Enhancing loyalty and e-WOM in virtual brand communities: A multi-country study

ABSTRACT

Purpose: Extant works on virtual brand community (VBC) engagement are limited to engagement with the community or the brand, without comprehensively investigating the antecedents and consequences of both. Additionally, most works have remained restricted to one country in their investigation, despite VBCs' global reach. To fill these gaps, the work investigates the relationships amongst self-congruence with the brand (SCB), VBC satisfaction, affective brand engagement (ABE), VBC Engagement (VBCE), brand loyalty and electronic word-of-mouth (e-WOM).

Approach: 600 respondents, 150 each from the US, the UK, India, and Tunisia, provided the necessary data, which was analysed using covariance-based structural equation modelling (CB-SEM) in SmartPLS4 to test the proposed hypotheses.

Findings: SCB was a critical factor influencing VBC satisfaction and ABE. The study validated the effect of ABE on VBCE and the positive impact of VBCE and ABE on brand loyalty and e-WOM. The model remained robust across the countries as well.

Practical Implications: The findings of the work guide brand managers on leveraging the congruence between the brand that owns the VBC and the consumer as the 'building block' to create satisfaction and engagement with the VBC.

Originality: The work adds value by evoking a unique mechanism through which SCB and resultant engagement can drive loyalty and e-WOM. A primary novelty of the work is the bifurcation of the affective and social dimensions of consumer-brand engagement to propose two separate constructs in the VBC context, referred to as ABE and VBCE.

Keywords: VBC engagement; affective brand engagement; VBC satisfaction; self-congruence; brand loyalty; e-WOM

INTRODUCTION

The emergence of virtual brand communities (VBCs) has played a pivotal role in fostering brand loyalty and enthusiasm (Busalim *et al.*, 2024). This innovative concept enables customers to freely express their opinions and share their experiences with like-minded individuals (Liu *et al.*, 2024; Wong and Hung, 2023). Online social platforms provide a conducive environment for fostering relationships between consumers and other community members, as well as promoting engagement (Wang, 2025).

Engagement refers to the emotional connection forged between a customer, the brand, and the community, distinguished by the interactive nature of an online forum (Bonilla-Quijada *et al.*, 2024). It revolves around positive interactions among community members and with the contextual brand (Brodie *et al.*, 2013). Highly engaged consumers tend to spend more, advocate more, establish stronger bonds, and exhibit higher levels of loyalty both to the community and the owner brand (Liu *et al.*, 2024). Marketers recognise consumer engagement as a driver of emotional bonding, loyalty and sales (Taheri *et al.*, 2024).

In the context of VBCs, to fully comprehend the dynamics of community-driven engagement, we must acknowledge its dual dimensions: engagement within the virtual community (VBCE) and affective engagement with the brand (ABE). Community-directed consumer engagement entails active participation (Wang, 2025), shaped by engaging VBC design attributes and resultant member experiences, which lead to value co-creation through online exchanges of opinions and expertise. Such value co-creation enhances consumers' engagement with the brand that owns the community (Bahri-Ammari *et al.*, 2021). These engaged consumers become enthusiastic promoters for the brand and influence other

consumers' affection for the community and the brand, as measured by ABE in this work (Munnukka *et al.*, 2015).

Recent research on brand engagement in VBCs has highlighted its multi-dimensional nature (Santos *et al.*, 2022). These are cognitive, emotional, and behavioural dimensions of engagement, exhorting the need for brands to focus on all three aspects. However, Kumar (2020) found that affective engagement has the most substantial impact on fostering long-term brand relationships. These works underscored the importance of creating emotionally resonant experiences within VBCs (Kumar, 2021). Prior works argued that engagement is critical for explaining both consumer participation in the online community and the outcomes it has for the brand that moderates the community (Kujur and Singh, 2020; Wang *et al.*, 2019). Consumer engagement on social forums, such as VBCs, has attracted growing interest among researchers and practitioners due to its potential impact on consumer attitudes and behaviours towards brands (Bhandari *et al.*, 2024).

Despite its importance, community engagement and its dynamics with brand engagement remain poorly understood (Martínez-López *et al.*, 2021). The Marketing Science Institute (2018) called for greater investigation into the factors influencing consumer engagement in an online environment, including VBCs, and their influence on brands. The brand identification and the satisfaction consumers have with the VBC are two primary variables to leverage the benefits of VBCs for enhanced consumer-brand relationships (Martínez-López *et al.*, 2021). These variables require more investigation for their role in shaping consumer engagement and the effect of such engagement on the brand in the context of VBCs (Kaur *et al.*, 2020). With VBCs having global markets, the extant research, primarily conducted in a single-country context, has a significant limitation as it represents a

constrained understanding of the dynamics of engagement formation, its causes and outcomes across countries differing in cultures and socio-economic parameters (Van Tonder and Petzer, 2018).

This study considers two dimensions of engagement in an online environment: the ABE, a subset of brand engagement, and the VBCE, a measure of community engagement. The interaction between ABE and VBCE is explored through customer-brand identification (measured as SCB) and customer VBC experience (measured as VBC satisfaction) as antecedents. The outcomes of these two engagements are brand loyalty and e-WOM. This work integrates these engagement enablers and outcomes in the VBC context to explore the sequential 'build-up' of engagement with the community and its positive effect on the brand. The study collected data from four countries, the US, the UK, India and Tunisia, for analysis using CB-SEM, with the results compared across the countries to address the single-country-investigation limitation in the extant literature. The study guides community managers in deploying SCB and VBC satisfaction as enablers to community-focused and brand-focused engagements, with effects differing across countries, for higher brand loyalty and advocacy.

THEORETICAL BACKGROUND

Consumer Engagement in Virtual Brand Communities

Research on consumer-brand engagement has long been essential for the academic marketing literature (Kaur *et al.*, 2020). The Marketing Science Institute (2018) has consistently called for further research on consumer engagement, specifically in a digital context, such as VBC, since 2010. Most researchers argue that brand engagement represents a two-way interactive consumer-brand relationship (Groeger *et al.*, 2016). It is a motivated investment of resources by customers during their brand interactions, whether physical or

digital (Hollebeek *et al.*, 2017). In an online environment, consumers receive the brand's products and services and related communication and contribute to creating novel offerings (design co-creation) and communication (user-generated content; De Valck *et al.*, 2009; Hollebeek and Macky, 2019). Such engagement is a multi-dimensional concept that, beyond the affective dimensions (Kumar, 2020), consists of a social dimension (Hollebeek *et al.*, 2017). This social dimension of engagement is essential in VBCs, where consumers engage with a brand on a social platform (Kaur *et al.*, 2020).

Few works have considered the duality of consumer-brand engagement's affective and social dimensions; hence, we conceived of engagement in two parts: affection-based brand engagement, referred to as ABE, and social brand engagement through digital interactions on a VBC, referred to as VBCE (Hollebeek and Macky, 2019). While past studies attempted to explore the effectiveness of VBCE on consumers' brand evaluation (e.g., Dessart and Veloutsou, 2021), with self-brand congruence and VBC usage as possible antecedents (Veloutsou and Black, 2020), and brand commitment and loyalty as possible outcomes (Wong, 2023), there are no studies that have taken a unified view of the overall process. The gap becomes more critical as no study, despite the global impact of VBCs, has been conducted in a cross-country setup to compare the engagement-development path across cultures (Van Tonder and Petzer, 2018). This study proposes an integrative model that considers the two dimensions of engagement, affective and social, as ABE and VBCE, respectively, and explores their antecedents and consequences for the contextual brand across multiple countries.

Affective Brand Engagement

Engagement with a brand is a dynamic, complex and multi-dimensional process (Bhandari *et al.*, 2024). Engagement, developed through customer satisfaction, includes an emotional bond with the company, enabling a solid, long-term relationship (Pansari and Kumar, 2017). This engagement component is referred to as ABE and is reflected in hedonic consumer-brand relations leading to affective commitment and unwavering trust (Kumar, 2020). The affective dimension of engagement reflects consumers' emotions about their relationship goal and translates into long-term feelings (Selmi *et al.*, 2021). This emotional relationship is strongly linked to the expressive aspect of the brand. ABE promotes resistance to change due to price increases or the competitors' counter-persuasive communication (Gam *et al.*, 2023) and strengthens favourable attitude and loyalty (Hollebeek and Macky, 2019; Singh and Milan, 2025).

VBC Engagement

VBCE is the psychological state of the consumer, which is generated by the set of cognitive, affective, and behavioural interactions with a brand's community on social networks (Park and Ha, 2021). Community engagement implies that its members are motivated by mutual support, collective activities and community-approved behaviours (Nikhashemi *et al.*, 2025). This engagement stems from the links that members establish between their identity, their belongingness to a group, and their willingness to participate in co-creation activities (Bonilla-Quijada *et al.*, 2024). Social presence plays a key role in consumers' interactions with brands on social networks by increasing feelings of closeness and intimacy. Such consumers actively participate in value creation rather than being passive receivers of brand-related services (Liu *et al.*, 2024). The value co-creation process makes consumers feel important, reinforcing their loyalty to the brand and triggering positive word-of-mouth.

Source of Engagement: VBC Satisfaction

Satisfaction reflects members' evaluations of a VBC based on their direct interactions with the community (Liang *et al.*, 2020). It encompasses the members' satisfaction with the community fulfilling their needs and expectations and shaping the overall perception of its value (ShiYong *et al.*, 2022). Satisfied customers often display excitement and passion, indicating high levels of involvement, strengthening their emotional bonds with the community and the brand (Santini *et al.*, 2020; Zhang *et al.*, 2021). This hedonic connection can enhance brand loyalty and encourage positive customer participation. Extant research has shown that VBC satisfaction motivates members to share insights and experiences related to products, thereby contributing to enhanced engagement (Liang *et al.*, 2020).

Source of Satisfaction and Engagement: Self-congruence with brand

SCB represents a personal connection of the consumer to the brand to create and represent a self-image (Sirgy and Su, 2000). The marketing literature suggests that online communities help to improve brand recognition, generate positive brand attitudes, and develop brand loyalty (Phua *et al.*, 2018). Such online strategies are more persuasive when the brand's image is congruent with the consumer's ideal image of themselves. In other words, purchasing a brand can serve as a 'means of differentiating the self' (Marchowska-Raza and Rowley, 2024). The congruence between the customer's image and the firm's VBC is likely to increase its power to attract and influence brand commitment and loyalty (Gupta *et al.*, 2023). Thus, individuals are more likely to adopt favourable attitudes toward a brand if their values align with those of the brand, creating mutually satisfying experiences for both parties.

Outcomes of Engagement: Loyalty and Word-of-Mouth

The goal of any company is to establish and maintain long-lasting customer loyalty (Goyal and Verma, 2024). The behavioural approach perceives loyalty as repetitive behaviour, and its measurement is based on purchasing frequency. Addressing the limitations of this approach, loyalty is seen as the expression of a favourable attitude towards the brand. Combining the two methods provides a way for a salient understanding of loyalty. Thus, attitudinal preference and repetitive purchasing behaviour are two necessary conditions for loyalty. Social media is a tool to encourage customers to re-purchase the product and to motivate the most loyal ones to become actual salespeople for the brand (Bahri-Ammari *et al.*, 2021). Loyal customers spread positive e-WOM about their favourite brands and participate in their promotions (Darragi *et al.*, 2024).

THE CONCEPTUAL MODEL

The hypothesised relationships appear in Figure 1.

INSERT FIGURE 1 HERE

Self-congruence, VBC satisfaction, and affective brand engagement

According to the self-identity theory, people try to keep their attachments to particular communities or organisations consistent with their self-concept. Further, people tend to classify themselves and others into various social categories, which enables the individual to locate or define themselves in the social environment concerning a salient group classification (Zhang, 2022). They may reinforce their identity and their view of themselves (self-concept). Such self-concepts of consumers can establish a relationship with a brand, resulting in self-brand associations (Mostafa and Kasamani, 2021). These associations influence consumer

behaviours in private and public domains, including customer referrals, post-adoption behaviour and satisfaction with the brand community (Tran *et al.*, 2022). As a result, a person who perceives a more substantial alignment between their self-identity and a brand is more likely to feel satisfied with the community (Šegota *et al.*, 2022).

Like satisfaction, ABE could be explained by the congruence between the individual and brand image (Zhang, 2022). In this sense, several authors consider brand engagement a significant outcome of self-identification and self-image (e.g., Kemp and Bui, 2011). Similarly, in a recent effort, Chen *et al.* (2020) found that, in the tourism industry, destination brand self-congruence significantly influences destination brand engagement. Hence, we hypothesise:

H1: SCB positively influences VBC satisfaction.

H2: SCB positively influences ABE.

VBC satisfaction and VBC engagement

Satisfaction within a VBC reflects members' positive cognitive and affective evaluations of their experiences, interactions, and perceived value derived from community participation (Taheri *et al.*, 2024). When satisfied, members are more likely to actively engage in community activities, contribute content, and interact with other members and the brand (Brodie *et al.*, 2013). Satisfaction enhances members' sense of belonging and identification with the community, key drivers of VBCE (Hollebeek *et al.*, 2023; Pongpaew *et al.*, 2021). Satisfied members are less likely to switch to competing communities and more inclined to deepen their engagement with the current community (Islam *et al.*, 2018). Hence, we hypothesise:

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H3: VBC satisfaction positively influences VBCE.

Affective brand engagement and VBC engagement

The more a consumer develops an affectionate attachment to a brand, the more likely they are to participate in the brand community and form positive behavioural intentions (Selmi *et al.*, 2021). Only a few studies have examined the relationship between ABE and VBCE (e.g., Raïes *et al.*, 2015). Consumers who are engaged with the brand are more likely to participate in activities on online platforms. Such consumers are more likely to feel a sense of belongingness to the brand community, affecting their engagement. Recently, Busalim *et al.* (2024) and Liu *et al.* (2024) found that more substantial commitment to the brand positively influences commitment to the community through enhanced in-group engagement. Hence, we hypothesise:

H4: ABE positively influences VBCE.

Affective brand engagement, brand loyalty and e-WOM

The emotional nature of affectionate engagement suggests a substantial and long-term relationship with the brand, indicating brand loyalty and e-WOM (Marchowska-Raza and Rowley, 2024; Vivek *et al.*, 2012). In other words, the greater the consumers' dedication and passion for the brand, the more likely they are to re-purchase from the same brand and less likely to be persuaded by competing brands' communication. Therefore, ABE determines the consumer's propensity to stay in a relationship with the brand.

Among other outcomes, e-WOM is a means for people to communicate with one another by sharing their interests on online platforms. Customers devoted to a brand are more likely to assist prospective customers in purchasing the brand by providing recommendations (Fullerton, 2005). Hence, consumers' emotional engagement with a brand encourages them to

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share their experiences and suggestions, creating a positive contagion effect beyond traditional brand loyalty (Singh and Milan, 2025). Overall, loyalty and e-WOM represent the affective and conative outcomes of ABE, and hence, we hypothesise:

H5: ABE positively influences brand loyalty.

H6: ABE positively influences e-WOM.

VBC engagement, brand loyalty, and e-WOM

Social media literature has shown that consumer engagement on brand-managed social platforms leads to positive outcomes, such as loyalty and positive e-WOM (Bonilla-Quijada *et al.*, 2024). Community-based engagement may result in a better consumer-brand relationship, which leads to favourable loyalty-driven behaviours. According to Zhang *et al.* (2017), consumers' purchase intentions may be reinforced, and their resistance to brand switching may be strengthened when they are encouraged to engage in community activities and socialise with other members.

VBCs are essential for e-WOM because opinion-passing behaviour is more likely to happen in online social environments. According to King *et al.* (2014), VBCs provide forums where customers can converse about products and services and get tips from other customers on using them more effectively. According to earlier studies, most active participants in the online community tend to communicate favourably and refer others to the brand (Pongpaew *et al.*, 2021). Hence, we propose:

H7: VBCE positively influences brand loyalty.

H8: VBCE positively influences e-WOM.

Brand loyalty and e-WOM

Brand loyalty within VBCs is a powerful catalyst for generating e-WOM for the community. Brand-loyal members of VBCs develop a strong sense of identification with and within the community, leading to increased engagement and a desire to contribute positively (Kaur *et al.*, 2020). Such members often act as opinion leaders within VBCs, possessing extensive knowledge about the brand and community (Zhang *et al.*, 2021), making it more likely for them to share their positive experiences (Pongpaew *et al.*, 2021). Loyal members feel compelled to give back by sharing positive experiences and recommending the VBC to others (Brodie *et al.*, 2013). Hence, we propose:

H9: Brand loyalty positively influences e-WOM.

Cross-country perspective

Communication technologies have caused a rapid diffusion of technology products and services, such as VBCs. Such communities have helped many firms to cross national boundaries cheaply (Mariani and Predvoditeleva, 2019). Some studies have argued that technology adoption, engagement, and resultant outcomes, such as loyalty and behaviour, might vary across countries due to economic, social, and cultural attributes (e.g. Le and Duong, 2020). The specific country attributes, such as culture, geographical location, or the state of associated technology diffusion, may shape users' engagement with such technologies (Chopdar and Sivakumar, 2019).

Based on Hofstede's (1980) dimension of individualism vs. collectivism, an individual's relationship to their collectivity in a society, it can be argued that individuality is preferred in individualistic cultures (e.g. the USA and the UK). Hence, in VBCs, members of individualistic cultures should have relatively weaker VBC-based relationships (Chu and Choi, 2011). However, in collectivist cultures, users will develop more substantial and

intimate social relationships (Tsai and Bagozzi, 2017). Given VBCs' interactive nature, Indian customers may exhibit active engagement and sharing on these platforms based on their relational focus (Islam *et al.*, 2018). However, the findings from previous studies on the relationship between a country's characteristics and level of VBCE and ABE have been inconsistent (Le and Duong, 2020). With limited clarity, the primary structure of the model will remain intact, supporting the theoretical robustness of the model. Hence, we posit:

H10: The overall mechanism suggested by the previous hypotheses should remain invariant across various countries.

RESEARCH DESIGN

Measurement instrument

The measurement items used in this study were taken from standard ones. Likert scales with five points were used to evaluate each instrument, as described in Table 1.

INSERT TABLE 1 HERE

VBC satisfaction was measured with a four-item instrument from Llosa (1996). A four-item instrument proposed by Lacœuilhe (2000) was used to measure SCB. Fullerton's (2005) four-item instrument was used to measure ABE. A four-item instrument modified from Munnukka *et al.* (2015) and Hur *et al.* (2011) was deployed to measure VBCE. A five-item instrument modified from Fetscherin *et al.* (2014) was used to measure brand loyalty. Finally, e-WOM was measured using a three-item instrument proposed by Hur *et al.* (2011).

Population and sample selection

This study's population was all adults aged twenty and above, and current members of the VBC of a significant brand worldwide. To test the model in the study, data were obtained

from such community members across four countries: the US, the UK, Tunisia and India (the former two as developed economies and home to global brands, and the latter two as developing economies with a strong consumer base for international and domestic brands). The four countries are also different from each other culturally, as well as in adoption and engagement with technologies, such as VBC (Le and Duong, 2020).

The services of a global agency were used to enable online data collection. The agency specialises in studies in e-commerce, social media, brand communities, online forums and the Internet. Hence, it maintains a panel representative (by demographics) of the population consuming these online services. The agency had a dedicated large panel of such community members worldwide, with the panel size exceeding 50000 respondents and demographics closely representing the general online population. The rationale behind selecting respondents from a panel is that members vary in demographics and range from active to intermittent users of such communities and the kind of communities they participate in, ensuring fair representation of the larger population. Further, web panels are well-accepted as sampling frames in contemporary research.

Category

Pilot qualitative research was conducted with 25 respondents randomly selected from the panel. These respondents were asked to select and mention the brands and categories they interacted with most in online communities. The prominent categories identified for this study were high-tech products, fashion products, and cosmetics. Table 2 presents the notable names of the brands, categories and their respective websites across the four countries.

INSERT TABLE 2 HERE

Data collection

An online survey was developed, and responses were gathered by simple random sampling from the same panel, after removing the 25 respondents used in the pilot study. Respondents were asked in the first section if they belonged to a VBC within one of the designated product categories on social media. If they answered in the affirmative, they were asked to choose the category and the brand for which they intended to answer the questionnaire. Five-point Likert scales were used to capture responses to the closed-ended questions. The questionnaire culminated with the demographic data of the respondents.

The data collection was executed simultaneously across the four countries in two time periods: January 2024 to February 2024 and February 2025 to March 2025. The goal established at the outset of the research design was a sample size of 600 persons, with 150 from each country, to be achieved without missing data. For CB-SEM analysis, it is advised that the sample size should be at least 200 (Dash and Paul, 2021). However, our study targeted a much larger sample size for the statistical strength of the findings. According to Kock and Hadaya (2018), 150 per country is a good enough sample size.

To achieve the target sample size, the agency kept sending the online questionnaire to respondents chosen randomly from the panel (in the four countries) until the target sample size was achieved. Questionnaires were sent to 5494 potential respondents, of which 600 fully completed questionnaires were received, with 150 from each country. The response rate was 10.92%. In the sample, by gender, there were 61.6% men; and by age group, 52.6% were between 20 and 35 years of age, 33.6% were between 35 and 50, and the rest were over 50. In terms of category and brand, 66.4 % of respondents chose high-tech products, with 19.2% choosing Apple as the leading brand; 18.9% of respondents chose fashion products, 10.1%

choosing Zara; 11.1% of respondents chose cosmetics, with 9.3% choosing L'Oréal; and 3.6% of respondents chose beverages, with 1.6% choosing Coca-Cola.

Evaluation of biases

Such a sampling method is prone to biases due to the selection of respondents from a specific panel of an agency. A few precautionary variables that affect engagement were measured to ensure that such a bias did not affect the sample's representativeness (and, in turn, relevant variations). These variables included the frequency of visiting the VBC (number of times a week), age, gender, income, and internet usage (hours per week; Loureiro *et al.*, 2018). For each variable, two groups were formed using a median split, and the difference in engagement, measured as a variable by aggregating the items of VBCE, was tested across the two groups. Engagement was higher for females, high-frequency visitors, low age, high-income, and heavy internet users. These are expected as per existing knowledge. Secondly, the respondents named the VBC for which they answered the survey. The selected VBCs, for a few randomly selected respondents, were cross-verified for their online presence and the respondents' membership to detect any misleading information.

For bias concerning the time of response and serial change of responses over time of data collection, the authors used Armstrong and Overton's (1977) method by comparing the early (from January 2024) and late respondents (March 2025). Two groups of 50 respondents from the total sample were created. The two groups were compared for the variability in their responses to the items of brand loyalty. No significant difference was observed, implying a lack of temporal variation.

Data analysis method

The study used CB-SEM as the primary method of analysing the psychometric properties of the measures, as well as the strength of the hypothesised paths. Structural equation modelling (SEM) is a method superior to regression owing to its ability to assimilate the measurement model of latent constructs with causal relationships, either in a unified way, as in CB-SEM, or in iterations, as in PLS-SEM (Anderson and Gerbing, 1988; Chin *et al.*, 2008). Additionally, within the SEM paradigm, CB-SEM is considered a superior method for theory testing because it can address measurement error by modelling measurement error variance and covariance structures through a factor-analytic model (Gefen *et al.*, 2011). Thus, the CB-SEM results are more robust and unbiased. Anderson and Gerbing (1988) outlined the two-step approach for testing the theoretical model. Confirmatory factor analysis (CFA) is performed in the first stage to verify the measurement model's reliability and validity. The causal links in the study model are then tested using path analysis. SmartPLS4, with the CB-SEM module, was used for analysis in this investigation.

Measurement model stability test

The measurement model's stability was evaluated using bootstrapping, which looks at the stability of factor contributions and correlations and offers accuracy measures for sample estimations. The bootstrap technique compares the bias of each parameter to its standard error. Parameters with low bias and a bias-to-error ratio of one or less are considered stable. The bootstrap stability test findings revealed that all standardised factors relating contributions and manifest variables to their respective dimensions had an appropriate bias-to-error ratio (Table 3). These findings indicated that the maximum-likelihood method produced robust results that may be used to assess the reliability and validity of measurement instruments.

INSERT TABLE 3 HERE

RESULTS

CFA: Reliability and validity of constructs (overall data)

Table 4 shows the factor loadings and dependability metrics, indicating that the instruments were reliable, as evidenced by Cronbach's α values for each variable exceeding the acceptable level of 0.70. Joreskog Rho was utilised to assess each measurement instrument's internal consistency and dependability, and was greater than 0.70 for each variable, indicating acceptable reliability. Convergent validity was evaluated using average variance extracted (AVE) from the constructs; the values were above 0.5 (Fornell and Larcker, 1981).

INSERT TABLE 4 HERE

Using the method described by Fornell and Larcker (1981), the study checked whether the shared variance across the constructs was less than the AVE to establish discriminant validity. The results in Table 5 demonstrate satisfactory discriminant validity.

INSERT TABLE 5 HERE

The fit index values for the CFA demonstrated a strong model fit with chi-square/degrees of freedom=2.010, goodness-of-fit index=0.964, comparative fit index=0.965, normed fit index=0.923, and root mean square error of approximation=0.05 (Hair *et al.*, 2011).

Hypothesis Testing (overall data)

For the path analysis, contextual factors such as age, gender, product category, and brand equity were deployed as control variables. Brand equity was measured using the four-item measurement by Yoo and Donthu (2001). While demographic variables are expected to affect this process, products and brands have differential symbolic meanings to consumers, affecting their affiliation with the consumer (Islam *et al.*, 2018). The results of path analysis with all variables show that several variables had meaningful relationships with one another. Table 6 provides a summary of the results of the hypotheses. It is evident from the results that all the hypotheses were supported, lending credence to the theoretical robustness of the model.

INSERT TABLE 6 HERE

Cross-Country Analysis

To assess the measurement and structural models across the countries, a multi-method approach was employed to examine measurement invariance (Henseler *et al.*, 2009). To prevent multiple pairwise comparisons (6 pairs) from adding to the complexity of the results, two groups were formed using power distance, individualism, and masculinity as grouping variables (The Culture Factor, n.d.). The USA and the UK were in one group (developed economies), and India and Tunisia were in the other group (developing economies). Hence, the data secured from India and Tunisia were combined to form the first group, and the data from the USA and the UK were combined to form the second group. The empirical approach included the permutation test and the bootstrap-based multi-group analysis (MGA). After evaluating measurement invariance using the permutation method, the *p*-values from both the

MGA and permutation methods were analysed to identify significant differences in path coefficients (<0.05), highlighting specific path variations between the two groups. Table 7 presents a summary of the invariance measurement, assessing configural, compositional, as well as partial and full measurement invariances.

INSERT TABLE 7 HERE

Since partial invariance was confirmed but full invariance was not, we examined differences in the path model across the two groups. Group-specific variations were analysed using the MGA with 5,000 bootstrap resamples and permutations. Table 8 provides a summary of the hypothesis testing results for both groups.

INSERT TABLE 8 HERE

A comparison of the path models revealed significant differences in the path values of three relationships—H1, H2 and H3—across the two groups. While these paths were individually substantial and shared the same polarity, their numerical values differed statistically. The statistical difference between the path values of the two groups was insignificant for the other hypotheses. Consequently, H10 was primarily supported, as the path values and significance align across both groups, suggesting that the model remains robust.

DISCUSSION

The growing popularity of online platforms, such as VBCs, has changed how customers communicate with brands and engage with each other, offering new opportunities for customer-brand relationships. This study aims to find the factors that lead to ABE and VBCE and how such engagement affects brand loyalty and e-WOM. The antecedent factors to engagement considered are SCB and VBC satisfaction. It is theorised that users who are satisfied with the platform or visualise an overlap of self with the personality of the VBC actively participate in co-creation activities on the community, re-engage with the brand and the community, refer the brand and the community to others, and maintain these behaviours over time.

The role of SCB in influencing VBC satisfaction (H1) and ABE (H2) is pertinent, substantiating its essential role in building brand loyalty and e-WOM for the community. Consumers are more likely to be satisfied with the experiences of the community and emotionally engage with a brand when they perceive a strong fit between the brand's image and self-image (Zhang, 2022). A company's ability to communicate effectively on its VBC strengthens its brand identity and promotes connection and identification with it. Thus, the business must offer well-branded content that embodies its essence, arouses fondness, shapes VBC satisfaction and strengthens hedonic brand engagement (Selmi *et al.*, 2021).

The study also validates the effect of VBC satisfaction and ABE on VBCE (H3 and H4). Customers who demonstrate a strong commitment to the brand and are satisfied with their in-community experiences are more likely to defend and advocate for the brand within the VBC, actively aiding the promotion of its goods and services. During co-creation processes, highly engaged consumers contribute ideas and create content to improve the

brand's quality. Consequently, their involvement with the VBC results from their affinity, implying robust brand involvement and community engagement.

The study supports the literature on the influence of ABE (H5) and VBCE (H7) on brand loyalty. The ABE and perceived value of online co-creation improve the overall quality of consumer-brand relationships. In other words, the greater the consumers' dedication and passion for the brand and the community, the more likely they are to re-purchase from the same brand and less likely from competing brands.

The study emphasises the positive relationship of engagement within a VBC (VBCE; H8) and ABE (H6) with members actively promoting the brand. These engaged customers use the VBC to bring others into the brand experience, strengthen consumer-brand and consumer-community relationships, and enhance e-WOM and loyalty (Singh and Milan, 2025). The study's results demonstrate the significant connection between e-WOM and brand loyalty (H9). Brand-loyal customers are essential influencers because they actively spread positive information about the brand to other prospective customers to convince them to select and use the same brand.

Finally, the study found that the model was largely invariant across the countries, with the path maintaining significance and polarity for both groups of countries. The finding suggests the theoretical strength of the model and the importance of constructs such as SCB and VBC satisfaction in creating loyalty and e-WOM across various countries, irrespective of socio-economic and cultural differences. Three relationships are found to be statistically different. Indian and Tunisian consumers were found to have stronger VBC satisfaction (and VBCE) and ABE from SCB than the US and UK consumers. This result subscribes to the work of Islam *et al.* (2018) and similar studies about consumers from collectivist cultures

tending to build greater engagement with VBCs when there is a strong emotional resonance with the brand. However, the other paths were not statistically different, implying relatively similar loyalty and e-WOM effects once brand- and VBC-focused engagements are shaped.

THEORETICAL IMPLICATIONS

The study takes an integrative view to combine the affective and social dimensions of consumer-brand engagement to propose two separate constructs in the VBC context, referred to as ABE and VBCE. VBC satisfaction and SCB are proposed as antecedents, and brand loyalty and w-WOM as outcomes (Kaur *et al.*, 2020). As a consequence, this work offers multiple theoretical implications. First, by examining the effects of online social networks, particularly VBC, on consumer attitudes and behaviours toward brands, this study advances the works leveraging brand engagement theory (Bahri-Ammari *et al.*, 2021; Fullerton, 2005). The research model advances our understanding of consumer engagement in online social networks and how it relates to brand loyalty and advocacy behaviours (Van Tonder and Petzer, 2018). In alignment with the work of Kumar and Nayak (2018), this work highlights the importance of consumer experience with the VBC interface, measured through VBC satisfaction, for building strong relationships with the brand and the community, a finding that is novel to existing VBC-oriented research (Santos *et al.*, 2022).

Second, the study displays the vital role of ABE in shaping customer participation in online communities, measured as VBCE and outcomes such as loyalty and e-WOM. The study establishes the importance of curating emotional resonance with a brand through SCB to ensure the success of a community. According to Hollebeek *et al.* (2017), it is critical to acknowledge the interactive aspect of VBCs where users communicate with others, use these communities for brand-related information, and strengthen their sense of self. Such relatable

and engaging communities significantly impact the performance of brands (Naumann *et al.*, 2020). By putting forth a thorough model indicating the pathway from SCB to ABE to loyalty and e-WOM, this study adds significant value to the field of VBCE.

Finally, the role of national, cultural and socio-economic attributes in affecting engagement in online communities was unclear, with some studies suggesting that user expectations and engagement for technology may be contingent on these geographical factors (e.g. Chopdar and Sivakumar, 2019). The study findings clarify that the engagement-building process differs in collectivist-developing economies compared to individualistic-developed ones. Such collectivist consumers build stronger engagement with the brand and the community. However, the post-engagement outcomes, such as loyalty or e-WOM, are similar across countries. It is an additional insight into the otherwise inconclusive literature in the engagement domain for VBCs (e.g. Yousaf *et al.*, 2021).

MANAGERIAL IMPLICATIONS

The findings of this study offer a few practical implications for brand marketers to engage customers through digital marketing initiatives. First, creating powerful VBCs consistent with customers' identities is essential for positive ABE. Hence, marketers are advised to share content that speaks to their target customers to encourage VBCE and ABE and drive loyalty and e-WOM. In other words, the messages posted by brand moderators should resonate with the consumers' identity. It mandates that brand managers understand the unique personalities and psychographics that constitute their consumer segments and facilitate conversations in the community that reinforce them.

Second, increasing VBCE requires members to be satisfied with their experiences in the virtual community. Hence, brand managers should concentrate on creating rewarding

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experiences through various attributes of the community site. Such attributes imply enhancing the website's efficiency to guarantee user-friendliness, offering engaging and immersive content, and providing lucid and reliable information to meet the demands of users. From an experiential value perspective, it is crucial to embed not only utilitarian but also social, emotional and altruistic interactions to improve VBC experiences in the community (Mishra, 2016). The VBC can also achieve customer satisfaction by establishing a dedicated and responsive customer service team. Such meaningful experiences through enabling attributes of the VBC can enhance user satisfaction and motivate members to foster community and brand engagement.

Third, to seed meaningful conversations to enhance VBCE, brand managers can identify members dedicated to the online community by offering reliable information that improves the other members' emotional connection with the brand. These 'community champions' can help the brand co-create relatable and engaging content about the brand to build an emotional resonance among the members with the brand. Brands should encourage ABE by creating content that accurately captures the universe and identity of the brand to strengthen member participation in co-creation activities. In other words, in partnership with community influencers, brands should proactively produce content that improves ABE, which is expected to promote members' participation and engagement with the VBC.

Fourth, the study found that for technology-lagging developing countries such as India and Tunisia, with a more collectivist culture, the development of ABE and VBCE, from SCB, was higher than for technology-leading developed countries such as the UK and the USA, with more individualistic cultures. Higher engagement, due to greater self-congruence of the consumers with the brand, implies that global brands need to create higher consumer-brand

image 'resonance' in developing collectivist countries. Such resonance will create greater dividends through a greater emotional bond with the brand and greater participation and engagement with the VBC. In other words, global brands need to adapt to the local culture of a developing economy, with more localised yet modern offerings, relatable communications with cultural overtones, and local iconicity (He and Wang, 2017). Such local adaptation is expected to create greater self-congruence with the brand. It is especially true if the brand's country of origin is culturally quite different from the target market (for example, brands from the USA and the UK investing in countries such as India and China). Hence, more cultural assimilation may be needed if a brand desires its VBC and the brand itself to succeed in the chosen market.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

Despite its robustness, the study has some limitations. Firstly, the results would be more broadly applicable if there were a larger sample size obtained by including respondents from other nations beyond these four, since, beyond culture, there is significant variation across nations on socio-economic and other environmental factors. The second limitation is that certain variables, such as age, gender, product category, and brand equity, may have moderating or main effects that were controlled for but not examined for their individual moderating effects. Although this reexamination may increase the study's complexity, it would enhance the model's richness. Similarly, future research could analyse the consequences of engagement more broadly, including purchase intent, share of wallet and brand reputation.

The third concern is an analysis-related one, as CB-SEM was used in this study to test the conceptual model. CB-SEM is a correlational technique that only evaluates the association

between variables. Future research may employ additional statistical techniques, such as the qualitative comparative analysis method, to assess the direction of suggested relationships and how their causal combinations affect the outcomes. Fourth, the study considers only attitudinal and perceptual variables as engagement outcomes, with little focus on actual behavioural outcomes. Future research can examine the effects of engagement on such behaviour, captured in an observational or experimental setting.

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Table 1: Measurement items

Construct (Source)	Code: Item
Self-congruence with the brand (Lacœuilhe, 2000)	SCB1: This brand corresponds to my image.
	SCB2: This brand corresponds to the image that I want to have.
	SCB3: This brand gives me a good image of myself.
	SCB4: This brand corresponds to the impression that I wish to give of myself to others.
VBC satisfaction (Llosa, 1996)	VBCS1: Overall, this site satisfies me.
	VBCS2: This site gives me a pleasant impression.
	VBCS3: I recommend this site to a friend.
	VBCS4: I want to revisit this website.
VBC engagement (Munnukka *et al.*, 2015; Hur *et al.,* 2011)	VBCE1: I feel a sense of belonging in this brand community.
	VBCE2: I will exchange information and opinions with the members of this brand community.
	VBCE3: I am generally very motivated to participate actively in the virtual community activities.
	VBCE4: I will collect information through this brand community.
Affective brand engagement (Fullerton, 2005)	ABE1: I feel a strong sense of identification with the brand.
	ABE2: This brand has a great deal of personal meaning for me.
	ABE3: I feel emotionally attached to the brand.
	ABE4: I feel like this brand is part of my family.
Brand loyalty (Fetscherin *et al.*, 2014)	BL1: I am committed to this brand.
	BL2: I pay more attention to this brand than to other brands.
	BL3: I am more interested in this particular brand than in other brands.
	BL4: It is vital for me to buy this brand rather than another brand.
	BL5: I always buy the same brand because I like it.
e-Word of mouth (Hur *et al.,* 2011)	eWOM1: I often tell others about this brand.
	eWOM2: I recommend this brand to others.
	eWOM3: I will leave positive comments about this brand on community sites.

Table 2: Brands in the study

Brand Name	Category	Website
Alain Manoukian	Fashion	https://www.efashion-paris.com/en/vendeurs/manoukian-1288.html
Apple	Hi-tech	www.apple.com
Avon	Cosmetics	www.avon.co.in
Benetton	Fashion	www.benetton.com
Bershka	Fashion	www.bershka.com
Coca-Cola	Beverages	www.coca-cola.com
Evertek	Hi-tech	www.evertek.com.tn
Fatale	Cosmetics	www.fatalecosmetics.com
Forever21	Fashion	www.forever21.com
H&M	Fashion	www.hm.com
L'Oréal	Fashion	www.loreal.com
Mabruuk	Fashion	https://mabruukfashion.com
Mango	Fashion	shop.mango.com
Oppo	Hi-tech	www.oppo.com
Oriflame	Cosmetics	www.oriflame.com
Point M	Cosmetics	utic.tn/en/societes/point-m-2
Samsung	Hi-tech	www.samsung.com
Sephora	Cosmetics	www.sephora.com
Sisley	Cosmetics	www.sisley.com
Yves Rocher	Cosmetics	www.yvesrocherusa.com
Zara	Fashion	www.zara.com
Zen	Fashion	www.zenattireofficial.com

Table 3: Standardised factorial contributions

Items	Mean	Estimate	Standard Error (SE)	Bias	SE-Bias	Bias /SE	Critical Ratio	Probability Value
SCB1	0.720	0.716	0.033	0.002	0.004	0.5	15.016	0.010
SCB2	0.848	0.847	0.020	0.001	0.001	1	21.648	0.010
SCB3	0.976	0.976	0.007	0.000	0.00	0	34.560	0.010
SCB4	0.945	0.945	0.009	0.000	0.001	0	24.555	0.010
VBCS1	0.750	0.863	0.019	-0.001	0.001	0.001	19.923	0.010
VBCS2	0.929	0.930	0.014	0.000	0.001	0	23.985	0.010
VBCS3	0.862	0.751	0.033	-0.001	0.002	-0.5	15.498	0.010
VBCS4	0.903	0.903	0.017	0.000	0.001	0	16.525	0.010
VBCE1	0.691	0.690	.038	0.001	0.003	0.333	12.245	0.010
VBCE2	0.816	0.820	.026	-0.002	0.004	-0.5	11.749	0.010
VBCE3	0.836	0.837	.023	-0.001	0.002	-0.5	11.956	0.010
VBCE4	0.867	0.869	.020	-0.002	0.001	-1	12.331	0.010
ABE1	0.694	0.694	0.037	0.000	0.003	0	14.952	0.010
ABE2	0.941	0.940	0.009	0.001	0.001	1	35.056	0.010
ABE3	0.963	0.963	0.006	-0.001	0.001	-1	42.790	0.010
ABE4	0.970	0.970	0.005	0.000	0.000	0	27.456	0.010
BL1	0.691	0.690	0.032	0.001	0.002	0.5	11.041	0.010
BL2	0.978	0.978	0.003	0.000	0.000	0	14.708	0.010
BL3	0.991	0.990	0.003	0.001	0.001	1	14.854	0.010
BL4	0.925	0.924	0.010	0.001	0.001	1	13.937	0.010
BL5	0.904	0.903	0.012	0.001	0.002	0.5	13.637	0.010
eWOM1	0.948	0.947	0.016	0.001	0.001	1	13.455	0.010
eWOM2	0.910	0.910	0.018	0.000	0.001	0	21.264	0.010
eWOM3	0.923	0.913	0.048	0.001	0.002	0.5	12.278	0.010

Table 4: Measurement properties

Construct	Label	Factor loading	Cronbach's α	Average Variance Extracted	Joreskog Rho
Self-congruence with the brand	SCB1	0.703	0.923	0.924	0.984
	SCB2	0.782			
	SCB3	0.904			
	SCB4	0.933			
VBC satisfaction	VBCS1	0.851	0.934	0.853	0.965
	VBCS2	0.962			
	VBCS3	0.811			
	VBCS4	0.925			
VBC engagement	VBCE1	0.672	0.865	0.801	0.946
	VBCE2	0.852			
	VBCE3	0.886			
	VBCE4	0.873			
Affective brand engagement	ABE1	0.683	0.954	0.947	0.927
	ABE2	0.961			
	ABE3	0.985			
	ABE4	0.957			
Brand loyalty	BL1	0.705	0.951	0.935	0.987
	BL2	0.913			
	BL3	0.971			
	BL4	0.932			
	BL5	0.914			
e-Word of mouth	eWOM1	0.962	0.884	0.887	0.968
	eWOM2	0.936			
	eWOM3	0.678			

Table 5: Fornell and Larcker (1981) test

Number	Construct	1	2	3	4	5	6
1	Self-congruence with the brand	0.924					
2	VBC satisfaction	0.324**	0.853				
3	VBC engagement	0.422**	0.317**	0.801			
4	Affective brand engagement	0.254**	0.612**	0.456**	0.947		
5	Brand loyalty	0.354**	0.456**	0.287**	0.435**	0.935	
6	e-Word of mouth	0.411**	0.417**	0.56**	0.461**	0.602**	0.887

Notes: Diagonal values represent average variance extracted, while off-diagonal values are squared correlations; **p<0.01

Table 6: Hypothesis results

Hypotheses	Estimate	Critical Ratio	Hypothesis Result
H1: Self-congruence with the brand → VBC satisfaction	0.228	2.716	*Supported*
H2: Self-congruence with the brand → Affective brand engagement	0.751	16.459	*Supported*
H3: VBC satisfaction →VBC engagement	0.512	7.345	*Supported*
H4: Affective brand engagement →VBC engagement	0.548	8.525	*Supported*
H5: Affective brand engagement → Brand loyalty	0.505	7.124	*Supported*
H6: Affective brand engagement → e-Word of mouth	0.199	2.680	*Supported*
H7: VBC engagement → Brand loyalty	0.276	2.940	*Supported*
H8: VBC engagement → e-Word of mouth	0.324	3.987	*Supported*
H9: Brand loyalty → e-Word of mouth	0.415	7.109	*Supported*

Table 7: Invariance measurement

Measures	Configural invariance	Compositional invariance (correlation)	Partial invariance	Equal mean (difference)	Equal variance (difference)	Full Invariance
Self-congruence with the brand	Yes	0.996*	Yes	0.135*	-0.119*	Yes
VBC satisfaction	Yes	0.992*	Yes	0.162*	-0.323	No
VBC engagement	Yes	0.994*	Yes	0.069*	-0.161*	Yes
Affective brand engagement	Yes	0.997*	Yes	0.137*	-0.147*	Yes
Brand loyalty	Yes	0.983*	Yes	0.183*	-0.190*	Yes
e-Word of mouth	Yes	0.978*	Yes	0.176*	-0.104*	Yes

Notes: *values lying in the confidence interval

Table 8: Cross-country results

Measure	Item	Loading (G1/G2)	Critical Ratio (G1/G2)	Average Variance Extracted (G1/G2)	Maximum Squared Correlation (G1/G2)
Self-congruence with the brand	SCB1	0.703*/0.709*			
	SCB2	0.779*/0.785*			
	SCB3	0.910*/0.908*	0.830/0.845	0.668/0.713	0.512/0.524
	SCB4	0.932*/0.897*			
VBC satisfaction	VBCS1	0.812*/0.901*			
	VBCS2	0.977*/0.956*			
	VBCS3	0.804*/0.820*	0.931/0.925	0.742/0.805	0.448/0.491
	VBCS4	0.911*/0.934*			
VBC engagement	VBCE1	0.661*/0.676*			
	VBCE2	0.866*/0.890*			
	VBCE3	0.897*/0.862*	0.780/0.818	0.609/0.617	0.524/0.591
	VBCE4	0.879*/0.881*			
Affective brand engagement	ABE1	0.681*/0.682*			
	ABE2	0.973*/0.965*			
	ABE3	0.985*/0.979*	0.935/0.974	0.729/0.799	0.512/0.567
	ABE4	0.961*/0.944*			
Brand loyalty	BL1	0.730*/0.711*			
	BL2	0.899*/0.911*			
	BL3	0.964*/0.942*	0.881/0.823	0.639/0.627	0.491/0.499
	BL4	0.923*/0.927*			
	BL5	0.944*/0.860*			
e-Word of mouth	eWOM1	0.981*/0.922*			
	eWOM2	0.934*/0.926*	0.885/0.851	0.682/0.643	0.516/0.522
	eWOM3	0.688*/0.696*			

Hypothesis (Path)	Path Value (G1)	Path Value (G2)	Path Difference (G1-G2)	Result
H1: Self-congruence with the brand → VBC satisfaction	0.349*	0.208*	+0.141[#][+]	Different (G1>G2)
H2: Self-congruence with the brand → Affective brand engagement	0.759*	0.582*	+0.177[#][+]	Different (G1>G2)
H3: VBC satisfaction →VBC engagement	0.615*	0.501*	+0.114[#][+]	Different (G1>G2)
H4: Affective brand engagement →VBC engagement	0.542*	0.556*	-0.014	No Difference
H5: Affective brand engagement → Brand loyalty	0.501*	0.509*	-0.008	No Difference
H6: Affective brand engagement → e-Word of mouth	0.198*	0.199*	-0.001	No Difference
H7: VBC engagement → Brand loyalty	0.278*	0.265*	+0.013	No Difference
H8: VBC engagement → e-Word of mouth	0.334*	0.321*	+0.013	No Difference
H9: Brand loyalty → e-Word of mouth	0.411*	0.419*	-0.008	No Difference

Notes: *p <0.05; #p<0.05(Multi-group Analysis); +p<0.05 (Permutation); G1: Group1 (India &Tunisia), G2: Group 2 (the USA & the UK)
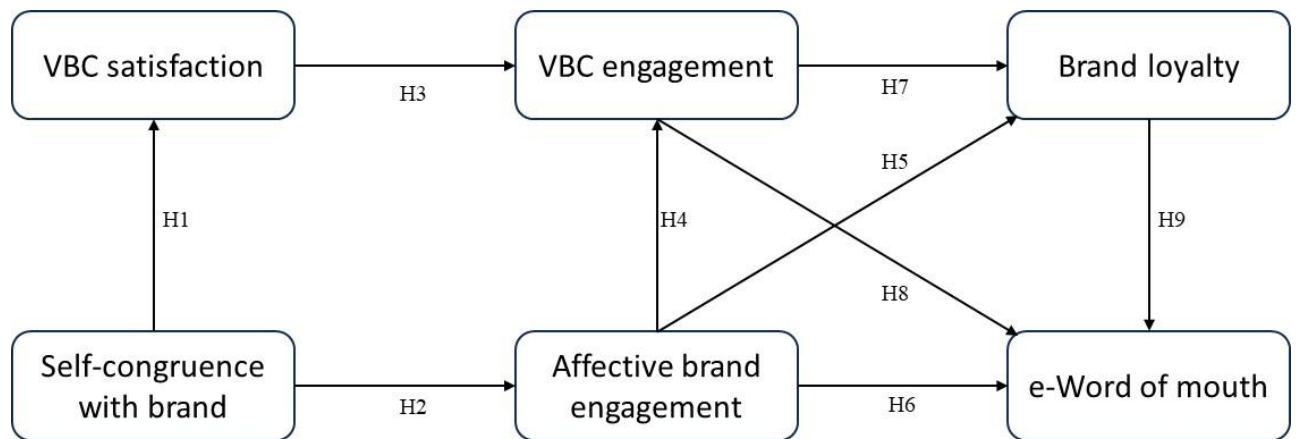
Figure 1: Research Model