



# The central role of consumer–brand engagement in product and service brand contexts

T. Ndhlovu<sup>1</sup> · T. Maree<sup>1</sup>

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## Abstract

This paper examines key relational drivers and brand outcomes of consumer–brand engagement (CBE) in smartphone (product) and social media (service) brand contexts. The study utilised structural equation modelling to analyse data collected from 503 smartphone owners and 491 social media users through online surveys. The findings show that, in both brand contexts, brand trust, self-expressive brand, and brand interactivity influence CBE. Furthermore, CBE positively influences brand evangelism and consumer-based brand equity. The mediating role of CBE is also reported. The findings imply that developing consumer relationship management (CRM) initiatives that generate brand trust, self-expressive brand, and brand interactivity, will lead to consumers having mutually rewarding and interactive relationships with the brand, leading to favourable brand outcomes. The paper contributes theoretically and contextually by testing an S-D logic-informed conceptual model that explains the important role of CBE in interrelating with important relational concepts in two contexts.

**Keywords** Consumer–brand engagement · Brand trust · Self-expressive brand · Brand interactivity · Brand evangelism · Consumer-based brand equity

## Introduction

Strategic marketing has moved away from the transactional view where the creation of value largely depended on the firm (Pansari and Kumar 2017), to consumer co-creation by means of service exchange and resource integration (Vargo and Lusch 2016). Consumers are proactive, contributing directly (e.g. purchases) and indirectly (e.g. consumer recommendations, knowledge, and influence) to the profitability of the firm (Kumar et al. 2019; Kumar and Reinartz 2016). The consumer's value contributions to the firm are important elements of consumer–brand engagement (CBE) (Kumar et al. 2019).

CBE has become important to firms' strategies, as it enhances performance in respect of profitability, customer retention, customer loyalty, and brand equity (Kumar and Pansari 2016; Pansari and Kumar 2017). Academic and practitioner research focusing on CBE in the marketing field has grown rapidly in the past decade (Bowden 2009; Brodie

et al. 2011; Hollebeek et al. 2019; Islam and Rahman 2016a; Kumar and Kaushik 2020; MSI 2016, 2018; Schivinski et al. 2016; Van Doorn et al. 2010).

The interactive nature of CBE is indisputable; however, there are inconclusive views about the drivers and outcomes of CBE (Maslowska et al. 2016). CBE has relationships with, but is conceptually different from, other key consumer–brand relationship constructs. These include, but are not limited to: involvement, co-created value, interactivity, brand experience, consumer satisfaction, commitment, flow, perceived quality, consumer value, trust, rapport, and brand loyalty (Hollebeek 2011). These constructs may serve as either drivers or outcomes of engagement, depending on the setting (Islam and Rahman 2016a). The drivers of CBE can be grouped into three categories: consumer, firm, and context-based factors (Van Doorn et al. 2010). This paper focuses on the consumer-centric (brand trust and self-expressive brands) and firm-controlled (brand interactivity) drivers of CBE (France et al. 2016).

Trust is a critical element that influences existing consumers to continue dealing with a brand (Hollebeek 2011) and it is further reported to influence psychological aspects of CBE (Nyadzayo et al. 2020). Self-expressive brand is another important driver of CBE, as consumers who perceive a brand as enhancing the social self and reflecting their inner self tend

✉ T. Maree  
tania.maree@up.ac.za

<sup>1</sup> Department of Marketing Management, University of Pretoria, Hatfield, Private Bag X20, Pretoria 0028, South Africa



to engage with the brand (Leckie et al. 2016; Nyadzayo et al. 2020). Firm-initiated brand interactivity, which involves two-way consumer–brand communication, is another important driver of CBE (France et al. 2016; Hollebeek 2011).

CBE ‘goes beyond purchase’ (Vivek et al. 2014), as evidenced by studies revealing CBE as a predictor of consumer behaviours such as loyalty, brand usage intent, re-patronage intent, and word-of-mouth (Fernandes and Moreira 2019; France et al. 2016; Hollebeek et al. 2014; Islam and Rahman 2016b; Islam et al. 2019; Vivek et al. 2014). CBE can also lead to brand evangelism (Nyadzayo et al. 2020), which is a supportive brand-related behaviour that involves a blend of adoption and advocacy behaviours such as positive referrals, purchase intent, and oppositional brand referrals (Becerra and Badrinarayanan 2013).

Consumer-based brand equity centres around how the consumer views the value of the brand, and symbolizes the firm’s positive returns (Chatzipanagiotou et al. 2016). Some literature suggests that CBE positively impacts consumer-based brand equity (Hepola et al. 2017). However, empirical studies focusing on the influence of CBE on consumer-based brand equity are scant, indicating that there are insights to be gained from investigating this relationship.

The aim of this paper is to examine the associations of CBE with the mentioned consumer–brand related drivers and outcomes in the smartphone and social media brand contexts, while also establishing its mediating role. This is achieved by developing and empirically testing a conceptual model rooted in S-D logic.

The paper contributes value contextually, theoretically and practically. It measures consumer engagement using two scales specifically developed for service and product contexts; it confirms the suitability of the S-D logic as a theoretical foundation for a holistic model that captures the central role of consumer engagement between relational constructs and important brand engagement outcomes; it emphasises the central role of CBE in customer relationship management; and it provides brand managers with recommendations on strengthening consumer–brand relationships.

The structure of the remainder of the paper is as follows. A literature review is presented next, followed by the theoretical framework. The research methodology, data analyses, and the study results are then outlined. This is followed by the discussions of the results and implications. The paper concludes with limitations and future research suggestions.

## Literature review

### Consumer–brand engagement (CBE)

Over the years, consumer management has transitioned from consumer transaction to relationship marketing and

then to consumer–brand engagement (Pansari and Kumar 2017). The contemporary consumer has changed from being passive to being a pro-active value co-creator with the firm; and this has influenced leading international brands to include CBE in their marketing strategies (Islam et al. 2019, 2017). CBE inherently involves mutual interactions and relational exchanges between consumers and focal engagement objects, including brands (Brodie et al. 2013; Islam and Rahman 2016a).

The past decade has seen a proliferation of research into CBE among academics and marketing practitioners (Dessart et al. 2016; Fehrer et al. 2018; Ferreira et al. 2020; Islam et al. 2019; Islam and Rahman 2016a; Schivinski et al. 2016; Touni et al. 2020). The growing focus on CBE has given rise to debate on its conceptualization and dimensionality (Islam et al. 2019), but with little consensus. CBE is variably conceptualized as a psychological condition (Brodie et al. 2011), a behavioural manifestation (Jaakkola and Alexander 2014; Van Doorn et al. 2010), or an ecosystem (Maslowska et al. 2016). Most research views CBE as a multidimensional construct that includes both psychological states and behavioural acts in specific brand interactions (Brodie et al. 2011; Dessart et al. 2016; Gambetti et al. 2012; Hollebeek 2011; Hollebeek et al. 2019; So et al. 2014).

The conundrum presented by the varying scholarly conceptualizations has seen different dimensions, drivers, and outcomes of CBE emerging (Maslowska et al. 2016). Fundamentally, the concept of CBE differs in context, subject, and object, prompting diverse definitions, measurement, and dimensionality (Ferreira et al. 2020; Maslowska et al. 2016).

One line of reasoning focuses on behaviour only, where CBE is described as motivationally driven consumers’ behavioural manifestations regarding a brand that go beyond purchase (Van Doorn et al. 2010). This view is augmented by Jaakkola and Alexander (2014), who add that beyond buying, consumers voluntarily contribute resources towards the brand via consumer–brand interactions. This unidimensional view of CBE has received some support, and research on it is growing (Beckers et al. 2018; Bergel et al. 2019; Jaakkola and Aarikka-Stenroos 2019; Roy et al. 2018; Roy et al. 2022; Sheng 2019). The proponents of consumer engagement as behaviour argue that this view is important in capturing the consumer’s role in value co-creation (Bergel et al. 2019).

Contrarily, most research conceptualizes CBE as a psychological state, characterized by emotional, cognitive, and behavioural dimensions (Brodie et al. 2019; Dessart et al. 2016; Harrigan et al. 2018; Hollebeek et al. 2014). According to this, CBE is defined as a ‘multidimensional concept comprising cognitive, emotional and/or behavioural dimensions, and plays a central role in the process of relational exchange where other relational concepts are engagement antecedents and/or consequences’ (Brodie et al. 2013). A



combination of psychological and behavioural components in the engagement process is critical, as it reflects the consumer's complete engagement (emotional, cognitive, behavioural, and social) with the brand in particular interactive structures (Hollebeek 2018; Hollebeek et al. 2019).

This paper adopts the multidimensional view and defines CBE as a 'consumer's psychological state and behavioural manifestations that occur through the process of value co-creation involving resource integration and service exchanges in consumer–brand interactive service systems' (Ndhlovu and Maree 2022).

## Dimensions of CBE

Approaches to measuring CBE differ (Dwivedi 2015; Hollebeek et al. 2014; So et al. 2014; Vivek et al. 2014), leading to different scales being used to measure it. This study adopts the dimensions of the recently refined CBE scales developed by Ndhlovu and Maree (2022) to measure CBE in product and service brand contexts, respectively. The CBE dimensions for the product context are reasoned behaviour and affection, while for the service context, the CBE dimensions are affection, absorption, identification, and social connection.

*Reasoned behaviour* is defined as 'consumers' level of brand-related sustained active mental states and behavioural manifestations in specific brand interactions' (Ndhlovu and Maree 2022). *Affection* refers to a person's favourable feelings regarding a specific brand in particular consumer–brand relations (Ndhlovu and Maree 2022). *Absorption* is a deep state of immersion and undivided concentration, where the consumer loses track of time while they interact with the engagement object (Dwivedi 2015; So et al. 2014). *Identification* is the degree to which someone sees themselves as joined with (or belonging to) the brand (So et al. 2014). *Social connection* denotes the participation of inter-connected actors in value co-creation within brand relations (Hollebeek et al. 2019; Vivek et al. 2014).

These dimensions reinforce CBE as a multidimensional concept, as they are rooted in the broader CBE conceptualization of emotional, cognitive, and behavioural elements. The theoretical foundations of CBE lie in service-dominant (S-D) logic, which centres on interactive value co-creation (Vargo and Lusch 2016, 2017).

## Theoretical framework and hypotheses development

S-D logic describes an active and enduring value co-creation narrative because of integration of resources and service exchange between various actors, including the consumer,

the firm, and other stakeholders (Vargo and Lusch 2017). Over the years, S-D logic has shifted from a dyadic to a network orientation, with value creation occurring in a network structure (Vargo and Lusch 2016), which consists of diverse multiple actors (e.g., the consumer, the focal brand, or other consumers) who co-create value in service ecosystems (Brodie et al. 2019; Vargo and Lusch 2017). A service ecosystem is described as a 'relatively self-contained, self-adjusting system of resource-integrating actors connected by shared institutional arrangements and mutual value creation through service exchange' (Vargo and Lusch 2016).

Since S-D logic is inherently relational, trust is fundamental to understanding consumer–brand relationships, as it influences the success of any relationship (Jung et al. 2014; Morgan and Hunt 1994). Brand trust reduces perceived risk in consumer–brand interactions, which enables the consumer to share their value systems and value-generating processes (consumer resource integration) with the brand, leading to co-creation of value (Baumann and Le Meunier-FitzHugh 2014).

Additionally, meaningful consumer–brand relationships can alter or reinforce the self-concept of the consumer (Fournier 1998), where they see the brand as an extension of self (Belk 1988). Therefore, self-expressive consumers will participate in value co-creation through consumer behaviour that promotes the brand in order to express their identity (Chernev et al. 2011; Lee and Workman 2015).

Firm-initiated brand interactivity represents the degree of reciprocal communication between actors, enabling the consumer to participate in value co-creation (France et al. 2018). Thus, it is important to CBE because relationships are established through consumer–brand interactions.

The CBE benefits that ensue after multiple brand interactions include co-creation and resource development (individual and interpersonal) (Hollebeek et al. 2019). The consumer contributes value to the brand directly (through purchases) and indirectly (through non-purchase behaviours) (Kumar and Reinartz 2016). Consequently, this study examines brand evangelism and consumer-based brand equity as non-purchase value contributions from CBE.

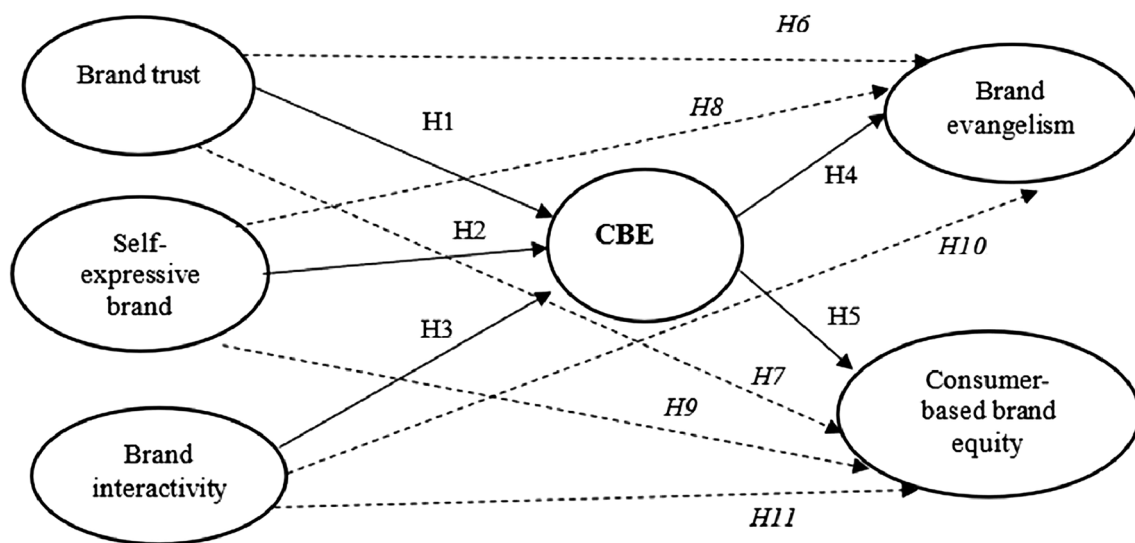
Based on the foregoing, S-D logic theoretically underpins the influence of brand trust, brand interactivity, and self-expressive brand on CBE, and the subsequent effect of CBE on brand evangelism and consumer-based brand equity. It, therefore, also posits the mediating role of CBE. The conceptual framework is presented in Fig. 1.

## Drivers of CBE

### Brand trust

Brand trust refers to how confident the consumer is in the exchange partner's (the brand) ability to fulfil their expected





*Note: mediation hypotheses indicated with dotted lines*

Fig. 1 Conceptual framework

function (Chaudhuri and Holbrook 2001). Trust thus provides the foundation for successful exchange relationships, as the perceived risk among actors is reduced by their growing confidence in other actors' abilities to perform (Jung et al. 2014).

Conceptually, brand trust has been proposed as a potential attitudinal driver of CBE (Van Doorn et al. 2010). Consumers who are highly trusting are likely to engage more with the brand (De Oliveira Santini et al. 2020). Empirical evidence shows that brand trust influences the CBE dimensions of affection and cognitive processing (Nyadzayo et al. 2020). This study builds on the earlier research by proposing that brand trust has a positive effect on CBE in both product and service contexts. Thus, the following is hypothesised:

**H<sub>1</sub>** Brand trust has a significant positive influence on CBE.

#### Self-expressive brand

Self-expressive brand refers to the degree to which the consumer views the brand to reflect their inner self and to enhance their social identity (Carroll and Ahuvia 2006). For instance, consumers will purposefully use a specific brand to display their values and self (Hwang and Kandampully 2012). Several prior studies have shown that self-expressive brand influences CBE (Algharabat et al. 2020; Leckie et al. 2016; Nyadzayo et al. 2020). Further, consumers are inclined to engage with their favourite brands, because they use them as tools for self-expression (Spratt et al. 2009). Thus, it can be hypothesised that:

**H<sub>2</sub>** Self-expressive brand has a significant positive influence on CBE.

#### Brand interactivity

Brand interactivity is described 'as the customer's perception of the brand's willingness and genuine desire for integration with the consumer' (France et al. 2016). Empirical studies show that brand interactivity or its proxies (firm-created social media communication, virtual interactivity, and website interactivity) have a positive influence on CBE (France et al. 2016; Gómez et al. 2019; Islam et al. 2020; Islam and Rahman 2017). Brand interactivity as a firm-initiated driver of CBE (France et al. 2016) enhances the engagement process, as it facilitates the consumer to voluntarily invest resources in interacting with the brand (Hollebeek et al. 2019).

Brand interactivity is reported as a fundamental driver of CBE (France et al. 2016; Hollebeek 2011) and a necessary tool that enables the S-D logic narrative of value co-creation (France et al. 2018; Merrilees 2016). Considering the foregoing, the following is hypothesised:

**H<sub>3</sub>** Brand interactivity has a significant positive influence on CBE.



## Outcomes of CBE

### Brand evangelism

Brand evangelism refers to active devotional brand-related behaviours that involve purchasing the brand's products and/or services, sharing favourable recommendations, as well as spreading unfavourable information regarding opposing brands (Becerra and Badrinarayanan 2013). Consumers co-create value through direct and indirect behaviours such as augmenting, co-developing, influencing, and mobilizing behaviours, which are elements of brand evangelism (Jaakkola and Alexander 2014; Pansari and Kumar 2017). Consumers who are deeply engaged with the brand thus tend to become evangelistic (Algesheimer et al. 2005). Prior research found that CBE positively influences word-of-mouth and behavioural intentions, which are proxies for brand evangelism (De Oliveira Santini et al. 2020), and CBE positively influences brand evangelism (Nyadzayo et al. 2020). Therefore, the following is hypothesised:

**H<sub>4</sub>** CBE has a significant positive influence on brand evangelism.

### Consumer-based brand equity (consumer-based brand equity)

Consumer-based brand equity refers to “consumers’ different response between a focal brand and unbranded product when both have the same level of marketing stimuli and product attributes” (Yoo and Donthu 2001, p. 1). Strong brands are dependent on the consumer–brand relationship, which subsequently leads to brand value co-creation; thus, the role of that relationship is critical in influencing consumer-based brand equity (Chatzipanagiotou et al. 2016; Keller 2016; Schivinski and Dabrowski 2015). CBE, which is inherently interactive, enriches the consumer's brand knowledge, in the process creating positive, extraordinary, and novel brand associations that enhance brand equity (Algharabat et al. 2020; Kuvykaite and Piligrimiene 2014). The co-creative nature of CBE therefore allows the firm to use the consumer's skills and knowledge in creating brand equity (Kuvykaite and Piligrimiene 2014). This aligns with prior empirical research that found that CBE has a favourable association with consumer-based brand equity (Hepola et al. 2017). Considering the foregoing, the following is hypothesised:

**H<sub>5</sub>** CBE has a significant positive influence on consumer-based brand equity.

## The mediating role of CBE

The literature shows CBE as a central construct within the nomological network of consumer–brand relationships (Brodie et al. 2011; Nyadzayo et al. 2020). The role played by CBE in these relationships is significant, as consumers actively co-create value along with the brand, which in turn transforms consumers into being loyal and evangelistic about the focal brand (Leckie et al. 2016). Previous empirical studies show evidence of the mediating role of CBE in their proposed models comprising various drivers and outcomes of CBE (Algharabat et al. 2020; Hollebeek et al. 2014; Leckie et al. 2016). Thus, for this research, it is hypothesised that:

**H<sub>6</sub>** CBE mediates the relationship between brand trust and brand evangelism.

**H<sub>7</sub>** CBE mediates the relationship between brand trust and consumer-based brand equity.

**H<sub>8</sub>** CBE mediates the relationship between self-expressive brand and brand evangelism.

**H<sub>9</sub>** CBE mediates the relationship between self-expressive brand and consumer-based brand equity.

**H<sub>10</sub>** CBE mediates the relationship between brand interactivity and brand evangelism.

**H<sub>11</sub>** CBE mediates the relationship between brand interactivity and consumer-based brand equity.

## Methodology

### Data collection and sample

A reputable international market research firm distributed online self-completion surveys to two independent adult non-probability samples of South African smartphone and social media users. Both samples used screening questions to filter the respondents. Smartphone respondents were requested to report whether they owned a smartphone in order to proceed with the survey; subsequently indicating their preferred smartphone brand. Social media respondents had to indicate whether they had a social media account that they used at least once a week in order to continue with the survey; and indicate their preferred social media brand. The chosen smartphone and social media brands were piped into the rest of the survey questions. Prior to data collection, ethical approval was gained (protocol number EMS070/19). Table 1 reports the demographic profiles.



**Table 1** Sample populations' demographic characteristics

Sample characteristic	Smartphone		Social media	
	n	%	n	%
Gender				
Male	253	50.3	247	50.3
Female	250	49.7	244	49.7
Race				
Black African	220	43.7	212	43.2
Coloured	59	11.7	68	13.8
Indian/Asian	34	6.8	25	5.1
White	185	36.8	177	36.0
Other (specify)	5	1.0	9	1.8

For both samples, there was an almost equal gender distribution, and that most of the respondents were Black Africans (43.7% for the smartphone sample, and 43.2% for the social media sample). The most preferred smartphone brand was Samsung (38.8%) and the most preferred social media platform was Facebook (46.8%).

### Questionnaire design and measurements

The questionnaires for the respective contexts included screening questions and preferred brands, and the construct measures (CBE, brand trust, self-expressive brand, consumer-based brand equity; brand evangelism, and brand interactivity). Scale measures were formatted as five-point Likert-type responses (1 strongly disagree to 5 strongly agree). The last section comprised the respondents' demographics (gender, age, home language, and race). The research instruments were pre-tested using pilot samples prior to their distribution.

CBE was measured with a two-dimensional 29-item scale for smartphones, and a four-dimensional 20-item scale for social media (Ndhlovu and Maree 2022). Brand trust (five items) was adopted from Becerra and Badrinarayanan (2013); self-expressive brand (eight items) from Carroll and Ahuvia (2006); brand interactivity (five items) from France et al. (2016); brand evangelism (seven items) from Becerra and Badrinarayanan (2013); consumer-based brand equity (four items) from Hepola et al. (2017).

### Data analysis processes

Similar data analysis procedures were followed for both samples. Tests for normality (Kolmogorov–Smirnov and Shapiro–Wilk) showed statistically significant results for both samples, indicating violation of the assumption of normality. Since maximum likelihood (ML) could not be used, the MLM estimator, which generates parameter estimates with standard errors and a mean adjusted chi-square test

statistic (Satorra–Bentler chi-square), was used for model estimation (Muthén and Muthén 2017).

The estimates for the Satorra–Bentler  $\chi^2/df$  ratio, RMSEA, CFI, TLI, and SRMR were used in aggregate in order to assess the goodness of fit of the measurement and structural models. It is recommended that the indices conform to the following cut-off points for an acceptable model fit: Satorra–Bentler  $\chi^2/df$  ratio < 3, RMSEA < 0.08, CFI > 0.9, TLI > 0.9, and SRMR < 0.08 (Hair et al. 2014; Van de Schoot et al. 2012).

### Reliability and validity

Scale reliability (internal consistency) was achieved if composite reliability (CR) and Cronbach's alpha (CA) scores were 0.7 or greater (Field 2013; Hair et al. 2014). Average variance extracted (AVE) of 0.5 or more for each construct and standard factor loadings exceeding 0.5 (and statistically significant at  $p < 0.01$ , two-tailed) were utilised to evidence convergent validity (Hair et al. 2014). Discriminant validity was established if the square root of the AVE for a construct was more than the correlation it has with other constructs (Fornell and Larcker 1981).

Discriminant validity issues were addressed using Shiu et al.'s (2011) procedure, which assesses the differences in chi-square values (Satorra Bentler chi-square difference test) between constrained and unconstrained measurement models (Mplus 2020). At a 5% significance interval with one degree of freedom and a chi-square value exceeding 3.84, the null hypothesis is rejected, meaning that the pair of constructs tested are different from each other (Shiu et al. 2011). During this process, problematic items were deleted from further analysis.

### Structural model estimations and hypotheses testing

Structural model (SEM) estimations were conducted using Mplus (version 8), and path analyses were conducted to test the proposed relational hypotheses ( $H_1$ – $H_5$ ). For the mediation hypotheses ( $H_6$ – $H_{11}$ ), this study used the bootstrap test of the indirect effect (Zhao et al. 2010), where mediation occurs if the indirect effect is significant. Using Hayes' Process macro (Model 4) for SPSS to test mediation (Hayes 2014), this study generated 10,000 random bootstrapping samples from the original data sets at a 95% confidence interval. An inspection of the generated bias-corrected confidence intervals established whether the confidence interval for the direct and indirect effects included zero, which would indicate a non-significant result (no mediation). The type of mediation was evaluated according to the guidelines recommended by Zhao et al. (2010).



## Results: smartphone context

### CFA

An initial measurement model presented an acceptable model fit for two dimensions of CBE, *affection* and *reasoned behaviour*, consistent with the scale from Ndhlovu and Maree (2022). To improve reliability and convergence for CBE reasoned behaviour and trust, four items with low factor loadings were removed. The re-estimated model revealed good model fit: Satorra-Bentler  $\chi^2/df = 1.88$ ; RMSEA = 0.042; CFI = 0.943; TLI = 0.940; SRMR = 0.046.

### Reliability and validity (smartphone)

Table 2 shows that the Cronbach’s alpha and CR values exceeded 0.7, thus providing sufficient evidence of internal consistency reliability (observed variables can be seen in Table 8 in the appendix).

The AVEs and factor loadings demonstrated sufficient evidence of convergent validity. The square root of the AVEs

**Table 2** Reliability and convergent validity (smartphone)

Construct and items	AVE	Cronbach’s alpha	Composite reliability
CBE affection	0.729	0.960	0.960
CBE reasoned behaviour	0.601	0.944	0.962
Brand trust	0.743	0.918	0.920
Self-expressive brand	0.745	0.959	0.959
Brand interactivity	0.686	0.916	0.916
Brand evangelism	0.804	0.962	0.962
Consumer-based brand equity	0.727	0.913	0.914

All loadings statistically significant at  $p < 0.01$

AVE average variance extracted, CBE consumer–brand engagement

**Table 3** Discriminant validity (smartphone)

Constructs	Affection	Reasoned behaviour	BT	SEB	INT	EVA	CBBE
CBE affection	<b>0.854</b>						
CBE reasoned behaviour	0.600	<b>0.776</b>					
Brand trust	0.654	0.734	<b>0.862</b>				
Self-expressive brand	0.431	0.833	0.669	<b>0.863</b>			
Brand interactivity	0.579	0.794	0.79	0.752	<b>0.828</b>		
Brand evangelism	0.737	0.706	0.771	0.564	0.72	<b>0.897</b>	
CBBE	0.636	0.767	0.817	0.716	0.748	0.829	<b>0.853</b>

The square roots of the AVE are bold on the diagonal; the squared correlations are below the diagonal

CBE consumer–brand engagement, BT brand trust, SEB self-expressive brand, INT brand interactivity, EVA brand evangelism, CBBE consumer-based brand equity

exceeded the corresponding correlations between each pair of constructs—confirming discriminant validity—with the exception of self-expressive brand (SEB) and CBE reasoned behaviour; and brand interactivity and CBE reasoned behaviour (Table 3). Using Shiu et al.’s (2011) procedure to examine for further evidence of discriminant validity, the chi-square value difference exceeded 3.84, signifying that the pair of constructs are different from one another, supporting discriminant validity.

### Structural model estimations and hypotheses testing

CBE is conceptualized as a higher-order construct measured by first-order dimensions. However, CBE in smartphone context was not examined as a higher-order construct, because statistically it is not possible to test whether a construct is a higher order construct if there are only two first order dimensions (Mplus 2008). Therefore, the structural model was tested using the two dimensions of the smartphone context. There was sufficient evidence of good model fit: Satorra-Bentler  $\chi^2/df = 1.97$ , RMSEA = 0.044, CFI = 0.937, TLI = 0.934 and SRMR = 0.057. The hypotheses testing results are presented in Table 4.

All the hypothesised paths are statistically significant. The results support H<sub>1</sub>, as brand trust positively influences affection ( $\beta = 0.553, p = 0.0001$ ) and reasoned behaviour ( $\beta = 0.212, p = 0.0001$ ). Self-expressive brand positively relates to reasoned behaviour ( $\beta = 0.497, p = 0.0001$ ), however, it is negatively associated with affection ( $\beta = -0.113, p = 0.010$ ), providing partial support for H<sub>2</sub>.

The results show positive relationships between brand interactivity and affection ( $\beta = 0.240, p = 0.0001$ ), and brand interactivity and reasoned behaviour ( $\beta = 0.263, p = 0.0001$ ), thus supporting H<sub>3</sub>. Significant positive relationships were found between affection and brand evangelism ( $\beta = 0.503, p = 0.0001$ ); reasoned behaviour and brand evangelism ( $\beta = 0.425, p = 0.0001$ ); affection and consumer-based brand



**Table 4** Results for hypotheses testing (smartphones)

H	Structural path		Stand- ardised estimate	Standard error	t value	p value	Results
H1	Brand trust	→ CBE Affection	0.553	0.059	9.341	0.0001***	Supported
	Brand trust	→ CBE Reasoned behaviour	0.212	0.043	4.887	0.0001***	
H2	Self-expressive brand	→ CBE Affection	-0.113	0.044	-2.584	0.010***	Partially supported
	Self-expressive brand	→ CBE Reasoned behaviour	0.497	0.033	15.008	0.0001***	
H3	Brand interactivity	→ CBE Affection	0.240	0.069	3.462	0.001***	Supported
	Brand interactivity	→ CBE Reasoned behaviour	0.263	0.047	5.542	0.0001***	
H4	CBE Affection	→ Brand evangelism	0.503	0.036	13.862	0.0001***	Supported
	CBE Reasoned behaviour	→ Brand evangelism	0.425	0.036	11.796	0.0001***	
H5	CBE Affection	→ Consumer-based brand equity	0.283	0.035	8.069	0.0001***	Supported
	CBE Reasoned behaviour	→ Consumer-based brand equity	0.623	0.031	19.983	0.0001***	

CBE consumer–brand engagement

\*\*\*Statistically significant at  $p < 0.01$ , two-tailed

equity ( $\beta = 0.283$ ,  $p = 0.0001$ ); and reasoned behaviour and consumer-based brand equity ( $\beta = 0.623$ ,  $p = 0.0001$ ), supporting H<sub>4</sub> and H<sub>5</sub>.

### Mediation analysis

The mediating effect of CBE on the relationships between the CBE drivers and outcomes were examined using the Hayes' Process Macro, and the type of mediation was established based on Zhao et al. (2010). A significant indirect effect (a X b) is the only requirement to determine mediation.

Significant indirect effects of the driver constructs on the outcomes confirmed mediation, and thus, all the mediation hypotheses were supported for the smartphone context. Please refer to the appendix (Table 9). For H<sub>6</sub>, there was evidence of partial mediation, as the direct effects of brand trust on brand evangelism ( $\beta = 0.536$ ; 95% bias CI 0.466–0.606;  $\beta = 0.562$ ; 95% bias CI 0.480–0.645) are significant. There is also evidence that CBE affection and CBE reasoned behaviour partially mediate the relationship between brand trust and consumer-based brand equity (H<sub>7</sub>), because of the significant direct effects of brand trust on consumer-based brand equity ( $\beta = 0.697$ ; 95% bias CI 0.619–0.775;  $\beta = 0.555$ ; 95% bias CI 0.473–0.636). For H<sub>8</sub>, CBE affection partially mediates the effect of self-expressive brand on brand evangelism, as the direct effect of self-expressive brand on brand evangelism ( $\beta = 0.293$ ; 95% bias CI 0.238–0.347) is significant; and CBE reasoned behaviour fully mediates the relationship between self-expressive brand and brand evangelism, because of the non-significant direct effect ( $\beta = 0.022$ ; 95% bias CI – 0.075–0.119).

For H<sub>9</sub>, the direct effects of self-expressive brand on consumer-based brand equity ( $\beta = 0.482$ ; 95% bias CI 0.425–0.540;  $\beta = 0.251$ ; 95% bias CI 0.158–0.344) are

significant suggesting that CBE affection and CBE reasoned behaviour partially mediate the effect of self-expressive brand on consumer-based brand equity. Similarly, CBE affection and CBE reasoned behaviour partially mediate the relationship between brand interactivity and brand evangelism (H<sub>10</sub>), as the direct effects are significant ( $\beta = 0.477$ ; 95% bias CI 0.411–0.543;  $\beta = 0.460$ ; 95% bias CI 0.367–0.552). The direct effects of brand interactivity on consumer-based brand equity ( $\beta = 0.574$ ; 95% bias CI 0.497–0.651;  $\beta = 0.388$ ; 95% bias CI 0.295–0.481) are also significant, showing evidence of partial mediation (H<sub>11</sub>).

For most of these, the direct effect was stronger than the mediation effect, except for CBE reasoned behaviour, which fully mediates the relationship between self-expressive brand and brand evangelism, and partially mediates the relationship between self-expressive brand and consumer-based brand equity. In terms of the two CBE dimensions, the indirect effect was stronger for CBE reasoned behaviour in all cases except for the relationship between brand trust and brand evangelism, where the effect was stronger for CBE affection.

## Results: social media context

### CFA

This paper conceptualizes CBE as a higher-order construct measured reflectively by first-order dimensions. For the social media context, these include *affection*, *absorption*, *identification*, and *social connection*. In order to support this statistically, two measurement models were assessed, and their Bayesian information criterion (BIC) compared. Model 1 tested CBE as a first-order reflective construct, and





**Table 5** Reliability and convergent validity (social media)

Constructs and items	AVE	Cronbach's alpha	Composite reliability
Consumer-based brand equity	0.626	0.885	0.870
Brand trust	0.696	0.900	0.901
Self-expressive brand	0.594	0.921	0.921
Brand interactivity	0.608	0.885	0.886
Brand evangelism	0.619	0.916	0.919
CBE	0.654	0.918	0.921

All loadings statistically significant at  $p < 0.01$

AVE average variance extracted, CBE consumer–brand engagement

Model 2 tested CBE as a second-order reflective construct. The model with the lowest BIC demonstrates a better model fit (Posada and Buckley 2004).

The BIC for Model 1 (28 291.802) was greater than the BIC for Model 2 (28 252.483), indicating a better model fit for the latter, evidencing that CBE is a second-order

construct reflective of four first-order factors. The CFA was run including CBE as a second-order construct, and the measurement model showed satisfactory model fit: Satorra-Bentler  $\chi^2/df$  ratio = 1.80; RMSEA = 0.040; CFI = 0.932; TLI = 0.928 and SRMR = 0.063.

### Reliability and validity (social media)

There was adequate evidence of internal consistency reliability, convergent (Table 5; refer to Table 10 in the appendix for details of observed variables), as well as discriminant validity (Table 6).

### Structural model estimations and hypotheses testing

The model fit for the structural model was acceptable (Satorra-Bentler  $\chi^2/df$  ratio = 1.84, RMSEA = 0.041, CFI = 0.929, TLI = 0.924, and SRMR = 0.069). The hypothesis testing results are presented in Table 7.

**Table 6** Discriminant validity (social media)

Constructs	CBBE	BT	SEB	INT	EVA	CBE
CBBE	<b>0.791</b>					
Brand trust	0.637	<b>0.834</b>				
Self-expressive brand	0.563	0.579	<b>0.771</b>			
Brand interactivity	0.664	0.563	0.671	<b>0.780</b>		
Brand evangelism	0.684	0.626	0.585	0.664	<b>0.787</b>	
CBE	0.658	0.762	0.485	0.427	0.653	<b>0.808</b>

The square roots of the AVE are bold on the diagonal, with the squared correlations below the diagonal  
 CBE consumer–brand engagement, BT brand trust, SEB self-expressive brand, INT brand interactivity, EVA brand evangelism, CBBE consumer-based brand equity

**Table 7** Results for hypotheses testing (social media)

H	Structural path		Stand-ardised estimate	Standard error	t value	p value	Result
H1	Brand trust	→ CBE	0.069	0.034	2.050	0.040**	Supported
H2	Self-expressive brand	→ CBE	0.211	0.040	5.333	0.0001***	Supported
H3	Brand interactivity	→ CBE	0.374	0.050	7.413	0.0001***	Supported
H4	CBE	→ Brand evangelism	0.336	0.047	7.097	0.0001***	Supported
H5	CBE	→ Consumer-based brand equity	0.626	0.060	10.451	0.0001***	Supported

CBE consumer–brand engagement

\*\*Statistically significant at  $p < 0.05$  and \*\*\* $p < 0.01$ , two-tailed



The results show significant positive relationships between brand trust and CBE ( $\beta=0.069$ ,  $p=0.040$ ); self-expressive brands and CBE ( $\beta=0.211$ ,  $p=0.0001$ ); brand interactivity and CBE ( $\beta=0.374$ ,  $p=0.0001$ ); CBE and brand evangelism ( $\beta=0.336$ ,  $p=0.0001$ ); and CBE and consumer-based brand equity ( $\beta=0.626$ ,  $p=0.0001$ ), providing support for H<sub>1</sub>, H<sub>2</sub>, H<sub>3</sub>, H<sub>4</sub>, and H<sub>5</sub>.

## Mediation analysis

The mediation results showed that all the indirect effects of the drivers on the outcomes are significant, thereby confirming mediation (Zhao et al. 2010), and supporting all the mediation hypotheses. Please refer to the appendix (Table 11).

As the direct effect of brand trust on brand evangelism ( $\beta=0.182$ ; 95% bias CI 0.116–0.248) is significant, CBE partially mediates the effect of brand trust on brand evangelism (H<sub>6</sub>). For H<sub>7</sub>, CBE partially mediates the effect of brand trust on consumer-based brand equity, as the direct effect of brand trust on consumer-based brand equity ( $\beta=0.311$ ; 95% bias CI 0.237–0.384) is significant.

The significant direct effect of self-expressive brand on brand evangelism ( $\beta=0.095$ ; 95% bias CI 0.017–0.173) indicates partial mediation by CBE (H<sub>8</sub>). For H<sub>9</sub>, CBE partially mediates the influence of self-expressive brand on consumer-based brand equity (direct effect significant— $\beta=0.299$ ; 95% bias CI 0.212–0.385). Similarly, the significant direct effects of brand interactivity on brand evangelism ( $\beta=0.377$ ; 95% bias CI 0.303–0.451) (H<sub>10</sub>) and on consumer-based brand equity ( $\beta=0.358$ ; 95% bias CI 0.270–0.446) indicate partial mediation (H<sub>11</sub>).

Like in the smartphone sample, the direct effect was stronger than the mediation effect in most cases. Only for the relationship between brand trust and brand evangelism, as well as for self-expressive brand and brand evangelism, the mediating effect of CBE was stronger.

## Discussion

The objective of this paper was to investigate the interrelationships between CBE and relational drivers (brand trust, self-expressive brand, and brand interactivity) and brand outcomes (brand evangelism and consumer-based brand equity) in the contexts of smartphone and social media brands in South Africa.

The findings show that, in both contexts, brand trust favourably influences CBE, supporting prior research (De

Oliveira Santini et al. 2020; Nyadzayo et al. 2020). This suggests that the existing consumers of smartphone and social media brands who have developed trust over time are highly likely to engage with the brand.

This paper also reveals that self-expressive brand has a positive relationship with CBE in both contexts—except for the affection dimension of the smartphone brand, which had a negative relationship. The positive relationships suggest that consumers use smartphone or social media brands as extensions of self, reinforcing their relationship with the brand, leading to more engagement. For instance, since smartphones have become a part of consumers' daily life, consumers voluntarily invest resources to purchase smartphone brands that reflect their self-image and improve their social self. Likewise, in the social media context, consumers use social media platforms as tools for self-extension. The negative relationship between self-expressive brand and affection—which disagrees with literature (Algharabat et al. 2020; Leckie et al. 2016)—suggests that as consumers consider a smartphone brand as more expressive of their self-concept, their affection engagement will decrease. This was a weak negative relationship, which suggests that the respondents' low self-expression for smartphone brands slightly negates the need to engage affectively with their smartphone brand. This finding underlines the importance of context for CBE; the more the consumer identifies with the brand, the less they feel the need to engage the brand emotionally, as they likely see it as part of their being.

Consistent with prior research (France et al. 2016), the results reveal brand interactivity's positive influence on CBE. This implies that consumers of smartphone and social media brands appreciate firm-initiated activities, which are mutually beneficial, and enable an environment of value co-creation.

The findings further evidence the positive influence that CBE has on brand evangelism, in agreement with literature (Algesheimer et al. 2005; Nyadzayo et al. 2020). This suggests that strong consumer–brand relationships, established on the notion of value co-creation, influence consumers' evangelistic behaviour in relation to the brand. Highly engaged consumers will likely engage in brand evangelism behaviour, including disseminating positive word-of-mouth about the brand and continuing to purchase its offerings. Accordingly, brand evangelists are likely to contribute value to the firm through intense loyalty, which manifests through direct (purchasing) and indirect (non-purchasing) behaviours (Pansari and Kumar 2017).



This study shows that consumer-based brand equity is an outcome of CBE for both smartphone and social media brands. This result suggests that engaged consumers would perceive the brand's value as higher than, and different from, that of the competition because of their brand knowledge, resonance, and positive brand associations (Keller 2016; Yoo and Donthu 2001).

The findings also reveal the mediating role of CBE, supporting that CBE is fundamental in the relationships between relational drivers and brand outcomes. These findings confirm the central role and significance of CBE in nomological networks (Brodie et al. 2011). Furthermore, they imply that consumers are indeed actively co-creating value through reciprocal exchanges with the brand (in agreement with S-D logic), which ultimately results in brand evangelism and high consumer-based brand equity.

## Implications of the study

### Theoretical implications

This paper advances knowledge about CBE measurement by validating two CBE measurement scales in theory-based conceptual models. From a theory perspective, this study uses the S-D logic fundamental propositions (Hollebeek et al. 2019; Vargo and Lusch 2017) to investigate the interactive relationships between CBE and other relational constructs. This paper provides a contribution to literature by proposing and empirically confirming an S-D logic-informed model that explains the relationships between CBE and key drivers and outcomes in two contexts, thus responding to calls for the empirical validation of the associations between CBE and other related concepts (Islam and Rahman 2016a). Overall, the findings support S-D logic as an appropriate theory to explicate the relational exchanges characterized by consumer–brand value co-creation.

The findings empirically support the proposal that consumer-based and firm-initiated factors drive CBE, consistent with prior conceptual research (Van Doorn et al. 2010). These results also advance the empirical understanding of consumer–brand relationships for existing customers.

This study responds to the scant empirical work on the effect of CBE on marketing performance (Hollebeek et al. 2019) by validating brand evangelism and consumer-based

brand equity as key outcomes of CBE. The findings highlight the significance of brand evangelism for firms as consumers engage in behaviour that promotes the brand. In addition, this study advances scholarly understanding of the influence of CBE on consumer-based brand equity—an important factor that firms use to measure marketing performance. The findings thus contribute insights to understanding CBE beyond purchase as it showed that brand evangelism and favourable consumer-based brand equity result from consumers engaging with the smartphone and social media brands—both representing very competitive industries.

In both contexts, the proposed model provides empirical evidence that CBE plays a pivotal role within the nomological network of consumer–brand relationships, validating conceptual research (Brodie et al. 2011). Thus, there is empirical evidence that CBE mediates the relationship between relational drivers (i.e. brand trust, self-expressive brand, and brand interactivity) and brand outcomes (i.e. brand evangelism and consumer-based brand equity) for existing customers.

### Managerial implications and recommendations

The paper provides an empirically proven S-D logic-informed model, which marketers of smartphone and social media brands can use to inform their CRM strategies for CBE. It enhances marketing analytics by modelling the role of CBE in value co-creation between brands and consumers. Marketing managers can use these data-driven customer-centric insights to grow the brand's co-creation culture (Dar et al. 2021). Thus, based on the model, brand managers can develop strategies that facilitate value co-creation between the consumer, the brand, and other actors in the engagement process.

This paper provides managers with key insights into the relational drivers and outcomes of CBE that could be explored in developing collaborative programs of action that involve the consumer. Thus, it would be beneficial for brand managers to create marketing programs such as online brand communities, brand club memberships, and experiential marketing to enhance sustainable consumer–brand relationships.

In addition, marketing managers can invest in resources such as CRM systems and big data to analyse consumers' behaviours in order to inform their consumer engagement strategy. Initiatives (such as online loyalty programs) may offer intangible rewards which provide a competitive advantage for an organisation and are important in developing



mutually beneficial consumer–brand relationships (Dar et al. 2021; Haverila et al. 2022). Strong consumer–brand relationships are an important foundation for CBE; so, brand managers should develop CRM initiatives that generate brand trust, self-expressive brand, and brand interactivity to enable consumers to have a mutually rewarding and interactive relationship with the brand, leading to the desired outcomes of brand evangelism and consumer-based brand equity.

Resource integration by the brand through collaborative platforms (digital and offline) provides consumers with opportunities for active interactions with the brand, thus enabling them to actively participate in value co-creation. Accordingly, brand managers for social media and smartphone brands can promote the presence of their brands via interactive platforms such as social media, brand websites, virtual sites, retail stores, pop-up shops, and others to connect with the consumer. Thus, the strategic use of customer data by brand managers can improve CBE and increase customer lifetime value, which remains a key focal point in marketing analytics (Petrescu and Krishen 2023).

## Limitations and future research

The paper has limitations that provides opportunities for future research. This study surveyed existing South African consumers of self-chosen smartphone and social media brands using a non-probability sampling technique. Thus, the findings cannot be broadly generalised beyond these parameters. Despite this, it should be mentioned that the theoretical principles and the relationships examined in this study are not unique to the African context and could likely have broader meaning in the global context, too.

Future research should consider investigating new consumers; and validating the conceptual model in other contexts such as retail, automobile, banking, and insurance, and in different countries. The cross-sectional nature of the study limits the findings to a snapshot of consumers' engagement with particular smartphone and social media brands at a certain point in time. Future research could utilize longitudinal research design to explore the different stages of CBE. This study was quantitative in nature, and measured attitudinal and behavioural constructs, which limited a deeper understanding of the proposed concepts. Thus, future research studies might consider mixed-methods research to seek in-depth insights into CBE and its related constructs.

The conceptual model of this study was grounded on S-D logic; future research might consider expanding the CBE concept to broader actor engagement (AE), whose context is

characterized by network relationships instead of only consumer–brand relationships (Brodie et al. 2019).

The relational drivers were delimited to brand trust, self-expressive brand, and brand interactivity. Future studies could include other relational drivers such as service quality, brand love, co-creation, customer satisfaction, and commitment. The outcomes of CBE included brand evangelism and consumer-based brand equity. Future studies could incorporate other outcomes such as brand loyalty, brand apostles (highly loyal, satisfied, and supportive consumers who see themselves as brand partners), lifetime value, return on investment (ROI), and firm performance. Future studies might also consider including moderating factors such as individual factors (e.g. gender) or relational aspects (e.g. relationship lifecycle) into their conceptual models.

## Conclusion

The findings of this study confirm that consumer–brand relationship constructs comprising brand trust, self-expressive brand, and brand interactivity are key to influencing CBE, and subsequently the outcomes of brand evangelism and consumer-based brand equity. Contextually, the paper contributes by investigating CBE in product (smartphone) and service (social media) brands, using two distinct CBE measures tailored for each context.

Moreover, the study expands the notion that S-D logic is a good theoretical fit for CBE. Aligning with the S-D logic's narrative of value co-creation (Vargo and Lusch 2016) through purchase and non-purchase behaviours (Kumar et al. 2019), the paper empirically proves that CBE reaches beyond purchase as it positively influences brand evangelism and consumer-based brand equity.

The findings further show that CBE mediates the relationships between the consumer–brand relational constructs and engagement outcomes—emphasizing its central role in CRM. Accordingly, this study verifies the S-D logic-based notion that CBE is central in linking the consumer and the brand to co-create value for their mutual benefit in product and service brand contexts.

## Appendix

See Tables 8, 9, 10 and 11.



**Table 8** Detailed reliability and convergent validity (smartphone)

Construct and items	Estimate	AVE	Cronbach's alpha	Composite reliability
<b>CBE affection</b>		<b>0.729</b>	<b>0.960</b>	<b>0.960</b>
AFF1	0.899			
AFF2	0.897			
AFF3	0.898			
AFF4	0.915			
AFF5	0.776			
AFF6	0.752			
AFF7	0.785			
AFF8	0.893			
AFF9	0.853			
<b>CBE reasoned behaviour</b>		<b>0.601</b>	<b>0.944</b>	<b>0.962</b>
RB1	0.813			
RB2	0.763			
RB3	0.813			
RB4	0.767			
RB5	0.828			
RB6	0.836			
RB8	0.726			
RB9	0.743			
RB10	0.773			
RB12	0.714			
RB13	0.791			
RB15	0.827			
RB16	0.814			
RB17	0.773			
RB18	0.752			
RB19	0.712			
RB20	0.72			
<b>Brand trust</b>		<b>0.743</b>	<b>0.918</b>	<b>0.920</b>
BT1	0.89			
BT2	0.893			
BT3	0.85			
BT4	0.813			
<b>Self-expressive brand</b>		<b>0.745</b>	<b>0.959</b>	<b>0.959</b>
SEB1	0.895			
SEB2	0.868			
SEB3	0.878			
SEB4	0.885			
SEB5	0.857			
SEB6	0.832			
SEB7	0.834			
SEB8	0.856			
<b>Interactivity</b>		<b>0.686</b>	<b>0.916</b>	<b>0.916</b>
INT1	0.84			
INT2	0.819			
INT3	0.839			
INT4	0.843			
INT5	0.8			
<b>Evangelism</b>		<b>0.804</b>	<b>0.962</b>	<b>0.962</b>
EVA1	0.936			



Table 8 (continued)

Construct and items	Estimate	AVE	Cronbach's alpha	Composite reliability
EVA2	0.917			
EVA3	0.914			
EVA4	0.935			
EVA5	0.77			
EVA6	0.853			
EVA7	0.864			
<b>CBBE</b>		<b>0.727</b>	<b>0.913</b>	<b>0.914</b>
CBBE1	0.809			
CBBE2	0.885			
CBBE3	0.863			
CBBE4	0.852			

All loadings statistically significant at  $p < 0.01$

AVE average variance extracted, CBE consumer-brand engagement, AFF affection, RB reasoned behaviour, SEB self-expressive brand, INT brand interactivity, EVA brand evangelism, CBBE consumer-based brand equity, BT brand trust

Bold represents the reliability and convergent validity of the constructs

Table 9 Bootstrapping direct and indirect effects at 95% confidence intervals (CIs)

H	Variables X >> M >> Y	Direct effect			Indirect effect		Result
		Effect [LLCI; ULCI]	SE	t value (p value)	Effect [LLCI; ULCI]	Bootstrap SE	
H6 <sub>a</sub>	Brand trust >> CBE Affection >> Brand evangelism	0.536 [0.466; 0.606]	0.035	15.122 (0.0001)	0.271 [0.186; 0.366]	0.046	Supported—Partial mediation
H6 <sub>b</sub>	Brand trust >> CBE reasoned behaviour >> Brand evangelism	0.562 [0.480; 0.645]	0.042	13.354 (0.0001)	0.245 [0.167; 0.323]	0.040	Supported—Partial mediation
H7 <sub>a</sub>	Brand trust >> CBE Affection >> CBBE	0.697 [0.619; 0.775]	0.040	17.541 (0.0001)	0.157 [0.083; 0.245]	0.041	Supported—Partial mediation
H7 <sub>b</sub>	Brand trust >> CBE reasoned behaviour >> CBBE	0.555 [0.473; 0.636]	0.041	13.390 (0.0001)	0.299 [0.220; 0.384]	0.042	Supported—Partial mediation
H8 <sub>a</sub>	SEB >> CBE Affection >> Brand evangelism	0.293 [0.238; 0.347]	0.028	10.546 (0.0001)	0.209 [0.147; 0.279]	0.034	Supported—Partial mediation
H8 <sub>b</sub>	SEB >> CBE reasoned behaviour >> brand evangelism	0.022 [-0.075; 0.119]	0.049	0.442 (0.659)	0.480 [0.385; 0.584]	0.051	Supported—Full mediation
H9 <sub>a</sub>	SEB >> CBE Affection >> CBBE	0.482 [0.425; 0.540]	0.029	16.579 (0.0001)	0.147 [0.098; 0.207]	0.028	Supported—Partial mediation
H9 <sub>b</sub>	SEB >> CBE reasoned behaviour >> CBBE	0.251 [0.158; 0.344]	0.047	5.292 (0.0001)	0.379 [0.261; 0.494]	0.060	Supported—Partial mediation
H10 <sub>a</sub>	INT >> CBE Affection >> brand evangelism	0.477 [0.411; 0.543]	0.034	14.221 (0.0001)	0.271 [0.190; 0.360]	0.044	Supported—Partial mediation
H10 <sub>b</sub>	INT >> CBE reasoned behaviour >> brand evangelism	0.460 [0.367; 0.552]	0.047	9.798 (0.0001)	0.288 [0.195; 0.380]	0.047	Supported—Partial mediation
H11 <sub>a</sub>	INT >> CBE Affection >> CBBE	0.574 [0.497; 0.651]	0.039	14.600 (0.0001)	0.194 [0.125; 0.275]	0.039	Supported—Partial mediation
H11 <sub>b</sub>	INT >> CBE reasoned behaviour >> CBBE	0.388 [0.295; 0.481]	0.047	8.205 (0.0001)	0.380 [0.295; 0.467]	0.044	Supported—Partial mediation

X Exogenous variable, M mediating variable, Y endogenous variable, LLCI lower level confidence interval, ULCI upper level confidence interval, CBE consumer-brand engagement, SEB self-expressive brand, INT brand interactivity, CBBE consumer-based brand equity



**Table 10** Detailed reliability and convergent validity (social media)

Constructs and items	Estimate	AVE	Cronbach's alpha	Composite reliability
<b>CBE affection</b>		<b>0.600</b>	<b>0.897</b>	<b>0.900</b>
AFF1	0.706			
AFF2	0.787			
AFF3	0.812			
AFF4	0.810			
AFF5	0.745			
AFF6	0.783			
<b>CBE identifica- tion</b>		<b>0.518</b>	<b>0.809</b>	<b>0.811</b>
ID1	0.703			
ID2	0.692			
ID3	0.681			
ID4	0.798			
<b>CBE absorption</b>		<b>0.518</b>	<b>0.782</b>	<b>0.719</b>
ABS1	0.755			
ABS2	0.728			
ABS3	0.738			
<b>CBE social con- nection</b>		<b>0.518</b>	<b>0.842</b>	<b>0.842</b>
SOC1	0.781			
SOC2	0.785			
SOC3	0.669			
SOC4	0.668			
SOC5	0.686			
CBBE		<b>0.626</b>	<b>0.885</b>	<b>0.870</b>
CBBE1	0.694			
CBBE2	0.807			
CBBE3	0.79			
CBBE4	0.865			
<b>Brand trust</b>		<b>0.696</b>	<b>0.900</b>	<b>0.901</b>
BT1	0.881			
BT2	0.874			
BT3	0.76			
BT4	0.817			
<b>Self-expressive brand</b>		<b>0.594</b>	<b>0.921</b>	<b>0.921</b>
SEB1	0.803			
SEB2	0.769			
SEB3	0.791			
SEB4	0.791			
SEB5	0.769			
SEB6	0.715			
SEB7	0.722			
SEB8	0.8			
<b>Interactivity</b>		<b>0.608</b>	<b>0.885</b>	<b>0.886</b>
INT1	0.776			
INT2	0.766			
INT3	0.819			
INT4	0.735			

Table 10 (continued)

Constructs and items	Estimate	AVE	Cronbach's alpha	Composite reliability
INT5	0.799			
<b>Evangelism</b>		<b>0.619</b>	<b>0.916</b>	<b>0.919</b>
EVA1	0.839			
EVA2	0.717			
EVA3	0.828			
EVA4	0.851			
EVA5	0.723			
EVA6	0.793			
EVA7	0.743			
<b>CBE</b>		<b>0.654</b>	<b>0.918</b>	<b>0.921</b>
CBE affection	0.866			
CBE identification	0.724			
CBE absorption	0.717			
CBE social con- nection	0.909			

All loadings statistically significant at  $p < 0.01$

AVE average variance extracted, CBE consumer–brand engagement, AFF affection, ID identification, ABS absorption, SOC social connection, BT brand trust, SEB self-expressive brand, INT brand interactivity, EVA brand evangelism, CBBE consumer-based brand equity

Bold represents the reliability and convergent validity of the constructs



**Table 11** Bootstrapping direct and indirect effects at 95% confidence intervals (CIs)

H	Variables X>>M>>Y	Direct effect			Indirect effect		Result
		Effect [LLCI; ULCI]	SE	t value (p value)	effect [LLCI; ULCI]	Bootstrap SE	
H6	BT>>CBE>>EVA	0.182 [0.116; 0.248]	0.034	5.392 (0.0001)	0.197 [0.144; 0.258]	0.029	Supported—Partial mediation
H7	BT>>CBE>>CBBE	0.311 [0.237; 0.384]	0.037	8.295 (0.0001)	0.182 [0.129; 0.243]	0.029	Supported—Partial mediation
H8	SEB>>CBE>>EVA	0.095 [0.017; 0.173]	0.040	2.406 (0.017)	0.276 [0.199; 0.357]	0.040	Supported—Partial mediation
H9	SEB>>CBE>>CBBE	0.299 [0.212; 0.385]	0.044	6.800 (0.0001)	0.221 [0.148; 0.304]	0.040	Supported—Partial mediation
H10	INT>>CBE>>EVA	0.377 [0.303; 0.451]	0.038	10.009 (0.0001)	0.184 [0.119; 0.251]	0.034	Supported—Partial mediation
H11	INT>>CBE>>CBBE	0.358 [0.270; 0.446]	0.045	7.987 (0.0001)	0.213 [0.147; 0.290]	0.037	Supported—Partial mediation

X exogenous variable, M mediating variable, Y endogenous variable, LLCI lower level confidence interval, ULCI upper level confidence interval, CBE consumer–brand engagement, BT brand trust, SEB self-expressive brand, INT brand interactivity, EVA brand evangelism, CBBE consumer-based brand equity

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## Declarations

**Conflict of interest** On behalf of all authors, the corresponding author states that there is no conflict of interest.

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**T. Ndhlovu** is a senior lecturer in the Department of Marketing Management at the University of Pretoria. His research interests include customer engagement and consumer behaviour, and he has published in journals such as *Journal of Contemporary Management* and *Journal of Business Research*.

**T. Maree** is an Associate Professor at the Department of Marketing Management at the University of Pretoria. Her primary research focus area is marketing communication media, including social media. Her research has been published in journals such as *International Journal of Consumer Studies*, *Journal of Business Research*, *Journal of Promotion Management*, and *European Business Review*, among others.

