E-ISSN: 3108-4192

APSSHS

Academic Publications of Social Sciences and Humanities Studies
2023, Volume 3, Page No: 59-71
Available online at: https://apsshs.com/

Asian Journal of Individual and Organizational Behavior

Exploring the Impact of Gamification on Brand Engagement: An Empirical Study

Hend Elshoubashy[1]*, Hatem Abd Elkader[2], Nermine Khalifa[1]

1. Department of BIS, College of Management and Technology, Arab Academy for Science and Technology, Alexandria, Egypt.
2. Department of Information Systems, Menoufuya University, Shebin El Kom, Egypt.

Abstract

Gamification, the integration of game design principles into non-gaming environments, has gained considerable traction over the past decade. In the business domain, it serves as a strategic tool to enhance consumers' psychological motivations toward services, activities, products, and brands. Various frameworks have been introduced, each incorporating distinct design elements aimed at fostering engagement. However, a significant gap in the literature remains due to the limited empirical evidence explaining consumers' motivations for engaging with gamification in marketing. This study presents a comprehensive gamified framework designed to evaluate the impact of gamification on brand engagement through UX design and various game elements. An experimental approach was employed, in which participants engaged with the gamified framework by completing designated tasks and activities. Data was collected through an extensive post-experiment survey, assessing the relationship between user experience, game elements, and their impact on both utilitarian and hedonic motivations. In addition, a holistic analysis was conducted to examine the overall gameful experience and its role in shaping customer attitudes, ultimately increasing brand engagement. The findings showed that there is a strong positive correlation, with statistically significant relationships between the proposed framework, key variables, and player personality as a moderating factor. The results indicate that a gameful experience can influence customer attitudes toward a brand, fostering more active and engaged interactions.

Keywords: Hedonic motivation, Gamification, User experience, Utilitarian motivation, Game elements, Gameful experience

How to cite this article: Elshoubashy H, Abd Elkader H, Khalifa N. Exploring the Impact of Gamification on Brand Engagement: An Empirical Study. Asian J Indiv Organ Behav. 2023;3:59-71. https://doi.org/10.51847/v9Qc0ikIHr

Received: 10 August 2023; **Revised:** 24 October 2023; **Accepted:** 28 October 2023
Corresponding author: Hend Elshoubashy
E-mail ✉ hendelshoubashy@gmail.com

Introduction

The concept of gamification emerged in the early 2000s [1] and has since gained significant attention, particularly in the early 2010s, when interest among researchers peaked [2, 3]. Gamification involves incorporating game design principles into non-game settings to harness the motivational appeal of video games [2]. Over time, its applications have expanded across multiple industries, including business, marketing, healthcare, and education. However, despite its growing prevalence, there is no universally recognized definition of gamification [3-6].

The fundamental idea behind gamification is leveraging the psychological engagement and emotional connection associated with video games to enhance user interaction in various domains [2, 7]. With the widespread appeal of gaming across diverse demographics, businesses, and digital platforms have increasingly adopted gamified elements to drive engagement [8, 9]. Numerous platforms, such as Codecademy, Waze, and Stack Overflow, have implemented gamification strategies to encourage participation and retention. Fitness applications, for example, use gamified features to track progress and promote

© 2023 The Author(s).
Copyright CC BY-NC-SA 4.0

healthier habits [10]. Similarly, gamification has been integrated into quantified self (QS) systems [11], while mobile applications have borrowed game mechanics from online communities and metagaming to enhance user experiences [2, 12]. This research aims to explore the role of gamification as a psychological driver in marketing, focusing on its ability to shape customer experiences and influence behavior. By examining how gamified elements interact with user personalities, this study seeks to determine the extent to which gamification enhances brand engagement and fosters deeper consumer connections.

Research problem

The primary objective of gamification is to leverage psychological motivators to enhance the overall gaming experience for consumers. By fostering engagement and positive interactions, gamification has the potential to influence customer attitudes and drive stronger brand involvement. This study aims to explore how gamification functions as a tool for increasing customer engagement by improving the gameful experience.

Research questions

a. Can gamification, when tailored to a consumer's personality, serve as a psychological motivator that enhances their gameful experience in a market setting?
b. Does this enriched gameful experience positively impact consumer attitudes, leading to greater brand engagement?

Most popular gamification frameworks

Aparicio *et al.* [13] proposed a framework grounded in self-determination theory, emphasizing autonomy, competence, and social connection as key drivers of motivation [14]. This framework consists of four components:

1. Defining the main objectives of gamification.
2. Identifying intrinsic motivational elements consciously embedded in the system.
3. Establishing relevant game mechanics aligned with self-determination theory.
4. Evaluating the effectiveness of the framework within applied systems.

However, despite its theoretical foundation, this framework remains largely untested, and further research is required to refine analytical methods and assess its real-world applicability.

Blohm and Leimeister (2013) developed a service-based gamification model that integrates gamified elements into a subscription-based system. This approach is designed to encourage behavioral change through both intrinsic and extrinsic motivators. By incorporating game design features into structured services, this model seeks to reinforce user engagement and promote learning or other desired behaviors.

Taking a different perspective, Nicholson [15] advocated for a user-centered approach that prioritizes intrinsic motivation over external rewards. He argued that excessive reliance on extrinsic incentives could undermine intrinsic motivation over time [16]. His work introduced several key theories, including the "Organismic Integration Theory," a sub-theory of self-determination theory, which describes motivation as a continuum ranging from external control to fully autonomous intrinsic motivation [17]. This theory suggests that for gamification to be truly effective, its elements must align with intrinsic motivators rather than external rewards. Additionally, situational relevance plays a crucial role, as users are more likely to engage with gamified experiences when they perceive them as personally meaningful [18, 19].

These ongoing debates have led to the development of universal gamification designs aimed at optimizing user experiences across diverse demographics. Researchers have explored various strategies, including diverse content presentation, mastery-driven activities, and multilinear learning paths. Ultimately, Nicholson [15] argued that user-centered gamification should place the player at the core of the experience, ensuring that game design elements are informed by their preferences and behaviors [20].

In a similar vein, Sakamoto *et al.* [21] proposed a gamification framework with the main goal of supporting and enhancing intrinsic motivation. The framework emphasizes its importance for designers and is built around five core values: first, information value, which emphasizes the quick and effective collection of the necessary information; second, social interaction value, which focuses on creating virtual characters that promote empathic connections; third, persuasive value, which involves providing clear information about future outcomes based on current behaviors and results; fourth, ideological value, referring to beliefs and attitudes communicated through narratives and other forms of communication; and finally, economic value, which relates to ownership and accumulation. This framework is designed not to function in isolation but rather to complement other gamification frameworks based on mechanics that are already in use.

ElShoubashy *et al.* [22] conducted an in-depth literature review of gamification, psychological motivation, gameful experiences, consumer attitudes, and brand engagement, providing valuable insights into these interrelated concepts. Motivation itself is a psychological process that leads to and sustains goal-directed behavior [23]. Nicholson [15] emphasized that gamification is deeply reliant on motivation due to its inherent ability to engage people [24]. Motivation can be

categorized into two types: extrinsic, which is driven by external rewards and clear outcomes, and intrinsic, which centers on the inherent enjoyment of the activity itself [17]. When designing gamified services, it is essential to distinguish between these two types, as extrinsic incentives may not always have lasting effects. Consequently, modern gamified services focus more on leveraging intrinsic motivation to foster long-term engagement [25, 26].

McGonigal [27] proposed a classification of rewards into four main categories: Fulfilling Work, which involves recognition of effort; Experience or Hope of Success, which drives motivation through anticipated achievement; Social Connection, which is the reward from sharing ideas and performing tasks with others; and Being Part of Something Greater, which represents the satisfaction of contributing to a collaborative goal. Locke and Latham's "Goal-Setting Theory" [28] supports the idea that motivation is influenced by setting specific, challenging, and valuable goals. Earlier, Elliot and Harackiewicz [29] proposed a model of goal achievement with three key orientations: Mastery Goals, which focus on improving competence, Performance Goals, aimed at receiving favorable judgments, and Performance Avoidance Goals, which aim to prevent negative evaluations.

Motivational theories in gamification are diverse and complement one another. Astleitner [30] identified six primary approaches to motivation that do not necessarily contradict each other. The Behaviorist Learning Perspective focuses on motivation as the cumulative result of previous positive or negative outcomes. The Trait Perspective views motivation as stemming from individual characteristics that evoke certain needs, relatively stable over time. The Cognitive Perspective emphasizes that motivation is a result of goal-oriented analysis, where the relationship between goals, user behavior, and expected outcomes plays a key role [31]. Notably, Mastery and Performance Orientations differ in that mastery goals are self-determined and promote intrinsic motivation, while performance goals focus on surpassing peer benchmarks [23, 32]. These various motivational theories provide valuable insights into how gamification can be effectively used to drive user engagement and influence behavior.

The self-determination theory's psychological needs—autonomy, social relatedness, and competence—are based on a perspective that highlights how social-contextual factors influence individual motivation [14]. Fulfilling these needs promotes intrinsic motivation, which is the internal drive and desire to tackle challenging tasks for personal satisfaction [32-34]. Personal interests and preferences, shaped by cognitive and emotional variables, help foster deeper engagement with tasks, often resulting in a flow state where individuals become fully absorbed in their activities [32, 35]. The connection between emotion, motivation, and cognitive processes emphasizes how game designs and instructional strategies influence emotional involvement and engagement [30, 32].

Motives can be understood as behavioral reactions to external stimuli, while incentives are automatic, inherent responses. Blythe [36] classified several types of motivations that drive consumer behavior: primary drivers, which push individuals to purchase product categories; secondary motivations, which explain the reasons behind choosing specific items; logical evaluations, which involve reasoning in the purchasing decision; rational motivations, which reflect how consumers consciously perceive a brand; and dormant motivations, which influence decisions below the conscious level. Essentially, motives are driven by an individual's desire to fulfill certain needs, which marketers interpret as recognizing a gap or deficiency. Various factors, such as personality traits (e.g., caution or sociability), lifestyle preferences, past experiences, and social or financial circumstances, shape customers' motivations [37].

Hedonic motivation (HM) is rooted in Gray's personality theory, which proposes two systems governing human behavior: the behavioral activation system (BAS), which responds to rewards, and the behavioral inhibition system (BIS), which is sensitive to punishment. These systems work to maximize rewarding experiences and minimize pain. Kim-Prieto *et al.* [38] emphasized that positive emotions are the core drivers of HM. In a broader sense, Kahneman [39] argued that hedonistic motivation arises from the contrast between pleasure and discomfort, where people are often willing to engage in activities with immediate negative experiences (like visiting a dentist) if they expect long-term rewards [40]. Hedonic values are individualized and are driven by the enjoyment and entertainment experienced during a purchase, making the shopping experience itself rewarding. Advertisers take advantage of these hedonic aspects by focusing on the pleasurable experience consumers will have when engaging with a product, even incorporating hedonic features into packaging and design [37].

Utilitarian motivation (UM), on the other hand, is based on a rational assessment of the functional benefits and costs of an action. This motivation type includes a higher level of cognitive evaluation and is typically focused on achieving specific goals [41, 42]. Consumers driven by UM tend to engage in goal-oriented behaviors that are logical and practical, prioritizing efficiency and utility over emotional appeal or enjoyment. Their decisions are largely based on evaluating tangible outcomes, such as the functionality of a product or the value it provides in addressing specific needs.

The "Types Hexad Framework," introduced by Marczewski [43] and empirically validated by Tondello *et al*. [44], categorizes player preferences based on a standardized scale designed to assess motivations. Despite this, no universally accepted user type or quick method has been established to easily build a tailored gamification experience based on individual player preferences. To address this gap, researchers proposed a set of game design elements linked to specific user types, developed through correlation analysis. The findings from this research demonstrated the validity of the Hexad User Types as a reliable measure for designing gamified experiences. The study was based on an online questionnaire, which explored two main aspects: first, the relationship between the Big Five personality traits [45] and participants' preferences, and second, the

connection between hexad user types and game components. Jia *et al.* [46] conducted a similar investigation, evaluating how motivational components in gamification—such as points, rewards, badges, and feedback—interact with personality traits. They noted that many gamification apps rely on a variety of motivational elements but fail to customize them according to player types. While their study demonstrated a link between game features and player motivation, they pointed out the lack of empirical studies that examine how different game elements impact diverse users, emphasizing the absence of research that takes into account user diversity and individualized design perspectives.

When discussing the concept of a "gameful experience," researchers have presented various interpretations of gamification. Some describe it as a game-like experience applied to non-game contexts [4, 47], while others define it as a technical process that brings game mechanics into non-game settings [48]. At its core, gamification is seen as the creation of a gameful experience, even outside of traditional gaming environments [49, 50]. According to Eppmann *et al.* [51], a gameful experience is specifically one that occurs when users interact with gamified applications. The user experience in gamified systems is shaped by the integration of game rules and structures that limit available resources to complete tasks. While this can create ambiguity and stress, it also motivates users to engage with available resources and find effective strategies to overcome challenges, ultimately leading to increased satisfaction [27, 52, 53]. As players compete or collaborate with others, they develop social bonds, with each player's experience varying based on the design, structure, and mechanics of the game. Studies in both traditional and non-traditional gaming contexts, such as marketing, have explored how game elements affect consumer interactions with brands, technologies, and peers [54, 55], highlighting the importance of gamification in shaping customer experiences and enhancing engagement.

Related work

Several frameworks have emerged from research on gamification design, providing a set of guidelines to ensure its success. DiTommaso [56] outlined a "framework of success" consisting of seven steps, emphasizing that designers must consider the needs of clients, the goals of the company, and relevant motivational factors. In a similar vein, Kappen and Nacke [57] developed the Kaleidoscope of Successful Gamification, focusing on incentivizing player behavior through autonomy, competence, and relatedness.

Other studies, such as those by Aparicio *et al*. [13], Werbach and Hunter [3], and Marczewski [58], propose several actions essential for effective gamification design. These steps include selecting game components, prototyping, analyzing user behavior, assessing objectives, and implementing, and maintaining the system. Despite these comprehensive guidelines, there remains limited exploration of how utilitarian requirements within systems connect to the underlying motivations in gamification design.

Morschheuser *et al.* [59] introduced a seven-step approach to gamification design with a waterfall-like process, emphasizing the identification of user motivation and alignment with project goals. In contrast, Li [60] argued that goal analysis should focus on project vision and scope, particularly when the relationship between motivation and objectives is unclear.

Liu *et al.* [61] proposed the gamification loop, where challenges are paired with achievement criteria such as leaderboards, points systems, and rewards related to sub-goals like badges. They also emphasized the need for a game-like interface and the impact of altering the player's social status or network position.

The social dimension of gamification design has also been examined in the literature. Kim [62] contended that components like badges, leaderboards, and points are insufficient on their own for creating an optimal game experience. She suggested that intrinsic motivations—such as mastery, autonomy, and purpose—should be incorporated into the design, highlighting the importance of understanding users' preferences, skills, engagement patterns, and social contexts.

Overall, these contributions have expanded the understanding of gamification design. Werbach and Hunter [3] presented a thorough overview of gamification, breaking down components into mechanics, dynamics, and components. They also outlined six key steps for implementing gamification: defining objectives, detailing behaviors, describing players, creating engaging activity cycles, and deploying technology. Kumar [63] proposed a "Player-Centered Design" model that involves identifying the user, understanding the mission, grasping human motivation, applying mechanics, and monitoring progress. Robinson and Bellotti [64] also contributed a taxonomy of gamification features, offering guidance on selecting components based on expected player engagement [65].

Research framework

This study is grounded in the framework proposed by ElShoubashy *et al.* [66], which offers a comprehensive analysis of customer experience and its influence on brand engagement within the context of gamification. The framework connects three essential components: information systems, psychology, and marketing. Each of these components is examined through the lens of relevant variables, as depicted in **Figure 1**. This integrative approach allows for a deeper understanding of how gamification impacts customer behavior and brand interaction, providing a structured foundation for analyzing the interplay between these domains in the context of digital marketing and user experience.

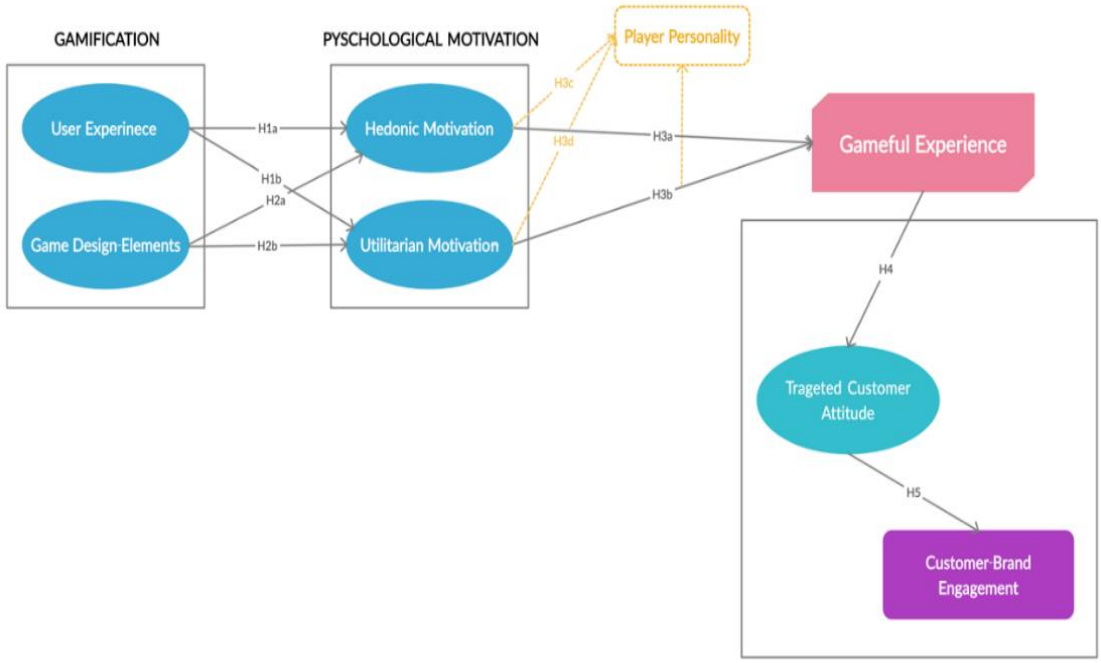

Figure 1. Proposed framework

Research hypotheses

The hypotheses presented in this study are derived from the proposed gamification framework, which explores how gamification impacts customer brand engagement by examining the relationships between gamification elements, psychological motivations, and their effect on the game-like experience.

H1a: User experience has a positive influence on hedonic motivation.
H1b: User experience positively affects utilitarian motivation.
H2a: Game elements have a favorable impact on hedonic motivation.
H2b: Game elements positively influence utilitarian motivation.
H3a: Hedonic motivation positively affects the gameful experience.
H3b: Utilitarian motivation positively impacts the gameful experience.
H3c: The player's personality has a significant influence on the game's hedonic motivation.
H3d: The player's personality significantly influences the game's utilitarian motivation.
H4: The gameful experience has a positive effect on the targeted customer's attitude.
H5: Consumer brand engagement is positively influenced by the attitudes of targeted customers.

Materials and Methods

To investigate the impact of gamification on brand engagement, a prototype was designed, incorporating various game elements based on user experience principles. This prototype was developed as an online hamburger sales platform in Egypt. The game elements integrated into the platform included features such as badges, a point system, competition, goals, achievements, leaderboards, awards, and teams.

Users engaged directly with the gamified system, following a set structure on the website. The program consisted of four tasks, each allowing participants to choose where they wished to begin. Additionally, each task featured extra challenges or information displayed in an interactive, visually stimulating manner.

Participants were recruited using probability sampling methods, primarily via email and social media. The online survey was conducted over three months, from July 1 to September 30, 2020.

Procedure

The data collection was conducted via an online survey completed by Egyptian participants who spent approximately 15 minutes filling out the questionnaire. To accommodate native Arabic speakers with limited English proficiency, the survey was made available in both Arabic and English. The survey consisted of 123 questions and focused on understanding participants' psychological responses in the context of a gamified shopping experience.

Results and Discussion

The questionnaire included two sections: the first gathered demographic data about the participants, while the second focused on specific psychological characteristics. These characteristics were measured using a five-point Likert scale, with responses ranging from "strongly disagree" to "strongly agree" [32, 67-75].

A total of 428 participants completed the survey and fully engaged with the gamified exercises. The demographic breakdown of the participants is summarized in **Table 1**, showing that 57.01% of participants were female (244 individuals), while 42.99% were male (184 participants). The age distribution was as follows: 59.81% were between 20–30 years old, 29.01% were between 31–40 years old, 8.41% were between 41–50 years old, and 1.87% were 50 years or older.

Table 1. Demographic information of the respondents

	Frequency	Percent		Frequency	Percent
Gender			*Educational Level*		
Female	244	57.01	High school degree	116	27.10
Male	184	42.99	Bachelor degree	140	32.71
			Masters degree	112	26.17
Age (years)			PhD degree	60	14.02
20-30	256	59.81			
31-40	128	29.91	*Occupation*		
41-50	36	8.41	Unemployed[a]	164	38.2
≥ 50	8	1.87	Self-employed	24	5.61
			Professional	92	21.50
Marital status			Academic	148	34.58
Married	168	39.25			
Single	256	59.81	*Income*		
Divorced	4	0.93	≤ 20,000	252	58.88
			20,001-30,000	76	17.76
			30,001-40,000	12	2.80
			40,001-50,000	28	6.54
			50,001-60,000	8	1.87
			60,001-70,000	20	4.67
			≥ 70,000	32	7.48

a = unemployed implies student, retired, housewife, etc.

Measurement

In this study, a 5-point Likert scale was used to measure all variables. The psychometric concepts were operationalized using established materials from prior research.

Validity and reliability

The plspm package in R (v4.0.3) was used for model evaluation and analysis [76]. partial least squares path modeling (PLS-PM), a method for data analysis that combines multiple table analysis, structural equation modeling (SEM), and regression models, was applied. Unlike covariance-based SEM (CB-SEM), which relies on distributional assumptions, PLS-SEM is better suited for prediction-oriented research [77]. Bootstrapping was used to assess the variability of parameter estimates, which is crucial in non-parametric PLS analysis. The moderating influence was examined using the product indicator technique.

As there were no missing data points, imputation was not needed. Convergent validity was evaluated using average variance extracted (AVE), Cronbach's alpha, and Dillon-Goldstein's rho. AVE measures the proportion of variance a construct explains compared to measurement error. Cronbach's alpha assesses the internal consistency of items within a construct, and Dillon-Goldstein's rho gauges the variance in the total number of elements in a construct. According to Nunnally [78], for a construct to be reliable, these measures should exceed 0.7 [79].

For discriminant validity, the square root of the AVE was compared with the correlations between constructs [80, 81]. The square root of the AVE should be greater than the correlation between a construct and others. Additionally, no construct correlated greater than 0.9 with another [82]. These techniques confirmed the model's discriminant and convergent validity.

The path model had at least three indicators for each construct, and the sample size of 150 observations met the minimum requirements. Some researchers suggest that the sample size should be at least ten times the number of structural paths pointing to a single latent construct or ten times the largest number of formative elements in a construct [83, 84].

Table 2. Convergent and discriminant validity

	AVE	Alpha	Rho	UX	GE	HM	UM	GX	CA	CBE
UX	0.429	0.906	0.919	**0.655**						
GE	0.544	0.879	0.905	0.755	**0.738**					
HM	0.753	0.890	0.924	0.726	0.613	**0.868**				
UM	0.645	0.814	0.879	0.688	0.555	0.793	**0.803**			
GX	0.559	0.985	0.986	0.775	0.624	0.644	0.687	**0.748**		
CA	0.669	0.929	0.942	0.712	0.604	0.698	0.680	0.737	**0.818**	
CBE	0.686	0.885	0.916	0.686	0.629	0.684	0.695	0.758	0.872	**0.828**

The coefficient of determination, which indicates the predictive accuracy of the model, was used to evaluate the overall effect size and the variation explained in the endogenous constructs. The gameful experience's impact on the targeted consumer attitude was explained by 49.9%, based on perceived psychological motivation **(Figure 2)**. Additionally, the model accounted for 54.2% of the variation in the desired customer attitude toward brand engagement. The inner model for the endogenous latent construct of customer brand engagement had a value of 0.760. This suggests that the targeted consumer attitude significantly explained 76% of the variance in brand engagement, highlighting that the customer attitude components were largely responsible for the observed changes in brand engagement.

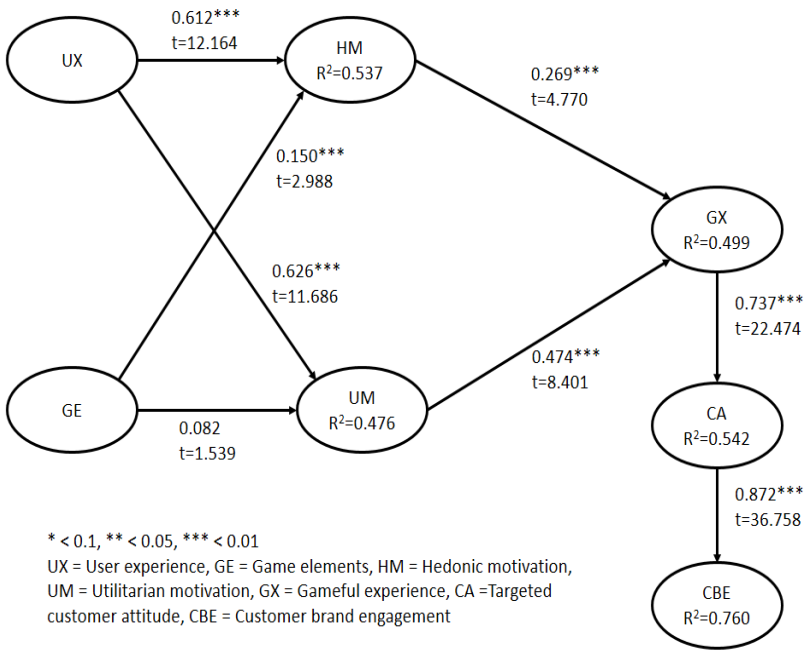

Figure 2. Path model with direct effect (model)

Except for GE to UM, every direct path in the model (model-1) is positive and statistically significant **(Figure 2)**. **Table 3**, shows all details in the model that supports hypotheses H1a–H3b and H4–H5.

Table 3. Hypothesis confirmation

H#	IV → DV	Hypothesis	Supported
H1a	UX → HM	User experience positively influences hedonic motivation	Yes
H1b	UX → UM	User experience positively influences utilitarian motivation	Yes
H2a	GE → HM	Game elements positively influence hedonic motivation	Yes

H2b	GE → UM	Game elements positively influence utilitarian motivation	No
H3a	HM → GX	Hedonic motivation positively influences the gameful experience	Yes
H3b	UM → GX	Utilitarian motivation positively influences the gameful experience	Yes
H3c	HM×PP → GX	Player personality moderates the effect of hedonic motivation on gameful experience	Yes
H3d	UM×PP → GX	Player personality moderates the effect of utilitarian motivation on gameful experience	Yes
H4	GX → CA	Gameful experience positively influences the targeted customer's attitude	Yes
H5	CA → CBE	Targeted customer attitude positively influences brand engagement	Yes

The research incorporated a mediating role for "player personality," acting as a moderator in the model to examine its influence on the relationship between both hedonic and utilitarian motivations and the gameful experience (H3c and H3d). Both motivations were found to have a direct effect on the gameful experience, and the effect was moderated by the player's personality. Specifically, the moderating effects of hedonic motivation (0.328***) and utilitarian motivation (0.132***) were statistically significant and positive. Despite these moderating effects, the direct influence of both hedonic and utilitarian motivations remained significant. This indicates that the revised model (model-2) validates hypotheses H3c and H3d. Furthermore, the player's personality had a minor impact on the physiological incentives to engage with the game, with the R^2 of gameful experience increasing by 0.152.

The researcher also evaluated the direct effect of player personality on enjoyment in model 3. A positive and statistically significant relationship was found (0.166***). Although the player personality had a positive direct effect, it only slightly increased the R^2 of gameful experience (0.021). Notably, this direct effect did not significantly influence the R^2 of gameful experience, but it led to a notable increase in the R^2 of customer attitude (0.249). This suggests a strong connection between customer attitudes and their personality traits, influencing how they experience the game. However, introducing the direct effect of player personality resulted in a small decrease (0.044%) in the R^2 for customer brand engagement. Therefore, the player personality's direct impact primarily affects customer attitude rather than other areas of the model, potentially highlighting a limitation in the direct effects of the model. **Table 3** summarizes the results of the hypotheses.

Theoretical implications

This study utilized an experimental approach followed by a survey completed by 428 participants. Data was analyzed using the R tool, which facilitates advanced data mining, and the PLS-SEM approach was employed to assess the proposed model and hypotheses. The findings revealed numerous positive relationships among the variables and their effects. Moreover, the R tool uncovered additional indirect relationships within the model that proved to be significant.

A significant contrast was noted between this study's findings and those from a previous pilot study (n = 60) by ElShoubashy *et al.* [66], as the latter used SmartPLS, which generated different associations in the model.

The research draws on Huotari and Hamari's [85] consumer-centered approach to gamification, which focuses on the user experience. In this approach, gamification is not only about the design elements but also about customer behaviors and engagement. The three primary components of gamification in this context are the gameful experience, affordances, and value realization. Gamification's motivational affordances involve specific system configurations designed to activate users' psychological motivations [86]. Customers, however, choose to engage with these elements rather than being passively influenced [55, 85].

Research by Insley and Nunan [87] highlighted that online customers interacting with gamified platforms display game-like behaviors, such as competing for rewards, interacting with other users, or engaging with the business. These behaviors create a "gameful experience," which is characterized by high levels of engagement and an optimal challenge, aligning with the theory of flow [88]. Value realization, on the other hand, refers to the outcomes of gamification when users combine the elements provided by businesses to craft their own experience, guided by their goals [85, 87].

While gamification offers advantages, it also presents challenges, as pointed out by Hammedi *et al.* [89]. Gamification thus adapts to facilitate user interaction and engagement with entities such as communities, brands, activities, and processes, contributing to a more interactive and enjoyable experience [55].

Theoretical and practical contributions

Although previous studies have extensively documented the impact of gameful experiences on customer behaviors, significant gaps remain in understanding how these experiences influence customer attitudes in the marketplace [51, 90-94]. Most prior work has focused on analyzing individuals who have already undergone gameful experiences, but this study provides novel evidence by clarifying the link between psychological motivations, gameful experiences, and the moderating role of player personality. The study found that player personality has a noteworthy positive effect, not only enhancing the gameful experience but also improving customer attitudes towards the brand.

Implications for practice

The proposed framework in this study integrates three key areas: user experience design, selection of relevant game elements, and the psychological motivations that drive engaging game-like experiences. Analysis of the data revealed that all the examined factors were positively correlated, with user experience showing a particularly strong influence on both hedonic and utilitarian motivations. While psychological motivations did have a positive impact, it was notably stronger in the context of user experience compared to game mechanics.

Incorporating player personality as a moderating variable in the experimental design allowed the system to become more personalized. By investigating the moderating influence of player personality on the effects of hedonic and utilitarian motivations, the study further explored whether a gameful experience could alter customer perceptions of a brand, enhancing brand engagement. This approach is consistent with the work of Tondello *et al*. [44, 71] and Carreño [95], who used gamified frameworks based on the Hexad model. Despite this, the literature remains limited in this area, suggesting future studies could focus on treating player personality as a core element of the model rather than just a moderating factor. This shift could provide deeper insights into how personalization in gamification impacts customer behavior and engagement.

Conclusion

The study's findings indicate that both user experience and game elements positively influenced hedonic and utilitarian motivations, with user experience showing a stronger impact than game mechanics. Another key factor is the player's personality, which mediates the relationship between motivation and the enjoyment derived from the game. This highlights the importance of a personalized system in enhancing motivation.

Overall, a game-like experience positively affects customer perceptions of a brand, leading to greater brand engagement. A notable conclusion is that the player's personality directly influences the gameful experience, serving as a moderating factor. Although the impact of player personality may seem modest, it significantly shapes customers' emotional responses.

Research contribution

This research primarily contributes by emphasizing the interrelationship between information systems, psychology, and marketing, demonstrating how these fields together create a dynamic market environment. By exploring the effects of gamification on brand engagement, the study highlights gamification's potential to enhance motivation and engagement. The development of a comprehensive gamified framework that examines the interactions between these three variables and their collective impact on brand engagement is another key contribution.

Limitations

There are several limitations to this study. First, it relied on online surveys, which led to self-reported data from primarily active and engaged users. The study's reliance on sharing links through social media may have resulted in responses from more active players, excluding less engaged users. This limitation should be addressed in future research. Additionally, the survey was lengthy due to the inclusion of many variables, which may have contributed to participant dropout.

Another limitation is the reductionist nature of quantitative studies, which may overlook the nuances of individual game elements. Future research could benefit from interviews or focus groups to capture more granular insights into how users perceive and interact with game components. Furthermore, the gamification system used in this study, "Adouz Burger," may have influenced users' preferences, with some players favoring challenges and rewards over team-based activities, potentially affecting their overall experience.

Future work

The field of gamification has seen substantial growth in the past decade, opening new avenues for research. Future studies should focus on granular data analysis to measure the precise impact of each gamification element on motivation and engagement, particularly concerning player personality. Another promising area for future research is the application of gamification in education, where its motivational power can be further explored. Additionally, research should investigate the social aspects of gamification, especially how they interact with player personality, to create more personalized experiences. Finally, further exploration is needed into how gamification influences consumer behavior toward brands, with an emphasis on fostering long-term connections between customers and products or services.

Acknowledgments: None

Conflict of interest: None

Financial support: None

Ethics statement: None

References

1. Marczewski A. gamification: a simple Introduction and a Bit More. E-Book; 2013.
2. Deterding S, Dixon D, Khaled R, Nacke L. From game design elements to gamefulness: defining" gamification". In Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments; 2011. p. 9-15.
3. Werbach K, Hunter D. For the win: How game thinking can revolutionize your business. Wharton Digital Press. Pennsylvania: Wharton Digital Press; 2012.
4. Deterding S, Sicart M, Nacke L, O'Hara K, Dixon D. Gamification. Using game-design elements in non-gaming contexts. In CHI'11 Extended Abstracts on Human Factors in Computing Systems; 2011. p. 2425-8.
5. Seaborn K, Fels DI. Gamification in theory and action: a survey. Int J Human-Computer Stud. 2015;74:14-31. doi:10.1016/j.ijhcs.2014.09.006
6. Sailer M, Hense JU, Mayr SK, Mandl H. How gamification motivates: an experimental study of the effects of specific game design elements on psychological need satisfaction. Compu Human Behav. 2017; 69:371-80. doi:10.1016/j.chb.2016.12.033
7. Zichermann G, Cunningham C. Gamification by design: Implementing game mechanics in web and mobile apps. O'Reilly Media, Inc; 2011.
8. Interactive Software Federation of Europe [Internet]. Brussels: ISFE; 2017. GameTrack quarterly digests. Fourth quarter of 2016 [cited 2020 Feb, 27], Available from: https://www.isfe.eu.
9. Yang Y, Asaad Y, Dwivedi Y. Examining the impact of gamification on intention of engagement and brand attitude in the marketing context. Comp in Human Behav. 2017;73:459-69. doi:10.1016/j.chb.2017.03.066
10. Whitson JR. Gaming the quantified self. Surveill Soc. 2013;11(1/2):163-76.
11. Lupton D. The quantified self. John Wiley & Sons; 2016.
12. Nacke LE, Deterding S. The maturing of gamification research. Comput Hum Behav. 2017;71:450-4. doi:10.1016/j.chb.2016.11.062
13. Aparicio AF, Vela FLG, Sánchez JLG, Montes JLI. Analysis and application of gamification. In Proceedings of the 13th international conference on interacción persona-ordenador; 2012. 1-2 p.
14. Ryan RM, Deci EL. Intrinsic and extrinsic motivations: classic definitions and new directions. Contemp Educ Psychol. 2000a;25(1):54-67. doi:10.1006/ceps.1999.1020
15. Nicholson SA .User-centered theoretical framework for meaningful gamification: a brief introduction to gamification organismic integration theory situational relevance and situated motivational affordance. Proceedings of Games Learning Society 8.0, 223-9; 2012.
16. Deci EL, Koestner R, Ryan RM. Extrinsic rewards and intrinsic motivation in education: reconsidered once again. Rev Educ Res. 2001;71(1):1-27.
17. Ryan RM, Deci EL. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. Am Psychol. 2000;55(1):68-78.
18. Nurcahyo H, Sumiwi SA, Halimah E, Wilar G. Secondary metabolitm determination from Brebes shallot's ethanol extract and its ethyl acetate fraction "Allium ascalonicum L.". J Advan Pharmacy Educ Res. 2022;12(1):70-3.
19. Asar ME, Saleh E, Ghaneapur M. Innovative and motivational SDT-based approach to promote Iranian women's physical activity. J Adv Pharmacy Educ Res. 2023;13(1):62-5.
20. Samsuar S, Simanjuntak W, Qudus HI, Yandri Y, Herasari D, Hadi S. In Vitro antimicrobial activity study of some organotin (IV) chlorobenzoates against Staphylococcus aureus and Escherichia coli. J Adv Pharmacy Educ Res. 2021;11(2):17-22.
21. Sakamoto M, Nakajima T, Alexandrova T. Value-based design for gamifying daily activities. In: Errlich M, Malaka R, Masuch M, eds. Entertainment Computing –ICEC 2012, Lecture Notes in Computer Science, Springer: New York, NY; 2012. p. 421-4.
22. ElShoubashy H, ElKader HA, Khalifa N. What is gamification? A literature review of previous studies on gamification. Aust J Basic Appl Sci. 2020;14(8):29-51. doi:10.22587/ajbas.2020.14.8.4
23. Schunk DH, Pintrich, PR. Meece JL. Motivation in education: theory, research, and applications. Pearson, Upper Saddle River; 2010.
24. Xu Y. Literature review on web application gamification and analytics. HI: Honolulu; 2012.
25. Sudan J. Gamification—Extrinsic vs. Intrinsic rewards. Playful Wingmen, 2013 [Cited 2020 Jan 3]. Available from: http://www.slideshare.net/playfulwingmen/gamification-extrinsic-vs-intrinsic-rewards-17681228.

26. Koivisto J, Hamari J. Demographic differences in perceived benefits from gamification. Comput Hum Behav. 2014;35:179-88. doi:10.1016/j.chb.2014.03.007
27. McGonigal J. Reality is broken: Why Games Make Us Better and How They Can Change the World. 21th ed., Vol. (22). New York: Penguin Books; 2011.
28. Locke EA, Latham GP. Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. Am Psychol. 2002;57(9):705-17.
29. Elliot AJ, Harackiewicz JM. Goal setting, achievement orientation, and intrinsic motivation: a mediational analysis. J Pers Soc Psychol. 1994;66(5):968.
30. Astleitner H. Designing emotionally sound instruction: the FEASP-approach. Instr Sci. 2000;28:169-98.
31. Heckhausen JE, Heckhausen HE. Motivation and action. Cambridge University Press; 2008.
32. Sailer M, Hense J, Mandl H, Klevers M. Psychological perspectives on motivation through gamification. Ixd&a. 2013;19(1):28-37.
33. Deci EL, Ryan RM. Self-determination. New Jersey: John Wiley and Sons Inc; 1985.
34. Deci EL, Ryan RM. The And why of goal pursuits: Human needs and the self-determination of behavior. Psychol Inq. 2000;11(4):227-68.
35. Csikszentmihalyi M, Abuhamdeh S, Nakamura J. Chapter 32: Flow. in Handbook of Competence and Motivation, New York: The Guilford Press; 2005. p. 598-608.
36. Blythe J. The essence of consumer behavior. Harlow, England: Prentice Hall Europe; 1997.
37. Vinerean A. The influence of hedonic and utilitarian motivators on likelihood to buy a tourism package. Expert J Market. 2013;1(1):28-37.
38. Kim-Prieto C, Diener E, Tamir M, Scollon C, Diener M. Integrating the diverse definitions of happiness: a time-sequential framework of subjective well-being. J Happiness Stud. 2005;6:261-300.
39. Kahneman D. Objective Happiness. In: Kahneman D, Diener E, Schwartz N, eds. Well-being: The foundations of hedonic psychology. New York: Russell Sage Foundation; 1999. p. 2-25.
40. Kaczmarek LD. Eudaimonic motivation. InEncyclopedia of personality and individual differences 2017 (pp. 1-4). Springer, Cham.. doi:10.1007/978-3-319-28099-8
41. Overby JW, Lee EJ. The effects of utilitarian and hedonic online shopping value on consumer preference and intentions. J Bus Res. 2006;59(10-11):1160-6.
42. Hsu CL, Chen MC. How gamification marketing activities motivate desirable consumer behaviors: focusing on the role of brand love. Comput Hum Behav. 2018;88:121-33. doi:10.1016/j.chb.2018.06.037
43. Marczewski A. Even ninja monkeys like to play: gamification, game thinking and motivational design. CreateSpace Independent Publishing Platform; 2015.
44. Tondello GF, Wehbe, RR, Diamond L, Busch M, Marczewski A, Nacke LE. The gamification user types hexad scale. In Proceedings of the 2016 annual symposium on computer-human interaction in play; 2016. p. 229-43.
45. Goldberg LR. An alternative" description of personality": the big-five factor structure. J Pers Soc Psychol. 1990;59(6):12-6.
46. Jia Y, Xu B, Karanam Y, Voida S. Personality-targeted gamification: a survey study on personality traits and motivational affordances. In Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems; 2016. p. 2001-13.
47. Robson K, Plangger K, Kietzmann JH, McCarthy I, Pitt L. Understanding Gamification of Consumer Experiences. Adv Consum Res. 2014;(42):352-6.
48. Landers RN. Developing a theory of gamified learning: Linking serious games and gamification of learning. Sim Gaming. 2014;45(6):752-68.
49. Domínguez A, Saenz-de-Navarrete J, De-Marcos L, Fernández-Sanz L, Pagés C, Martínez-Herráiz JJ. Gamifying learning experiences: practical implications and outcomes. Comput Educ. 2013;63:380-92.
50. Robson K, Plangger K, Kietzmann JH, McCarthy I, Pitt L. Game on: Engaging customers and employees through gamification. Bus Horiz. 2016;59(1):29-36.
51. Eppmann R, Bekk M, Klein K. Gameful experience in gamification: construction and validation of a gameful experience scale [GAMEX]. J Interact Market. 2018;43(1):98-115. doi:10.1016/j.intmar.2018.03.002
52. Anselme P. The uncertainty processing theory of motivation. Behav Brain Res. 2010;208(2):291-310.
53. Costikyan G. Uncertainty in Games. USA: Playful Thinking; 2013.
54. Zichermann G, Linder J. The gamification revolution: How leaders leverage game mechanics to crush the competition. New York: McGraw-Hill; 2013.
55. Hammedi W, Leclercq T, Poncin I. Customer engagement: the role of gamification [internet]. In Handbook of research on customer engagement. Edward Elgar Publishing; 2019. p. 164-85. doi:10.4337/9781788114899.00014

56. DiTommaso D. Beyond gamification: Architecting engagement through game design thinking [Internet]. [Place unknoen]: slidershare; 2011 [cited 2020 Mar, 22]. Available from: https://www.slideshare.net/DiTommaso/beyond-gamification-architecting-engagement-through-game-design-thinking.
57. Kappen DL, Nacke LE. The kaleidoscope of effective gamification: deconstructing gamification in business applications. In Proceedings of the first international conference on gameful design, research, and applications; 2013. p. 119-22.
58. Marczewski A. The intrinsic motivation RAMP [internet]. 2013 [cited 2020 Mar 10]. Available from: http://www.gamified.uk/gamification-framework/the-intrinsic-motivationramp/.
59. Morschheuser B, Hamari J, Werder K, Abe J. How to gamify? A method for designing gamification. In Proceedings of the 50th Hawaii International Conference on System Sciences 2017. University of Hawai'i at Manoa; 2017.
60. Li X. A method to support gamification design practice with motivation analysis and goal modeling. In CEUR Workshop Proceedings. 2018; 21(86):151-8. CEUR-WS.
61. Liu Y, Alexandrova T, Nakajima T. Gamifying intelligent environments. In Proceedings of the 2011 international ACM workshop on Ubiquitous Meta user interfaces; 2011. p. 7-12.
62. Kim AJ. Smart gamification: seven core concepts for creating compelling experiences. San Francisco: casual connect; 2011. [cited 2020 Mar, 2]. Available from: http://casualconnect.org/lectures/business/smart-Gamification-seven-core-concepts-for-creating-compelling-experiences-amy-jo-kim.
63. Kumar N. A framework for designing gamification in the enterprise. Infosys Labs Briefings. 2013;11(3):8-13.
64. Robinson D, Bellotti V. A preliminary taxonomy of gamification elements for varying anticipated commitment. In Proc. ACM CHI 2013 Workshop on Designing Gamification: Creating Gameful and Playful Experiences; 2013.
65. Marache-Francisco C, Brangier E. Process of gamification. From the consideration of gamification to its practical implementation. In Proceeding of the CENTRIC 2013: The sixth international conference on advances in human oriented and personalized mechanisms, technologies, and services, Venice, Italy. IARIA XPS Press; 2013. p. 126-31.
66. ElShoubashy H, Abdel-Azim M, Abd ElKader H, Khalifa N. Gamification effect on brand engagement: a pilot study. Aust J Basic Appl Sci. 2020;14(11):37-56.
67. Gentile C, Spiller N, Noci G. How to sustain the customer experience: An overview of experience components that co-create value with the customer. Eur Manag J. 2007;25(5):395-410.
68. Antin J, Churchill EF. Badges in social media: a social psychological perspective. In CHI 2011 gamification workshop proceedings; 2011.
69. Fitz-Walter Z, Tjondronegoro D, Wyeth P. Orientation passport: using gamification to engage university students. In Proceedings of the 23rd Australian Computer Human Interaction Conference on - OzCHI '11, New York, New York, USA: ACM Press; 2011. p. 122-5. doi:10.1145/2071536.2071554
70. Sheng ML, Teo TS. Product attributes and brand equity in the mobile domain: the mediating role of customer experience. Int J Inf Manag. 2012;32(2):139-46. doi:10.1016/j.ijinfomgt.2011.11.017
71. Tondello G, Orji R, Nacke L. Recommender systems for personalized gamification. In Adjunct Publication of the 25th Conference on User Modeling, Adaptation and Personalization - UMAP '17; 2017. p. 425-30. doi:10.1145/3099023.3099114
72. Xu X, Zhi H. Study of game elements impacting on SE course completion rate in MOOCs - A mixed method approach. Master's thesis, Faculty of Computing, Blekinge Institute of Technology. Sweden; 2017.
73. Nanjari PA. Gamified surveys: what game mechanics are driving people's motivation? [Master's thesis], University of Twente); 2019.
74. Toda A, Oliveira W, Klock AC, Palomino PT, Pimenta M, Gasparini I, et al. A taxonomy of game elements for gamification in educational contexts: Proposal and evaluation. In 2019 IEEE 19th International Conference on Advanced Learning Technologies (ICALT). IEEE; 2019. p. 84-8. doi:10.1109/icalt.2019.00028
75. Upshall D. Developing a taxonomy of gamification elements that facilitate user motivation. [Master's thesis], School of Digital Technologies, Digital Learning Games, Tallinn University, Estonia; 2020. doi:10.13140/RG.2.2.32806.96327
76. Sanchez G. PLS path modeling with R [Internet]. Berkeley: Trowchez Editions; 2013 [Cited 2020 Mar 10]. p. 551. Available from: https://www.gastonsanchez.com/PLS_Path_Modeling_with_R.pdf.
77. Chin WW, Marcolin BL, Newsted PR. A partial least squares latent variable modeling approach for measuring interaction effects: results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. Inf Syst Res. 2003;14(2):189-217.
78. Nunnally JC. Psychometric theory, 2nd ed. New York: McGraw-Hill; 1978.
79. Fornell C, Larcker D. Structural equation models with unobservable variables and measurement error. J Mark Res. 1981;18(1):39-50.
80. Chin WW. The partial least squares approach to structural equation modeling. Mod Methods Bus Res. 1998;295(2):295-336.

81. Jöreskog KG, Sörbom D. LISREL 8: User's reference guide. Scientific Software International; 1996.
82. Pavlou PA, Liang H, Xue Y. Understanding and mitigating uncertainty in online exchange relationships: a principal-agent perspective. MIS Q. 2007;105-36.
83. Chin WW, Newsted PR. Structural equation modeling analysis with small samples using partial least squares. Stat Strat Small Sample Res. 1999;1(1):307-41.
84. Hair JF, Ringle CM, Sarstedt M. PLS-SEM: Indeed a silver bullet. J Mark Theory Pract. 2011;19(2):139-52.
85. Huotari K, Hamari JA. definition for gamification: anchoring gamification in the service marketing literature. Electron Mark. 2017;27(1):21-31. doi:10.1007/s12525-015-0212-z
86. Hamari J. Transforming homo economicus into homo ludens: a field experiment on gamification in a utilitarian peer-to-peer trading service. Electron Commer Res Appl. 2013;12(4):236-45. doi:10.1016/j.elerap.2013.01.004
87. Insley V, Nunan D. Gamification and the online retail experience. Int J Retail Distrib Manag. 2014;42(5):340-51.
88. Berger A, Schlager T, Sprott DE, Herrmann A. Gamified interactions: whether, when, and how games facilitate self–brand connections. J Acad Mark Sci. 2018;46:652-73.
89. Hammedi W, Leclerq T, Van Riel AC. The use of gamification mechanics to increase employee and user engagement in participative healthcare services: a study of two cases. J Serv Manag. 2017;28(4):640-61.
90. Ijsselsteijn W, Van Den Hoogen W, Klimmt C, De Kort Y, Lindley C, Mathiak K, et al. Measuring the experience of digital game enjoyment. In Proceedings of measuring behavior; 2008 Aug 26-29; Maastricht, the Netherlands: Noldus; 2008. p. 88-9.
91. Jennett C, Cox AL, Cairns P, Dhoparee S, Epps A, Tijs T, et al. Measuring and defining the experience of immersion in games. Int J Hum-Comput Stud. 2008;66(9):641-61.
92. Brockmyer JH, Fox CM, Curtiss KA, McBroom E, Burkhart KM, Pidruzny JN. The development of the game engagement questionnaire: a measure of engagement in video game-playing. J Exp Soc Psychol. 2009;45(4):624-34.
93. Liu, D, Santhanam R. Towards meaningful engagement: gamification designs for gameful interaction with information systems. SSRN Electron J. 2015;8(2):128-40. doi:10.2139/ssrn.2521283
94. Högberg J, Hamari J, Wästlund E. Gameful experience questionnaire (GAMEFULQUEST): an instrument for measuring the perceived gamefulness of system use. User Model User-Adapt Interact. 2019;29(3):619-60. doi:10.1007/s11257-019-09223-w
95. Carreño AM. A framework for agile design of personalized gamification services. [Doctoral dissertation], Universitat Oberta de Catalunya; 2018.