

## Gamified Interaction's Impact on Consumers' Purchasing Decisions: A Health and Fitness apps Perspective

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**Received:** April 07, 2022; **Published:** April 29, 2022

**DOI:** 10.55162/MCET.02.039

### Abstract

The ultimate goal of any brand is to get positive responses from customers both emotionally and behaviorally for its marketing activities. This study examined how gamified interactions on health and fitness applications impacted consumers' purchase intentions and assessed the role of positive emotions and brand engagement in developing this relationship. Data were collected from users of health and fitness apps through a self-administered questionnaire and analyzed using the partial least square structural equation modelling technique. The findings suggest a strong indirect relationship between gamification and purchase intention. The study also found positive emotions and brand engagement to be significant sequential mediators of the gamification-purchase intention relationship.

**Keywords:** Health and fitness application; gamification; purchase intention; positive emotion; brand engagement

### Introduction

As a concept that got popularized by the end of the last decade with its first documentation in literature, gamification came in the form of "Funware" [1]. In little over a decade since its formalized inception, the literature on the usage of gamification in various online and offline contexts has exploded with effective implementation in domains such as business [e.g., 2] and environmental sustainability [e.g., 3]. Practitioners' adoption of gamification mechanics is even higher, focusing on desired behaviour initiation and retention [4]. Contrary to challenging games focusing on providing a pure gaming experience with rules and game engines, gamification tries to create experiences comparable to a game by combining game experience design and game mechanics. Companies have readily accepted gamification as a means for induction and retention of desired behaviours [4]. This behavioural modification can lead to customers' changed outlook towards offerings of companies that employ gamification for customer engagement. In the practitioner world, gamification is extensively used in marketing communication by industry leaders like google, amazon, and Nike to make engagement with customers more interactive [5]. Due to this increased interest in gamification over the last decade, it is expected that the market for gamified services is expected to grow exponentially to more than \$30.7 billion by 2025 from \$9.1 billion in 2020 CAGR of 27.4% [6].

Gamification has become a vital component of health-related interventions over the past decade. It is evident that in the case of health initiatives at workplaces, more than 60% included gamified mechanics [7, 8]. In addition to this, they also argued that when it comes to mobile applications related to health and fitness, 64% of those apps used some form of gamification mechanics. The availability of cutting-edge features like GPS, G-sensors, accelerometers, and other compatible sensors has significantly impacted general and gamified health interventions [9], thus accentuating gamification's growth trajectory usage in the health sector. Companies have also readily accepted gamification as a means for induction and retention of desired behaviours [4]. However, gamified mechanics in

health and fitness mobile applications have increased even though there is almost no in-depth inquiry about its actual functionality and effectiveness [7, 8].

This paper aims to determine the impact of usage of health and fitness apps on purchase intention while checking the impact of emotions induced due to usage of the app on this relationship. To address this objective, the study is trying to answer the following questions through this study:

RQ1 – Does the inclusion of gamified mechanics in health and fitness apps impact customers' purchase intentions?

RQ2 – What is the impact of positive emotions induced due to the usage of health and fitness apps on their engagement?

RQ3 – Do positive emotions generated due to gamified interactions leading to more engagement impact purchase intentions.

The findings of the study establish the significance of gamified interactions in defining consumers' attitudes and behaviour. The study also outlines the importance of having such health and fitness apps for relevant brands and how positive emotion-generating gamified elements while designing and developing such health and fitness apps can positively impact consumers' purchase intentions. This study contributes to the extent of literature on applying gamification in multiple fields by linking gamification consumers' purchase intention.

## Theoretical foundation

### *Gamification*

Gamification can be defined as "the use of game design elements in non-game contexts," i.e., using game mechanics in aspects that are not just for entertainment [10]. Subsequently, Huotari and Hamari [11] defined gamification in the context of value created by the process as "a process of enhancing a service with affordances for gameful experiences in order to support user's overall value creation" [11]. The concept of gamification has been successfully implemented and tested by academia and the practitioner world. Academia prominently implemented this in education [12], marketing [13], and consumer products [14]. One of the core strategies of gamification is to increase consumer engagement with the help of some form of reward (badges, points, and leader board) [15]. They found that setting challenges for getting these rewards and making this progress visible to other users to promote competition are significant components of this strategy [15]. Other gamification tools, for example, representation of self as an 'avatar' or onboarding tutorials, are also used to enhance persuasiveness [16]. Therefore, gamification helps ensure more extended engagement in boring or demotivating tasks and more pleasant feelings for the consumer [17]. Usage of gamified mobile apps by both the practitioner world and academia for influencing consumers' behaviours has become a highly favoured strategy [18, 19]. Along with this, gamified systems can also persuade consumers to be a part of value co-creation [20].

### *Gamification in health and wellness*

A worldwide increase in health and wellness challenges like tobacco, diabetes, physical stagnation, and obesity has led to an increased focus on wellbeing, and the inclusion of gamified mechanics in communication can help deal with these challenges. The underlying idea is to use "motivational affordances" [1, 21], a feature of games used for entertainment purposes to be used in health and fitness the motivational quotient of the apps. According to the literature on intrinsic motivation, these apps use various motivational tools and features, such as instant feedback of progress achieved by an individual and immediate success, goal setting, and social feedback [22]. Since its emergence, researchers worldwide have pointed out the implementation of gamified mechanics in health as a promising new approach [e.g., 19, 23]. Large multi-national companies like Nike, Google, and Xiaomi and small health and fitness app developers for increasing engagement with consumers widely use gamified mechanics. Conceptually, gamification in health is an amalgamation of serious games, personal informatics, and persuasive technology [16, 24]. Out of these, personal informatics implementation in gamified applications has been an important tool to sustain engagement [25]. Gamification has also been used extensively in physical fitness interventions and for encouragement towards healthy behaviours [26]. Similarly, recent research in the health sector has expanded on video game properties like fantasy, narrative, and interactivity and found that these properties can lead to higher compatibility with internally induced motivation [27].

## Hypotheses Development

### *Gamification-purchase intention*

Factors such as consumers' beliefs and attitudes are significant predictors of their purchase behaviour, and these factors construct their intention to purchase [28]. Gamification is very efficient in manipulating social and individual factors that positively impact consumers' behaviour and play a vital role in motivating customers' intentions [14, 29]. Similarly, Shang and Lin [30] affirmed gamified mechanics' significant positive impact on consumers' purchase intention. Along with this, Wen et al. [31] also established that gamification designs in mobile applications would positively impact customers' purchase intentions. Furthermore, gamification's motivational effects (both intrinsic and extrinsic) also lead to consumers' intention to purchase that product [32]. Therefore, it can be assumed that gamified interaction in a fitness app will lead to consumers' intentions to purchase the associated brand.

**H1:** Gamification leads to purchase intention.

### *Gamification-positive emotions*

"Emotions are a subset of the broader class of affective phenomena" [33], and 'affect' includes moods and feelings as well in addition to emotions. There are two basic categories of emotions- positive and negative - and these are further categorized into primary and secondary emotions [34]. Bagozzi et al. [35] state that emotions are a critical antecedent in determining the customers' behaviour. Reinforcing this argument, Carlson, and Wang [36], in their paper, stated human emotions as the most reliable predictors of human behaviour. When it comes to valence of these emotions, broaden and build the theory of positive emotions states that positive emotions help in broadening the mind at the time of interaction which enables better recall [33] which is not the case with negative emotions that have little or no effect [35]. Therefore, author can postulate that gamified interactions will help generate positive emotions in individuals.

**H2:** Gamification leads to the induction of positive emotions.

### *Positive emotions-engagement*

The brand's engagement with the brand results from behavioural, cognitive, and emotional investment customers interact with it [37]. He also identified emotions as one of the three dimensions of consumer engagement, along with passion and involvement. Staudinger [38] postulated that positive emotions alter people's motivation, problem-solving skills, and attitude. Due to the induction of positive emotions, customers tend to make favourable judgments, and their feedback will also be positive [39]. The inclusion of positive emotions in advertisements has also positively impacted engagement as these advertisements increase desired 'downstream communication' effects' probability and customers' attention [40]. In terms of gamified services, game mechanics usage can lead to various psychological outcomes such as enjoyment, motivation, and engagement [41, 42]. Berger et al. [43] showed a positive relationship between cognitive and emotional dimensions of brand engagement and interactive and challenging gamified interactions with the help of "flow theory." Thus, author can propose that positive emotions developed due to gamified apps' usage will lead to better engagement of customers.

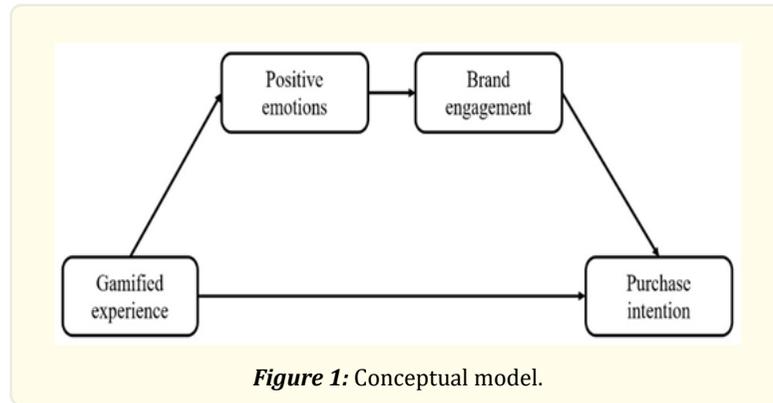
**H3:** Positive emotions lead to brand engagement.

### *Engagement-purchase intention*

Gamification mechanics implementation by companies in their communication with consumers reinforces ties between them by keeping them engaged, which further leads to enhanced loyalty of customers and their purchases. Prior research has significantly focused on the positive relationship between brand-customer engagement and customers' purchasing intentions and loyalty [37, 44-47]. So et al. [48] confirm that customers' engagement level is directly proportional to their loyalty and the brand's success. The interactive experiences with a brand are known as "behavioural customer engagement." Due to these interactive experiences with the app, customers form a deep connection with its app. Prentice et al. [46] argue that customers feel encouraged to purchase products

of the brand due to this connection. Behavioural engagement also positively affects customers' loyalty and recurring purchase behaviours [48-50]. Thus, author can strongly argue that enhanced consumer engagement with applications due to gamified mechanics will translate into purchase intentions.

**H4:** Brand engagement leads to purchase intention.



## Methodology

### Data Collection and sample size

Author have adopted a survey method for this study's research needs, and based on a convenience sampling technique, delivered the questionnaire to students at a top-tier b-school and gym members in a metropolitan area. To get a holistic understanding of this construct, fitness app users can indulge in fitness activities both inside and outside defined exercise settings. The questionnaire was delivered using both online and offline channels. As the focus is on understanding the behaviour of fitness application users, the questionnaire is organized into two parts, separated by a closed dichotomous question enquiring about if the responder has branded the application or not. Only the respondents who answered yes were allowed to continue with the questionnaire. It helps in the identification of fitness app users for analysis. For the questionnaire, validated scales available in extant literature were adopted in the study's context. The research instrument was sent out to 667 individuals using both online and the brand's products and 392 responses were received. Out of these responses, author removed 161 responses as they were not fitness app users. Author removed the respondents who were not attentive while answering the questionnaire out of the remaining respondents. These respondents were identified using two negatively coded questions in the questionnaire, and finally, author has imported 213 responses for the statistical analysis. The final sample included 32% female respondents and 68% male respondents. Subsequently, author has applied structured equation modelling to test the research hypotheses using Smart PLS software. Respondents were informed about the study's purpose and academic nature, and author has assured them of confidentiality regarding their identity.

### Measurement Development

Author has adopted validated scales from the extant literature in health and fitness app context and utilized a 5-point Likert scale (1 – Strongly Disagree, 5 – Strongly Agree) to measure all the constructs. Author has measured positive emotions with four items adapted from I-PANAS-SF's positive effect dimension [51]. Chandon et al. [52] and Schlosser et al.'s [53] scales were adapted to develop a three-item scale to measure the 'Purchase intention' construct. The brand engagement was measured using three items developed from a widely accepted scale [54]. Gamification was measured by adapting Wakefield et al.'s [55] scale and Rodrigues et al.'s [56] adaptation of this scale in gamification.

## Results and Discussion

### Structural model

#### Partial least square path modelling

Wold [57] introduced the partial least square method (PLS) for high-dimensional data analysis in a low structure environment. PLS provides robust results when the study is exploratory; the sample size is small when data is not normally distributed [58]. PLS also helps ease the process of doing serial mediation to find specific indirect effects. For this article, author has used the PLS algorithm and PLS bootstrapping for model analysis. It was found that all loadings were above the minimum threshold of 0.7. It means that all the items are significantly impacting the construct

#### Hypotheses testing and inner model evaluation

Author has employed path coefficients and associated p-values to analyze the statistical significance of relationships between items. After that, bootstrapping was done with ten thousand cycles to get t-statistics for the paths. Table shows the path coefficients of latent variables, t-statistics, and respective p-values (Table 1). In the case of purchase intentions, it was found that gamification ( $\beta = 0.074$ ;  $t = 0.869$ ;  $p = 0.385$ ) has no significant direct effect on it. Therefore, H1 is not supported. However, there is a strong relationship between gamification and positive emotions with gamification acting as a significant predictor of positive emotions ( $\beta = 0.482$ ;  $t = 7.751$ ;  $p = 0.000$ ). therefore, H2 is supported. Impact of positive emotions ( $\beta = 0.446$ ;  $t = 7.172$ ;  $p = 0.000$ ) on engagement is also found to be positive and significant thus H3 is supported. Subsequently, impact of engagement on purchase intention is also significant and positive ( $\beta = 0.566$ ;  $t = 7.034$ ;  $p = 0.000$ ) thus validating H4. Sequential mediation analyses helped us to identify any indirect effect of gamification on purchase intention. The analyses show that emotions and engagement together are statistically significant mediators of gamification and purchase intention ( $\beta = 0.122$ ;  $p = 0.000$ ). One remarkable result of these analyses is the impact of gamification on purchase intention. Results show that even though the relationship between gamification and purchase intention is not directly significant, it becomes significant due to sequential mediation of emotions and engagement.

<i>Effect</i>	<i>Path coefficient (Beta)</i>	<i>STDEV</i>	<i>t-values</i>	<i>p-values</i>
Gamification - Positive emotions	0.482	0.062	7.751	0.000
Gamification - Purchase Intention	0.074	0.085	0.869	0.385
Positive emotions - Brand Engagement	0.446	0.062	7.172	0.000
Brand Engagement - Purchase Intention	0.566	0.081	7.034	0.000

**Table 1:** Results of hypothesis testing.

## Conclusion

This study aimed to identify the impact of gamification on psychological and behavioural outcomes of experiencing gamified mechanics in health and fitness apps. Results show the significant positive impact of gamified systems' usage on brand-related outcomes, such as the intention of buying that brand's products in the future. The study also highlighted the importance of positive emotions and resulting brand engagement in defining the relationship between gamification and behavioural outcomes. The study also focused on the impact of health and fitness app-based brand engagement and behavioural outcome of purchase intention and found it a significant factor in generating such outcomes. However, gamification's direct impact is not strong as assumed initially based on extant literature. Still, the generation of positive emotions and brand engagement compensated for this weak relationship, and the indirect effect of gamification on purchase intention was significant in the closing stages of the research. This study outlined the need to include gamified mechanics for sustainable brand building and strongly emphasized the concept of using branded health and fitness apps as a tool for the same.

## Acknowledgements

The author did not receive any grant for this research.

## Conflict of interest

The author has no conflict of interest.

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**Volume 2 Issue 5 May 2022**

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