

Does gamified interaction build a strong consumer-brand connection? A study of mobile applications

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Abstract

In recent times gamification has increasingly been used by brands through smartphones to interact effectively with their consumers. The core assumption for creating gamified environment is that it will develop engagement with the consumer and motivate them to use their product or services. However, beyond this assumption, there is dearth empirical evidence regarding how much effective these gamified features are in engaging consumers. Therefore, this research analyses the relationship between flow, brand engagement, self-brand connection and brand usage intent among consumers (N = 360) of two gamified mobile applications. The findings show that the multidimensional construct flow formed by five dimensions i.e. challenge, feedback, autonomy, immersion, and interaction positively associates with cognitive brand engagement and emotional brand engagement. Additionally, both these forms of brand engagement further strengthen consumers' brand connection and motivate them for further use. These results imply that gamified environment can augment consumer engagement with brand and further increase usage intention. Therefore, gamification can be an effective technique in brand management and brand managers can use it to strengthen relationship with consumers and increasing possibility of using their brands.

Keywords: Gamification; Smartphone applications; Flow; Consumer brand engagement; Brand usage intent; Self-Brand connection

1 Introduction

Brands share a common belief that building compelling and interactive consumer experiences are critical for developing successful marketing strategies (e.g. Brakus, Schmitt & Zarantonello, 2009) and attaining long term competitive advantage (Prahalad & Ramswamy, 2004). Due to increasing accessibility of technology – especially mobile technology, multiple platforms such as mobile apps, online community are available for the consumers to interact and exchange resources with brands and other consumers (Lamberton & Stephen 2016). Furthermore, consumers are increasingly using these technologies and their interactions with brand has increased manifold (Kumar & Pansari, 2016). However, just providing access to these technologies does not guarantee their proper usage or interactive consumer brand exchange (Storbacka et al., 2016; Venkatesan, 2017). The development of competitive advantage in this technology enabled market environment resides in brands' ability to promote consumers' voluntary and adequate investment of resources in consumer brand relationship (Kumar & Pansari, 2016). This characterizes the challenge of generating consumer brand engagement (Kumar & Pansari, 2016; Venkatesan 2017).

Consumer brand engagement as psychological state develop interactions between consumer and brand. It highlights the persistent, creative, and reciprocal nature of customer and brand relationships that reach beyond transactions. An engaged consumer is expected to collaborate, advocate and share information with their preferred brands (Kumar et al., 2010). However, designing effective physical or digital “engagement platforms” facilitating engagement between various actors is much more important task (Breidbach, Brodie & Hollebeck, 2014). Engagement platforms act as intermediary that actors (e.g. consumers and brand) leverage to engage with others (Edvardsson et al., 2010). By using various engagement platforms brands can provide consumers compelling experience and develop effective customer engagement (Jaakkola & Alexander, 2014; Jaakkola, Helkkula & Aarikka-Stenroos, 2015). However, reflecting on the current realities of the increased fragmentation of media and other communication channels brands are still looking for efficient mechanism that can manage customer engagement effectively (Lemon and Verhoef, 2016). Encouraged by the success and popularity of video games, brands have started using gamification to create compelling consumer experiences and boost engagement (Berger, Schlager, Sprott & Herrmann, 2018).

Gamification defined by Robson et al. (2015), as “the application of game design principles in order to change behaviour in non-game context” (p. 411). In this process, technology via computers or mobile phones being used to affect people’s motivations and change behaviour through game like systems (Hamari & Koivisto, 2015). Recently, various global companies such as Nike, Amazon, Expedia, Tencent and Starbucks have incorporated gamified components into their promotion schemes (Zhang, Phang, Wu & Lou, 2017). Consequently, the gamification market is projected to rise to more than \$11.10 billion by 2020 from \$1.65 billion in 2015 (Markets & Markets, 2016).

Largely, gamification process was applied to provide solutions to the problems that require behavioural changes, such as reducing obesity, maintaining mental health or mastering new skills. However, brands can also use gamification to increase their consumers’ engagement (Shankar, 2016). Research on gamification have noticed its positive impacts on product adoption (Müller-Stewens et al., 2017), enhancing consumer creativity (Scheiner, 2015) and changing consumer behaviours (Hamari & Koivisto, 2015). Some studies have also highlighted the positive influence of gamification on user experience and engagement (Harwood & Garry, 2015; Darejeh & Salim, 2016). However, in spite of these positive outcomes, very little information available about its marketing potential and outcome. Still there remains conceptual inefficiency and dearth of empirical research on its functioning and consequences from the perspective of consumer brand relationship. Specifically, there are no conclusive evidence regarding brand responses such as the self-brand relation of consumers and the desire to use the brand.

The major reason for this gap in the literature is probably because academia till date have mainly studied gamification from designer perspective. Research will offer rich source of knowledge if this concept is studied from the viewpoint of consumer experiences. By treating games as fun interactive interactions between consumers and brand (Holbrook, Chestnut, Oliva & Greenleaf, 1984), we resolve this void, thus enabling us to concentrate on consumer psychological processes during gamification. Therefore, the objective of this analysis is to examine the integration of gamification as a branding element into consumer brand relationship. To achieve this objective, we intend to find out the answer to research questions: Can gamification facilitate consumers’ brand usage intent and self-brand connection? If so, what is the process of connecting brands to the customers?

For understanding above mentioned research problem, this study advanced the problem by using flow (here defined “as a psychological state of being fully immersed in an activity”) and

consumer brand engagement (here defined as “consumers’ cognitive, emotional and behavioural activity around specific consumer/brand interaction”). We consider these two concepts are appropriate to examine the effect of gamification as both help in explaining consumers’ immersive engagement with the brand and address the outcome of that engagement. After reviewing previous literature, the current study suggests a conceptual framework which discusses the theoretical underpinning of flow and consumer brand engagement. For empirical examination of consumers’ flow in gamification, this study followed a quantitative approach. In current study, a survey questionnaire was developed and used for collecting data from consumers’ two gamified mobile applications.

This research leads to two ways of interpreting gamification in branding literature. Firstly, this study provides first of its kind empirical examination of the mechanism of gamified consumer experience facilitating brand usage intent. The current research thus contributes to the literature that investigates influence of flow of games on brand specific outcomes (Lee et al., 2014). Secondly, we also study the critical psychological processes of gamified interaction on brand preference through consumer brand engagement (Kuo & Rice, 2015). Overall, the results of current research exhibit how gamification can be used as tool by organisations for creating compelling experience that lead to sustainable consumer brand relationship.

In rest of the paper, we first review prior studies on gamification and flow theory. Then we develop theoretical model linking gamified flow to brand usage intent through consumer brand engagement. Section 3 presents the questionnaire used for examining the hypotheses, explains sample data and research methods used for examination. Finally, the paper provides suggestions for marketing theory and practices.

2 Literature review and conceptual development

2.1 Gamification

The phenomenal success of video games has led industry and academia to study what makes games so engaging. Marketers are trying to use this learning to transform routine consumer behaviour into pleasant experiences (Robson et al., 2015). This method of transferring mechanics of gaming in non-game context, referred as gamification, becomes an extremely popular practice in business (Werbach & Hunter, 2012). In a very limited time, this concept has been studied in different management contexts, like innovation (Roth, Schneckenberg & Tsai 2015), organizational governance (Farzan & Brusilovsky 2011), services (Hamari & Koivisto 2015), banking (Rodrigues, Oliveira, & Costa, 2016) and e-commerce (Insley & Nunan, 2014).

In literature, gamification has been largely studied around two perspectives i.e. designer and consumer. The designer perspective, introduced by Deterding et al. (2011), defined gamification “as the introduction of game mechanics and elements (rather than full-fledged games) to design non-game contexts” (p. 5). Whereas, more recently, Huotari and Hamari (2017) has taken the customer-oriented approach and defined gamification as “a process of enhancing a service with affordances for gameful experience to support customers' overall value creation” (p. 25). It focusses largely on gameful consumer experiences which are created through gamified interaction. Huotari and Hamari (2017), further explained gameful experience as “the intrinsically motivating experience customers’ live when they are interacting with the gamified settings”. Previous studies suggest use of flow theory to understand these immersive consumer experiences generated during gamified interaction (Berger et al., 2018). Further, Huotari and Hamari (2017) definition also stressed on value creation through gamification process. Customer engagement can be potential positive outcome that is generated through the consumers’ immersive interaction with brands (Hammedi, Leclercq & van Riel, 2017). Flow

theory can also be used to study effect of consumers' gamified experience on consumer brand relationship (Berger et al., 2017). Thus, current study uses flow theory framework to understand the underlying gamification process and its potential outcomes.

2.2 Flow Theory

Flow or immersive flow commonly used to describe a psychological state in which a person is completely immersed and involved in an activity (Csikszentmihalyi & LeFevre, 1989). As defined by Csikszentmihalyi (1990), "it as a state of optimal experience in which individual feel simultaneously happy and cognitively efficient, as they are so engrossed in an activity as nothing else matter" (p. 816). Flow is so called because individuals describe their perceptions of "flow" as a current of water moving them along (Csikszentmihalyi, 1975). This psychological mechanism has also been examined in the sports, education and music fields (Agarwal & Karahanna, 2000; Csikszentmihalyi & LeFevre, 1989; Hsu & Lu, 2004).

After Hoffman and Novak (1996) presented the conceptual structure of flow in the online world, a significant number of human-computer interaction investigations have explored the antecedents and implications of flow. Although most of these studies used a one-dimensional flow, latest research has shown the value of multi-dimensional flow (e.g., Hamari & Koivisto, 2015; Procci, Singer, Levy, & Bowers, 2012). As both online and face-to - face social interactions are needed in gamification, a multi-dimensional flow model is best suited to capture the flow experience (Kaur et al., 2016).

Moreover, according to previous studies, when people completely immersed in an activity, they are psychologically driven to participate actively (Ho and Kuo, 2010). Since flow is essentially satisfying, people tend to repeat these flow experiences, creating a procedure for psychological functioning that promotes engagement (Nakamura & Csikszentmihalyi, 2002). According to Hamari et al. (2016), by fostering consumers' intrinsic motivation, flow sets the stage for sustained commitment and develop enduring brand engagement.

Previous studies analysing impact of flow on product usage showed that focused immersion, temporal dissociation, control, curiosity and heightened enjoyment make people completely absorbed and further motivate to use the product continuously (Agarwal & Karahanna, 2000). In the context of gamification, Lowry et al. (2013), found, gamers' immersive experiences create enjoyment and control, which subsequently motivates them to stay in the game for longer duration. Thus, in this research we study gamified consumer experience since it is likely to positively affect consumer brand engagement which subsequently develops strong connection between consumer and brand and positively influences its future usage.

2.3 Conceptual Model

After exploring literature related to consumer engagement and flow theories, this study develops conceptual framework (Figure 1) of drivers of flow, consumer engagement, self-brand connection and brand usage intent. This hypothesized model assesses cross sectional associations among flow, cognitive brand engagement, emotional brand engagement, self-brand connection and brand usage intent. In the following subsections, detailed discussion on individual dimensions of flow construct and theoretical support for its relationships with other constructs are provided.

2.3.1 Flow and consumer brand engagement

In the current research, flow is considered as multidimensional construct having five dimensions which includes "immersion, challenge, feedback, autonomy and social interaction" (Yoo, Sanders & Cervený, 2018). The immersion experience widely studied as the dimension of flow; previous research has also incorporated challenges, autonomy and receiving consistent

and exciting feedbacks as dimensions of flow (Lowry et al., 2008). Previous studies also empirically verified social interactions as important aspect of flow, in promoting enjoyment and intrinsic motivation thus promoting flow (Fu, Su, & Yu, 2009). On the basis above discussion, this paper examines the effect of above mentioned five dimensions i.e. immersion, feedback, autonomy, challenge and social interaction on brand engagement.

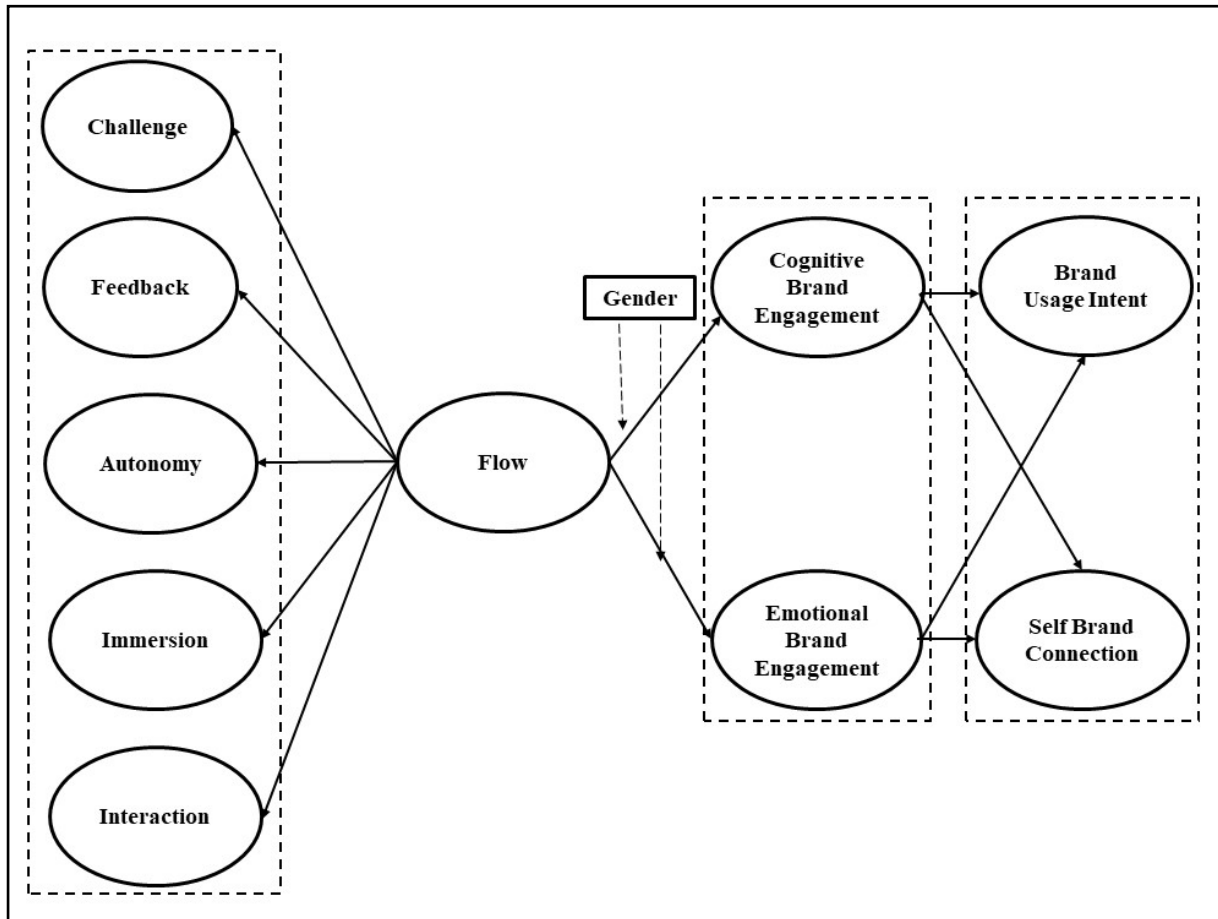


Figure 1. Conceptual Model

In the literature, challenge has been defined as “the level of difficulty an individual feel in relation to their skill level” (Yoo et al., 2018, p. 109). According to previous studies, this difficulty is a two-edged sword, if the challenge is greater than individual’s current knowledge, it may lead to anxiety. Whereas, if it does not match knowledge, apathy may occur (Johnson & Wiles, 2003). Previous research has noticed positive impact of increasing the challenging nature on enjoyment in the gaming environment (Abuhamdeh & Csikszentmihalyi, 2012). Some studies have also highlighted the importance of challenge in prompting cognitive reactions (McMillan & Hwang, 2002). Therefore, this study hypothesises the positive role of challenge dimension in developing cognitive and affective brand engagement.

In the present research, feedback discusses the degree people feel that brand notify them about their progress (Yoo et al., 2018). In a gamified environment, such notifications are usually delivered via message and award (Yoo et al., 2018). Feedback is among most popular dimensions since positive feedback inspires mastery of tasks (Federoff, 2002). Therefore, this study hypothesized that good feedback facilitates development of engagement with the brand.

Autonomy understood as level of control perceived by user over game (Yoo et al., 2018). In case, consumers feel difficulty in understanding the rules and procedures of game or controlling

the game, they won't completely engage in the experience it offers. Furby (1978), argued that greater the control over object is exercised by individuals, the more psychologically it is perceived as a part of self. Thus, current study expects autonomy in the game may increase the probability that a consumer can promote both flow and lead to engagement. Immersion is a mental state felt by individual when they get completely involved in a particular activity (Yoo et al., 2018). This dimension has been noted as one of most representative experience of flow (Csikszentmihalyi & Csikszentmihalyi, 1992). High immersion is also the product of great pleasure and leads to high involvement in the subject (Agarwal & Karahanna, 2000). This study thus posits that if users experience more satisfaction and spend more effort and time when experiencing gamification flow, they may have more cognitive and emotional brand engagement.

Social interaction means the extent at which users communicate socially over the course of gamification (Yoo et al., 2018). Moreover, interaction with other consumers is an vital element of consumer brand engagement. Thus, creating a communication medium which allow consumers to interact socially is a significant foundation for building engagement with brand. Previous studies present that members' communication, and technology develop affective emotions that lead to engagement. In case of gamification, now a days, social interaction is facilitated among users via bulletin boards, instant messaging etc. Gamification presents users this ability to build a sense of belonging with the brand and other users, thus leading to consumer brand engagement. Thus, we posit:

H1: Flow has significant positive impact on Cognitive Brand Engagement (CBE).

H2: Flow has significant positive impact on Emotional Brand Engagement (EBE).

2.3.2 Consumer brand engagement and self-brand connection

Previous studies indicates that customer brand engagement which arises from their interactions with a brand (Hollebeek, 2011) could conceptually relate consumers' flow experiences to their relationship with brand (Brodie, Hollebeek, Jurić & Ilić, 2011). Flow can activate cognitive and affective reactions to an experiential action (Moneta & Csikszentmihalyi, 1996).

Likewise, earlier examination has demonstrated that flow leads to engagement (Shernoff, Csikszentmihalyi, Schneider & Shernoff, 2014). Further emotions and cognitions emerged as significant aspects for the engagement in online settings (Mollen & Wilson, 2010) and expected to foster self-brand connections.

In similar lines Hollebeek et al. (2014) examined the positive influence of emotional and cognitive interaction of consumers with a social networking facility and self-brand connections. Park et al. (2010) has also observed that cognitive brand evaluations leads to greater connections with a brand. Thus, on the basis of the discussion above we posit:

H3: Cognitive Brand Engagement (CBE) has significant positive influence on Self-Brand Connections (SBC).

H4: Emotional Brand Engagement (EBE) has significant positive influence on Self-Brand Connections (SBC).

2.3.3 Consumer brand engagement and brand usage intent

Prior studies has indicated that flow influences customers' affective, cognitive, and conative actions, such as attitudes (Hsu & Lu, 2004), intentions (Agarwal & Karahanna, 2000), and behaviors (Skadberg & Kimmel, 2004). Existing research in marketing noted that flow experiences accrued during gamification influence users' engagement which subsequently increases frequency of using the system (Hamari & Koivisto, 2015; Osatuyi & Qin, 2018).

Feedback and social interaction, two key dimensions of flow proposed to affecting brand usage intention positively (Huang et al., 2018).

Moreover, previous marketing studies have studied the role of brand engagement on positive brand usage intent (BUI). According to these studies, engaged customers are more likely to build attitudes from beliefs (Hollebeek, 2011). In fact, those attitudes are expected to be favourable which may result in higher brand usage intent (Harmeling et al., 2017). Social exchange theory also suggests consumers emotional and cognitive engagement, will result in higher interaction with the brand. Thus, we propose that cognitive and emotional brand engagement develop through gamified interactions should lead to higher brand usage intent.

H5: Cognitive Brand Engagement (CBE) has significant positive influence on Brand Usage Intent (BUI).

H6: Emotional Brand Engagement (EBE) has significant positive influence on Brand Usage Intent (BUI).

2.3.4 Moderating role of gender

Literature specialising in gender socialisation especially gender socialisation theory proposed by Barry et al. (1975), suggests male and female in addition to their gender specific skills also have gender specific attributes which present them as feminine or masculine. Hence, both these genders develop different value sets thus developing different value and ethical preferences among them (Mason & Mudrack, 1996). One of important research stream that emerged in the literature is “gender identity research” which studies gender as psychological sex on the basis of masculine and feminine personality traits (Gould & Weil, 1991; Palan, 2001). However, marketing researchers questioned this perspective of gender identity for predicting their consumer behavior (Kolyesnikova et al., 2009) and proposed “biological sex research stream as an important determinant of consumer behaviour” (Kahle & Homer, 1985). Biological sex research stream view of gender in relations to biological sex as male and female, considered by marketing research as critical variable for predicting their behavior as consumers or segmenting them in different groups (Das, 2014). So, current research considers gender as biological sex (female and male) for studying its moderating role between flow and cognitive and affective brand engagement.

Previous research has analysed the role of gender in marketing literature and also considered as crucial variable for engagement studies. However, very few studies are conducted in relation to mobile environment and there is no agreement on the impact of gender on mobile gamification (Conaway & Garay, 2014). Existing research in context of digital environment acknowledge gender differences in the consumer decision making process as female and male differ with regard to adoption and internet usages (Li & Chang, 2016; Zhang et al., 2009). These differences reflect the psychological process that influence people’s behavior (Zurita-Ortega et al., 2018). For example, research found women to be more intrinsically motivated, while men are having more extrinsic motivation (Erturan-Ilker et al., 2018). In context of digital environment, research found men and women to behave differently while interacting with digital platform. For example, women are found to be showing more exploratory behaviour, high involvement, and less purchases over digital platform (Richard et al., 2010). Whereas another research suggests these gender differences are declining as both considers key variables like system quality, information quality equally important. Therefore, existing study on the moderating role of gender is highly consistent and this calls for further investigation of gender differences in the mobile gamified environment. To date, no study has explored the moderated role of gender in the relationship of flow and consumer engagement, specifically in a gamified environment. Thus, this study posits that:

H7a: The impact of flow in a gamified environment on CBE will significantly vary across gender.

H7b: The impact of flow in a gamified environment on EBE will significantly vary across gender.

2.3.5 Mediating role of brand engagement

In line with previous studies, current study postulate that brand engagement, stemming from consumer brand interactions (Hollebeek, 2011) may link consumers' flow experiences to consumers' self-brand connections and brand usage intent (Brodie et al. 2011). According to Moneta and Csikszentmihalyi (1996), flow can generate both cognitive and affective responses to an experiential activity. Moreover, previous studies have found that flow develop engagement (Shernoff et al. 2003) and that cognitive and emotional are key dimensions triggering the engagement process in online contexts (Mollen & Wilson, 2010). Therefore, current study postulate that the impact of flow on brand usage intent and self-brand connections is mediated by cognitive and emotional brand engagement in the context of gamified environment.

H8: The impact of flow on consumers' BUI is mediated by (a) CBE and (b) EBE.

H9: The impact of flow on consumers' SBC is mediated by (a) CBE and (b) EBE.

3 Methodology

3.1 Sample and Data Collection

For this study, survey method has been used to collect data from smartphone users having experience of using gamified mobile apps. Mobile gamified application like Nike+, Asics provide interactive platform, where users can join various competitions through their smartphone. These applications allow users to track, challenge, share, and interact with friends and other users, thereby creating socially exciting and collaborative experience. The interactive capability of gamified application helps in building deeper level of customer engagement. We administered the survey questionnaire to smartphone users residing in India. With 502.2 million smartphone users, India is world's second largest market for smartphones (NDTV, 2020; Shankar et al., 2020).

In this study, structured questionnaire was employed to collect from sample respondents. The survey was conducted online with the respondents who were having smartphone and have had experience of using gamified mobile application. To ensure data were collected from regular user of these smartphone application, firstly a screening question was asked: "Are you using this app for a minimum period of 30 days". Only the respondents who answered yes were asked to proceed with the rest of survey. In total of 584 responses were utilized in the study. The demographic profile of these respondents exhibited in table 1. In order to examine any non-response bias, independent sample T test was performed on the demographic variables between the first 25% (Q1) and last 25% (Q4) samples (Shankar and Jebarajakirthy, 2019). The results suggested absence of non-response bias as the demographic profile of these two group samples was not significantly different.

3.2 Measures and Instrument Development

Current study used the prior established scales to measure the focal construct after slightly modifying to the context of this research. The measurement instrument had three sections, where first section included the screening question. The second and third section contains the variables related to the study constructs and demographic information, respectively.

The multi-dimensional construct of CBE was measured by seven measurement statements proposed by Hollebeek et al. (2014) capturing emotional brand engagement and cognitive brand engagement. Seven items scale developed by Escalas (2004) were used to operationalised self-brand connection (SBC), while four items scale proposed by Yoo and Donthu (2001) was used to assess brand usage intent (BUI).

Construct	Indicators	FL	Cronbach's α /CR	AVE
CH	CH1	0.80	0.80/0.85	0.58
	CH2	0.72		
	CH3	0.77		
	CH4	0.76		
FB	FB1	0.78	0.82/0.86	0.61
	FB2	0.82		
	FB3	0.77		
	FB4	0.75		
AU	AU 1	0.76	0.79/0.82	0.61
	AU 2	0.76		
	AU 3	0.82		
IM	IM 1	0.77	0.89/0.90	0.60
	IM 2	0.79		
	IM3	0.77		
	IM4	0.78		
	IM 5	0.76		
	IM 6	0.78		
SI	SI 1	0.74	0.85/0.87	0.63
	SI 2	0.77		
	SI 3	0.83		
	SI 4	0.82		
CBE	CBE 1	0.75	0.74/0.76	0.51
	CBE 2	0.65		
	CBE 3	0.74		
EBE	EBE 1	0.78	0.81/0.83	0.56
	EBE 2	0.72		
	EBE 3	0.77		
	EBE 4	0.73		
SBC	SBC 1	0.80	0.91/0.92	0.63
	SBC 2	0.77		
	SBC 3	0.80		
	SBC 4	0.84		
	SBC 5	0.73		
	SBC 6	0.76		
	SBC 7	0.84		
BUI	BUI 1	0.77	0.86/0.87	0.62
	BUI 2	0.80		
	BUI 3	0.84		
	BUI 4	0.73		

Table 2. Summary of the measurement model

Note: FL: Factor Loadings; AVE: average variance extracted, CR: composite reliability.

All these scales used for measuring study constructs were operationalised on seven-point Likert scales. As suggested by previous studies (Kaur et al., 2016), this study used the multi-dimensional conceptualisation proposed by Jackson and Marsh (1996) to measure flow. This scale consists 21 measurement items capturing five dimensions i.e. challenge, feedback, autonomy, immersion and social interaction.

A panel comprising managers and professors with the expertise in the digital branding field was formed for examining the content validity of survey questionnaire (Jebarajakirthy et al., 2020). The survey instrument was also pretested by two groups of gamified smartphone application user. Both these groups were having eight members. Some minor changes were made to the format and language of the measurement instrument based on the feedback of these focus groups.

4 Results

The hypothetical model was examined in two phases as suggested in structural equation modelling (SEM) approach (Gerbing & Hamilton, 1996). Firstly, confirmatory factor analysis (CFA) with maximum likelihood method was performed to examine the reliability and validity of the measurement indicators. Thereafter, structural model conducted to examine the direction and strength of the hypothesised relationships among constructs.

4.1 Measurement Model

As mentioned above, firstly, CFA was performed with maximum likelihood method to analyze the validity and reliability of the measurement indicators. Each construct was having good internal consistency as composite reliability (CR) varies from 0.76 to 0.92 (see Table 2), which was higher than the suggested value of 0.70 (Hair et al., 2010; Joshi et al., 2019). The convergent validity of latent constructs was analysed using item loadings and average variance extracted (AVE) (Islam et al., 2019). The findings of CFA exhibited in table 2 illustrates that all measurement items were having standardized factor loading more than 0.5. Moreover, the AVE values were also more than the minimum suggested value of 0.5 (Mehta, Sharma, & Swami, 2013), thus verifying the convergent validity.

Proposed hypothesis/ Path relationships	(β)	SE
<i>Direct Effects</i>		
Flow → CBE	369***	.08
Flow → EBE	423***	.11
CBE → SBC	520***	.09
CBE → BUI	534***	.09
EBE → SBC	515***	.06
EBE → BUI	507***	.07

Table 3. Discriminant Validity

Notes: *** $p < 0.001$; Fit indices $CMIN/DF = 1.073$ ($p < 0.001$), $CFI = .99$, $GFI = .91$, $AGFI = .90$, $NFI = .91$, $TLI = .99$, $SRMR = 0.039$, $RMSEA = .014$.

In this study, the constructs' discriminant validity was examined on the following criteria: (1) measurement variables should load heavily only on their own construct and (2) the AVE values of each construct should be more than the squared correlation between the constructs. The findings suggest all the AVE values were above recommended value of 0.50 and all the measurement indicators are loading strongly only on their corresponding construct (see table 2) (Bagozzi & Yi, 1988). Moreover, as presented in table 3, the squared correlation between the two constructs was less than the constructs' AVE, thus verifying the discriminant validity (Fornell & Larcker, 1981).

The fitness of measurement model was studied after conducting the CFA and all the fit indices suggested a appropriate model fit (Hair et al., 2010). The measurement model was fitting well with the data as $\chi^2/df = 1.076$ ($\chi^2 = 738.9$, $df = 687$, $p < 0.000$), normed fit index (NFI) = 0.91, comparative fit index (CFI) = 0.99, root mean square error of approximation (RMSEA) = 0.015 and standardized root mean square residual (SRMR) = 0.038.

	CR	AVE	MSV	SBC	BUI	AF	CP	Flow
SBC	0.921	0.627	0.446	0.792				
BUI	0.865	0.617	0.446	0.668***	0.786			
AF	0.834	0.558	0.415	0.644***	0.636***	0.747		
CP	0.756	0.509	0.431	0.648***	0.656***	0.245***	0.714	
Flow	0.837	0.508	0.184	0.388***	0.428***	0.424***	0.371***	0.712

Table 4. Hypothesis Testing

Notes: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

4.2 Structural Model

After examining the measurement model through CFA, path analysis was used to examine the relationship between constructs (Jebarajakirthy and Shankar, 2021). The fitness statistics suggested that the hypothesised model was adequate ($\chi^2/df = 1.073$, $p < 0.001$; CFI = 0.99, GFI = 0.90, NFI = 0.91, AGFI = 0.897, SRMR = 0.04 and RMSEA = 0.014). To test the hypothesis, the proposed path coefficients and their respective p values were examined. The results presented in table 4, suggest flow positively affected CBE ($\gamma_{11} = 0.423$, $t = 5.82$, $p < 0.001$) and EBE ($\gamma_{21} = 0.369$, $t = 4.957$, $p < 0.001$), thus supporting both H1 and H2. The results also suggest the significant positive effect of CBE on SBC ($\gamma_{12} = 0.520$, $t = 8.60$, $p < 0.001$) and BUI ($\gamma_{22} = 0.534$, $t = 8.337$, $p < 0.05$). EBE also found to positively affecting SBC ($\beta_{21} = 0.515$, $t = 9.49$, $p < 0.01$). As proposed, EBE found to have positive effect on BUI ($\beta_{42} = 0.507$, $t = 8.89$, $p < 0.001$). The results presented in table 6 suggest that Hypotheses H1, H2, H3, H5 and H6 are supported at the significance level of $p < 0.001$, whereas H4 is supported at the significance level of $p < 0.05$. The findings in the structural model are also presented in Figure 2.

The moderating effect of gender hypothesized in H7 was examined using multi-group analysis in AMOS 24.0. For this analysis, the total sample was divided in two subgroups: female ($n = 177$) and male ($n = 183$). The independent model estimation for this multi group exhibited good fit: as $\chi^2/df = 1.087$, CFI = 0.98, NFI = 0.813; IFI = 0.988, GFI = 0.919, SRMR = 0.057, RMSEA = 0.013.

Hypothesis	Male		Female	
	(β)	t-values	(β)	t-values
H7a Flow \rightarrow CBE	.375	8.458	.369	7.251
H7b Flow \rightarrow EBE	.582	12.365	.528	10.117

Table 5. Moderating Effect of Gender

The results of relationship effects for both male and female are presented in table 5. The impact of flow on cognitive brand engagement for both the groups (male and female) is positive and significant. The difference between positive effect of flow on CBE was very marginal (male: $\beta = 0.375$, $p < 0.01$; female: $\beta = 0.369$, $p < 0.01$), but significant. Similarly, the impact of flow on emotional brand engagement for male group was marginally higher than the female group (male: $\beta = 0.582$, $p < 0.01$; female: $\beta = 0.528$, $p < 0.01$). The significance of both these results

suggest the support for H7a and H7b, thereby leading us to conclude that gender moderates the effect of flow on cognitive and emotional brand engagement.

This study also examined two parallel mediation models using PROCESS Macro (model 4) to analyse whether cognitive and emotional brand engagement mediates the impact of flow on consumers' brand usage intent and self-brand connections (Hayes 2013). The results of mediation analysis suggest that the total effect of flow on BUI ($\beta = 1.55$, CI [1.349, 1.773], $p < 0.05$) and SBC ($\beta = 1.59$, CI [1.396, 1.800], $p < 0.05$) was significant. But the direct effect of flow on BUI became insignificant ($\beta = -0.1175$, CI [-0.281, 0.046], $p = .159$) when CBE and EBE were considered. Importantly, the indirect effect of CBE on the impact of flow on consumers' BUI ($\beta = 0.78$, CI [0.6377, 0.9481], $p < .05$) was significant. EBE also had a similar indirect effect ($\beta = 0.76$, CI [0.6425, 0.9052], $p < .05$) (Hayes, 2013). Therefore, H8(a) and H8(b) were supported. These results further suggest that CBE and EBE partially mediate the relationship between flow and BUI.

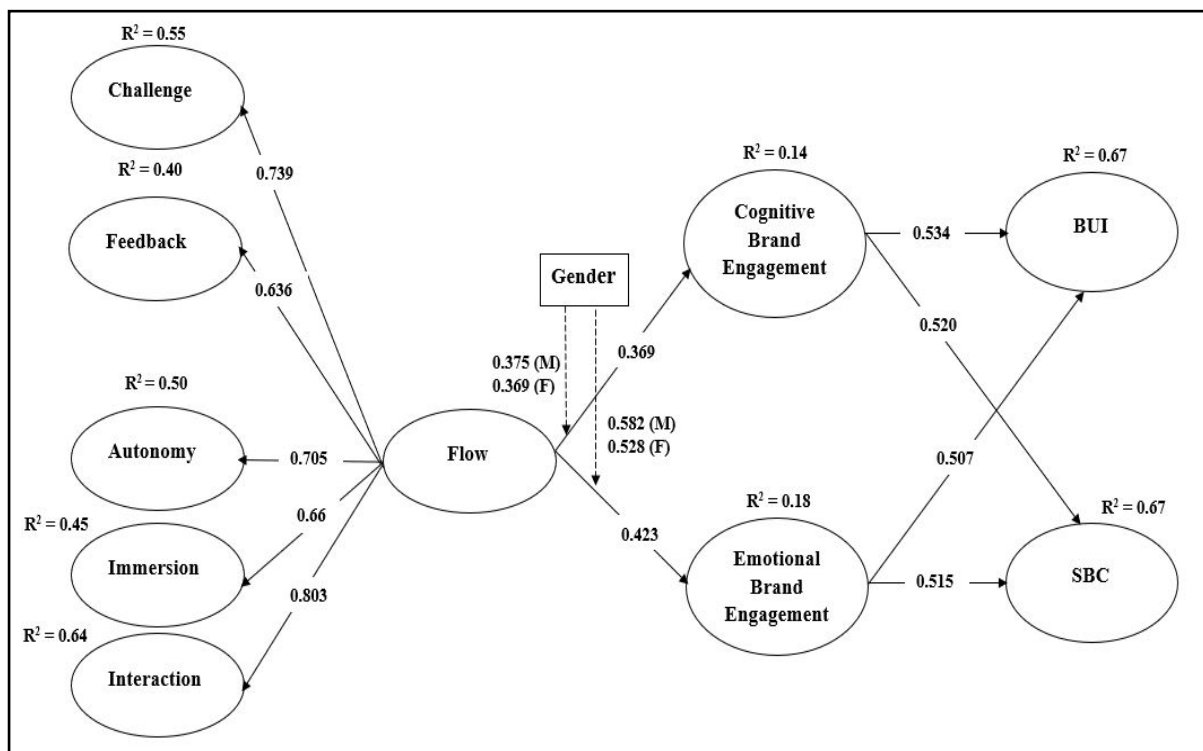


Figure 2. The final Model

For examination H9 (a) and H9 (b) similar process was followed. In this case, however the direct effect of flow on SBC got reduced but was significant ($\beta = -0.3997$, CI [-0.5410, -0.2583], $p = .000$) after including CBE and EBE as mediating variable. Whereas, the indirect effect of both CBE ($\beta = 0.73$, CI [0.5978, 0.8744], $p < .05$) and EBE ($\beta = 0.85$, CI [0.7261, 0.9934], $p < .05$) on the relationship between flow and SBI was significant. Thus, H9(a) and H9(b) were supported.

4.3 Common Method Variance

Since the data for dependent and independent constructs provided by the same respondents, there is a possibility of common method bias (CMB) (Ashaduzzaman et al., 2020). In literature, Podsakoff et al. (2003) suggested Harman's single test factor test to analyse the problem of CMB. According to their recommendation, all the focal constructs were loaded into a single factor and variance explained by this single factor was examined. The result of this test concluded no single factor explains disproportionately large portion of variance. Therefore, no

“general” factor is evident in the data. The problem of CMB was also examined through the analysis of correlation matrix and does not found very high correlation among constructs. Additionally, a common latent factor all the measurement indicators included in the model. This common latent factor produced a value of 0.264, which was subsequently squared to calculate the common method variance. This analysis suggest that common method variance was not an issue as squared value was 0.069 (6.9%). As mentioned by Ranaweera and Jayawardhena (2014), when common method variance falls below 50%, it indicates the unlikelihood of CMB according to common latent factor approach. The results of all these tests suggested CMB is not a concern in this study (Podsakoff et al., 2003).

5 Discussion

The objective of current research was to examine the role of flow in developing consumer engagement and further strengthening consumer brand relationship. The findings support our hypotheses that flow effect created by gamified mobile app result in positive consumer brand engagement, which helps in further usage of the brand and building strong relationship with consumer. Specifically, the results showed that challenge, feedback, immersion, interaction and autonomy develop flow. This finding confirms the Csikszentmihalyi's (1990) proposition that an individual's involvement in an experiential activity with clarity of goal develops intrinsic flow experience. Moreover, if the immersion and challenge increase, individuals engage in sharing goal-related feedback and their authentic experiences with other users. In addition, the regular feedback or information from the app also improves users' flow experience. This develops a feeling of control and autonomy over the challenge at hand and keep them engaged (Li & Browne, 2006). The findings of this study also show that flow positively influence cognitive brand engagement and emotional brand engagement. Flow experiences make the brands' mobile app interactive to users and keep them engaged with the brand. Previous studies in the branding literature posit that users' high cognitive and emotional brand engagement develop enduring relationship with the brand. Our findings confirm the positive effect of CBE and EBE on consumers' self-brand connection and brand usage intent.

5.1 Theoretical Implications

The findings of this study contribute to the branding and gamification research in four ways. Firstly, current study adds to the existing body of literature which examine gamification from consumer experience perspective (McAlexander, Schouten & Koenig, 2002). This study confirms the experiential benefits conceptualised by Bruhn et al. (2014) during gamification. In consistent with previous studies, the positive role of transcendent consumer experience like flow in developing engagement has also been confirmed (Schouten, McAlexander & Koenig, 2007). Secondly, this research strengthens the position of flow in the branding literature. Although few studies have examined the flow concept in the branding literature in different context such as learning, sports, leisure activities, media and human-computer interaction (Engeser & Schiepe-Tiska, 2012). However, still very little knowledge available about its role in strengthening consumer brand relationship. Moreover, previous studies did not examined flow from multi-dimensional perspective. Current study analyse flow as multidimensional second order construct comprising challenge, interaction, immersion, feedback and autonomy dimensions.

Thirdly, by focusing on the role of gamification environment in developing flow, current research focuses on the contextual factors as per the recommendation of Csikszentmihalyi (2014). In this manner, the findings contribute to the research stream studying contextual factors and proposes flow principles. Lastly, current research establishes the vital role of flow in strengthening consumer brand relationship. The results of current study verify role of

gamification environment in developing strong engagement with consumer from perspective of consumer experiences. This brand engagement results in building strong consumer brand relationship. Flow, the peak experience, developing when mobile user participates in the game created by brands' app, performs a key role in generating positive results for the brand. Past studies showed that consumers strongly identify with a brand when they find the brand attractive (Bhattacharya & Sen, 2003). In the similar manner, this study showed that in case gamified brand app produce flow experience, user engages with the brand, and subsequently develop stronger connection with the brand. These results also provide further support the previous studies by showing that consumer brand engagement lead to brand usage intent.

5.2 Managerial Implications

Current research also offers few practical suggestions for branding practitioners focussing on developing strong consumer brand relationship. Firstly, the result of current study provides brands valuable insights looking to design gamified consumer interactions. This study suggests the critical role of flow elements i.e. interaction and optimally challenging while designing gamified environment. The game design on the one side allow consumers to engage passively with brand but also build active engagement through the feature of feedback and social interaction. Secondly, this study shows that brands should design games in the manner that challenge consumer's skill to optimal level. Since person's skill level largely affects perception of challenge, games should be created with several levels and plans and should be able to dynamically match person's skills with challenge. In case of service brands, users may join game at tough levels as this create optimal challenge for them.

Moreover, brands should be cognizant of the fact that a well-designed gamified interaction may also fail to engage and connect with consumer if they does not feel freedom to participate in the gameplay. Thus, brands should provide user autonomy while using the game. The brands should provide user the option to leave and resume the game without losing the progress. In today's world of big data and customer analytics, organisations can use consumers' data in targeting them more strategically. This data can be used by marketers for better understanding their needs and makes it easier for marketer to satisfy them. Brands should closely monitor the feedback shared by user and provide solutions immediately when users have product problems. These strategies will develop flow experience and ultimately lead to stronger engagement and connection with user.

In addition, the findings highlight the importance of social interaction and sharing dimension for creating flow element. Thus, branding apps can support "flow sharing opportunities" for users to share their progress and achievement with their friend. These sharing opportunities can be easily organized by developing a user friendly, well-organized social media platform. Users' flow experiences many times surge with others and this contagious experience encourage others to participate and helps in developing a strong brand.

6 Limitations and Future Research

While current study presents consistent support for the theoretical model, this research has also some limitations, which can be resolved by future studies. Firstly, current study uses cross-sectional design for data collection. It may be possible that some users change their decisions over time due to accumulated gamification experience, therefore in future, longitudinal studies can be conducted to explore the role of flow experience. Furthermore, in such studies involve mobile branding apps, external factors like technical problems may affect consumer experience and probably lead to biased responses. In such a scenario, experimental design using controlled conditions will enable researchers to gather more reliable and valid responses from participants.

Our study used fitness app to examine effect of gamified element on customer engagement and their further relationship with brand. Future studies may consider examining our model with other brands and in different context to broader the understanding of issues.

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Appendix 1. Measurement Items

Constructs and Scale Items	Sources
<p>Challenge (CH)</p> <p>CH1: "The difficulty of challenges (e.g., answering the questions) increases as my skills and knowledge in [APP]".</p> <p>CH2: "[App] provides new challenges with appropriate pacing".</p> <p>CH3: "[App] provides "hints" that help me overcome the challenges".</p> <p>CH4: "[App] provides "supporting materials" that help me overcome the challenges".</p>	Jackson and Marsh (1996)
<p>Feedback (FB)</p> <p>FB1: "I receive feedback (e.g., message, reward point, etc.) on my progress when using [App]".</p> <p>FB2: "I receive immediate feedback on my actions when using [App]".</p> <p>FB3: "I am notified of new tasks in [App]".</p> <p>FB4: "I receive information on my success (or failure) of goals in [App]".</p>	Jackson and Marsh (1996)
<p>Autonomy (AU)</p> <p>AU1: "I feel a sense of control and impact over [App]".</p> <p>AU2: "I know the next step in [App]".</p> <p>AU3: "I feel comfortable to control [App]".</p>	Jackson and Marsh (1996)
<p>Immersion (IM)</p> <p>IM1: "I forget about time passing while attending [App]".</p> <p>IM2: "I become unaware of my surroundings while attending [App]".</p> <p>IM3: "I experience an altered sense of time when taking [App]".</p> <p>IM4: "I can become involved in [App]".</p> <p>IM5: "I feel emotionally absorbed in [App]".</p> <p>IM6: "I feel engaged in [App]".</p>	Jackson and Marsh (1996)
<p>Social Interaction (SI)</p> <p>SI1: "I feel cooperative toward other members in [App]".</p> <p>SI2: "I can collaborate with other members in [App]".</p> <p>SI3: "The cooperation in [App] is helpful to my learning".</p> <p>SI4: "[App] supports social interaction between colleagues (Sharing, etc.)".</p>	Jackson and Marsh (1996)
<p>Cognitive Brand Engagement (CBE)</p> <p>CBE1: "Dealing with [Brand] through the game got me to think about [Brand]".</p> <p>CBE2: "I thought about [Brand] a lot when I was dealing with it through the game".</p> <p>CBE3: "Dealing with [Brand] through the game stimulated my interest to learn more about it".</p>	Hollebeek et al. (2014)
<p>Emotional Brand Engagement (EBE)</p> <p>EBE1: "I felt very positive when I was dealing with [Brand] through the game."</p> <p>EBE2: "Dealing with [Brand] through the game made me happy".</p> <p>EBE3: "I felt good when I was dealing with [Brand] through the game".</p> <p>EBE4: "I was proud to deal with [Brand] through the game"</p>	Hollebeek et al. (2014)

<p>Self-Brand Connection (SBC)</p> <p>SBC1: “[Brand] reflects who I am”. SBC2: “I can identify with this [Brand]” SBC3: “I feel a personal connection to this [Brand]” SBC4: “I use this [Brand] to communicate who I am to other people” SBC5: “I think this [Brand] (could) help(s) me become the type of person I want to be”. SBC6: “I consider this [Brand] to be ‘me’ (It reflects who I consider myself to be or the way that I want to present myself to other(s))”. SBC7: “This [Brand] suits me well”.</p>	<p>Escalas (2004)</p>
<p>Brand Usage Intent (BUI)</p> <p>BUI1: “It makes sense to use [Brand] instead of any other brand, even if they are the same” BUI2: “Even if another brand has the same features as this [Brand], I would prefer to use it.” BUI3: “If there is another brand as good as this [Brand], I prefer to use it” BUI4: “If another brand is not different from this [Brand] in any way, it seems smarter to still use it”.</p>	<p>Yoo and Donthu (2001)</p>

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