chatbots as the former is expected to have adequate knowledge on questions related to services, whereas the latter may have less sufficient knowledge on complex questions about services. Practitioners should update the database of chatbots constantly

to increase the possibility that chatbots can respond to questions efficiently and effectively. Furthermore, a recommendation system can be built by practitioners to facilitate members' perception of responsiveness. The system can match inquiries with previous relevant content posted by members

Finally, the results revealed that functional factors complement social factors in driving members' participative behavior. Thus, practitioners should ensure that the information and system quality in the OBC are well established. For the OBC system, practitioners should ensure that the system shows reliability, effective navigation, and a clear layout. For information published on the OBC, practitioners should provide comprehensive, accurate, and up-to-date information regarding products and services. Furthermore, rules and norms can be established to encourage members to share comprehensive, accurate, and up-to-date information regarding products/services. In addition, incentive mechanisms can be used. For instance, practitioners can vote for members who have devoted the most time to maintaining the information quality of the OBC by providing them with monetary (e.g., vouchers and coupons) or nonmonetary benefits (e.g., badges or status).

Although both functional factors and social factors can facilitate consumers' participation and WOM behavior, social factors are more important than functional factors as social factors can influence participation and WOM behavior through empowerment and user satisfaction, whereas functional factors can influence participation and WOM through user satisfaction. Hence, more emphasis can be placed on enhancing social factors. As such, practitioners should allocate more resources to facilitate the establishment of members' sense of empowerment in OBC, which in turn promotes satisfaction.

6.3. Limitations and future studies

Although this research offers a significant contribution by exemplifying a dual-path perspective in consumer participation, it is not without limitations. First, the OBCs examined in this study pertained to video games and coffee. Future studies could further examine the differential effects that may be embedded in the diverse nature of product types. Second, the empirical testing ground for this research was adopted from the online communities of well-known brands. Future studies can extend the body of knowledge by examining whether brand familiarity has distinctive impacts on driving the sense of empowerment and user satisfaction in OBCs. Third, this study focuses on the environmental antecedents of psychological empowerment. As empowerment theory postulates that both individual factors and environmental factors facilitate perceived empowerment, an avenue for future studies is to investigate the differing effects between individual factors and environmental factors on perceived empowerment in the OBC context. Fourth, the results of the competing model analysis suggest some interesting research issues. Future studies can further discuss the specific system features (hardware and software) driving consumers to feel empowered. Finally, a cross-sectional design was adopted in this research; future research can use a longitudinal design to examine psychological empowerment in OBCs.

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Sara H. Hsieh: Conceptualization, Methodology, Writing – original draft, Writing – review & editing, Supervision, Funding acquisition. **Crystal T. Lee:** Methodology, Investigation, Writing – original draft, Writing – review & editing. **Timmy H. Tseng:** Methodology, Formal analysis, Writing – original draft, Writing – review & editing.

CRedit authorship contribution statement

Sara H. Hsieh: Conceptualization, Methodology, Writing – original draft, Writing – review & editing, Supervision, Funding acquisition.

Crystal T. Lee: Methodology, Investigation, Writing – original draft, Writing – review & editing. **Timmy H. Tseng:** Methodology, Formal analysis, Writing – original draft, Writing – review & editing.

Appendix A. A short summary of past studies of company hosted OBC

References	Key Findings	Key Theoretical Perspective	Context
Kumar [25]	Psychological ownership drive participation intentions, word of mouth and brand purchase intentions, and this effect is stronger for active members than lurkers.	Social Perspective	Company hosted OBC - several brands in categories such as sports, mobile devices
Marbach et al. [126].	Consumers' personality (extraversion, openness to experiences and altruism) exert positive influence on customer engagement, perceived social and esthetic value.	Individual Perspectives	Company hosted OBC - a telecommunications provider company
Wu et al. [14].	By applying organizational commitment theory, this research found that longer-tenured members show stronger community engagement and word-of-mouth behavior than shorter-tenured members.	Social Perspective	Company hosted OBC - e-commerce company
Liao et al. [127]	Drawing from theory of organizational socialization, socialization tactics used by firm can nurture community identification and continuous intention toward OBC.	Social Perspective	Company hosted OBC - several mobile phone brands
Popp and Woratschek [34]	Based on social identity theory, this study identifies different target of identification (brand and community) and its effect in creating brand, community loyalty and WOM toward the brand and community.	Social Perspective	Company hosted OBC - alcoholic beverage brands
Luo et al. [128].	Drawing from uncertainty reduction theory, this study found three different types of interactions which can create harmonious community relationship, which in turn drive community identification.	Social Perspective	Company hosted OBC - smartphone brands
Marticotte et al. [29].	This study manifests that individuals' self-brand connection, brand community identification and brand loyalty towards the focal brand can give rise to oppositional referrals to rival brands.	Social Perspectives	Company hosted OBC - video gaming brands
Zhu et al. [28].	The study found informational support and emotional support has positive impact on customer satisfaction and citizenship behavior, and the effect is moderated by different support source.	Social Perspective	Company hosted OBC - several electronic product brands
Wu et al. [8]	Different level of community participation can affect purchase frequency and this effect is moderated by individuals 'regulatory focus'	Individual Perspectives	Company hosted OBC - e-commerce company
Lee and van Dolen [27]	The research examines the role of sentiment in user co-creation and indicate different employee communication style can generate collective user sentiment which can facilitate creativity participation.	Social Perspective	Company hosted OBC -computer brands
Kuo and Feng [9]	Community interaction characteristics can drive perceived benefits of OBC which has a positive effect on community commitment and oppositional brand loyalty.	Social Perspective	Company hosted OBC - several car brands

Appendix B. Measurement model evaluation

Item	ρ_A	AVE	VIF	Weight	Loading
<i>Perceived responsiveness</i> ($\alpha = 0.78$, CR = 0.87)					
PR1 The people on this OBC are very responsive to my posts.	0.78	0.70		0.42***	0.81***
PR2 I can always count on getting a lot of responses to my posts.				0.39***	0.86***
PR3 I can always count on getting responses to my posts fairly quickly.				0.39***	0.83***
<i>Demonstration of caring</i> ($\alpha=0.87$, CR=0.90)					
DOC1 This OBC wants me to know that the brand behaves in a caring manner with its members.	0.87	0.60		0.22***	0.73***
DOC2 This OBC shows this brand nurtures its members.				0.22***	0.78***
DOC3 This OBC suggests members are well looked after.				0.22***	0.81***
DOC4 This OBC shows this brand tries to be close to its members.				0.19***	0.73***
DOC5 This OBC shows this brand is thoughtful of its members				0.21***	0.77***
DOC6 This OBC tries to convey a strong sense of caring for its members.				0.24***	0.81***
<i>Information quality</i> ($\alpha=0.71$, CR=0.84)					
IQ1 The information in the OBC is up-to-date.	0.71	0.63		0.44***	0.80***
IQ2 The information in the OBC is accurate.				0.45***	0.82***
IQ3 The information in the OBC is comprehensive.				0.38***	0.76***
<i>System quality</i> ($\alpha=0.71$, CR=0.84)					
SQ1 The OBC is reliable.	0.72	0.64		0.37***	0.76***
SQ2 The navigation of OBC is effective.				0.44***	0.83***
SQ3 The layout of OBC is clear.				0.45***	0.80***
<i>Satisfaction</i> ($\alpha = 0.78$, CR = 0.86)					
SAT1 I like to use this OBC.	0.78	0.60		0.33***	0.79***
SAT2 I am pleased with the experience of using this OBC.				0.32***	0.79***
SAT3 I think using this OBC is a good idea.				0.32***	0.78***
SAT4 Overall, I am satisfied with the experience of using this OBC.				0.32***	0.75***

Note: *** $p < 0.001$.

Appendix B. Measurement model evaluation (continued)

Item	ρ_A	AVE	VIF	Weight	Loading
<i>Empowerment</i>					
<i>Meaning</i> ($\alpha = 0.78, CR = 0.87$)					
ME1 Participation in content sharing in this OBC is very important to me.	0.78	0.69	1.49	0.36 ^{***a}	
ME2 My participation in content sharing in this OBC are personally meaningful to me.				0.40 ^{***}	0.82 ^{***}
ME3 Participation in the content sharing that I do is meaningful to me.				0.42 ^{***}	0.84 ^{***}
<i>Self-efficacy</i> ($\alpha=0.70, CR=0.84$)					
SE1 I am confident about my ability to participate in the content sharing in the OBC.	0.71	0.63	1.75	0.36 ^{***a}	
SE2 I am self-assured about my capabilities to participate in content sharing in the OBC.				0.39 ^{***}	0.85 ^{***}
SE3 I have mastered the skills necessary to participate in content sharing in the OBC.				0.44 ^{***}	0.83 ^{***}
<i>Self-determination</i> ($\alpha=0.75, CR=0.86$)					
SD1 I have significant freedom in determining what content to share in the OBC.	0.75	0.66	1.42	0.44 ^{***}	0.82 ^{***}
SD2 I can decide on my own how to go about sharing content in the OBC.				0.37 ^{***}	0.77 ^{***}
SD3 I have considerable opportunity for independence and freedom in how I share content in the OBC.				0.39 ^{***}	0.72 ^{***}
<i>Impact</i> ($\alpha=0.88, CR=0.92$)					
IM1 My impact on what happens in the OBC is large.	0.88	0.80	1.59	0.29 ^{***a}	
IM2 I have a great deal of control over what happens in my OBC.				0.42 ^{***}	0.82 ^{***}
IM3 I have significant influence over what happens in my OBC.				0.37 ^{***}	0.77 ^{***}
<i>WOM</i> ($\alpha=0.78, CR=0.87$)					
WOM1 I said positive things about the OBC.	0.80	0.69		0.44 ^{***}	0.85 ^{***}
WOM2 I recommended the OBC to others.				0.36 ^{***a}	
WOM3 I encouraged friends and relatives to use the OBC.				0.37 ^{***}	0.77 ^{***}
<i>Participation</i> ($\alpha = 0.76, CR = 0.85$)					
P1 I take an active part in sharing content in the OBC.	0.76	0.58		0.44 ^{***}	0.85 ^{***}
P2 I frequently provide useful content to other members in the OBC.				0.36 ^{***a}	
P3 In general, I post messages and responses on the OBC with great enthusiasm and frequency.				0.37 ^{***}	0.77 ^{***}
P4 I do my best to participate in activities offered on the OBC.				0.40 ^{***}	0.91 ^{***}

Note: Empowerment is the second-order formative first-order reflective construct. ^a Indicator weight for the second-order construct. *** $p < 0.001$.

Appendix C. Discriminant validity-loading and cross-loading criterion

Items	CA	EM	IP	IQ	ME	PA	RES	SD	SE	SAT	SQ	WOM
WOM1	0.415	0.545	0.218	0.407	0.424	0.505	0.355	0.417	0.543	0.574	0.475	0.831
WOM2	0.349	0.444	0.274	0.331	0.379	0.447	0.501	0.249	0.382	0.447	0.333	0.843
WOM3	0.363	0.443	0.306	0.313	0.422	0.421	0.425	0.206	0.339	0.374	0.272	0.825
PA1	0.364	0.491	0.272	0.416	0.329	0.740	0.429	0.322	0.507	0.533	0.451	0.400
PA2	0.364	0.496	0.321	0.332	0.323	0.782	0.403	0.310	0.487	0.460	0.391	0.394
PA3	0.434	0.503	0.410	0.373	0.324	0.795	0.483	0.277	0.446	0.476	0.447	0.414
PA4	0.386	0.495	0.340	0.355	0.385	0.730	0.355	0.320	0.399	0.501	0.466	0.482
CA1	0.725	0.483	0.374	0.426	0.267	0.389	0.313	0.408	0.376	0.392	0.367	0.274
CA2	0.782	0.481	0.404	0.357	0.365	0.404	0.361	0.297	0.333	0.347	0.316	0.338
CA3	0.806	0.495	0.445	0.429	0.343	0.442	0.380	0.298	0.352	0.334	0.358	0.365
CA4	0.732	0.426	0.287	0.439	0.305	0.353	0.379	0.331	0.330	0.416	0.373	0.347
CA5	0.774	0.466	0.370	0.419	0.321	0.351	0.357	0.288	0.374	0.350	0.330	0.411
CA6	0.813	0.524	0.444	0.408	0.350	0.411	0.417	0.357	0.381	0.383	0.341	0.376
IP1	0.461	0.627	0.885	0.243	0.360	0.392	0.479	0.218	0.320	0.157	0.244	0.295
IP2	0.407	0.597	0.895	0.142	0.350	0.369	0.401	0.177	0.277	0.074	0.155	0.239
IP3	0.483	0.678	0.906	0.261	0.409	0.419	0.476	0.265	0.360	0.195	0.293	0.305
IQ1	0.413	0.403	0.115	0.804	0.211	0.409	0.343	0.380	0.490	0.529	0.481	0.359
IQ2	0.464	0.472	0.234	0.821	0.301	0.423	0.333	0.413	0.448	0.541	0.459	0.337
IQ3	0.391	0.405	0.236	0.757	0.232	0.319	0.367	0.312	0.408	0.455	0.503	0.322
ME1	0.325	0.623	0.329	0.236	0.818	0.401	0.364	0.233	0.406	0.326	0.295	0.406
ME2	0.409	0.662	0.394	0.322	0.838	0.383	0.376	0.240	0.422	0.350	0.358	0.471
ME3	0.315	0.610	0.317	0.220	0.845	0.332	0.345	0.272	0.331	0.264	0.314	0.345
RE1	0.377	0.530	0.375	0.369	0.375	0.464	0.808	0.318	0.473	0.402	0.411	0.476
RE2	0.392	0.493	0.470	0.342	0.335	0.466	0.860	0.200	0.407	0.328	0.297	0.388
RE3	0.423	0.487	0.424	0.377	0.376	0.441	0.833	0.220	0.381	0.360	0.351	0.395
SD1	0.362	0.541	0.173	0.392	0.271	0.334	0.242	0.823	0.404	0.540	0.393	0.327
SD2	0.298	0.488	0.159	0.389	0.199	0.316	0.221	0.772	0.380	0.410	0.366	0.293
SD3	0.379	0.569	0.268	0.363	0.254	0.337	0.262	0.848	0.389	0.484	0.441	0.272
SE1	0.347	0.652	0.248	0.522	0.414	0.509	0.384	0.400	0.830	0.579	0.456	0.448
SE2	0.419	0.654	0.273	0.418	0.361	0.501	0.410	0.461	0.824	0.503	0.480	0.394
SE3	0.333	0.575	0.339	0.403	0.328	0.422	0.413	0.267	0.719	0.334	0.418	0.394
SQ1	0.374	0.462	0.270	0.427	0.328	0.451	0.386	0.338	0.421	0.463	0.757	0.343
SQ2	0.387	0.485	0.234	0.505	0.300	0.475	0.329	0.457	0.450	0.548	0.828	0.379
SQ3	0.317	0.439	0.132	0.502	0.304	0.456	0.311	0.376	0.488	0.560	0.804	0.344
SAT1	0.359	0.453	0.136	0.514	0.297	0.516	0.325	0.454	0.466	0.788	0.513	0.440
SAT2	0.360	0.475	0.137	0.462	0.318	0.512	0.333	0.484	0.479	0.790	0.538	0.439
SAT3	0.354	0.431	0.126	0.525	0.290	0.488	0.346	0.426	0.441	0.776	0.504	0.440
SAT4	0.410	0.435	0.101	0.489	0.264	0.493	0.354	0.461	0.481	0.747	0.493	0.452

Appendix D. Mean, standard deviation, and correlation matrix of the constructs

Construct	1	2	3	4	5	6	7	8	9	10	11
1 Demonstration of Care	0.77										
1 Impact	0.51	0.90									
1 Information Quality	0.53	0.24	0.80								
1 Meaning	0.42	0.42	0.31	0.83							
1 Participation	0.51	0.44	0.49	0.45	0.76						
1 Responsiveness	0.48	0.51	0.44	0.44	0.55	0.83					
1 Self-Determination	0.43	0.25	0.47	0.30	0.40	0.30	0.82				
1 Self-Efficacy	0.46	0.36	0.57	0.47	0.60	0.51	0.48	0.79			
1 Satisfaction	0.48	0.16	0.64	0.38	0.65	0.44	0.59	0.60	0.78		
1 System Quality	0.45	0.26	0.60	0.39	0.58	0.43	0.49	0.57	0.66	0.80	
1 WOM	0.46	0.31	0.43	0.49	0.56	0.51	0.36	0.52	0.57	0.45	0.83
1 Mean	3.74	3.24	3.94	3.78	3.83	3.61	4.01	3.86	4.10	3.98	3.89
1 SD	0.62	0.99	0.61	0.62	0.62	0.74	0.58	0.63	0.58	0.57	0.73

Note: The square root of average variance extracted (AVE) estimates are the values on the diagonal (in bold).

Appendix E. HTMT Ratios

Construct	1	2	3	4	5	6	7	8	9	10
1 Demonstration of Care										
1 Impact	0.57									
1 Information Quality	0.68	0.31								
1 Meaning	0.51	0.50	0.42							
1 Participation	0.63	0.54	0.66	0.58						
1 Responsiveness	0.58	0.61	0.59	0.56	0.71					
1 Self-Determination	0.53	0.30	0.64	0.39	0.54	0.39				
1 Self-Efficacy	0.59	0.46	0.80	0.63	0.83	0.68	0.66			
1 Satisfaction	0.59	0.19	0.86	0.48	0.84	0.56	0.77	0.81		
1 System Quality	0.58	0.33	0.85	0.52	0.78	0.57	0.67	0.80	0.88	
1 WOM	0.55	0.38	0.56	0.62	0.71	0.65	0.46	0.68	0.71	0.58

Appendix F. Structural model evaluation

Relationship	Path coefficient
Perceived responsiveness → Empowerment (H1)	0.40*** (6.92)
Demonstration of caring → Empowerment (H2)	0.41*** (7.41)
Information quality → User satisfaction (H3)	0.29*** (5.36)
System quality → User satisfaction (H4)	0.32*** (5.13)
Empowerment → User satisfaction (H5)	0.28*** (4.65)
Empowerment → Participation (H6)	0.42*** (7.35)
Empowerment → WOM (H7)	0.38*** (6.29)
User satisfaction → Participation (H8)	0.38*** (6.98)
User satisfaction → WOM (H9)	0.33*** (5.42)
OBC type → Empowerment (control variable)	0.00 (0.51)
OBC type → User satisfaction (control variable)	0.03 (0.66)
OBC type → Participation (control variable)	-0.02 (0.37)
OBC type → WOM (control variable)	-0.02 (0.44)
Endogenous variable	R ²
Empowerment	0.48
User satisfaction	0.57
Participation	0.52
WOM	0.41
Effect size	f ²
Perceived responsiveness → Empowerment (H1)	0.23
Demonstration of caring → Empowerment (H2)	0.24
Information quality → User satisfaction (H3)	0.12
System quality → User satisfaction (H4)	0.11
Empowerment → User satisfaction (H5)	0.10
Empowerment → Participation (H6)	0.22
Empowerment → WOM (H7)	0.15
User satisfaction → Participation (H8)	0.18
User satisfaction → WOM (H9)	0.11
OBC type → Empowerment (control variable)	0.01
OBC type → User satisfaction (control variable)	0.00
OBC type → Participation (control variable)	0.001
OBC type → WOM (control variable)	0.001

Note. t-values are presented in parentheses.

Appendix G. Competing models evaluation

Effects Causes	Competing model 1: Without mediators				Competing model 2: Full model				Competing model 3: Cross and intra effects	
	PA	WOM	EM	US	PA	WOM	EM	US	PA	WOM
Dummy1	-0.02	-0.02	-0.07	-0.04	0.01	0.02	-0.09*	-0.03	0.03	0.02
Dummy2	-0.01	-0.09	-0.01	-0.12*	0.04	-0.04	-0.04	-0.12*	0.07	-0.04
RES	0.29***	0.30***	0.31***		0.19***	0.20*	0.27***	0.09		
CARE	0.19**	0.19**	0.28***		0.09	0.09	0.09	0.09		
IQ	0.06	0.07		0.37***	-0.08	-0.06	0.08	0.30***		
SQ	0.34***	0.19**		0.45***	0.13*	-0.01	0.21***	0.40***		
EM					0.26**	0.26**			0.42***	0.31***
US				0.37***	0.33***	0.32***	0.22**		0.39***	0.25***
PA										0.19*
R ²	0.48	0.36	0.58	0.54	0.57	0.45	0.61	0.56	0.53	0.43

Notes: Valid sample size is 297.

Two dummy variables are included to define OBC type as a control variable with three levels where Dummy 1 denotes Sony, Dummy 2 represents Xbox, and the reference group is Starbucks; RES = perceived responsiveness; CARE = demonstration of caring; IQ = information quality; SQ = service quality; EM = empowerment; US = user satisfaction; PA = participation; WOM = word of mouth intention; *p < 0.05, **p < 0.01, ***p < 0.001

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