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How Can Gamified Applications Drive Engagement and Brand Attitude? The Case of Nike Run Club Application

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Abstract: This research aims to analyze the feasibility of gamified applications as a tool to promote engagement and brand attitude. To accomplish this, this research was developed using a quantitative methodology. A confirmatory factor analysis (CFA) was performed and the model hypotheses were tested by a structural equation modeling (SEM). A questionnaire was applied to Portuguese consumers who use the "Nike Run Club" application, from which 203 valid responses were received. The results confirm the influence of social circles and their impact on the intention to interact with the brand. For theoretical contributions, this research contributes to the existing literature and academic knowledge in the areas of marketing and gamification, providing a suggestion for the TAM model to be used in this type of research. It also contributes to a better understanding of the relationship between gamification and marketing, demonstrating that the use of gamified applications as engagement tools can have a positive impact on the brand attitude. On the practical side, it contributes as a consultation tool for brands, application designers, and marketers when defining engagement strategies, allowing a better understanding of the factors that may or may not influence the public's relationship with the brands and what dynamics they should use in the development of new Gamified marketing solutions.

Keywords: gamification; engagement; companies; brand attitude; marketing; mobile apps; COVID-19

1. Introduction

According to Kotler et al. (2019), the 1990s marked a significant change in the way marketing was handled. Marketing strategies begin to change their emphasis and redirect the focus to the relationship developed between customers and brands. With such change, new campaigns and services were devoted to create and maintain customer–brand engagement emerged (Harmeling et al. 2017).

Supported by the technological boom felt in the 1990s, it was possible to observe a significant investment in new technologies to promote marketing. The internet became a vehicle of communication between brands and customers, but games also orientated its direction. According to Zichermann and Cunningham (2011), the individuals born between 1981 and 2010 (also known as Millennials and Gen Zers) had an intrinsic predisposition to coexist with a technological environment and interact with each other through it. This interaction may occur through social networks; games; forums; and many others.

Initially associated with the game side, the concept of gamification was introduced at the beginning of the 21st century. This concept consists of "the use of elements used in the creation of games applied to non-game contexts" (Deterding et al. 2011).

The average activity with games for individuals born between 1990 and 2010 is estimated to be 16 h a week (Zichermann and Cunningham 2011). A game's ability to capture the attention of individuals for a long period has not been unnoticed by the marketing strategies of many companies and proof of this is in the investment growth in the promotion of "gamified" content, accounting for an increase of more than 10% per year, expecting to reach $30 billion by 2025 (Alsawaier 2018; MarketsandMarkets 2020; Seiffert-Brockmann et al. 2018).

Once the games 'ability to effectively retain the players' attention is validated, it becomes interesting to associate this context with the theme of customer engagement in a digital component. Therefore, it is necessary to prove whether the combination of the two translates into a gain in brand attitude (Alsawaier 2018; Kamboj et al. 2020).

Many companies are already promoting an engagement with stakeholders in a digital aspect (a good example can be found in Lego's portal with the "LegoIdeas"); however, with the difficulties imposed nowadays, the importance of maintaining and increasing this type of relationship has been increasing and this has occurred since companies do not act as closed systems anymore. Consequently, companies recognize the need to engage with the entire community that surrounds them (Greenwood 2007; Karpen and Conduit 2020; Yang et al. 2017).

Engagement can be defined as the practices that an organization develops to positively involve stakeholders with the company's activities (Bowden 2009). Thus, marketing recognizes that engagement is a concept too broad to be studied with reliability and it is necessary to observe its subclasses and identify the aspects most focused on customer engagement. In this research, these aspects can be found in "customer engagement" (Hollebeek et al. 2014), since one of the objectives is to observe a sample of individuals who have already experienced contact with the brand through its digital application, or will eventually do so (Yang et al. 2017).

It being widely known that customer engagement positively contributes to the success of marketing activities (Moliner et al. 2018), when looking at its digital aspect, it seems that there is literature that points out the need for further research on the reliability and how it should be developed (Moliner et al. 2018; Thakur 2019). The same can be said about gamification, with its advantages supported by some literature (Alsawaier 2018; Hamari et al. 2014; Huseynov and Dhahak 2020). A research gap continues to exist when the need arises to validate whether the use of gamified applications as tools for engagement and brand attitude effectively represent a gain for organizations and consumers (Kamboj et al. 2020).

The literature demonstrates an existing interest in the study of gamification combined with marketing (Yang et al. 2017), aiming to prove the legitimacy of gamification as a digital engagement tool to establish a positive correlation between perceived enjoyment and perceived usefulness with the engagement and brand attitude. Nonetheless, it fails to establish the same correlation between social influence and perceived ease of use.

Huseynov and Dhahak (2020) also refer to the use of the Technology Acceptance Model (TAM) to quantify the influence that gamification can have on the attitude and purchase intention of digital consumers and managed to establish that social influence, perceived usefulness, and perceived enjoyment actively influence brand attitude and engagement. The Technology Acceptance Model (TAM) was introduced by Davis (1989) as a tool used to investigate the adoption of new technologies, offering important information in the intention to use a new technology as well as the type of attitude that it promotes. This type of study can be applied to various sectors, as we will see in Section 2.1, and has been adapted by other authors in the investigation of themes related to gamification, being altered according to the theme under study (Mattar and Czeszak 2017; Richter et al. 2015; Vanduhe et al. 2020).

Much of the available literature on this topic predates 2020 events such as the COVID-19 pandemic. The reality and challenges presented by the emergence of the new virus, especially the need for isolation and reduction of physical contact, led us to reinforce the need for organizations to explore digital solutions related to their consumers. Consequently, it strengthened the importance of finding viable solutions for engagement and brand attitude (Karpen and Conduit 2020).

When discerning the literature, an opportunity arises to deepen the scientific discussion regarding the viability and applicability of the concept of gamified engagement and brand attitude in markets similar to the Portuguese one. In this sense, this research aims to prove the reliability of gamified applications as tools of engagement and brand attitude, using quantitative analysis, supported by an adaptation of the TAM model applied to the observation of user's experience using a gamified digital application (Nike Run Club) in the Portuguese territory, which, according to the Portuguese Family Business Association (2019), presents market characteristics that are different from the rest of Europe, it being a peripheral economy with disparities in indicators such as average wages and education levels, amongst others. Important to this research is the fact that, according to the Statista portal (2020), the average level of engagement created by social networks in Portugal (2%) is lower than the average of 4% recorded in central Europe. This level can be justified by the fact that the digital appetite of citizens is also lower than the EU average since only 79% of the population has access to the internet and 23% of the same population has never had contact with a digital medium (National Statistics Institute 2019).

Thus, using the Nike Run Club application as a case study, this study begins with the following research question: can gamified applications be considered viable tools for promoting brand engagement and attitude?

This research is organized as follows: Section 1 presents an introduction to the theme; in Section 2 a literature review is performed as well as the formulation of hypotheses. Section 3 introduces the methodology used, the questionnaire structure, and the sample description. Section 4 exhibits the results compared with the literature and its discussion. Finally, Section 5 presents the conclusions, research limitations, and future lines of investigation.

2. Literature Review and Formulated Hypothesis

Currently, some literature associates gamification with the connection that customers develop with companies. However, most of the authors point out the existence of a void that acknowledges the need for further research (Chen et al. 2016; Kuo and Chuang 2016).

The existence of such a void in knowledge about gamification, combined with engagement and brand attitude, points to a literature gap, which leads to the following initial question: "Through an adaptation of the TAM model, are we able to prove that gamification in digital platforms represents a valid tool for users and organizations, capable of promoting engagement with the Portuguese consumer and directly affecting the brand attitude?".

2.1. Technology Acceptance Model

The emergence of the Technology Acceptance Model (TAM) results from the necessity to prove or predict a possible degree of user acceptance when faced with a new technology (Davis 1989). To this purpose, the author used the dimensions of "perceived ease-of-use" and "perceived usefulness" to obtain a clear image of the user's intention to develop a relationship with the technology in question (Deterding et al. 2011).

The "perceived ease-of-use" (PEU) allows us to observe the initial acceptance and continued use of a certain technology (Davis 1989), and denotes a critical factor in the adoption process (Lin et al. 2007). This aspect is still studied today, helping to understand the factors that lead the user to accept a new technology (Mutambara and Bayaga 2020).

"Perceived usefulness" (PU) is identified as the most important aspect in the TAM model, since it acts as the main indicator of the user's intention to use new technology

(Davis 1989), and reflects the degree of utility that the new technology represents for the user in his view.

Recent investigations indicate that both "perceived usefulness" and "perceived ease-of-use" play a mediating role that influences not only the consumer's intention to use the technology but also impacts its behavior before and after its use (Deterding et al. 2011).

The use of the TAM model investigates the adoption of new technologies and has been applied to diverse sectors, such as financial (Zhou et al. 2018); tourism (Peng et al. 2012); education (Sharma and Pal 2020); health (Djamasbi et al. 2009); and manufacturing (Hernandez et al. 2008). Therefore, it provides the versatility of the tool and its high adaptability (Hassan et al. 2019).

2.2. Gamification as a Tool for Engagement and Brand Attitude

Investigating gamification without addressing motivation and engagement is increasingly complicated since these concepts are interconnected and progressively developed (Alsawaier 2018).

On the other hand, the study of the relationship developed between gamification and brand attitude is in a more embryonic stage. This does not mean that the impact of gamification on brand attitude is a recent subject, but that it has been studied as a topic recently (Huseynov and Dhahak 2020). The timeline that many point out as the first time the term 'gamification' was used is in 2002 during a presentation conducted by Nick Pelling on a theme related to computer software (Mora et al. 2015). Gamification was later defined by Deterding et al. (2011) as the use of game mechanics and tools in non-game contexts.

When gamification is used in commercial contexts, it usually aims to afford more fun to the consumer experience and contribute directly and indirectly to the marketing of a product, but also playing a facilitating role aiming at customer loyalty (Huotari and Hamari 2017). In the interaction with the user, the organization which created the gamified tool employs several strategies and elements such as the "PBL Triade" (points; badges and leaderboards) (Werbach and Hunter 2015); "Intrinsic Motivation and Flow" (Rheinberg and Engeser 2018); and Player segmentation (Bovermann and Bastiaens 2020). Consequently, it seeks to develop an experience that can contribute to the user's engagement with the brand.

When examining the available literature on engagement, we found that the term has a wide scope; as such, it is necessary to deepen the research into a more specific aspect of customer engagement (Kotler et al. 2019). Therefore, it is key to look for a clearer image of the relationship developed between the consumer and the brand (Thakur 2019).

Customer engagement can be defined as how brands connect with consumers at a given time or over long-term relationships (Lee et al. 2017; Paul and Bhakar 2018; Vivek et al. 2012). This is not only oriented to the physical and face-to-face interactions that envisage a disruption trend, but is increasingly oriented towards the adoption of digital tools disregarding face-to-face interations and equipped with artificial intelligence (Chen and Aklikokou 2020; Normalini 2019).

The COVID-19 pandemic created uncertainty and economic pressure and acted as a driver for many businesses to evolve how they were approaching their consumers (Karpen and Conduit 2020). This forced numerous companies to digitize most of their services, promoting online contact points, migrating customers to digital channels, and significantly increasing their presence on social media (Jiang and Wen 2020).

In this context, the brand attitude reflects the most emotional aspect of the consumer towards the brand (Vahdat et al. 2020). The brand attitude acts as a barometer of consumer satisfaction with a brand, product, or service (Lee et al. 2017). This indicator is very important since it allows the brand to understand the intentions of its potential consumers concerning its products or services. Thus, it reflects which products respond to the needs of consumers; what level of performance is recognized by the consumer; and the level of utility and value of the product (Mitchell and Olson 1981).

Previous studies prove the existence of a connection between attitude and behavior (Chen and Aklikokou 2020; Normalini 2019; Subramanian 1994), indicating that brand attitude can influence brand behavior (Spears and Singh 2004). This reinforces the need for the brand not only to understand the kind of attitude consumers have, but mainly how they can positively influence such an attitude (Paul and Bhakar 2018).

In a recent study developed by one of the leading companies in the commercial analysis market, it was uncovered that the digital aspect tends to increasingly impact on the relationship that the consumer develops with the brand (Salesforce Research 2019).

In this sense, it is important to have a quantifiable idea of the level of acceptance of users when exposed to a new digital tool. This leads us to the next topic.

2.3. Perceived Usefulness and Perceived Ease of Use

Perceived usefulness (PU) and perceived ease of use (PEOU) are two of the master pillars when analyzing the level of acceptance that the user has towards a technology (Davis 1989).

The PU points out the degree that the user assigns to the utility that a given technology plays in their daily lives, thus allowing users to perceive its performance level (Chen and Aklikokou 2020; Normalini 2019; Subramanian 1994). In this research, this indicator reflects to which extent the use of a gamified application can influence the intention to use or purchase the brand's products.

In the case of PEOU, it exposes the ease of interaction with the new technology, not only in the initial moment, but also over time (Gede and Permana 2019; McNab and Hess 2007; Subramanian 1994).

In the present research, the authors tried to understand how the easiness of use of a gamified application can influence the feeling that the user develops towards the brand. Being thus, the following hypotheses were formulated:

Hypothesis 1 (H1). *Perceived usefulness affects positively brand attitude.*

Hypothesis 2 (H2). *Perceived ease of use affects positively brand attitude.*

2.4. Perceived Social Influence, Perceived Enjoyment, and Intention of Engagement

Although mentioned as a valid tool by several researchers, recent studies argue about possible improvements in the quality and reliability of the TAM model, defending that the dimensions should always be adapted according to the subject under study, consequently managing to direct the model more effectively to the subject under analysis (He et al. 2018; Silva 2007).

Several authors acknowledge that social influence can have a direct action not only on an individual's intention to use new technology, but also on the fun deriving from it (Cho and Son 2019; Nawaz et al. 2017). Individuals tend to assume a certain behavior if one or more individuals belonging to the same group commonly understand it (Weitzner and Deutsch 2015).

Observing this relationship is especially important nowadays when we are facing a significant increase in the use of social media. In turn, there is a substantial growth in online groups where members share the same goals and values (Bruhn et al. 2012; Studen and Tiberius 2020; Tench and Jones 2015).

Currently, most gamification actions tend to take place in a virtual environment with the direct use of social media (Alsawaier 2018; Tegtmeier et al. 2013). In this sense, social pressure will likely be able to actively influence the individual's interest in the use of a gamified application. Social influence is often seen as a powerful tool to change behaviors and ideas (Cook et al. 2009; Goodpastor and Montoya 1996).

Usually, individuals tend to demonstrate behaviors and values based on the group they are in or want to be associated with (Ruangkanjanases et al. 2020). These groups

where the individual is or wants to be can be constituted of friends, family, co-workers, famous individuals, and others.

When we relate the viability of social influence with the concept of gamification, we uncover that games have a strong component of competition and cooperation, thus establishing the relationship of the individual to other groups and creating conditions for influence to occur between them (Huseynov and Dhahak 2020; Mitchell et al. 2017; Nobre and Ferreira 2017).

In brief, the concatenation of these two factors when transported to the commercial environment can impact the manner in how an individual is related to a brand. Taking this into account, the following hypotheses were formulated:

Hypothesis 3 (H3). *Perceived social influence affects positively on the brand attitude.*

Hypothesis 4 (H4). *Perceived social influence affects positively on the intention of engagement.*

2.5. Attitude towards the Use of a Gamified Application

The attitude towards the use (ATU), is strongly influenced by PU and PEOU and is regarded as one of the main indicators of a user's willingness to use an application (Davis 1993; Šebjan et al. 2016; Teo 2011).

Since we can not affirm that gamification generates consensus on whether it is a viable or adaptable tool to all markets and sectors (Hamari et al. 2014; Hussain et al. 2018), understanding how users view themselves is crucial to measure the possible success of a gamified initiative.

Previous studies point to the success of gamification on the motivation of users to continue to be involved in the process (Alsawaier 2018; Ghazali et al. 2019; Kuo and Chuang 2016). In this case, gamification can play an identical role by contributing to the interest of users to try the application and continue to use it. Consequently, believing that gamification can directly impact the user's predisposition to participate in the action and, therefore, influence its outcome. Considering this, the following hypothesis was formulated:

Hypothesis 5 (H5). *Intention of engagement affects positively brand attitude.*

2.6. Player Motivations and Gamification Performance

Finally, two new dimensions were added (Player motivations; Gamification performance) to the model that we have adapted (Yang et al. 2017).

Having previously verified that customer engagement can be influenced by several factors (Kotler et al. 2019), it was also confirmed that this is usually analyzed in a downward way (company to consumer) (Bowden 2009; Hollebeek et al. 2014).

Nevertheless, we understand that nowadays it is the consumer who often takes the initiative to engage with the brand (Payne et al. 2009). Therefore, it is equally important to listen to the phenomenon of customer engagement in an upward direction (consumer to the company) and attend to the reasons that lead the customer to interact with the brand. Believing that the motivations that lead consumers to interact can also influence their intention to get involved in the engagement with brands, the following hypothesis is proposed:

Hypothesis 6 (H6). *Player motivations affect positively the intention of engagement.*

The second new dimension (gamification performance) focuses on the performance of the gamified application and its relationship with the consumer's attitude towards the brand.

According to the literature previously analyzed (Lee et al. 2017; Vahdat et al. 2020), the brand attitude has a strong emotional component in the consumer; previous studies also point to a connection between attitude and behavior (Spears and Singh 2004). We believe

that it is equally important to assess the existence of a link between the attitude and the performance of a gamified application; this being so, we formulate the last hypothesis:

Hypothesis 7 (H7). *Gamification performance affects positively on brand attitude.*

In summary, the literature review results in the elaboration of seven different hypotheses, five derived from previous studies and two dedicated to the present study, as can be seen in Table 1.

Table 1. Hypothesis and authors.

Hypothesis	Authors
H1	Subramanian (1994); Normalini (2019); Chen and Aklikokou (2020)
H2	Subramanian (1994); McNab and Hess (2007); Gede and Permana (2019)
H3	Silva (2007); Weitzner and Deutsch (2015); Nawaz et al. (2017); Cho and Son (2019)
H4	Alsawaier (2018); Ruangkanjanases et al. (2020); Huseynov and Dhahak (2020)
H5	Davis (1993); Šebjan et al. (2016); Alsawaier (2018); Ghazali et al. (2019)
H6	Yang et al. (2017); Bowden (2009); Payne et al. (2009); Hollebeek et al. (2014)
H7	Spears and Singh (2004); Lee et al. (2017); Vahdat et al. (2020)

3. Methodology

This research was developed using a quantitative methodology. The adoption of a quantitative method, instead of a qualitative one, is because the qualitative analysis is more related to the construction of theories and the quantitative one more oriented to test the theory (Newman and Benz 1999). Since the study that served as the initial basis had a strong qualitative component (Yang et al. 2017), at a later stage it was needed to quantify and analyze all possible scenarios using a numerical representation and to obtain quantifiable data that can be analyzed using statistical techniques and illustrate a valid and real image of the observed hypothesis (Larsson 1993).

Consequently, this research observed the interaction that users developed with the Nike brand through its gamified application, "Nike Run Club". The ease of use of a new technological tool is crucial to ensure its adoption and continuous use (Yang et al. 2017); hence, we recourse to the adaptation of a previously used methodology (TAM) to perceive the level of acceptance perceived by the users of the application (Zichermann and Cunningham 2011).

The choice of the Nike Run Club application for this research was due to the fact that it belongs to a globally recognized brand, but also because the application has been developed in such a way that it can be used to motivate users to engage in physical activity that is not exclusively focused on selling the brand's products and thus envisaging the gamification principles. The Nike Run Club app acts as a personal trainer which motivates users to overcome goals, using challenges and rewards to recompense the effort and motivate continued involvement.

Furthermore, the application allows the achievement of the objective of our research by measuring the level of acceptance of the gamified application in the Portuguese public and checking whether this type of marketing strategy can be considered valid in a peripheral country with digital acceptance rates lower than the rest of the European Union (National Statistics Institute 2019).

Since we do not have a complete list of the individuals belonging to the population, a non-probabilistic convenience sample was used (Acharya et al. 2013; Etikan 2016). Thus, the sample under analysis includes individuals (aged over 18 years) who used or had already used the application and agreed to fill the questionnaire to share their experience, thus contributing to increase the viability of the collected data (Zichermann and Cunningham 2011).

Taking advantage that the application addresses a sports theme publicized online, the questionnaire used to collect primary data was submitted online from June to December

2020, on a website specialized in the practice of physical activity (www.strava.com). Additionally, two digital platforms were used (Facebook and Instagram). At the beginning of the questionnaire, the following question was asked: Have you used the Nike Run Club application? Only if the answer was positive could the respondents continue to reply to the questionnaire. Therefore, it was ensured that the sample only included experts/users of the application.

3.1. Questionnaire

The questions used in the questionnaires were adapted from a study previously developed by Yang et al. (2017) and completed with new research constructs validated by Zichermann and Cunningham (2011). The necessary adaptation and expansion of the previously developed questionnaires guarantee an up-to-date questionnaire in line with the current literature. Before disseminating the questionnaire, a pre-test was carried out to eliminate possible errors, therefore allowing its further validation.

In this context, a questionnaire with 32 closed questions was prepared. The questionnaire was divided into two distinct segments; the first (25 questions) aims to collect data related to the use of the application and the relationship with the brand, while the second (seven questions) is oriented to collect information regarding the player profile. The questions were grouped according to the corresponding measurement item, which can be consulted in Table 2 (Yang et al. 2017).

Table 2. Set of applied questions.

Type	Questions
A (Sample characterization)	Q1; Q2; Q3; Q4
B (Perceived usefulness)	Q5; Q6; Q7
C (Perceived ease of use)	Q8; Q9; Q10
D (Perceived Social Influence)	Q11; Q12; Q13
E (Intention of Engagement)	Q14; Q15; Q16
F (Brand attitude)	Q17; Q18; Q19; Q20; Q21; Q22; Q23
G (Player motivations)	Q24; Q25; Q26
H (Gamification performance)	Q27; Q28; Q29; Q30; Q31; Q32

3.2. Data Analysis

Data collection was performed between June and December 2020 and was continuously publicized to increase the number of responses by users of the application.

After this period, the collected data were gathered and filtered. For data processing, Microsoft Excel (with statistical analysis additives), in parallel with SPSS software and AMOS 22.0, were used.

Throughout the research, different types of analysis were used. An initial phase used descriptive statistics to summarize and describe the sample, allowing a better understanding of the data (Janes 1999).

Next, we performed both an exploratory (EFA) and confirmatory factor (CFA) by the maximum likelihood estimation method and Hair et al.'s (2010) criteria. All tests for model validation were performed.

Five of the analyzed dimensions were adapted from the model previously used by Yang et al. (2017); however, this research added two new dimensions: Player Motivations and Gamification Performance. Therefore, the research concentrates its attention on seven distinct dimensions with different hypotheses. Figure 1 shows the connection between the dimensions previously observed and the hypotheses that derive from them.
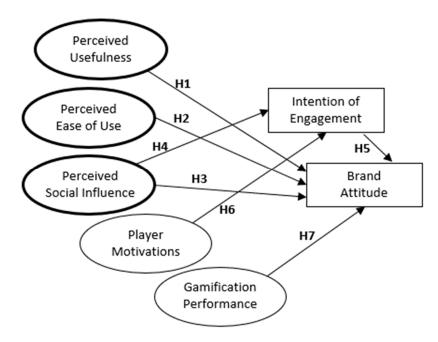
Figure 1. Investigation Model. Source: Adapted from Yang et al. (2017).

4. Results and Discussion

The sample consisted of 56.7% males and 43.3% females, in contrast to the Portuguese average of 47% females and 53% males (Pordata 2019).

The age group with the highest incidence is between 24 and 28 years, representing 33.5% of the sample. In terms of educational qualifications, more than half of individuals had a higher education degree, representing 49.3% of the sample.

Finally, the Porto region represents 58.6% and Lisbon 16.3% with the remaining 25.1% being occupied by the remaining regions, an important fact is the absence of data in the southern regions (Table 3). This is in line with the information advanced by the institute National Statistics Institute (INE), indicating a variation from 1000 inhabitants per km^2 on the coast to 50 inhabitants per km^2 in the interior (INE 2020).

Table 3. Sample description.

Variable	Description	Frequencies	Percentage
Gender	Male	115	56.7
	Female	88	43.3
Age Group	19–23	47	23.2
	24–28	68	33.5
	29–33	33	16.3
	34–38	33	16.3
	39 or more	22	10.8
Education Degree	9th year or less	10	4.9
	10–12th year	44	21.7
	Undergraduate	100	49.3
	Master	45	22.2
	PhD	4	2.0
Geographic Region	Azores	2	1.0
	Aveiro	10	4.9
	Braga	9	4.4
	Bragança	3	1.5
	Castelo Branco	2	1.0
	Coimbra	4	2.0

Table 3. *Cont.*

Variable	Description	Frequencies	Percentage
	Guarda	5	2.5
	Leiria	5	2.5
	Lisboa	33	16.3
	Madeira	2	1.0
Geographic Region	Porto	119	58.6
	Santarém	1	0.5
	Setúbal	1	0.5
	Viana do Castelo	2	1.0
	Vila Real	4	2.0
	Viseu	1	0.5
Total of replies		203	100

Table 4 represents the replies obtained from questions Q5 to Q23, a five-point Likert scale was used to reply on the degree of agreement with the question, where 1 mean "Strongly disagree"; 2 "Disagree"; 3 "Does not agree or disagree"; 4 "Agree" and 5 "Strongly Agree".

In this table, we can highlight the answer that has the greatest positive consensus (Q7), where 72.8% of the respondents answer that they agree or strongly agree that the application is a useful marketing tool, being congruent with the results obtained in other studies (Hofacker et al. 2016; Nobre and Ferreira 2017).

In turn, we can also point out the issue that has the greatest negative consensus (Q13), where 30.6% of respondents disagree or strongly disagree with the influence exerted by their acquaintances in their actions.

Table 4. Gamified Applications as a Customer Engagement and Brand Attitude tool: factor scale, descriptive analysis.

	Variables							
Question	Description	Strongly Disagree (%)	Disagree (%)	Does Not Agree or Disagree (%)	Agree (%)	Strongly Agree (%)	Standard Deviation	Average
Q5	The application effectively motivated me to think about Nike	2.0	8.9	21.2	44.3	23.6	3.79	0.97
Q6	The application increased my familiarity with Nike	2.0	7.9	26.1	36.9	27.1	3.79	0.99
Q7	I find the application a useful tool in Nike marketing	1.0	3.4	19.7	38.4	37.5	4.08	0.89
Q8	It was easy to learn how to use and compete with others	3.0	7.9	27.6	36.5	25	3.73	1.02
Q9	The balance between using the application and competing is well established	0.0	8.9	29.1	36.5	25.5	3.79	0.93
Q10	It was easy to access the app and get someone to compete with	1.5	13.8	24.1	36.5	24.1	3.68	1.03
Q11	If my friends find it fun to participate in the app competition, I will also participate	3.9	13.8	22.2	36.0	24.1	3.63	1.11
Q12	If my school/work colleagues find it fun to participate in the app competition, I'm also going to participate	4.9	17.7	25.1	32.5	19.8	3.44	1.14
Q13	If any of my acquaintances find it fun to participate in the application competition, I will also participate	16.3	14.3	22.7	26.1	20.6	3.21	1.36
Q14	I intend to try these activities again	1.0	7.4	23.2	46.3	22.1	3.81	0.90
Q15	I intend to use this application frequently	3.4	8.9	26.6	37.4	23.7	3.69	1.04
Q16	I intend to continue using this application because it is fun	2.0	10.3	23.2	46.8	17.7	3.68	0.95
Q17	This activity made me feel more emotionally connected with the Nike brand	2.5	14.8	33.5	32.0	17.2	3.47	1.02
Q18	This activity triggered positive feelings towards the Nike brand	2.0	13.8	29.1	35.0	20.1	3.58	1.02
Q19	I am more inclined to purchase Nike items after participating in the activity	4.9	17.2	30.5	29.6	17.8	3.38	1.11
Q20	This activity makes me feel happy when I buy a Nike branded item	7.9	15.8	28.6	31.5	16.2	3.33	1.16
Q21	This activity makes me feel pleasure when using a Nike branded item	4.4	18.7	26.6	31.5	18.8	3.41	1.12
Q22	This activity triggered my interest in using other Nike products/services	3.4	10.3	32.0	34.0	20.3	3.57	1.03
Q23	I will recommend Nike to others	1.0	5.9	29.1	43.3	20.7	3.77	0.88

Regarding the players' profiles, in Table 5 we can observe the aspects such as the type of game, motivation to play, as well as the frequency with which they do it (Q24, Q25, and Q26) tend to vary. However, during the questionnaire period, we found that "Adventure" is considered a favorite by most of the sample (26.60%). Regarding the reasons that lead respondents to play, we realized that "mental challenge" is the factor that most consensuses presents (33%).

Table 5. Player Profiles: factor scale, descriptive analysis.

Type	Question	Description	Profile	Frequency	Percentage %
G	Q24	Indicate your favorite game type	Action	34	16.75
			Adventure	54	26.60
			Others (Puzzle; Board Games; etc.)	38	18.72
			Simulation	36	17.73
			Strategy	41	20.20
G	Q25	What motivates you the most to play	Botheration	23	11.33
			Physical challenge	27	13.30
			Mental challenge	67	33.00
			Distraction from everyday life	1	0.49
			Play with other people	49	24.14
			To socialize	28	13.79
			None	8	3.94
G	Q26	How often do you play?	Daily (10 times or more per month)	63	31.03
			Weekly (5 to 9 times per month)	68	33.50
			Monthly (2 to 4 times per month)	41	20.20
			Rarely (One or less per month)	26	12.81
			Never	5	2.46

The sample was consulted to assess the type of gamification tools presented in the activity. In Table 6, we can perceive that the tool that has the greatest positive consensus with players is "badges" of achievements which directly contrasts with the "public profiles" which gathered the greatest negative consensus concerning their performance in a gamified activity.

Table 6. Evaluation of gamification tools: factor scale, descriptive analysis.

Type	Question	Description	Very Negative (%)	Negative (%)	Nor Negative or Positive (%)	Positive (%)	Very Positive (%)	Average	Standard Deviation
H	Q27	Points (Points earned for reaching goals in the game, which can be exchanged for real or virtual items)	2.5	4.4	23.2	41.4	28.6	3.89	0.95
H	Q28	Leaderboards (Table with the rank achieved by each player)	3.4	5.9	21.7	46.8	22.2	3.78	0.97
H	Q29	Player profile (Personalization of avatar and personal statistics)	2.0	13.8	26.6	32.0	25.6	3.66	1.07
H	Q30	Team (Possibility to play in team with other people)	1.5	11.8	20.2	37.4	29.1	3.81	1.03
H	Q31	Progress bars (Graphs indicating the level of completion of an objective)	3.0	6.9	19.2	38.9	32.0	3.90	1.02
H	Q32	Achievement badges (Badge awarded in recognition of completion of an objective)	2.0	7.4	19.2	40.9	30.5	3.91	0.98

Factorial Analysis

To support the research, a factorial analysis was performed to corroborate the dimensions under study. To validate the factor analysis model, a Kaiser-Meyer-Olkin test (KMO)

was used to understand the validity of the sample and the Bartlett test to confirm the validity of the factor analysis.

With KMO test values not ever below 0.55 and never higher than 0.92, we can consider that the factor analysis is closer to 1 than to 0, and can thus confirm its quality.

Regarding the Bartlett test, we found that the lowest value presented is 14.403 and the highest value is 687.977 for a *p*-value = 0.000, this demonstrates that variables are significantly correlated and, therefore, we can perform a factor analysis (Table 7).

Table 7. Gamified Applications vs. Portuguese Public: Factor Analysis; Bartlett's test; KMO test.

Variables	PU	PEU	PSI	IOE	BA	PM	GP
Q5—The application effectively motivated me to think about Nike	0.828						
Q6—The application has increased my familiarity with Nike	0.763						
Q7—I find the application a useful tool in Nike marketing	0.749						
Q8—It was easy to learn how to use and compete with other people		0.817					
Q9—The balance between using the application and competing is well established		0.764					
Q10—It was easy to access the application and get someone to compete with		0.783					
Q11—If my friends find it fun to participate in the application competition, I will also participate			0.849				
Q12—If my school/work colleagues find it fun to participate in the application competition, I will also participate			0.891				
Q13—If any acquaintance of mine finds it fun to participate in the application competition, I will also participate			0.878				
Q14—I intend to try activities of this kind again				0.829			
Q15—I intend to use this application frequently				0.753			
Q16—I intend to continue using this application because it is fun				0.851			
Q17—This activity made me feel more emotionally connected with the Nike brand					0.776		
Q18—This activity triggered positive feelings towards the Nike brand					0.759		
Q19—I am more inclined to purchase Nike items after participating in the activity					0.798		
Q20—This activity makes me happy when I buy a Nike branded item					0.828		
Q21—This activity makes me happy to use a Nike branded item					0.799		
Q22—This activity triggered my interest in using other Nike branded items/services					0.783		
Q23—I will recommend Nike to others					0.743		
Q24—Indicate your favorite game type						0.743	
Q25—What motivates you the most to play						0.552	
Q26—How often do you play						0.668	
Q27—Rate the tool: Points							0.712
Q28—Classify the tool: Classification tables							0.676
Q29—Rate the tool: Player profile							0.770
Q30—Rate the tool: Team							0.600
Q31—Rate the tool: Progress bars							0.709
Q32—Rate the tool: Achievement badges							0.533

Variables	PU	PEU	PSI	IOE	BA	PM	GP
% Variance	60.918	62.149	76.229	65.951	61.518	43.447	45.053
Bartlett's test (sig)	97.165 (0.000)	103.601 (0.000)	252.009 (0.000)	140.234 (0.000)	687.977 (0.000)	14.403 (0.000)	265.658 (0.000)
KMO' teste	0.646	0.665	0.721	0.665	0.920	0.543	0.766

Note: Significant at *p* < 0.01, Extraction Method: Principal component analysis.

In Table 8 we can verify that the results indicate an acceptable measurement model fit (Byrne 2013; Kline 2015).

Table 8. Measurement model (CFA).

Construct	Items	Factor Loading	CR	AVE	Cronbach's Alpha
PU	Q5 Q6 Q7	0.849 *** 0.823 *** 0.746 ***	0.927	0.809	0.835
PEOU	Q8 Q9 Q10	0.831 *** 0.889 *** 0.835 ***	0.888	0.726	0.876
PSI	Q11 Q12 Q13	0.833 *** 0.895 *** 0.995 ***	0.935	0.828	0.896
IOE	Q14 Q15 Q16	0.833 *** 0.975 *** 0.895 ***	0.929	0.815	0.841
BA	Q17 Q18 Q19 Q20 Q21 Q22 Q23	0.733 *** 0.875 *** 0.795 *** 0.878 *** 0.911 *** 0.899 *** 0.978 ***	0.956	0.757	0.961
PM	Q24 Q25 Q26	0.825 *** 0.895 *** 0.901 ***	0.907	0.764	0.853
GP	Q27 Q28 Q29 Q30 Q31 Q32	0.815 *** 0.889 *** 0.898 *** 0.998 *** 0.978 *** 0.997 ***	0.975	0.868	0.856
Goodness-of-Fit	Chi-square test: X^2/df = 5.441 Root Mean Square Error of Approximation (RMSEA) = 0.067 Comparative Fit Index (CFI) = 0.942 Tucker Lewis Index (TLI) = 0.976 Incremental Fit Index (IFI) = 0.951				

Note: Significant at *** *p* < 0.01. We also test the criterion for discriminant validity among latent variables.

The structural model's psychometric values are: $\chi2/df$ = 5.441; RMSEA = 0.067; CFI = 0.942; TLI = 0.976; IFI = 0.951, this let us determine whether the model fit was good. From the analysis of Table 9 it is possible to evaluate if the hypotheses are confirmed.

Table 9. The results of the structural equation model.

Hypotheses	Path Estimate	R^2	Result
H_1: PU → BA	0.31 ***	0.41	Confirmed
H_2: PEOU → BA	0.43 ***	0.39	Confirmed
H_3: PSI → BA	0.26 ***	0.51	Confirmed
H_4: PSI → IOE	0.32 **	0.36	Confirmed
H_5: IOE → BA	0.41 **	0.27	Confirmed
H_6: PM → IOE	0.26 ***	0.41	Confirmed
H_7: GP → BA	0.39 **	0.42	Confirmed

Note: Significant at *** $p < 0.01$; ** $p < 0.05$; $p < 0.1$.

Afterwards, we can verify if the proposed model is valid. For that, to evaluate the discriminant validity, we applied Fornell and Larcker (1981) criteria. For that, we observed that the AVE values were higher than the squared inter-construct correlation estimates. We observe that the BA is affected positively by the PU ($\gamma = 0.31$, $p < 0.01$), PEOU ($\gamma = 0.43$, $p < 0.01$) and PSI ($\gamma = 0.26$, $p < 0.01$); Patel and Patel (2018) confirmed identical results when observing the influence of PEU and PU in the engagement. These results were also pointed out by Huseynov and Dhahak (2020) as being positive influencers in the users' satisfaction with the brand. With regards to PSI relating to the data obtained with the literature previously analyzed, we found that, as perceived by Weitzner and Deutsch (2015, PSI is identified as a positive influencer of BA, which induces the confirmation of Hypotheses 1–3.

The relation observed on H1 and H2 (PU and PEU with BA) also gos in line with the work previously done by Seitz and Aldebasi (2016) where it was pointed that the construction phase of a user app was the most important one, because in order for the user to better relate with the app he needs to feel that the app is useful and relatively easy to use, pointing this out as key success factors.

The work of Lee et al. (2017) is also supported and PU and PEU are reinforced has influencers of the users' satisfaction with the brand.

We also observed that PSI has a direct influence on IOE ($\gamma = 0.32$, $p < 0.05$), confirming the data previously obtained by Kamboj et al. (2020) and supporting the remarks made by Ruangkanjanases et al. (2020) of an existing influence imposed by social circles in the individual's attitude, indicating that Hypothesis 4 should be confirmed.

The results obtained in H3 and H4 validate that "peer pressure" can not just influence the user undertaking a task, but also the way he feels about undertaking that same task (Cho and Son 2019).

These results relate to the proliferation of companies investing on growing online consumer groups, taking advantage of their audience in order to promote their brand (Studen and Tiberius 2020).

Hypothesis 5 is also confirmed, stating that IOE influences positively the BA ($\gamma = 0.41$, $p < 0.05$) and confirming previous studies which point to this correlation (Alsawaier 2018; Ghazali et al. 2019), also validating the suggestion that gamification is considered to have a positive impact on the establishment of BA (Patzer et al. 2020).

The Hypotheses H6 and H7 are also confirmed. As suggested in the literature (Ghazali et al. 2019), we were able to establish that PM affects the IOE confirming Payne et al.'s (2009) view on the interaction between player and brand.

This also brings a new insight to the work previously conducted by Kotler et al. (2019), because H6 also reinforces that engagement is not just in a downward motion, demonstrating that the consumer can also be motivated to engage with the brand on their one.

We can also verify that GP influences BA, results that are in line with the reviewed literature, where gamification tools are often pointed as instruments capable of influencing that player's attitude towards the brand (Huseynov and Dhahak 2020; Spears and Singh

2004). Not every game appeals to the same public and certainly not every game is a granted success; however, as we saw in the work of MacKay et al. (2009), the game offers an effective platform for brand placement and thus supports the impact of brand attitude. The better the gamification experience, the better the attitude the user will develop towards the brand.

5. Conclusions

The present research observed the interactions that users developed with the "Nike" brand throughout the use of the "Nike Run Club" application. The research is based on a quantitative methodology supported by an adaptation of the TAM model, seeking to validate the use of gamified digital applications as engagement and brand attitude tools, with the Portuguese consumers.

Seven hypotheses were formulated: H1: Perceived usefulness affects positively brand attitude; H2: Perceived ease of use affects positively brand attitude; H3: Perceived social influence affects positively brand attitude; H4: Perceived social influence affects positively intention of engagement; H5: Intention of engagement affects positively brand attitude; H6: Player motivations affects positively intention of engagement; H7: Gamification performance affects positively brand attitude.

The results obtained demonstrated that, contrary to the data obtained in the original paper from Yang et al. (2017), it was possible to verify the existence of a correlation between BA and perceived usefulness (PU), perceived ease of use (PEU), and perceived social influence (PSI). This correlation is supported by the fact that the majority of respondents demonstrate easiness when using the application and recognize that it is a useful tool in brand marketing, validating H1–H3. It was possible to verify that, as indicated by the literature (Huseynov and Dhahak 2020), there is an impact on BA, thus supporting H4.

In the sphere of the IOE, we found that the majority of respondents intend to use these activities again, with a large part assuming they will continue to use the Nike application. This is supported by the demonstrated correlation between IOE and BA, reflecting that the higher the IOE, the greater the impact on BA and, therefore, supporting H5.

In line with the proposal by Ghazali et al. (2019), it was possible to establish a correlation between the dimensions of player motivations (PM) and IOE, consequently validating H6. It was also possible to perceive, using the Chi-Square test, that age and gender tend to influence the types of favorite games, the adventure games having been pointed out as the most accepted among men and women.

Finally, in gamification performance (GP), we found that badges and other gamification tools are perceived by the user as good engagement tools. This information is in line with the literature, supported by the observed correlation between GP and BA, thus confirming H7.

This research presents three innovative aspects that result, in the first phase, from the adaptation of a TAM model previously tested by Yang et al. (2017), pretending to complete it by adding the dimensions "Gamification Performance" and "Player Motivations". The second innovative aspect is related to the fact that the sample is completed by individuals of different degrees of education and do not belong entirely to the academic environment, unlike previous studies. The third innovative aspect concerns the location of the sample itself, which is entirely resident on Portuguese territory.

As for theoretical contributions, this research contributes to the existing literature and academic knowledge in the areas of marketing and gamification, providing a suggestion for the TAM model to be used in this type of research. It also contributes to a better understanding of the relationship between gamification and marketing, demonstrating that the use of gamified applications as engagement tools can have a positive impact on the brand attitude, it being demonstrated that although Portugal is a peripherical country that demonstrates lower digital acceptance values when compared to the rest of the European Union, the use of gamified applications presents itself with equal validity, as found in countries with more developed indexes.

On the practical side, it contributes as a consultation tool for brands, application designers, and marketers when defining engagement strategies, allowing a better understanding of the factors that may or may not influence the public's relationship with the brands and what dynamics they should use in the development of new Gamified marketing solutions.

Due to its specificity, the selected application can be pointed as being a research limitation as it was not possible to obtain a greater number of responses since the application is oriented towards sport and the sample had to be limited to practitioners of some type of sports activity. To achieve a more uniform scope on the Portuguese market, it is important to extend this research to a more diversified sample through the inclusion of questions in the questionnaire, addressing themes without being connected to the use of the application under investigation.

Another limitation found in the research is that possible usable gamification elements are limited to the application under investigation. To enlarge the scope of the research, it would be important to be able to observe other gamified applications, with different gamification elements.

It is also important to mention the inexistence of a significant number of articles that address gamification, which is even greater when the research is oriented to the Portuguese market, in turn justifying the continuation of research on this topic applied to the Portuguese market.

As for future lines of investigation, it is recommended to broaden the scope of the research, allowing it to be replied by individuals who have never used a gamified application or have used completely different ones, to understand if the type of gamified application may influence the results obtained. It would be pertinent to replicate this research in other international markets to assess whether cultural or socioeconomic factors can influence the validity of gamified applications. Given the COVID-19 pandemic, it would be also important to compare the validity of using gamified applications in pre-and post-pandemic times.

In this research, only the interactions of users of the gamified application were analyzed. It would be interesting to hear opinions about gamified applications from other stakeholders such as suppliers, store sellers, and others. It would also be interesting to investigate these dimensions more extensively in another type of sample and gamified strategy.

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