EMPIRICAL STUDY ON GAMIFICATION EFFECT ON BRAND ENGAGEMENT

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ABSTRACT

Gamification is the use of game design elements in non-gaming contexts has gained popularity in the last decade. It is a technology used in stimulating the consumers' psychological motivations towards a service, activity, product or a brand in the business world. Different frameworks have been proposed, with design elements carrying unique characteristics, have been described as motivating attitude. However, rarity in empirical evidence answering the people drive to use gamification in the marketing field still represents a gap in the literature. This study is proposing a comprehensive gamified framework specially developed for assessing the effect of gamification on brand engagement according to UX designs using different game elements. Materials and an experiment was conducted, where the participants performed the tasks and activities within the gamified framework. Data was collected through a comprehensive survey answered by the customer's after performing the experiment. The data included the evaluation of the relationship between the user experience and the game elements and their effect on utilitarian and hedonic motivations. Holistic evaluation of the whole gameful experience and its influence on customer attitude in regards to more brand enhanced engagement was further assessed. The results of this study revealed a positive relationship, with statistically highly significant correlation between the proposed framework and the studied variables, in conjunction with player personality as an important moderating factor. Accordingly, it was concluded that customer attitude towards a brand can be affected during a gameful experience and will eventually result in positive active enhanced brand engagement.

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

INTRODUCTION

The word "gamification" originally appeared in the early 2000s (Marczewski, 2013a). Since its inception, it has skyrocketed in popularity among researchers, reaching a zenith of interest at the start of the most recent decade, the 2010s (Deterding *et al.*, 2011a; Werbach & Hunter, 2012). Gamification, as a concept, is centered on linking the intrinsic motivational power of video games with non-game contexts and settings through the usage of its transferrable design components (Deterding *et al.*, 2011a). Then, many gamified applications heavily infiltrated a variety of industries, including business, marketing, health, and education. However, despite gamification's widespread adoption, no one, stated definition was approved or even

acknowledged (Deterding *et al.*, 2011b; Werbach & Hunter, 2012; Seaborn & Fels, 2015; Sailer *et al.*, 2017).

The cornerstone of creating gaming in non-game contexts was the idea of utilizing the inspiration and emotional fervor that come with playing video games and their related entertainment (Deterding *et al.*, 2011a; Zichermann & Cunningham, 2011). Since numerous platforms have been created by various companies where a game element has been implemented, gamification has become a pervasive widespread media in industry as a result of the steady growth of millions of hours spent playing video games regardless of age, gender, and even culture (Interactive Software Federation of Europe, 2017; Yang *et al.*, 2017). Several educational websites, like Codeacademy, Q&A platforms, Waze, Stack Overflow, and a navigation app, have incorporated gamification models. A good example of this is the fitness app (Whitson, 2013), which allows users to easily complete tasks while tracking and even monitoring their lifestyles with high compatibility. Gamification has also become a key component of Quantified Self (QS) traditional systems (Lupton, 2016). Some mobile applications replicated design game aspects from other network systems and metagaming to increase user interaction (Deterding *et al.*, 2011a; Nacke & Deterding, 2017).

Thus, the primary goal of this research is to evaluate the effectiveness of gamification as a psychological motivator in the market by enhancing the customer's Gameful Experience and stimulating the player's personality, which will ultimately change the customer's attitude and behavior toward better brand engagement.

Research Problem

The goal of gamification should be to leverage psychological motivators to create and improve a better gaming experience for consumers, which will eventually improve customer attitudes and inspire increased engagement with certain companies.

Research Questions

a. Would gamification, when used in the market and based on the personality of the client, function as a psychological motivator boosting their Gameful Experience?
b. Would their attitude toward improved brand involvement be influenced by this stimulating Gameful Experience?

Gamification Most Popular Frameworks

Aparicio *et al.* (2012) have suggested and developed a framework based on the self-determination theory, with a focus on conceptual consideration of autonomy as a personal will towards action and achievements, aptitude and competence, and shared social connection (Ryan & Deci, 2000a). Four sections made up the pertinent structure. In the first section, which explains the highlighted goals for utilizing gamification, the main aim and objective are identified. The second aspect has to do with determining the transversal objective, which refers to the intrinsically motivating elements that are consciously offered and delivered by the system. In relation to the self-determination notions, it also entails defining and identifying the associated game mechanics within the gamified system. The fourth and final section, meanwhile, focuses on how to assess frameworks inside applied systems. Regrettably, this framework has never been used, and work is still being done on improving future case studies and analytical techniques.

Blohm & Leimeister produced and established a variety of studies and sources in 2013 that are geared toward suggesting a service-based gamification strategy. Based on desired practice objectives and a gamification layer built on game design features, these bundles of gamified services are integrated into a basic subscription. In order to achieve the desired behavioral change and update and restate the activities and objectives, such as learning, this paradigm justifies the recruitment of both intrinsic and extrinsic motivators through gamification.

From a different angle, Nicholson (2012) suggested a user-centered approach and implied a significant gamification. This suggests that gamification is based on intrinsic motivation rather than extrinsic incentive since the latter has been shown to have different negative impacts, one of which would eventually cause the intrinsic motivation to decrease (Deci *et al.*, 2001). As a result, the author outlined many key hypotheses that can be used to predict an improved gamified strategy for a fundamentally meaningful interaction. The "Organismic integration theory," which is considered to be a sub-theory of the self-determination theory, is one of these theories. According to this idea, the external and internal control mechanisms facilitate a range of purposeful motivational continuums. It starts off as a lack of purposeful motivational interest, progresses through various levels of internal or external motivation, and finally ends with an ultimate internal controlled or autonomous self-directed intrinsic motivation (Ryan & Deci, 2000b). Consequently, this theory specifically implies that meaningful game elements must be inwardly motivated, independent of any pertinent external reward. The situational relevance, on the other hand, forces the user to base decisions on what they regard as important. A comprehensive knowledge of the linked context is essential since situational affordance and its associated motivational effect are largely dependent on a match between the gamified setup and the user's background.

These controversies forced the development of a universal design for investigative studies on the best way to provide experiences for different variable ranges of users in three ways: a variety of content presentation, mastery through the delivery of a large number of activities, and through multilinear learning paths. In a final attempt to prove his argument, he asserted that any user-centered design places the player at the center of the experiment and draws inspiration for the design from them.

In an analogous setting, Sakamoto *et al.* (2012) proposed a gamification framework with the primary goal of supporting and tying to intrinsic motivation. This framework was built on its significance for the designers. There are five values in this framework: information obtained by the swift and essential collection of the required information; focused on social interaction and generated virtual characters, empathic values; persuasive values imply a clear kind of information that indicates a future perspective based on the behaviors, behavioral patterns, and results of the present; Ideological values, specifically defined as beliefs and attitudes absolutely maintained through narrative stories and other communication layouts, are different from economic values, which are tied to ownership and gathering. This framework is not entirely independent; rather, it is a supplement to the other mechanics-based frameworks already in use. Several frameworks and concepts within gamification, psychological motivations, gameful experience, consumer attitude, and brand engagement were given in-depth in a thorough literature analysis (ElShoubashy *et al.*, 2020a).

Motivation

Motivation is described as the psychological process that leads to and sustains goal-oriented action (Schunk *et al.*, 2010). In 2012, Nicholson said that gamification is heavily dependent on motivation due to its innate tendency to motivate people (Xu, 2012). One intrinsic and one extrinsic element are clearly the two essential pillars on which motivation is built. Extrinsic motivation focuses on completing a task with distinct expected results, whereas intrinsic drive is mostly centered on cheerfully completing an activity (Ryan & Deci, 2000b). While creating gamified services or applications, it is crucial to recognize and distinguish between the two types of motivation. Since extrinsic incentive may not always have a lasting impact on gamification, recent gamified services and applications are focused on and taking extrinsic motivation into consideration (Sudan, 2013; Koivisto & Hamari, 2014).

In 2011, McGonigal proposed classifying rewards into four broad categories: First, fulfilling work, ensuring that the effort put forth is recognized; second, experience or hope of success; third, social connection through sharing ideas and performing tasks; and fourth, reward of being a part of something greater than oneself in a challenge to accomplish a collaborative goal.

In 2002, Locke and Latham developed the "goal-setting theory," which supports the propensity to attain and maintain goal-directed activities under particular circumstances: Establishing precise, challenging, and highly valuable goals; comprehending necessary behaviors, to successfully achieve the specified goal. Earlier, in 1994, Elliot and Harackiewicz proposed this integrative goal attainment principle, characterizing goals as: Mastery, which focuses on increasing the user's competence to master the activity; performance-based strategy with the intention of skillfully arriving at a favorable judgment; Performance avoidance, which aims to prevent negative evaluations of competences (Neeli, 2015).

Six main approaches that focus on various aspects of motivation for gamification—without necessarily contradicting one another—are involved (Astleitner, 2000). Behaviorist learning perspective, where motivation is a cumulative experience of prior positive and negative results, consisting of prior stimulus-response bonds; Trait perspective, which presents general needs and classes of motives as individual characteristics evoking motivation, relatively stable in context and time; Sailer *et al.*, 2013; According to the cognitive approach, motivation is the outcome of means-ends analysis. Goals in particular contexts, their relationship to user behavior, expectations of the eventual repercussions, and their subjective value play a vital role in cognitive motivation theories (Heckhausen & Heckhausen, 2008). It's important to note that mastery and performance orientations can be distinguished from one another because the former relates to self-determined goals that promote intrinsic motivation and learning, whereas the latter is focused on exceeding particular peer criteria (Schunk *et al.*, 2010; Sailer *et al.*, 2013) The self-determination theory's psychological demands, which include autonomy, social relatedness, and competence, are founded on a perspective on self-determination that refers to social-contextual circumstances (Ryan & Deci, 2000a). By meeting these demands, intrinsic motivation—defined as the propensity and desire to complete a particular difficult task—is encouraged (Deci & Ryan 1985; Deci & Ryan, 2000; Sailer *et al.*, 2013). Interest-based perspective, which is subject-specific and takes into account personal interests and preferences as a cognitive and affective variable, improves interaction with the environment. Deep involvement in the work leads to the development of flow (Csikszentmihalyi *et al.*, 2005; Sailer *et al.*, 2013); a perspective on emotion that emphasizes how the teaching tactics in the games

have an impact on how emotions interact with motivational and cognitive processes (Astleitner 2000; Sailer *et al.*, 2013).

Whereas motives are responding behavior to a particular stimuli, incentives are inborn, involuntary responses. Blythe categorizes the following reasons for improving users' marketing efforts in 1997: primary drivers, the impetus to purchase a class of products; secondary motivations, the justifications for buying a particular good; logical assessments and reasoning on the part of the consumer, and rational motivations; conscious motives pertaining to how a consumer feels about a brand; Dormant motivations, which exist below the level of conscious activity.

In a nutshell, motives are described as the intention of achieving or attending to a particular requirement. The need is described by marketers as the individual realizing they are lacking something. Customers' motivational factors are broken down into personality traits such as caution, adventure, shyness, lonerdom, and friendliness; lifestyle factors such as concerns and interests; likes and dislikes; past experiences; weaknesses or strengths related to wealth, health, and reaction to boredom; civil status; income; and customer expectations (Vinerean, 2013).

The general tenet of HM is related to Gray's theory of personality, which holds that there are two main systems that control human behavior: the behavioral activation system, which is sensitive to rewards, and the behavioral inhibition system, which is sensitive to punishment. These two systems ultimately aim to maximize rewarding actions and minimize painful or punitive experiences. According to Kim-Prieto *et al.* in 2005, pleasure and good emotions are what drive HM most of the time. In a more complex explanation, Kahneman said in 1999 that the essence of hedonism is drawn from the experience of good vs bad, where motivation towards starting a positive or rewarding activity takes place despite their immediate unpleasant experience (for example, going to the dentist) (Kaczmarek, 2017).

Hedonistic values are individualized and irrational, and they are attained through having pleasure and being entertained when purchasing. As a result, making a purchase is a result of the shopping trip rather than the other way around. Advertising benefits from these hedonic aspects in its promotional stage by highlighting the pleasurable experience the consumer has while purchasing the product. Hedonic attributes are particularly added to the design stage, such as a by-product of the package design, and would stimulate the customer to buy the products (Vinerean, 2013).

Whereas utilitarian motivation (UM) is described as an assessment of the functional costs and gains and includes higher levels of cognitive attitude (Overby & Lee, 2006; Hsu & Chen, 2018a). The actions of UM customers are typically logical and goal-oriented.

Player Personality

The development of the "Types Hexad Framework," which presented a detailed standardized scale with particular elements to score the player's preferences, was empirically validated by Marczewski (2015) and Tondello *et al.* (2016). No established user type or player motivation, on the other hand, has been created to guarantee the quick and easy building of a customized gamification experience based on the players' choices. As a result, these researchers proposed a table of game design elements that was organized according to each user type and developed on the basis of a correlation analysis. This study's conclusion demonstrated the validity of the Hexad User Types as a true measure or model of chosen desired design elements. They derived their

conclusions from the results of an online questionnaire with two main goals: the first examined the relationship between the participants and the Big Five personality traits (Goldberg, 1990); the second assessed the relationship between each of the Hexad User Types and the game components. From the perspective of this typology, they were considered to represent two separate users. Jia *et al.* (2016) performed a similar study in which the motivational components of the gamification design, such as badges, progress, points, rewards, feedback, levels, etc., were evaluated in relation to the player's personality preferences and features. The majority of gamification apps, in the authors' opinion, use a variety of diverse permutations and mixtures of motivational affordances, but they are not intended for a specific use. They concentrated on employing a version of the Big Five model for personality traits in their study (Goldberg, 1990). Their methodology was based on a Big Five personality evaluation test that was initially offered to 248 individuals. Then, with the use of demonstration movies, their judgment of ten game design aspects intended to motivate players was assessed. Study demonstrated a relationship between the motivational affordances and the game design features. Nevertheless, it was stated that no relevant empirical work, cited in the literature, was reported regarding the motivational effect in relation to the various ways that the game elements and its design were implemented, in consideration of the population diversity and not related to the standard viewpoint of the player types. This is despite the limitations associated with the sample size that were reported in the literature.

Gameful Experience

Researchers have proposed a variety of definitions for gamification, including being a gameful experience in non-game contexts (Deterding *et al.*, 2011b), using the term "game like experience" (Robson *et al.*, 2014; Robson *et al.*, 2015; Hammedi *et al.*, 2017), defining it as a technical process of stimulating the application of a game in non-game context (Landers, 2014; Huotari & Hamari, 2017). In conclusion, gamification describes the gameful experience as a feeling the user experiences even when they are not actively playing a game (Domínguez *et al.*, 2013; Robson *et al.*, 2016). A gameful experience, according to a thorough definition provided by Eppmann *et al.* in 2018, is one that one has while using a gamified application.

The interactive user experience, whose primary feature is integrating the game's rules and structures, limits the resources the customer can use to accomplish a task, which has the drawback of making task completion unclear (Huotari & Hamari, 2017). This ambiguity causes a stressful scenario, Anselme, which increases the customer's motivation to use available resources and create appropriate behaviors and actions aimed at managing the circumstance and reducing the tension, which ultimately favors delight and pleasure (Anselme, 2010; McGonigal, 2011; Costikyan, 2013; Berger *et al.*, 2018; Hammedi *et al.*, 2019). Each player's experience with the game is different, and when engaging in peer competition or cooperation, players develop social bonds. Yet, the influence of the game's design—its structures, rules, and mechanisms—relates to the experiences of the players (Robson *et al.*, 2015; Huotari & Hamari, 2017). Research on gameplay has been conducted in both traditional and video games as well as in non-gaming contexts such as marketing, where customers encounter and experience the

unpredictability of dealing with businesses, technologies, and even peers (Zichermann & Linder, 2013; Hammedi *et al.*, 2019).

Related Work

The previous gamification design framework research have resulted in a compilation of guidelines that identify specific actions as being essential to a successful gamification design. In a similar vein, DiTomasso (2011) presented "a framework of success" for gamification design that consisted of seven steps. In his concept, he emphasized that the designers must carefully consider the needs of the clients, the company's objectives, and any relevant motivational factors. The Kaleidoscope of Successful Gamification by Kappen and Nacke (2013) emphasized the value of incentivizing player behavior with independence, aptitude, and relatedness.

A number of crucial important actions were suggested in similar studies on gamification design frameworks (Aparicio *et al.*, 2012; Werbach & Hunter, 2012; Marczewski, 2013b). These many tasks included selecting the game pieces, prototyping, behavior study, objective analysis, implementation, and maintenance.

Although the provided design framework guidelines were carefully considered throughout the design process, there is still only a limited commitment to addressing the related concerns, such as the relationship between the utilitarian requirements of the systems and the gamification design through articulating how and why?

Morschheuser *et al.* design.'s method (2017) created a seven-step method that established a waterfall-like procedure in accordance with this idea. Finding the user motivation and the project objectives was the main emphasis of their studies.

On the other hand, Li (2018) emphasized that the goal analysis should concentrate on the level of project vision and scope if the specification of the relationship between the motivation and objectives is still ambiguous.

Liu *et al.* are the authors of the gamification loop concept (2011). They revealed a design method in which they established a challenge paired with winning criteria, such as a leaderboard, point system, or prizes connected to related sub-goal accomplishments like badges. The need for a "game-like" interface and the alteration of the player's social and network standing were further stressed by the authors.

The literature has since documented the expansion of the social element's consideration in gamification design. In this context, Kim (2011) explained gamification from the perspective of the game designer. She argued that include badges, leaderboards, and points in the gamification framework are merely feedback components and are therefore insufficient to produce the optimal gaming experience. She continued by saying that the intrinsic motivation component must be incorporated into game design in the form of mastery, autonomy, and purpose. Consequently, it is crucial to comprehend the social preferences, skill levels, engagement patterns, and design loops of the users. A derived conclusion that followed focused on building game elements in line with the unique user profiles.

As a result, published work on the definition of gamification design has contributed to the development of this notion. Werback and Hunter (2012) presented the idea of gamification and proposed a list of gamification components, including mechanics, dynamics, and components. The gamification design is broken down into six basic steps: "defining of the business objectives; detailing the targeted behaviors; depicting the players; devising the activity cycles; without

missing the enjoyment and deploying the necessary technologies". A "Player Centered Design" with five steps was described by Kumar (2013) as their gamification strategy. Identify your user, identify the mission, understand human motivation, apply mechanics, achieve, measure, and monitor. By still retaining the legal and ethical constraints, they defined the template Persona and the commonly utilized game mechanics. Robinson and Bellotti (2013) also offered a thorough taxonomy outlining the many features of gamification that should be used depending on the amount of expected player commitment (Marache-Francisco & Brangier, 2013a).

Research Framework

This study is based on a framework developed by ElShoubashy *et al.* in 2020b. It was a thorough framework that assessed the customer experience and its impact on brand engagement in the gamification area, linking between three key components: information systems, psychology, and marketing. Each is evaluated in light of the relevant variables **(Figure 1)**.
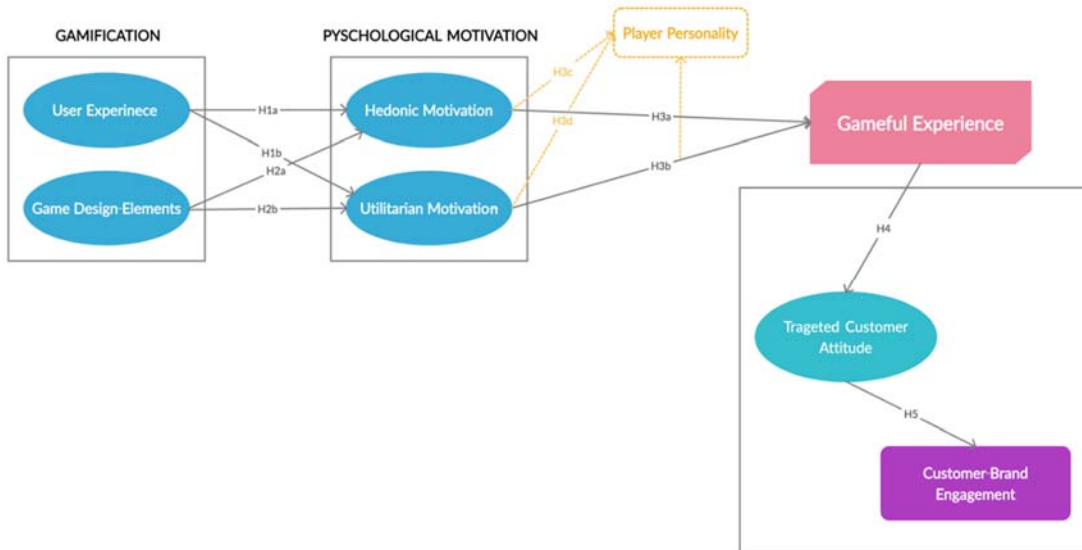

Figure 1. Proposed Framework

Research Hypotheses

The proposed hypotheses in this study were based on the proposed gamification framework, which assesses the impact of gamification on customer brand engagement by examining the links between gamification factors, psychological motivations, and their impact on the game-like experience.

H1a: Hedonic Motivation is positively impacted by user experience.
H1b: User Experience influences utilitarian motivation in a favorable way
H2a: Game elements influence hedonic motivation favorably.
H2b: Gaming elements have an impact on utilitarian motivation in a good way.
H3a: Hedonic Motivation influences gameful experience in a favorable way.
H3b: Utilitarian motivation influences gameful experience favorably.
H3c: The player's personality will eventually control the game's hedonic motivation.
H3d: The player's personality will eventually control the game's utilitarian motivation.

H4: The gameful experience affects the targeted customer's attitude favorably.
H5: Consumer Brand Engagement is positively impacted by targeted customer attitudes.

MATERIALS AND METHODS

According to UX designs that make use of various game components, a prototype was created specifically for testing the impact of gamification on brand engagement. The prototype was developed as a website for the online sale of hamburgers in Egypt. Badges, a point system, competition, goals, achievements, leaderboards, awards, and teams were among the game components employed in the prototype.

Each customer interacts directly with the gamified system by adhering to a specific setup when using the website. The program was split up into 4 tasks, giving users the freedom to choose where they wish to start. Also, each challenge had additional challenges or information presented in a visually appealing manner.

Using emails and social media, probability sampling has been used to primarily recruit participants. From July 1 to September 30, 2020, a three-month period was used to distribute the online survey.

Procedure

Egyptian individuals who completed a 15-minute online survey using Google Forms provided the data. To maximize the participation of native Arabic speakers who have trouble using English, it was translated into both Arabic and English. Using 123 questions and a gamification system in an e-commerce setting, the survey design focused on the participants' psychological condition.

Data Analysis Results

The examined data was based on a questionnaire with two sections: the first portion evaluated the participant's demographic information, and the second part tested the following characteristics using a five-point Likert scale with 1 being "strongly disagree," and 5 being "strongly agree" (Gentile *et al.*, 2007; Antin & Churchill, 2011; Fitz-Walter *et al.*, 2011; Sheng & Teo, 2012; Sailer *et al.*, 2013; Tondello *et al.*, 2016; Xu & Zhi, 2017; Nanjari Wyss, 2019; Toda *et al.*, 2019; Upshall, 2020).

428 participants in total participated in the study, completing all the questionnaire questions and playing the full set of playing exercises. **Table 1** summarizes their descriptive demographic information, showing the gender distribution, with 244 individuals being female (57.01%) and 184 participants being male (42.99%). Their age distribution was uneven, with 59.81%, 29.01%, 8.41%, and 1.87% of them being, respectively, 20–30, 31–40, 41–50, and 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 (Sanchez, 2013). 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 co-variance-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 are prediction-oriented, while CB-SEM is better suited for model selection for the data (Chin *et al.*, 2003). 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 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 the Cronbach's alpha (Alpha), Goldstein's rho, and AVE are all more than 0.7 (Fornell & Larcker, 1981). 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 (Pavlou *et al.*, 2007). In the end, the researcher came to the conclusion 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 (Chin & Newsted, 1999; Hair *et al.*, 2011).

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

The overall effect size and variation explained in the endogenous construct for the path model are determined by the coefficient of determination, which is a measure of the model's predictive accuracy. The variation of the gameful experience toward the targeted consumer attitude was 49.9% explained by the perceived psychological motivation **(Figure 2)**. Moreover, 54.2% of the desired customer attitude about band engagement is accounted for by the model. Also, the inner route model for the endogenous latent construct of client brand engagement was 0.760. This shows that the targeted consumer attitude substantially explains 76% of the variance in the customer brand engagement, which means that in the model, the targeted customer attitude components were responsible for around 76% of the change in the customer brand engagement.
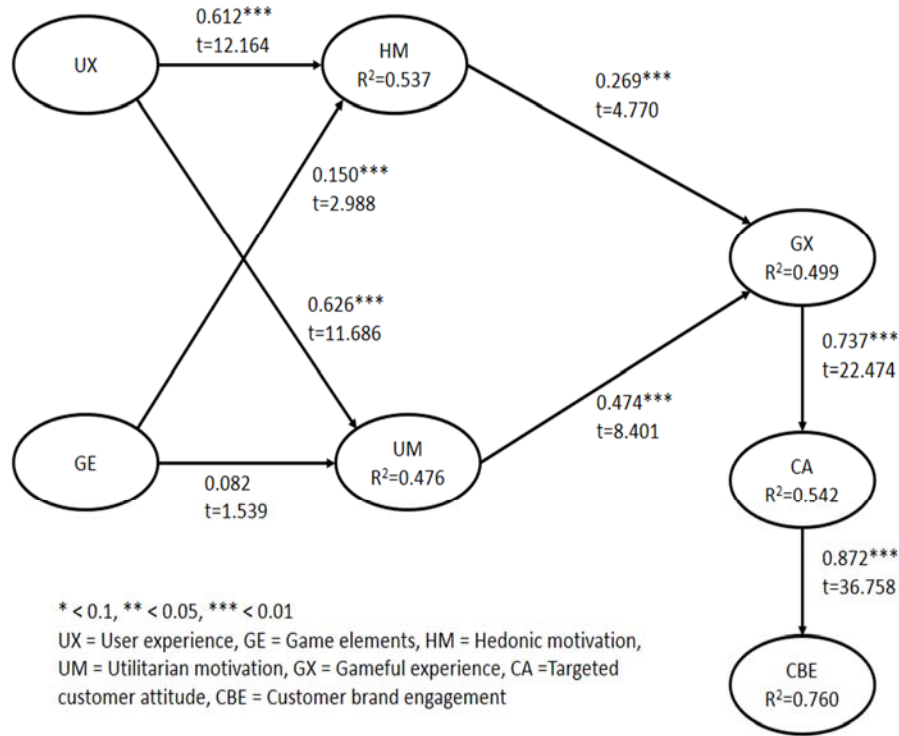
Figure 2. Path model with direct effect (model)

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. 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 |

According to the research hypotheses, the researcher modelled a mediated effect by the player personality in the model to investigate the moderating effect caused by moderator variable "player personality," which influences the effect between hedonic motivation and gameful experience as well as utilitarian motivation and gameful experience (H3c and H3d), in addition to the direct effect.

Hedonic drive and utilitarian motivation, therefore, both have a direct impact on the gaming experience and are moderated by player personality. Both the moderating effects of hedonic motivation (0.328***) and utilitarian motivation (0.132***), are favorable and statistically significant. Thus the moderating effect on gameful experience does not modify the direct effects of both dimensions, which are still statistically significant and positive. As a result, the new model (model-2) supports both H3c and H3d. On the other hand, player personality had a minimal impact on physiological incentive to engage in gaming (R2 of GX increased by 0.152).

In addition to the research model's hypotheses, the researcher also took player personality into account when analyzing the effects of gaming on enjoyment (model-3). The researcher discovered a favorable and statistically significant effect (0.166 ***).

Despite the fact that player personality has a positive direct influence, the R2 of GX is only marginally increased by 0.021. Furthermore, the direct effect of player personality did not significantly increase R2 of GX but rather increased R2 of CA by 0.249, which was expected given that there should be a strong correlation between attitudes and personalities and, as a result, gameful experience was in some way moderated by player personality. Also, the model's R2 for CBE was reduced by 0.044% when the direct effect of player personality was included. As a result, the direct influence of player personality only has a significant impact on the targeted customer's attitude and not others, which raises the possibility that the model may be vulnerable to the direct effect. For a summary of the hypotheses, see **Table 3**.

Theoretical Implications

An experiment was used in this study, followed by a survey that N=428 participants completed. The R tool, which has the ability to do data mining, was used to analyze the data. The PLS-SEM model was utilized in the statistical model to assess the framework and its hypotheses. The findings demonstrated that the proposed framework in this study has a variety of beneficial correlations between its variables and their effects. The R tool, however, made other indirect linkages in the model show and they turned out to be very strong.

The key difference between these results and a prior identical pilot study with n=60 individuals was that the data were analyzed using SmartPLS, which produced different associations in the model ElShoubashy *et al.* (2020b).

By defining gamification as "a process of establishing a facility with affordances for gameful experience, in order to sustain the users' overall value perception," Huotari and Hamari (2017) used a consumer-centered approach. As a result, the experience that gamification struggles to give may be influenced by more than just concrete factors, favoring consumer activities and behaviors. According to this perspective, the key players in the gamified process are the customers. Three aspects of gamification are categorized in this definition: the gameful experience, affordances, and value realization. The concept of gamification's motivational

affordance considers its configurations and systems, which are designed with the goal of inciting users' motivational needs and upsetting their psychological states and methods (Hamari, 2013). Yet, clients cooperate with the stimuli voluntarily rather than unconsciously (Huotari & Hamari, 2017; Hammedi *et al.*, 2019). By testing gamification from the perspective of the customer in 2014, Insley and Nunan discovered that customers on an online platform exhibit game-like behaviors, such as competing to get better items or deals than other customers, interacting with other customers, or interacting with the business, individually of elements related to the design of the technology. Customers who interact with gamified scenarios have an experience that is naturally compelling, known as a "gameful experience" (Huotari & Hamari, 2017). In order to explain the absorption and immersion that customers feel when taking part in a gamified activity marked by a high level of engagement and the right amount of challenge, Berger *et al.* (2018) activated the theory of flow. Value realization refers to the likely consequences brought about by gamification when customers combine the pieces provided by the businesses to create their own experience and point it in the direction of a focal point (Insley & Nunan, 2014; Huotari & Hamari, 2017). According to Hammedi *et al.* (2017), gamification may bring players benefits as well as disadvantages. In this way, gamification flexes to include consumer interaction and the mechanism to foster engagement with envisioned objects like communities, brands, activities, or processes (Hammedi *et al.*, 2019).

Despite the abundance of work that has been documented and the development of multiple scales, there is a gap in the literature about the measurement of the impact of the gameful experience on customer attitude in the market (IJsselsteijn *et al.*, 2008; Jennett *et al.*, 2008; Brockmyer *et al.*, 2009; Liu & Santhanam, 2015; Eppmann *et al.*, 2018; Högberg *et al.*, 2019). They focused their analyses on those who had gameful experiences. However, this work was able to avoid this pitfalls by providing an answer that was backed by evidence about the relationship between psychological motives and game-like experience, which was further mitigated by the addition of the player personality effect.

However, the player personality, which was a moderating component in the framework, demonstrated a favorable and significant impact on the gaming experience, as well as a positive and significant impact on consumer attitude.

Practical Implications

The study's framework, which was based on a gamified application, aimed to bridge three fields of study: a design based on user experience, the selection of the necessary game features, and lastly the use of psychological motivation to improve game-like experiences.

The current model's analysis of the data showed that all the variables under study had positive, direct associations with a particular variable that was related to the impact of the user's experience with both hedonic and utilitarian motivations. Although there was a favorable association with psychological motivation, it was more pronounced with user experience than with game aspects.

Also, a player personality exam was undertaken as a moderating variable in an experiment to make the system more individualized. In order to determine whether player personality has a moderating effect on hedonic and utilitarian incentives on the gaming experience, the hypotheses were tested. The framework was then used to examine if a gameful experience may

alter a customer's perception of a brand, leading to more brand engagement. This was consistent with (Tondello *et al.*, 2016; Tondello *et al.*, 2017; Carreño, 2018), who based their model on customized gamified frameworks using the Hexad framework, although the literature review was lacking in this field. It is important to note that the assigned player personality, which served as a moderating variable in the current study's framework on the HM and UM effect on the gameful experience, revealed a direct and positive correlation between the two variables. The employment of player personality as an autonomous rather than a moderating component would be encouraged as a result.

CONCLUSION

According to the current findings, user experience and game aspects both had favorable effects on HM and UM, although the impact of game elements was shown to be less significant than that of user experience. A further tool is the player's personality and how it enhances motivation by mediating its connection to the fun of the game.

In conclusion, a game-like experience has a good impact on a customer's perception of a brand and eventually leads to more active brand involvement. Another significant finding of the study is that the gameful experience is directly influenced by the player personality, which is a more customized system and was used as a moderating impact. Although it only seems to have a small impact, it has a big effect on how customers feel.

Research Contribution

The primary contributions of this research can be summed up as follows: Secondly, by concentrating on how information systems, psychology, and marketing relate to one another without ignoring the critical function of their psychological impact on the consumer, a good market dynamic environment may be produced. This study investigated the impact of gamification on brand engagement because it has the inherent capacity to boost both motivation and engagement. The invention of a thorough gamified framework, which aimed to evaluate the interactions between three separate variables and their combined effect on brand engagement, was the second major contribution of this study.

Limitations

Since the current study was based on online surveys, which resulted in self-reported and self-selected respondents, its findings rely on the active, largely engaged users of the service supplied. Since the data collection process was related to the games and activities reached through sharing the experiment link on social media, followed by an invitation to respond to the questionnaire, the results may be limited to intentions and perception of the actual higher active users, while disregarding the less active players. Future work should seriously manage and address this. In addition, the questionnaire's length was a result of the increasing number of framework-incorporated variables that needed to be experimentally evaluated. The anticipated number of respondents stopped taking the survey as a result.

Also, a characteristic of quantitative investigations that leads to a generic picture of the topic under investigation while omitting the specifics of atomized game components is the reductionist results. In order to accurately reflect each individual's understanding and impression of each element, switching to interviews or focus groups in the future may favor the independent

granular evaluation. Another restriction unique to the "Adouz Burger" food gamification service reflects user preferences and interactions. By favoring challenges and rewards above the formation of teams and competitions, this could have an impact on users' preferences for activities, which would ultimately detract from the overall gaming experience.

Future Work

The last ten years have seen a significant increase in popularity for the concept of gamification, which is a rich area of research. This work has led to active development in several areas, including: Second, thorough data analysis emphasizing precisely measuring the impact of each element through granular data evaluation would enrich the paucity in literature specifically concerning the effect of this framework on the player's personality and its anticipated outcome on motivation. First, benefiting from the advantage of gamification in motivation and engagement will eventually promote the use of this framework in the field of education. Third, future research should place more emphasis on the social component and how it affects the player's personality. In investigating more individualized gamification systems, it is more interesting to observe the relationship that develops between the game aspects and the player personality. Last but not least, it is important to support the impact of gamification on changing consumer behavior toward a brand to increase the likelihood of developing a subliminal relationship between customers and particular products or services.

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