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Gamification and Brand Engagement: An Empirical Study of UX Design, Motivation, and Player Personality

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Abstract

Gamification, defined as the integration of game design elements into non-game settings, has seen significant growth in popularity over the past decade. In the business context, it is employed as a tool to tap into consumers' psychological motivations toward engaging with services, products, activities, or brands. Although various frameworks have been introduced—each emphasizing unique design elements and their potential to influence attitudes—empirical studies exploring the true drivers behind gamification's marketing effectiveness remain scarce. This study introduces a comprehensive gamified framework designed specifically to evaluate how gamification influences brand engagement, focusing on user experience (UX) and incorporating diverse game design elements. An experiment was conducted in which participants engaged in tasks within the gamified environment. Following the experience, participants completed a detailed survey, providing insights into the relationship between UX and game elements and how these influence both utilitarian and hedonic motivations.

Additionally, the study performed a holistic assessment of the overall gameful experience and its impact on customer attitudes toward the brand. The findings revealed a strong and statistically significant positive correlation between the gamified framework and the examined variables. Importantly, player personality emerged as a key moderating factor. The study concludes that brand attitudes can be significantly shaped through gameful experiences, ultimately fostering greater, more active brand engagement.

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

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Introduction

The term *"gamification"* first emerged in the early 2000s [1] and has since experienced a significant surge in academic and industry interest, particularly peaking in the early 2010s [2]. Gamification refers to the integration of game design elements into non-game environments, aiming to harness the intrinsic motivational qualities commonly found in video games [2]. Over time, gamification has been adopted across various sectors, including marketing, education, healthcare, and business.

Despite its widespread use, there is still no universally accepted definition of gamification [3–6]. The core idea behind gamification is to evoke the emotional engagement and motivational drive experienced in gaming contexts and transfer these elements to real-world applications [2, 7].

The rapid growth of video game consumption across diverse demographics—irrespective of age, gender, or culture—has contributed to gamification's expansion in various digital platforms [8, 9]. Many platforms and services, such as Codecademy, Stack Overflow, Waze, and fitness apps, have successfully integrated gamified systems to enhance user interaction [10]. Moreover, gamification is now an integral part of Quantified Self (QS) technologies, helping users monitor behavior and

lifestyle goals [11]. Some mobile applications have further leveraged elements of metagaming and social gaming networks to deepen user engagement [2, 12].

In this context, the present study aims to assess the effectiveness of gamification as a psychological motivator in the marketplace. Specifically, it investigates how gameful experiences—designed with user experience (UX) and personality factors in mind—can shape consumer attitudes and drive deeper engagement with brands.

Research problem

This research seeks to determine how gamification can serve as a psychological tool to improve consumer experience and attitudes. By creating engaging and immersive gameful environments, businesses may encourage more meaningful interactions with their brands and enhance customer loyalty and engagement.

Research questions

a. Can gamification, tailored to the personality traits of consumers, function as an effective psychological motivator that enhances their gameful experience?
b. Does this enriched gameful experience lead to more positive attitudes and greater engagement with the brand?

Popular gamification frameworks

Aparicio *et al*. (2012) developed a gamification framework grounded in self-determination theory, emphasizing autonomy as an individual's willingness to act and achieve, along with competence and social connection [13, 14]. The framework consists of four main parts. The first defines the primary goals and purposes for applying gamification. The second addresses the transversal objective, which refers to the intrinsic motivational elements consciously embedded within the system. The third part involves specifying the game mechanics aligned with the principles of self-determination within the gamified environment. Finally, the fourth part focuses on methods for evaluating the framework's application in real-world systems. Despite its comprehensive design, this framework has yet to be widely implemented, and ongoing work aims to improve case studies and evaluation techniques.

In 2013, Blohm and Leimeister introduced a service-oriented gamification approach through several studies. Their model integrates bundles of gamified services with a gamification layer built on game design elements, typically offered within a subscription service. This approach aims to promote behavioral change, such as learning, by utilizing both intrinsic and extrinsic motivators through gamification.

Nicholson (2012) proposed a different perspective by advocating a user-centered approach that prioritizes intrinsic motivation over extrinsic rewards, as extrinsic incentives can undermine intrinsic interest [15, 16]. Nicholson put forward several hypotheses to enhance gamification strategies by fostering meaningful engagement. Among these is the *Organismic Integration Theory*, a subset of self-determination theory, which describes a motivational continuum ranging from a lack of motivation to fully autonomous intrinsic motivation [17]. This theory suggests that meaningful game elements must stimulate internal motivation independently of any external rewards.

Furthermore, situational relevance is a crucial factor because users' decisions depend on what they find meaningful. Therefore, understanding the context is essential, as the motivational effect heavily depends on how well the gamified setup matches the user's background and situation [18, 19].

These debates have driven the development of a universal design approach for research aimed at identifying the best ways to create experiences that accommodate a wide range of user variables. This approach emphasizes three key strategies: offering diverse content presentations, enabling mastery through the delivery of numerous activities, and providing multilinear learning paths. To reinforce this perspective, Samsuar *et al*. (2021) argued that any truly user-centered design places the player at the heart of the process, drawing inspiration for the design directly from the player's needs and behaviors [20].

Similarly, Sakamoto *et al*. (2012) introduced a gamification framework focused primarily on supporting intrinsic motivation [21]. This framework highlights five core values: first, the rapid and essential collection of necessary information; second, empathic values that emphasize social interaction and the creation of virtual characters; third, persuasive values that provide clear, forward-looking information based on current behaviors and patterns; fourth, ideological values, which consist of firmly held beliefs and attitudes conveyed through narratives and communication; and finally, economic values, related to ownership and accumulation. Importantly, this framework is not meant to stand alone but rather to complement existing game mechanics-based frameworks.

A comprehensive literature review by ElShoubashy *et al*. (2020a) explored various frameworks and concepts related to gamification, psychological motivation, gameful experience, consumer attitudes, and brand engagement in depth [22].

Regarding motivation, it is defined as the psychological process that initiates and sustains goal-directed actions [23]. Nicholson (2012) emphasized that gamification heavily relies on motivation because of its inherent power to inspire people [15, 24]. Motivation fundamentally rests on two pillars: intrinsic and extrinsic elements. Extrinsic motivation involves

completing a task for specific anticipated outcomes, while intrinsic motivation is centered on the inherent enjoyment of the activity itself [17]. When designing gamified services or applications, it is vital to recognize and distinguish between these two types of motivation. Since extrinsic rewards may not always have a lasting influence, recent gamification efforts tend to focus more on incorporating intrinsic motivation alongside extrinsic incentives [25, 26].

In 2011, McGonigal proposed categorizing rewards into four main types [27]: the first is fulfilling work, which recognizes the value of effort; the second is the experience or hope of success; the third involves social connections fostered through collaboration and idea-sharing; and the fourth is the feeling of contributing to something larger than oneself in pursuit of a collective goal. Earlier, in 2002, Locke and Latham introduced the "goal-setting theory," which emphasizes that achieving and maintaining goal-oriented behavior depends on specific conditions [28]. These include setting clear, challenging, and meaningful goals, as well as understanding the behaviors required to achieve them. Even before that, Elliot and Harackiewicz (1994) put forward an integrative goal attainment principle, dividing goals into three categories: mastery, which emphasizes improving competence in an activity; performance-based goals, which focus on achieving favorable evaluations; and performance-avoidance goals, which are driven by a desire to avoid negative assessments [29, 30].

Astleitner (2000) identified six major motivational approaches relevant to gamification, each addressing different aspects of motivation without contradicting one another [31]. These include the behaviorist learning approach, which defines motivation as the result of accumulated positive and negative stimulus-response experiences; and the trait perspective, which sees motivation as a function of stable individual needs and traits [32]. The cognitive approach considers motivation the result of a means-end analysis, where goal relevance, behavioral strategies, anticipated outcomes, and subjective value determine motivation in specific contexts [33]. Within this framework, mastery orientation supports intrinsic motivation and learning through self-determined goals, whereas performance orientation involves meeting external benchmarks and peer-based comparisons [23, 32].

The self-determination theory builds on the idea that autonomy, competence, and relatedness are core psychological needs shaped by social-contextual factors [14]. When these needs are fulfilled, they foster intrinsic motivation—defined as a natural drive to engage in challenging tasks [32, 34, 35]. Additionally, an interest-based perspective emphasizes the role of personal interests and preferences as both cognitive and emotional variables, enhancing engagement with tasks. This deep engagement may lead to the experience of “flow,” a state of intense focus and immersion [32, 36]. Finally, the emotional perspective underscores the importance of teaching strategies in games and how these influence the interaction between emotions, motivation, and cognition [31, 32].

While motives represent behavioral responses triggered by specific stimuli, incentives are considered innate and involuntary reactions. In 1997, Blythe classified several key motivations relevant to enhancing users' marketing engagement [37]. These include primary drivers, which are the fundamental reasons for purchasing a category of products; secondary motivations, which justify the purchase of a specific item; rational motivations involving deliberate and logical decision-making; conscious motives linked to a consumer’s emotional response toward a brand; and latent or dormant motivations, which operate below the level of conscious awareness. Generally, motives are understood as intentions to satisfy a recognized need, which marketers describe as the consumer’s realization of a deficiency. According to Vinerean (2013), motivational factors influencing customers can be traced to personal attributes such as cautiousness, adventurousness, shyness, introversion, and sociability [38]. Lifestyle considerations like individual concerns, preferences, past experiences, and attitudes toward wealth, health, and boredom also play a role. Additional factors include civil status, income, and personal expectations.

The hedonic motivation (HM) model aligns with Gray’s personality theory, which identifies two main behavioral systems: the behavioral activation system (BAS), which responds to rewards, and the behavioral inhibition system (BIS), which is sensitive to punishment. These systems work in tandem to encourage rewarding behavior and deter negative experiences. As Kim-Prieto *et al*. (2005) noted, hedonic motivation is largely driven by pleasure and positive emotions [39]. Kahneman (1999) expanded on this by suggesting that the core of hedonism lies in the contrast between positive and negative experiences—people often pursue rewarding activities even if the immediate experience is unpleasant, such as visiting a dentist [40, 41].

Hedonic values are inherently personal and often irrational, focused on pleasure and entertainment derived from the act of purchasing. Therefore, shopping becomes a source of enjoyment in itself, rather than merely a means to acquire products. In marketing, this hedonic dimension is strategically leveraged during advertising to highlight the joy associated with the buying process. It is also embedded into product design—such as packaging aesthetics—to stimulate consumer desire and encourage purchases [38]. In contrast, utilitarian motivation (UM) is rooted in assessing the functional benefits and costs associated with a product. It reflects a more cognitive and practical mindset, where consumers make logical, goal-directed decisions [42, 43].

Motives are actions people take in response to certain triggers, while incentives are natural and automatic reactions. In 1997, Blythe listed different reasons why people get interested in marketing [37]. These include primary drivers (why someone wants to buy a general type of product), secondary motivations (why someone chooses a specific product), rational motivations (logical thinking when making a choice), conscious motives (how someone feels about a brand), and hidden or unconscious motivations. In short, motives are tied to a person wanting to meet a certain need—something they feel is missing. Vinerean (2013) explained that things like personality (such as being shy or outgoing), lifestyle (interests and worries), past

experiences, and even health or boredom levels all influence a person's motivation [38]. Other factors include income, relationship status, and personal expectations.

The hedonic motivation (HM) theory connects with Gray's idea that human behavior is guided by two systems: one that responds to rewards (behavioral activation system) and another that avoids pain or punishment (behavioral inhibition system). These systems push people to seek good experiences and avoid bad ones. Kim-Prieto *et al*. (2005) said that pleasure and happiness often drive HM [39]. Kahneman (1999) added that hedonism is about choosing things that feel good in the long run, even if they don't feel good at first—like going to the dentist [40, 41].

Hedonic values are personal and sometimes irrational. They focus on having fun and enjoying the buying process itself, not just owning the product. Because of this, marketers often highlight the joy of shopping in ads. They also design packages in ways that make customers want to buy, just because the design looks fun or attractive [38]. On the other hand, utilitarian motivation (UM) is more practical. It's about weighing the pros and cons of a product. People with UM think logically and make decisions based on goals [42, 43].

Related work

Past research on gamification design frameworks has led to several helpful guidelines that point out key steps for creating effective gamified systems. For example, DiTomasso (2011) shared a "framework of success" made up of seven steps [44]. He stressed that designers need to think carefully about what users want, what the company's goals are, and what motivates the users.

Kappen and Nacke (2013) introduced the Kaleidoscope of Successful Gamification, which focused on motivating players by supporting their independence, skill, and connection with others [45].

Other studies [3, 13, 46] also suggested key actions for good gamification design. These include picking the right game elements, making prototypes, studying user behavior, setting clear goals, and ensuring good implementation and maintenance of the system.

Even though these design frameworks offer strong guidance, many still don't fully explain how gamification design connects to the practical or "utilitarian" needs of a system. There's still a gap in showing how and why gamification works in real-world projects.

Morschheuser *et al*. (2017) proposed a detailed seven-step design method, which followed a clear step-by-step process [47]. Their main focus was to first understand what motivates the users and what the project goals are.

Meanwhile, Li (2018) argued that when it's not clear how motivation connects to project goals, designers should start by looking at the overall project vision and its scope [48].

Liu *et al*. (2011) introduced the gamification loop idea [49]. Their method focused on creating challenges and rewards, such as leaderboards, points, and badges for completing sub-goals. They also pointed out the importance of having a game-like interface and making changes to how users interact socially and within networks.

Later research began to focus more on the social aspects of gamification. Kim (2011) looked at gamification from a game designer's point of view [50]. She said that things like badges, points, and leaderboards are just feedback tools and not enough by themselves to create a great experience. She believed that real motivation comes from giving users a sense of mastery, independence, and purpose.

She also emphasized how important it is to understand users—what they prefer socially, their skill levels, how they engage, and how they move through the design. One of the main takeaways from this research was that game features should be created to match each user's unique profile.

Contribution to gamification design

Research on defining gamification design has significantly contributed to the evolution of the concept. Werbach and Hunter (2012) introduced the foundational idea of gamification and identified its core components as mechanics, dynamics, and elements [3]. They proposed a six-step design process that involves defining business objectives, identifying target behaviors, understanding the players, designing engaging activity cycles, applying relevant game elements, and implementing suitable technologies.

Similarly, Kumar (2013) introduced a gamification approach known as Player-Centered Design, which also follows a structured process [51]. This approach begins with identifying the users and the mission, followed by understanding human motivation, applying appropriate game mechanics, and finally measuring and monitoring the results. Kumar emphasized the importance of maintaining legal and ethical standards, developing template user personas, and using widely recognized game mechanics to ensure effective engagement.

In addition, Robinson and Bellotti (2013) developed a comprehensive taxonomy that outlines various gamification features, recommending their use based on the anticipated level of player engagement [52]. This approach aligns with the findings of

Marache-Francisco and Brangier (2013a), who supported a structured categorization of gamification elements to guide design decisions [53].

Research framework

This study adopts the framework developed by ElShoubashy *et al*. (2020b), which offers an integrated model for evaluating customer experience and its impact on brand engagement within the context of gamification [54]. The framework connects three key domains—information systems, psychology, and marketing—and assesses each through relevant variables that influence user behavior and engagement. This multidisciplinary approach provides a holistic understanding of how gamification strategies can enhance brand interactions and customer experiences **(Figure 1)**.

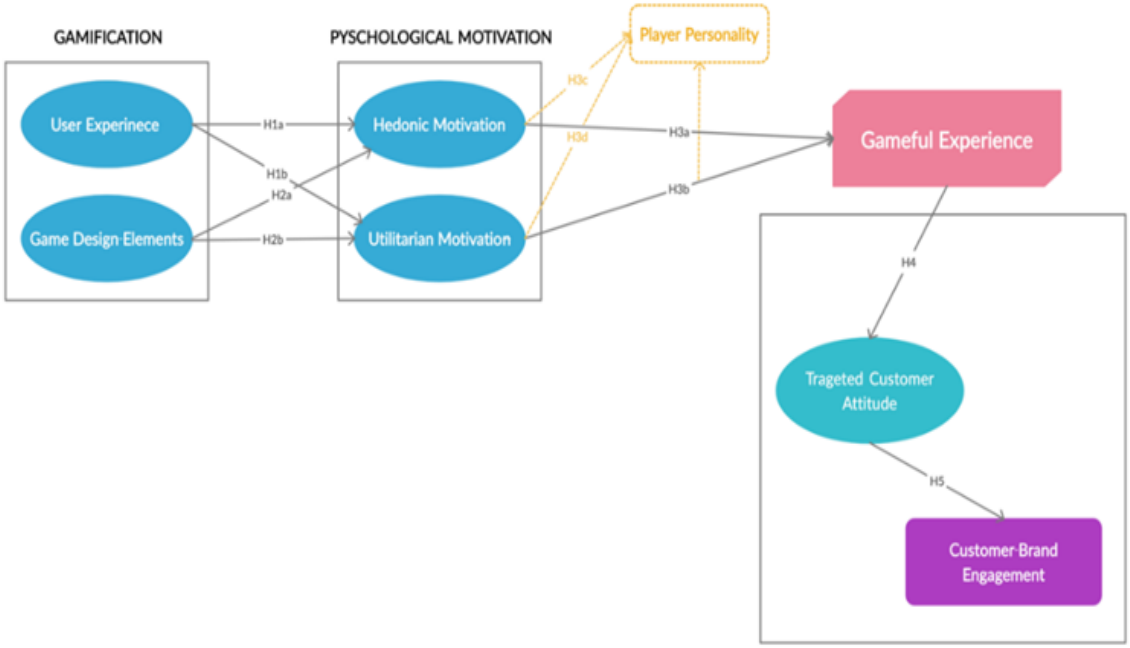

Figure 1. Proposed Framework

Research hypotheses

The hypotheses proposed in this study are grounded in the gamification framework, which evaluates the influence of gamification on customer brand engagement by exploring the relationship between gamification elements, psychological motivations, and their collective impact on the game-like experience.

It is hypothesized that user experience has a positive influence on both hedonic and utilitarian motivations (H1a, H1b). Furthermore, it is posited that game elements positively affect both hedonic motivation (H2a) and utilitarian motivation (H2b). The model also anticipates that hedonic and utilitarian motivations significantly contribute to shaping the gameful experience (H3a, H3b), and that the player's personality traits ultimately regulate both hedonic (H3c) and utilitarian motivations (H3d). In addition, it is expected that the gameful experience has a favorable impact on the customer's attitude (H4), and that positive customer attitudes, in turn, enhance consumer brand engagement (H5).

Materials and Methods

To examine the impact of gamification on brand engagement, a prototype based on user experience (UX) design and incorporating various game elements was developed. The prototype took the form of a website for online hamburger sales in Egypt. It integrated a variety of gamification features, including badges, a points system, competitions, goals, achievements, leaderboards, awards, and team functionalities.

Users interacted directly with the gamified system through a structured yet flexible interface. The program was divided into four tasks, allowing participants to freely choose their starting point. Each task offered further challenges or informational content presented in a visually engaging format, aimed at enhancing user involvement and motivation.

Participants were recruited using probability sampling methods, primarily via email and social media platforms. The online survey was distributed over a three-month period from July 1 to September 30, 2020.

Procedure

Data were collected from Egyptian participants who completed a 15-minute online survey hosted on Google Forms. To accommodate native Arabic speakers who may face challenges with English, the survey was provided in both Arabic and English. The survey consisted of 123 questions designed to assess the participants' psychological states and responses within a gamified e-commerce environment. The questions were structured around a gamification system tailored to measure the interaction between user motivation, gamified experiences, and brand engagement outcomes.

Data analysis results

The data analysis was based on responses collected through a structured questionnaire comprising two main sections. The first section captured the participants' demographic information, while the second section assessed key psychological and behavioral characteristics using a five-point Likert scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The questionnaire design drew on validated measures from previous studies [32, 55–63].

A total of 428 participants completed the entire questionnaire and engaged in the full sequence of gamified tasks. **Table 1** provides a summary of the participants' demographic characteristics. Of the total sample, 244 participants (57.01%) identified as female, while 184 (42.99%) were male. The age distribution of the sample was as follows: 59.81% were aged between 20 and 30 years, 29.01% were between 31 and 40 years, 8.41% were aged 41 to 50, and 1.87% were 50 years or older.

Table 1. Demographics 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			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 or more	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 or less	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 or more	32	7.48

a = unemployed implies student, retired, housewife etc.

Measurement

Likert scales with a 5-point range were used to measure all of the variables. All operationalizations of psychometric concepts were derived from already available materials.

Validity and reliability

The package plspm of the statistical software program and language platform R (v4.0.3) was used for the model evaluation and analysis [64]. Partial Least Squares Path Modeling is known as plspm. It is a method for statistical data analysis that incorporates multiple table analysis, structural equation modeling, and regression models. The PLS approach to structural equation modeling is typically referred to as plspm (SEM). A different community covariance-based structural equation method (CB-SEM), which is dependent on distributional assumptions, exists in place of PLS-SEM. PLS-SEM is better suited for research that is prediction-oriented, while CB-SEM is better suited for model selection for the data [65]. We employed bootstrapping to learn more about the variability of the parameter estimates despite the fact that PLS-PM is a non-parametric approach. The former strategy is used in the plspm package's main function, plspm, to offer a way of validating results. Using a product indicator technique, we investigated the moderating influence.

Since our dataset contains no missing data points, further analysis in this study does not call for imputation. Average variance extracted (AVE), Cronbach's alpha (Alpha), and Dillon-Rho Goldstein's were reported to evaluate convergent validity. When compared to the variation caused by measurement error, AVE evaluates how much variance a construct collects from its items. A construct's items must be highly correlated to be unidirectional, and Cronbach's alpha (alpha) assesses the intra-variable correlation between items. The difference in the contract's total number of elements is the subject of Dillon-Rho. Goldstein's According to Nunnally (1978), the typical cutoff values for Cronbach's alpha (Alpha), Goldstein's rho, and AVE are all more than 0.7 [66, 67]. The fact that the measure typically exceeds the cutoff point shows that the study model's convergent validity was confirmed.

The square root of an AVE and its accompanying connection with other constructs were evaluated to measure discriminative variability **(Table 2)**. According to Chin (1998) and Jöreskog and Sörbom (1996), the square root of AVE for a given construct should be greater than the correlation between it and other constructs. Moreover, no construct had an inter-correlation that was larger than 0.9 [68–70]. In the end, the researcher concluded that each item's loading for its related construct should be higher than that of the others. All of the measuring techniques previously mentioned enable the model's discriminant validity and reliability.

A path model must at least have three indicators on each construct and 150 observations to be considered complete. The minimal sample size for a route model, according to some studies, is ten times the largest number of structural paths that are directed at a single latent construct in the structural model or ten times the largest number of formative elements for a construct [71, 72].

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**

Results and Discussion

Model predictive power and explained variance

The coefficient of determination (R^2) was used to evaluate the overall effect size and the proportion of variance explained by the endogenous constructs in the path model, serving as an indicator of the model's predictive accuracy. The model revealed that 49.9% of the variance in the gameful experience was explained by perceived psychological motivation **(Figure 2)**. Furthermore, 54.2% of the variance in the targeted customer attitude toward brand engagement was accounted for by the model.

Most notably, the inner model R^2 for customer brand engagement was 0.760, indicating that 76% of the variance in customer brand engagement was explained by the targeted customer attitude. This substantial value suggests that targeted consumer attitude plays a critical role in predicting customer brand engagement and confirms the strong explanatory power of the proposed model.

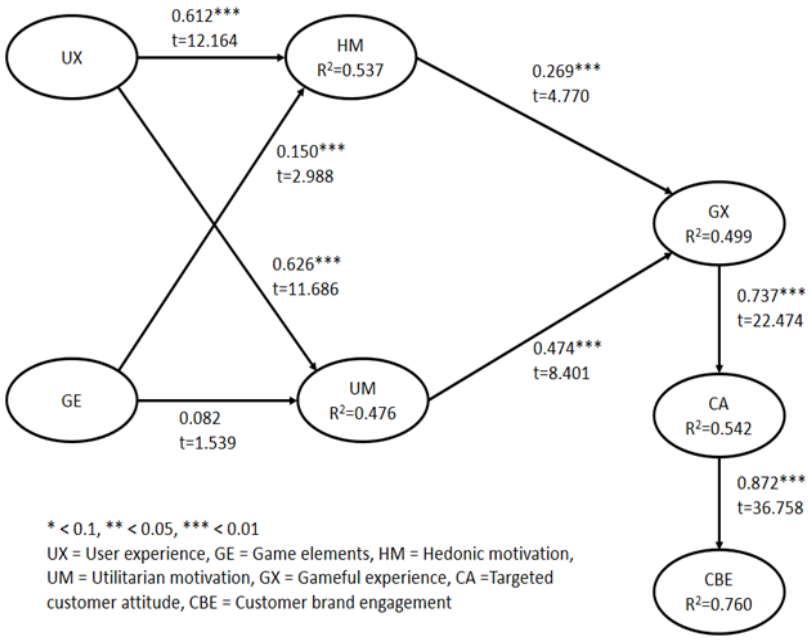

Figure 2. Path Model with Direct Effect (Model)

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. Confirmation of Hypotheses

H#	IV → DV	Hypothesis	Supported
H1a	UX → HM	User Experience have a positive effect on Hedonic Motivation	Yes
H1b	UX → UM	User Experience have a positive effect on Utilitarian Motivation	Yes
H2a	GE → HM	Game Elements have a positive effect on Hedonic Motivation	Yes
H2b	GE → UM	Game Elements have a positive effect on Utilitarian Motivation	No
H3a	HM → GX	Hedonic Motivation has a positive effect on Gameful Experience	Yes
H3b	UM → GX	Utilitarian Motivation has a positive effect on Gameful Experience	Yes
H3c	HM×PP → GX	Player Personality will eventually moderates the Hedonic motivation on Gameful Experience	Yes
H3d	UM×PP → GX	Player Personality will eventually moderates the Utilitarian motivation on Gameful Experience	Yes
H4	GX → CA	Gameful Experience has a positive effect on the targeted customer attitude	Yes
H5	CA → CBE	Targeted customer attitude has a positive effect on Brand Engagement	Yes

In line with the proposed hypotheses, the researcher tested a mediation model to examine how *player personality* serves as a moderator. This moderation influences the relationship between both hedonic and utilitarian motivations and the overall gameful experience (related to H3c and H3d). Beyond these indirect effects, direct effects were also considered.

Findings indicate that both hedonic and utilitarian motivations significantly shape the gameful experience, and their influence is moderated by the player's personality. The moderation effects—0.328 for hedonic and 0.132 for utilitarian—were statistically significant and positive. Notably, the moderation did not diminish the strength of the direct effects; both remained robust and meaningful. This revised model (Model 2) therefore supports hypotheses H3c and H3d. However, the inclusion of player personality only slightly improved the model's ability to explain variation in gameful experience, increasing R^2 by just 0.152.

To expand the model further, the researcher also assessed whether player personality directly affects enjoyment derived from gamified interaction (Model 3). This effect, though positive and significant (0.166), resulted in only a small R^2 increase of 0.021 for gameful experience (GX). While player personality didn't greatly boost the explanation of GX, it did significantly increase the explained variance in customer attitude (CA) by 0.249. This aligns with the idea that personality traits often align with personal attitudes. Interestingly, including player personality reduced the explained variance in customer brand engagement (CBE) by 0.044, suggesting its direct role may only be relevant for attitudes, not for all aspects of engagement.

A full summary of tested hypotheses is presented in **Table 3**.

Theoretical implications

This research combined an experimental approach with a post-experience survey completed by 428 participants. Data was analyzed using R software, particularly through PLS-SEM (Partial Least Squares Structural Equation Modeling), which allowed detailed testing of the proposed framework and its hypotheses. Results demonstrated meaningful relationships between the variables and highlighted additional indirect connections not originally anticipated—these emerged as statistically strong within the model.

Compared to an earlier pilot study involving 60 participants analyzed using SmartPLS, this study revealed different relational strengths and patterns—suggesting that both the sample size and analytic tool (R) influenced the outcomes [22].

Huotari and Hamari (2017) took a user-centered view of gamification, describing it as the process of creating environments that support gameful experiences, aiming to boost users' perception of value [73]. Their framework emphasizes that the user's role is central to gamification, rather than the tools or features themselves. According to their view, three elements drive gamification: the user's gameful experience, the systems or affordances that support it, and the resulting value creation. Motivational affordances in this context refer to mechanisms intentionally designed to trigger user motivation and influence psychological engagement [74].

While gamification introduces various design elements to influence user behavior, it's important to note that users engage with these stimuli by choice, not subconsciously [73, 75]. In a 2014 study, Insley and Nunan explored gamification from the consumer's standpoint and found that individuals on online platforms naturally engage in game-like behaviors [76]. These include trying to outperform others in securing better deals, actively communicating with fellow users, or interacting directly with the brand—often without any deliberate triggers from platform design.

Such behaviors are described as contributing to a "gameful experience," which emerges organically through user participation [73]. Berger *et al*. (2018) drew on the theory of flow to explain the sense of immersion and focused engagement that users often feel during gamified activities, particularly when these experiences strike a balance between challenge and skill [77].

"Value realization" in gamification refers to the personal meaning or outcomes that customers derive by assembling the tools and features offered by a business to craft a unique and purposeful experience [73, 76]. According to Hammedi *et al*. (2017), gamified environments can produce both benefits and drawbacks for participants. Still, gamification ultimately adapts to facilitate customer interaction, acting as a mechanism to strengthen engagement with brands, communities, processes, or activities [75, 78].

Although extensive literature has explored gameful experiences and several measurement tools have been developed, there remains a research gap concerning how these experiences directly influence consumer attitudes in commercial settings [79–84]. Previous studies primarily examined users already immersed in gameful environments, often overlooking the psychological drivers behind such experiences.

This study addresses that gap by empirically demonstrating the link between psychological motivation and gameful experience, while also highlighting the significant moderating role of player personality. Not only did personality traits influence how users perceived the game-like aspects, but they also had a positive and meaningful impact on the consumers' attitudes.

Practical implications

The proposed framework was built around a gamified application and aimed to unify three important domains: user experience design, the strategic use of game mechanics, and psychological motivation as a driver for engagement.

The data analysis supported this integrated model, showing that all studied variables were positively and directly related to each other. Specifically, user experiences influenced by both hedonic (pleasure-seeking) and utilitarian (goal-oriented) motivations played a crucial role in shaping overall user engagement.

Although psychological motivation showed a positive link with both user experience and game elements, its association was stronger with the user experience component. Additionally, a player personality assessment was integrated into the experimental design to explore personalization within the system. The objective was to evaluate whether player personality moderates the relationship between hedonic and utilitarian motivations and the resulting gameful experience.

Following this, the model was applied to assess whether a gameful experience could influence how consumers perceive a brand, ultimately encouraging greater brand engagement. These findings align with prior work by Tondello *et al*. (2016; 2017) and Carreño (2018), who implemented the Hexad framework to develop tailored gamification strategies [59, 85, 86]. However, there remains a noticeable gap in the literature regarding empirical validation of such personalization efforts.

Interestingly, in this study, player personality—positioned as a moderating factor in the interaction between hedonic/utilitarian motivations and gameful experience—demonstrated a clear and positive relationship with both motivation types. This finding suggests that future models might benefit from treating player personality as an independent predictor rather than solely a moderator.

Conclusion

The findings highlight that both user experience and game mechanics positively influence hedonic and utilitarian motivation. However, user experience emerged as the more impactful factor compared to game-specific features. Moreover, player personality appears to serve as an important enhancer of motivation, particularly by shaping how users derive enjoyment from the gamified context.

Ultimately, the study confirms that gameful experiences positively shape consumer attitudes toward brands, promoting deeper brand engagement. One of the most notable outcomes is the direct role of player personality in influencing gameful experiences. Even though its statistical impact may appear modest, its practical influence on shaping customer perceptions and emotional engagement is substantial, reinforcing the importance of personalization in gamified systems.

Research contribution

This study offers several noteworthy contributions. First, it bridges the interdisciplinary gap between information systems, psychology, and marketing by emphasizing the psychological dimensions of consumer behavior in gamified environments. By doing so, it presents a framework conducive to fostering dynamic market engagement. Second, the research addresses the influence of gamification on brand engagement, highlighting its dual potential to enhance user motivation and interaction. A core contribution lies in the development of a comprehensive gamified model designed to evaluate the interplay among three key variables and their collective impact on brand engagement—an approach that advances existing literature in a holistic manner.

Limitations

Despite its contributions, the study is subject to several limitations. The data collection relied heavily on online self-report surveys, attracting participants who were already highly engaged with the gamified platform. As responses were solicited via social media through voluntary participation, the sample may not adequately represent less active users. Consequently, the findings might reflect perceptions and intentions biased toward more active participants, overlooking the experience of passive users—a gap that future research should seek to close.

Additionally, the extensive nature of the questionnaire, driven by the need to assess multiple variables in the model, may have led to participant fatigue and survey abandonment, affecting response rates. The quantitative design, while valuable for statistical generalizations, inherently simplifies complex user experiences by producing reductionist outcomes. This limitation suggests the need for qualitative approaches—such as interviews or focus groups—to provide more granular insights into user perceptions of specific game mechanics.

Another limitation stems from the context-specific nature of the gamified platform, "Adouz Burger." The study observed that users preferred challenges and reward-based mechanics over competitive or team-based interactions. This tendency may have skewed the overall perception of the gamification experience and should be considered when generalizing the results to broader contexts.

Future work

Gamification has witnessed significant growth over the past decade and continues to offer rich potential for academic inquiry. Future research can build upon this work in several ways. First, the motivational and engagement-enhancing capacities of gamification can be leveraged more systematically within educational contexts, opening new pathways for applied use. Second, a more detailed and fine-grained analysis of each game component—particularly through granular data—could help clarify the nuanced impact of the proposed framework on individual motivation and player personality, areas that remain underexplored in the literature.

Third, the social dimension of gamification deserves greater attention, particularly in understanding how interpersonal dynamics influence the player's personality and engagement. The relationship between game mechanics and personal traits in customized gamification systems is an especially compelling avenue for future study. Finally, it is essential to further investigate how gamification can subtly shape consumer behavior toward brands, with the potential to foster subconscious emotional connections between customers and specific products or services. This would strengthen the theoretical foundation for using gamification as a strategic tool in brand development and consumer loyalty.

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