

How Consumer Participation Shapes Hot and Cold Engagement among Generation Z on Facebook?

Nguyen Thuy Linh, Tran Cong Duc*

Economics, Business and Management Research Group,
Faculty of Business Administration, Ton Duc Thang University, Vietnam

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ABSTRACT

Rapid growth in social media has intensified the complexity of managing consumers' online participation, yet limited research has examined how different forms of participation translate into meaningful brand outcomes. Focusing on Facebook brand communities among Generation Z users, this study investigates how two types of consumer participation, consumer-consumer interaction (CCI) and consumer-brand interaction (CBI), shape consumer-brand engagement (CBE), conceptualized as cold and hot engagement, and how these engagement dimensions subsequently influence post-consumption behavioral intention. Employing online survey data from 233 Gen Z users analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM), the results show that CCI is the dominant driver of both cold and hot engagement, whereas CBI primarily strengthens cold engagement. In turn, hot engagement enhances ongoing search behavior and repurchase intention with slightly stronger effects. Theoretically, by distinguishing engagement intensity and clarifying the asymmetric roles of peer versus brand-initiated participation, this study extends engagement research and elucidates the mechanisms through which online participation translates into favorable brand outcomes in social media contexts. Managerially, the findings also provide actionable insights for firms seeking to strategically manage consumer participation in fast-evolving social media environments, particularly in emerging markets.

1. Introduction

The emergence of Web 2.0 technologies has transformed consumers from passive recipients into active contributors who generate, distribute, and engage in discussions related to brands across digital environments (Chueng et al., 2021). Current statistics indicate that approximately 64% of consumers are willing to express their opinions about brands or

products on social media platforms. Among them, younger users representing 53% are particularly active, spending more than two hours per day interacting with peers and relying on user-generated content when making purchase decisions (Chaffey, 2024). This pattern is even more evident among Generation Z in Southeast Asia, where 83% actively participate in online activities, and 23% have contributed ideas for product or design innovation.

*Corresponding author. Email: trancongduc@tdtu.edu.vn

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In the Vietnamese context, Generation Z has become a highly influential consumer group, characterized by considerable purchasing power and a strong inclination toward using social media for entertainment, shopping, and communication. Notably, 73% of Vietnamese Gen Z consumers report that peer reviews and online comments significantly influence their buying decisions (Mude & Undale, 2023; Chaffey, 2024). These activities reflect the concept of consumer participation (CP), which refers to the extent to which consumers invest resources such as time, effort, and knowledge in collaborative value creation with brands, thereby generating mutual benefits (Chueng et al., 2021).

With the widespread integration of social media into everyday life, CP has evolved into a foundational stage of consumer–brand relationships, extending beyond initial search and post-purchase interactions (Cheung et al., 2021). Continuous engagement throughout the customer journey allows firms to collect valuable insights and consumer sentiments, supporting business growth from initial trial to repeat purchase. Consequently, companies increasingly emphasize CP as a mechanism to empower users and co-create brand value (Carlson et al., 2019). CP typically manifests in two primary forms: consumer–consumer interaction (CCI) and consumer–brand interaction (CBI). Specifically, CCI involves the exchange of experiences and knowledge among consumers, whereas CBI reflects consumers' direct contributions to product enhancement and development processes (Chueng et al., 2021).

Recognizing the strategic significance of CP, firms actively promote CCI through online communities (e.g., Sephora, Unilever, Lazada) and encourage CBI through co-creation initiatives on digital platforms (e.g., Lego, Adidas, Threadless, Vinamilk), demonstrating the role of social media in facilitating both interaction types (Hinson et al., 2019). These participatory activities can stimulate consumer–brand engagement (CBE), defined as the degree of consumers' cognitive, emotional, and behavioral investment in brand-related activities (Carlson et al., 2019). By fostering CP on social media, firms can effectively enhance CBE and strengthen long-term consumer–brand relationships.

However, despite its benefits in driving innovation and value co-creation, CP may also lead to unintended negative consequences. Increased participation exposes consumers to potential service failures, unmet expectations, or perceived inequities, which can trigger dissatisfaction and amplify negative electronic word-of-mouth. Such negative content tends to spread more rapidly and intensely than positive feedback on social media platforms (Chueng et al., 2021). Therefore, it is crucial for firms to actively monitor CP dynamics, particularly to understand how CCI and CBI influence CBE and subsequent behavioral outcomes.

This understanding enables firms to pursue long-term customer loyalty while minimizing dissatisfaction (Tajvidi et al., 2017). Accordingly, organizations must develop strategies that encourage constructive participation and enhance customer retention in digital contexts (Chueng et al., 2021).

Although prior literature has advanced knowledge of CP in social media marketing (Mustak et al., 2016), the distinct effects of CCI and CBI on different dimensions of CBE remain insufficiently explored. Existing studies often treat CP as a single construct influencing overall engagement (Carlson et al., 2019) or examine only one interaction type when explaining brand outcomes (Chueng et al., 2021). To address this limitation, the present study conceptualizes CCI and CBI as separate antecedents of CBE, allowing for the examination of their differential impacts on behavioral intentions such as ongoing search and repurchase.

Moreover, much of the existing research conceptualizes CBE as a higher-order construct (Liu et al., 2018; Hinson et al., 2019), thereby overlooking the unique roles of its underlying components. In particular, cold engagement representing cognitive involvement and hot engagement reflecting emotional attachment, may exert distinct influences on consumer behavior (Cheung et al., 2020). Consequently, the antecedents and outcomes of each engagement dimension remain underexplored. To fill this gap, the current study conceptualizes CBE as a multidimensional construct comprising both cold and hot engagement. Based on this perspective, the study addresses the following research questions:

- RQ1. How do consumer participation forms, specifically CCI and CBI, influence the dimensions of CBE (cold and hot engagement)?
- RQ2. How do these engagement dimensions affect consumers' behavioral intentions, including ongoing search behavior and repurchase intention?

Using Partial Least Squares Structural Equation Modeling (PLS-SEM), this study evaluates both measurement and structural models to generate key findings that contribute to theory and practice. Theoretically, the results clarify how CCI and CBI differently shape CBE dimensions and influence behavioral intentions, addressing a gap in prior research that treated CP and CBE as unified constructs. From a managerial perspective, the findings provide practical guidance for firms to design effective social media strategies that strengthen consumer relationships, enhance loyalty, and manage participation dynamics in a rapidly evolving digital environment.

The structure of this research is presented as follows. The next section reviews the theoretical foundations and conceptual model, followed by the research methodology and results. Subsequent sections present managerial implications, limitations, and future research directions to conclude the study.

2. Theoretical Foundations

2.1. Service-dominant logic

Consumer participation is derived from service-dominant logic, a foundational perspective in marketing that views all exchanges as service-for-service and emphasises the reciprocal application of resources for mutual benefit (Vargo & Lusch, 2004). From a service-dominant logic viewpoint, consumers co-create value with firms at the producer-consumer boundary by contributing their competencies, knowledge, and feedback. In this context, CP can be understood through two forms: CCI, whereby individuals share knowledge and opinions about brands with peers, and CBI, which involves offering ideas, feedback, and inputs that support product or service improvement (Cheung et al., 2021).

Social media growth aids in the application of service-dominant logic, enabling brands to strengthen CCI and CBI by collecting insights, feedback, and ideas from consumers across platforms such as Facebook, Instagram, YouTube, and TikTok (Cheung et al., 2020). For instance, Samsung leverages its “Sam Fans and Friends” community to solicit consumer input for product enhancement, while Xiaomi employs a fan-centric strategy to deepen consumer-brand relationships and loyalty. Likewise, Apple Watch and Samsung Gear encourage community-based exchanges related to health and product use, increasing consumer involvement and brand knowledge. Such interactions demonstrate that incorporating CP via social channels is an effective strategy for enhancing brand performance. It is therefore reasonable to investigate how to drive such exchanges by facilitating CCI and CBI via social media platforms.

2.2. Hypothesis development

The hypotheses are developed by service-dominant logic framework to examine how CCI and CBI, conceptualised as forms of consumer participation, shape two CBE dimensions (cold and hot engagement) and, in turn, influence consumers’ behavioral intentions, thereby advancing the knowledge of CBE within the social media marketing context.

2.2.1. Consumer participation

Consumer participation, defined as consumers’ investment of resources in brand value co-creation (Vargo & Lusch, 2004; Cheung et al., 2021), manifests through task performance (e.g., voting for brands, participating in online campaigns), information exchange (e.g., sharing product experiences with peers), and facilitating desired behaviors (e.g., providing suggestions to brands on social media). Drawing upon three examples interlaced

within active consumer behaviors in social media brand-related activities, it is proven that CP is captured by CCI and CBI.

Extensive the current literature recognizes the importance of both CCI and CBI in enhancing perceived value, brand performance, and relationship factors such as trust, satisfaction, and commitment (Carlson et al., 2019). However, most prior studies either examine CP as a single construct or focus on only one type of interaction, resulting in a limited understanding of both CCI and CBI. Given that CCI reflects participative actions occurring outside the brand sphere, whereas CBI captures consumers’ direct contributions to brand improvement (Carlson, 2019), the distinct nature of these two forms underscores the need for deeper insight into their differential impacts on building strong consumer-brand relationships (Cheung et al., 2021).

2.2.2. Consumer-consumer interaction

Consumer–consumer interaction (CCI) refers to interpersonal communication among individuals with shared interests, where consumers exchange information and provide advice to assist others who may encounter difficulties when using products (Heinonen et al., 2018). Within the context of social media, CCI is reflected through activities such as sharing recommendations, offering shopping guidance, and discussing brand-related information within online communities (Tajvidi et al., 2017).

With the rapid expansion of social media platforms, marketers have increasingly encouraged CCI as a strategy for value co-creation. Through these interactions, consumers engage with one another on brand-related platforms—such as Facebook pages, blogs, and online forums—to share updates and suggest products (Chueng et al., 2021). In addition, they support fellow users by offering guidance, sharing personal experiences, and providing useful recommendations to address product-related issues (Heinonen et al., 2018). These interactions are beneficial for firms, as they help strengthen online brand communities and enhance customer retention.

Previous studies have examined the role of CCI in fostering positive consumer–brand relationships. Chueng et al. (2021) argued that consumers who actively participate in CCI tend to share their product experiences voluntarily, which not only reinforces peer relationships but also broadens collective brand knowledge. Moreover, prior research has emphasized the role of CCI in shaping brand preference (Chueng et al., 2020). However, existing literature has primarily concentrated on the communicative quality of CCI such as friendliness and cooperation while paying less attention to the role of information and knowledge exchange within these interactions (Heinonen et al.,

2018). This suggests that the influence of knowledge-sharing processes on consumer engagement, as well as the comparative effects of CCI and consumer-brand interaction (CBI) in driving behavioral intentions, remains underexplored.

2.2.3. Consumer-brand interaction

Consumer-brand relationship can be understood as consumers' active involvement in engaging with brands by offering feedback, sharing ideas, and contributing suggestions aimed at enhancing product quality or supporting the co-creation of new products (Chuang et al., 2021). In the context of this study, CBI specifically refers to the direct exchanges between consumers and brands in activities such as product development and joint problem-solving processes. Existing research consistently highlights CBI as a fundamental factor in strengthening consumer-brand relationships (Carlson et al., 2019), which subsequently leads to favorable behavioral outcomes, including purchase intention, recommendation intention, brand loyalty, and long-term commitment.

Given its significance, scholars have increasingly focused on developing more comprehensive frameworks to better understand the mechanisms underlying CBI. Previous findings suggest that CBI contributes to higher levels of customer satisfaction and loyalty, thereby reinforcing positive brand attitudes and reducing the likelihood of switching to competing brands. For instance, Carlson et al. (2019) found that CBI enhances consumer-brand relationship outcomes by building trust and commitment, which further promotes positive word-of-mouth. In line with this perspective, the current study examines how CBI on social media facilitates the exchange of ideas between consumers and brands, shaping brand perceptions and ultimately strengthening consumer-brand relationships.

2.2.4. Consumer-brand engagement

Building upon the service-dominant logic framework, CBE refers to psychological manifestations comprising cold and hot responses to brand interactions (Chuang et al., 2021). Consumer-brand engagement occurs through value co-creation processes involving resource integration and service exchanges in consumer-brand interactive systems (Ndhlovu & Maree, 2024). While the consensus is that CBE is a multidimensional concept, including cognitive, emotional, and behavioral dimensions, and emphasizes their outcomes, such as satisfaction and loyalty, without adequately interrogating the processes through which different forms of engagement emerge (Cheung et al., 2021). As a result, the mechanisms linking consumers' cold and hot engagement activities to brand performance remain theoretically underdeveloped.

Despite considerable progress in measuring CBE, scholarship has provided only a partial account of its antecedents (Heinonen et al., 2018). Prior research focuses on consumers' psychological correlates (e.g., emotional attachment), and operationalizes CBE as a second-order construct, thereby masking how and why cold and hot engagement respond differently to marketing stimuli or social interactions (Chuang et al., 2021). Notably absent from the literature is a systematic understanding of how the two forms of CP, CCI and CBI, distinctly shape each dimension of CBE, as prior studies typically treat CP as a unidimensional construct and overlook its differential effects on engagement formation in social media environments (Ndhlovu & Maree, 2024). Accordingly, additional empirical investigation is required to further develop the theoretical foundation underlying the dimensions of consumer-brand engagement (CBE). In particular, attention should be directed toward understanding how consumer participation (CP), represented through consumer-brand interaction (CBI) and consumer-consumer interaction (CCI), influences both cognitive (cold) and emotional (hot) forms of engagement (Cheung et al., 2021). These relationships are elaborated in the subsequent sections to support the development of the study's hypotheses.

2.2.5. Cold engagement

Cold engagement refers to consumers' cognitive investment in brands, reflected in their attention, elaboration, and interest in acquiring brand-related information (Hinson et al., 2019). Prior research shows that both CCI and CBI stimulate this cold effort: consumers who exchange knowledge with peers (CCI) or provide feedback and ideas to brands (CBI) tend to analyse information deeply and expand their brand knowledge (Cheung et al., 2020). Empirical studies consistently highlight CCI as a strong driver of cold engagement, as peer-to-peer advice, experience sharing, and recommendations motivate consumers to learn more about brands and refine their cognitive understanding (Tajvidi et al., 2017). Meanwhile, CBI, through idea sharing and product feedback, encourages consumers to process brand information in great depth (Carlson et al., 2019).

Tajvidi et al. (2017) and Cheung et al. (2020) highlight CCI as a key driver of cold engagement, implying that peer-to-peer interactions on social media motivate consumers to seek useful information and stay updated on brand developments. When consumers actively share views and advice with others on social media, they desire to understand the brand, thereby deepening their cognitive knowledge (Heinonen et al., 2018). As a result, these findings suggest that CCI fosters consumers' cognitive elaboration by stimulating active brand exploration (Tajvidi et al., 2017; Heinonen

et al., 2018; Cheung et al., 2020), which presumes the following hypothesis:

H1. CCI has a significant positive effect on cold engagement with the brand.

Prior research also emphasizes the positive role of CBI in fostering cold engagement. Active consumers who contribute ideas for the product development or provide feedback for quality improvement tend to exhibit a strong cold engagement with the brand. Chueng et al. (2021) state that highly engaged consumers are more motivated to post brand-related opinions, thereby strengthening community members' brand knowledge. Additionally, Ndhlovu and Maree (2024) demonstrate that CBI, through consumers' willingness to share their ideas and feedback for improvement, shapes consumers' interest in processing brand information. Hence, CBI strengthens cold elaboration toward the brand (Chueng et al., 2021; Ndhlovu & Maree, 2024), which presumes the following hypothesis:

H2. CBI has a positive influence on cold engagement with the brand.

2.2.6. Hot engagement

Hot engagement reflects how connected, enthusiastic, or passionate consumers feel toward a brand during or after interactions (Cheung et al., 2020), which is driven through interactive brand activities that facilitate CP (Hinson et al., 2019). Prior studies argue CP drives hot engagement by giving consumers a sense of control, enjoyment, and meaningful involvement in the brand experience. When consumers engage in CCI and CBI on social media, sharing experiences with peers, offering suggestions, and providing feedback to brands, they often experience self-fulfilment and emotional uplift (Carlson et al., 2019).

Previous studies highlight the significance of CCI in boosting hot engagement. By exchanging knowledge and experiences with like-minded users, consumers enhance both their own and others' brand understanding within online communities. Such interactions, ranging from providing usage advice to solving product-related problems, often lead peers and even brands to perceive active contributors as knowledgeable and enthusiastic community members (Heinonen et al., 2018). This recognition stimulates feelings of self-achievement and self-fulfilment, which in turn generate positive emotional sentiments toward those brands (Ndhlovu & Maree, 2024). In addition, CCI operates as an environmental stimulus that evokes emotions such as joy and arousal, ultimately strengthening affective bonds with the brand (Chueng et al., 2021). As a result, CCI can positively drive customers' hot engagement toward brand stimuli (Heinonen et al., 2018; Ndhlovu & Maree, 2024). Based on these discussions, the following hypothesis is considered:

H3. CCI has a significant positive effect on hot engagement with the brand.

Much scholarly research suggests that CBI contributes to hot engagement. When consumers perceive their interactions with a brand as meaningful, responsive, and aligned with their expectations, their emotional connection to the brand strengthens (Liu et al., 2018). Such interactions motivate consumers to share ideas and deepen their understanding of the brand, which enhances positive feelings and strengthens consumer-brand relationships (Cheung et al., 2020; Ndhlovu & Maree, 2024). Overall, CBI can positively shape consumers' hot engagement. Based on these discussions, the following hypothesis is proposed:

H4. CBI has a significant positive effect on hot engagement with the brand.

2.2.7. Ongoing search behavior

Ongoing search behavior describes consumers' persistent efforts to seek out brand-related information even when they do not have an immediate intention to purchase (Chueng et al., 2021). This type of behavior is evident when individuals follow brand websites, continuously browse available brand content, or revisit online stores regularly to stay updated with new information (Cheung et al., 2020).

Recent studies indicate that ongoing search behavior is positively influenced by consumer brand engagement (CBE). Both low-intensity (cold) and high-intensity (hot) engagement can internally motivate consumers to stay informed about brands, particularly within social media environments (Cheung et al., 2020; Ndhlovu & Maree, 2024). For example, sports fans often dedicate considerable cognitive effort to tracking updates about their favorite teams considered as brands in this context throughout a season that evolves constantly due to ongoing matches, results, and related events. Carlson et al. (2019) argue that consumers with higher levels of engagement are more likely to invest time and attention in processing brand-related content, which subsequently increases their tendency to search for information. Accordingly, both cold and hot dimensions of CBE are expected to stimulate ongoing search behavior (Carlson et al., 2019; Cheung et al., 2020), leading to the formulation of the following hypotheses:

H5. Cold engagement with the brand positively affects ongoing search behavior.

H6. Hot engagement with the brand positively influences ongoing search behavior.

2.2.8. Repurchase intention

Repurchase intention reflects consumers' likelihood of repeatedly purchasing products from the same brand or continuing to engage in brand-related activities. Prior research shows CBE dimensions (including cold and hot engagement) positively shape repurchase intention.

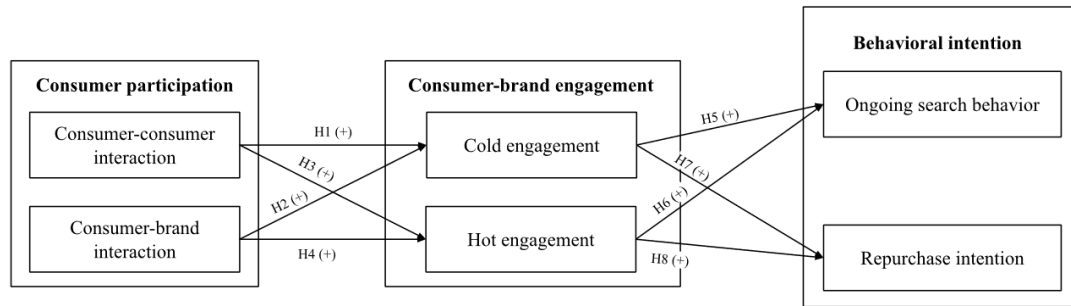


Figure 1. The proposed research model

Cold engagement, through consumers' ongoing interest and cognitive elaboration, strengthens their ability to evaluate alternatives and reinforces their choice of the same brand (Ndhlovu & Maree, 2024). Besides, hot engagement, arising from positive emotions experienced during brand interactions, further intensifies consumers' desire to repurchase (Wu et al., 2014). Additionally, Chueng et al. (2021) proposed that highly engaged consumers invest significant time comparing their preferred brands to rival brands or communicating with other consumers when planning to repurchase, which increases their likelihood of repurchasing. Thus, CBE dimensions, such as cold and hot engagement, bolster repurchase intention (Wu et al., 2014; Ndhlovu & Maree, 2024). Based on this discussion, the following hypotheses are considered:

H7. Cold engagement with the brand positively influences repurchase intention.

H8. Hot engagement with the brand positively influences repurchase intention.

Based on the preceding discussion, the conceptual framework for this study is presented in Figure 1, which seeks to examine the role of consumer participation in the process of brand development. The model suggests that two forms of participation consumer–consumer interaction (CCI) and consumer–brand interaction (CBI) affect different dimensions of consumer brand engagement (CBE), including cognitive, emotional, and behavioral aspects. These engagement dimensions are then expected to shape consumers' behavioral intentions within social media environments.

2.3. Research method

2.3.1. Data collection and sampling

A non-probability sampling design was employed using a self-administered online survey to collect data from 233 consumers regarding their engagement in brand-related activities on Facebook. This approach enabled rapid and cost-efficient data collection across a wide geographic area in Vietnam. To ensure alignment with the research objectives, respondents were required to meet three criteria: (1) being born between 1997

and 2007 (aged 18-27 at the time of data collection), (2) being active smartphone users with at least six months of Facebook usage experience (Cheung, 2020), and (3) regularly engaging with smartphone brand pages. These criteria ensured that respondents possessed sufficient familiarity with both smartphone usage and social media-based brand interactions, thereby allowing informed and experience-based evaluations of smartphone brand-related activities on Facebook. Eligible participants were subsequently asked to identify a smartphone brand with which they were familiar and to complete the survey based on their personal usage experience, consistent with prior brand management research (Cheung et al., 2021). The Vietnamese-language questionnaire required five minutes to complete and remained open for one month, commencing in September 2024.

Smartphones, as high-involvement products, naturally stimulate CBI and CCI through continuous information search, sharing, and problem-solving on social media platforms (Chueng et al., 2021). In Vietnam's increasingly competitive and mature smartphone market, brands depend heavily on such consumer participation to sustain loyalty and encourage repeat purchases, making smartphones an appropriate focal category for examining CP and CBE. Drawing on this reasoning, Facebook was selected as the study context as it is the most widely used platform among Gen Z and uniquely supports community-based interactions essential to CBI and CCI (Chueng et al., 2021). Unlike Instagram or YouTube, Facebook brand pages enable peer-to-peer discussion, knowledge exchange, and co-value creation, making it the most suitable environment for observing online engagement behaviors.

2.3.2. Measurement scales

The paper employed a seven-point Likert scale (1 = strongly disagree; 7 = strongly agree) and drew on 20 validated measurement items from prior research (as shown in Table 1). Notably, CEM is operationalized using cognitive engagement items, and HOT is operationalized using emotional engagement items adapted from Liu et al. (2018). The scale is translated

Table 1. Measurement items

Symbols	Measurement items	Sources
Consumer-consumer interaction		
CCI1	I tend to seek opinions from my friends on social media about the brand before making a purchase.	(Tajvidi et al., 2017)
CCI2	I usually share information about the brand’s products with people in my social network.	
CCI3	I am likely to suggest the brand’s products to others through social media platforms.	
Consumer-brand interaction		
CBI1	I frequently communicate my needs or preferences directly to the brand via social media.	(Nysveen & Pedersen, 2014)
CBI2	I often work together with the brand to resolve issues I encounter on social media.	
CBI3	I actively participate when the brand involves customers in new product development online.	
CBI4	The brand motivates customers to collaborate in generating solutions on social media.	
Cold engagement		
CEM1	Using this brand makes me reflect more about it.	(Liu et al., 2018)
CEM2	I find myself thinking about the brand frequently when I use it.	
CEM3	My experience with the brand increases my curiosity to learn more about it.	
Hot engagement		
HEM1	I experience positive feelings when interacting with the brand.	(Liu et al., 2018)
HEM2	The brand brings me a sense of happiness during use.	
HEM3	I feel a sense of pride when using this brand.	
HEM4	Using the brand gives me a good overall feeling.	
Ongoing search behavior		
OSB1	I like exploring materials such as catalogs or articles related to smartphones.	(Cheung et al., 2020)
OSB2	I am interested in reading information about how smartphones are used.	
OSB3	I tend to compare features and specifications of smartphones across different brands.	
Repurchase intention		
RPI1	I am very likely to choose this brand again in the future.	(Wu et al., 2014)
RPI2	I see myself as a committed customer of this brand.	
RPI3	If given another chance, I would still select this brand.	

and carefully checked from English to Vietnamese to ensure consistency between the two language versions. The questionnaire was first piloted with 50 online respondents to assess item clarity and interpretability, after which their feedback informed revisions to the scale before administering the final survey.

2.3.3. Data analysis

Data analysis proceeded in two stages. First, descriptive statistics were analyzed via SPSS to examine the dataset's properties. Second, the study employed PLS-SEM via SmartPLS with a 5,000-bootstrap, two-tailed procedure to assess (1) the reliability and validity of the measurement model and (2) the structural model for hypothesis testing (Hair et al., 2017). The PLS-SEM approach was selected due to its suitability for models with multiple indicators, non-normal data, and small sample sizes (Hair et al., 2017). Specifically, measurement model evaluation followed established criteria: outer loadings ≥ 0.70 , Cronbach's alpha and composite reliability ≥ 0.70 , VIF < 5.0 , AVE ≥ 0.50 for convergent validity, and Fornell-Larcker criteria for discriminant validity. Model fit was assessed using SRMR (< 0.10) and NFI (0-1) (Hair et al., 2017). Additionally, structural model

assessment involved examining path coefficients and p-values (significant at $p \leq 0.005$), effect sizes (f^2 : 0.35 large; 0.15 medium; 0.05 small), and R^2 values (0.75 substantial; 0.50 moderate; 0.25 weak), providing evidence for the proposed hypotheses.

3. Results and Discussion

3.1. Demographic

A total of 233 valid responses were collected for the subsequent analysis. The respondents were predominantly young, tech-savvy consumers, aligning well with the study's target population (see Table 2). The sample consisted of 53.6% males and 46.4% females, with most individuals being undergraduate students (59.7%) and full-time students (66.5%). In terms of smartphone familiarity, Samsung (50.2%) and Apple (22.3%) were the most recognized brands, reflecting their dominant market share in Vietnam. Daily smartphone usage was notably high, with 57.9% using their devices for more than six hours per day. Facebook usage followed a similar pattern: 42.9% spent over six hours daily on the platform, while 57.1% used it for one to five hours. Overall, the respondent profile confirms a highly active, digitally engaged

Table 2. Respondents' demographic profile

Characteristics	Items	Frequency (N = 233)	Percent
Gender	Male	125	53.6
	Female	108	46.4
Education	College/Vocational school	44	18.9
	Undergraduate	139	59.7
	Postgraduate	50	21.5
The familiar smartphone brand	Apple	52	22.3
	Samsung	117	50.2
	Oppo	19	8.2
	Sony	5	2.1
	Nokia	3	1.3
	Xiaomi	31	13.3
	Huawei	6	2.6
Average daily smartphone usage	1-5 hours	98	42.1
	Higher than 6 hours	135	57.9
Average daily Facebook usage	1-5 hours	133	57.1
	Higher than 6 hours	100	42.9

Table 3. Measurement model results

Construct reliability and validity					Discriminant validity (Fornell and Larcker criterion)					
	Loadings	CA	CR	AVE	CBI	CCI	CEM	HEM	OSB	RPI
CCI	0.844 - 0.886	0.890	0.923	0.751	0.867					
CBI	0.861 - 0.882	0.838	0.902	0.755	0.801	0.869				
CEM	0.872 - 0.889	0.853	0.911	0.773	0.812	0.813	0.879			
HEM	0.731 - 0.893	0.860	0.905	0.706	0.671	0.749	0.834	0.840		
OSB	0.839 - 0.887	0.820	0.893	0.736	0.690	0.814	0.797	0.821	0.858	
RPI	0.885 - 0.898	0.870	0.920	0.794	0.711	0.763	0.848	0.852	0.789	0.891

consumer group, suitable for examining CP and CBE on social media.

3.2. The result of the measurement model

The measurement model was evaluated through several criteria, including indicator reliability, internal consistency, convergent validity, discriminant validity, and the assessment of multicollinearity (Hair et al., 2017). As presented in Table 3, all indicator loadings fall within the range of 0.731 to 0.898, exceeding the recommended cutoff value of 0.70, thereby demonstrating satisfactory item reliability. In addition, the values of Cronbach's alpha and composite reliability for all constructs are above the acceptable threshold of 0.70, confirming strong internal consistency across the measurement scales.

Convergent validity was assessed using the average variance extracted (AVE), where each construct achieved values no lower than 0.736, which is substantially higher than the minimum requirement of 0.50 (Hair et al., 2017). To establish discriminant validity, the Fornell–Larcker criterion was applied, showing that the square root of the AVE for each

construct exceeds its correlations with other constructs. This finding indicates that the constructs are empirically distinct and that the measurement items capture their intended concepts without significant overlap.

3.3. The result of the structural model

The structural model was assessed by analyzing p-values, standardized path coefficients (β), effect sizes (f^2), and coefficients of determination (R^2) in order to test the proposed hypotheses. As presented in Table 4, the findings indicate substantial support for the majority of the hypothesized relationships.

Regarding the antecedents of CBE, CCI exerted significant positive effects on both cold engagement ($\beta = 0.455$, $p = 0.000$, $f^2 = 0.278$) and hot engagement ($\beta = 0.589$, $p = 0.000$, $f^2 = 0.293$), supporting H1 and H3, while CBI significantly influenced cold engagement ($\beta = 0.447$, $p = 0.000$; $f^2 = 0.268$), supporting H2. However, CBI's effect on hot engagement ($\beta = 0.199$, $p = 0.076$, $f^2 = 0.034$) was weak and non-significant, leading to the rejection of H4. These results correspond with strong explanatory power for cold engagement

($R^2 = 0.731$) and hot engagement ($R^2 = 0.572$). The findings reveal that CCI is a more powerful driver of CBE dimensions than CBI, exerting stronger effects on cold and hot engagement. This indicates that initiatives fostering CCI, such as encouraging knowledge sharing, peer advice, and experience exchange in social brand communities, are central to strengthening engagement. In contrast, although CBI is effective in stimulating cold engagement, its limited influence on hot engagement contradicts prior claims that both CCI and CBI drive all CBE dimensions (Cheung et al., 2021). A plausible explanation for the non-significant effect of CBI on hot engagement is that brand-initiated interactions on social media may be perceived as overly commercialized, reducing their ability to evoke genuine emotional responses. Unlike peer-driven interactions (CCI), which are viewed as authentic and experience-based, CBI activities resemble persuasive communication or promotional intent. Prior research suggests that when consumers perceive brand interventions as intrusive or overly transactional, they experience reactance and reduced emotional connection, particularly on platforms where users expect organic, community-driven sharing rather than explicit commercial messaging (Schreuder et al., 2024). Hence, while CBI may stimulate cold processing, it is less likely to generate strong hot engagement within social media environments.

Concerning CBE consequences, both cold ($\beta = 0.368$, $p = 0.000$, $f^2 = 0.145$) and hot engagement ($\beta = 0.514$, $p = 0.000$, $f^2 = 0.282$) significantly predicted ongoing search behavior, confirming H5 and H6, with an adjusted R^2 of 0.713. Additionally, cold ($\beta = 0.451$, $p = 0.000$, $f^2 = 0.292$) and hot engagement ($\beta = 0.476$, $p = 0.000$, $f^2 = 0.325$) had significant positive effects on repurchase intention, supporting H7 and H8, yielding an R^2 of 0.786. These results indicate both cold and

hot engagement are important drivers of consumers' search behavior and repurchase intention, with hot engagement showing slightly stronger effects than cold engagement on both outcomes (as reflected in f^2 values). This suggests that, in addition to sustained cognitive elaboration about the brand, emotional connection plays a particularly salient role in motivating consumers to seek brand-related information and to repurchase. The findings are consistent with prior research emphasizing that cognitively and emotionally engaged consumers are more likely to invest effort in searching and maintaining long-term relationships with brands on social media (Wu et al., 2014; Cheung et al., 2020, 2021). Overall, the results underscore cold and hot engagement as key mechanisms through which engagement translates into favorable behavioral intentions.

Furthermore, the control variables (e.g., gender, education, occupation, average daily smartphone usage, and average daily Facebook usage) showed weak and statistically nonsignificant effects within the model.

4. Conclusion and managerial conclusions

4.1. Conclusion

The present study examined how two forms of CP, namely CCI and CBI, influence two dimensions of CBE, namely cold and hot engagement, and how these engagement states subsequently drive ongoing search behavior and repurchase intention among Generation Z consumers in an emerging market context. Overall, the findings underscore the central role of CCI in activating both cognitive and emotional engagement, while revealing a more selective role of CBI, which contributes to cold engagement but not to hot engagement.

Consistent with prior empirical studies, the strong effects of CCI on both cold and hot engagement

Table 4. Structural model analysis

Paths	f²	β	CI ^a		p-value	Result ^b
			2.5%	97.5%		
CEM (Adj. R²= 0.731)						
H1. CCI → CEM	0.278	0.455	0.268	0.628	0.000	Significant
H2. CBI → CEM	0.268	0.447	0.271	0.627	0.000	Significant
HEM (Adj. R²= 0.572)						
H3. CCI → HEM	0.293	0.589	0.361	0.783	0.000	Significant
H4. CBI → HEM	0.034	0.199	-0.013	0.424	0.076	Non-significant
OSB (Adj. R² = 0.713)						
H5. CEM → OSB	0.145	0.368	0.181	0.530	0.000	Significant
H6. HEM → OSB	0.282	0.514	0.354	0.681	0.000	Significant
RPI (Adj. R² = 0.786)						
H7. CEM → RPI	0.292	0.451	0.310	0.592	0.000	Significant
H8. HEM → RPI	0.325	0.476	0.336	0.607	0.000	Significant

align with research emphasizing the social and experiential nature of engagement on social media platforms. Previous studies have shown that peer-to-peer interactions stimulate information exchange, emotional resonance, and a sense of social presence, thereby fostering deeper engagement states (e.g., Carlson et al., 2019; Cheung et al., 2021). Our findings extend this stream of literature by demonstrating that, for Generation Z consumers, CCI not only enhances emotional engagement but also strengthens cognitive engagement, suggesting that social interactions simultaneously serve informational and affective functions in smartphone brand communities.

In contrast, the finding that CBI significantly influences cold engagement but does not exert a significant effect on HEM partially diverges from earlier studies (e.g., Cheung et al. 2021; Cheung et al., 2020; Ndhlovu & Maree, 2024). This divergence can be attributed to contextual and generational differences. Specifically, in the smartphone and social media context, brand-initiated interactions are often perceived as informational, promotional, or functional rather than emotionally stimulating. As a result, such interactions primarily activate rational processing (i.e., cold engagement), such as product evaluation and information acquisition, rather than emotional attachment or affective arousal. Moreover, Generation Z consumers are often highly skeptical of firm-generated content as overly commercialized; therefore, they tend to associate emotional value with peer-generated interactions rather than brand-controlled communication. This aligns with the economic signaling perspective, which suggests that brand-directed interactions may not generate sufficient emotional utility to justify the associated cognitive and temporal costs, which consumers entail a trade-off with alternative activities. Consequently, while CBI enhances cognitive evaluations of the brand, it may lack the authenticity or emotional intensity required to trigger HEM, particularly in technology-driven product categories such as smartphones.

Despite such distinction, both cold and hot engagement strengthen ongoing search behavior and repurchase intention, which is in contradiction to prior engagement research (e.g., Dessart et al., 2019; Chueng et al., 2021). By demonstrating that both engagement dimensions independently contribute to downstream behavioral outcomes, this study reinforces the importance of managing engagement as a multidimensional construct to maintain long-term relational intentions. Therefore, these results offer both theoretical and managerial implications for managing CP effectively in a fast-evolving social media landscape, where Gen Z engagement can amplify both positive and negative interactions. This study, therefore, underscores the need to distinguish CCI from CBI and to assess their unique contributions to the brand management process on digital platforms.

This study responds to the call by Cheung et al.

(2021) for a more nuanced examination of CP. It develops a comprehensive model that separately evaluates the influence of CCI and CBI on CBE and downstream outcomes, an area largely overlooked in prior work that treated CP or CBE as collective constructs. The results offer deeper insight into how each type of CP activates different forms of engagement, particularly highlighting CCI as the primary driver of both cold and hot engagement among Gen Z consumers. Additionally, the non-significant effect of CBI on hot engagement expands earlier findings by showing that brand-directed participation may be more cold than hot within smartphone contexts, thus offering a new theoretical perspective on CP in emerging digital markets.

4.2. Managerial implications

The findings offer several implications for firms managing consumer participation on social media, particularly among Gen Z smartphone users. First, the strong and consistent impact of CCI on both cold and hot engagement underscores the importance of peer-to-peer dynamics in shaping consumers' cognitive processing and emotional attachment. Firms should therefore shift toward peer-centric marketing by developing branded micro-communities on platforms such as Facebook groups or in-app forums, supported by community-led initiatives (e.g., Gen Z "creator circles", peer-to-peer support rooms, fan-to-fan livestreams, or Gen Z Micro-Tribes Community), which enable users to exchange knowledge and share experiences. As Gen Z consumers place greater trust in peer insights than in brand messaging, strengthening CCI is a powerful mechanism for deepening both cognitive and emotional engagement. Second, although CBI strengthens cold engagement, its limited effect on hot engagement suggests that brand-directed initiatives should aim to deepen brand understanding. Firms can deploy co-creation interfaces, including beta-testing programs for new products, feature hackathons, augmented reality-based design sandboxes, or community co-build kits that allow consumers to influence product development. Such mechanisms stimulate consumers' direct involvement with the brand, thereby strengthening their cognitive elaboration. Third, given that both CBE dimensions strengthen consumers' behavioral intentions (e.g., ongoing search and repurchase), firms should adopt an integrated engagement strategy that simultaneously stimulates cognitive and emotional elaboration. This can be achieved by combining informative content (e.g., product updates) with emotionally storytelling that reinforces social values. When consumers are both intellectually engaged and emotionally aligned with the brand, they remain motivated to seek brand-related information and are more likely to repurchase. Finally, the strong reliance of Gen Z on social media interactions underscores the importance of systematically monitoring consumer participation to manage engagement more

effectively and enhance brand performance. Firms should use social listening, sentiment-tracking tools, and participation analytics to track how consumers interact with brands (CBI) and with one another (CCI). Monitoring these dynamics enables firms to identify engagement fluctuations, intervene when negative interactions arise, and adapt communication tactics to sustain positive participation trajectories, ultimately enhancing brand performance in a fast-evolving digital environment.

While this study offers valuable insights into CP, several limitations exist and call for future research. First, the cross-sectional design limits the ability to explore how CCI and CBI evolve over time. Longitudinal approaches to capture participation dynamics across different stages of the customer journey (e.g., pre-purchase, post-purchase, and loyalty phases) should be conducted in future research. Second, although the present study emphasizes the positive roles of CCI and CBI, consumer participation can also produce adverse outcomes. Future work should therefore compare their positive effects with detrimental constructs such as negative electronic word-of-mouth, value co-destruction, or brand hate to provide a more holistic understanding of CP dynamics. Finally, moderation effects were beyond the scope of this study. Future work incorporating moderators such as brand attachment or online exposure frequency should be carried out to offer deeper insight into how CP influences CBE and behavioral intentions across different conditions.

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