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## APPLIED PSYCHOLOGY | RESEARCH ARTICLE

# The role of gamification in brand app experience: The moderating effects of the 4Rs of app marketing

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**Abstract:** This study examines the relationships between several sub-factors of gamification (i.e. fun, rewards, competition, and storytelling) and brand app experiences. The study also examines the moderating effects of the so-called 4Rs of brand apps (reflex, reality, real place, and real communication) on brand app experiences. The study was conducted in groups of approximately 450 subjects. The study finds that gamification is positively related to brand app experiences, with fun and storytelling serving as motivating factors and having stronger effects on brand app experiences than other factors. Brand app users are more likely to seek fun and storytelling when using brand apps than other potential gamification sub-factors. The results suggest that companies should develop technologies to interact with customers, attract customers, and provide them with memorable experiences and fun.

**Subjects:** Cognitive Science; Economic Psychology; Services Marketing; Brand Management

**Keywords:** app experience; application; brand app; marketing; consumer brand satisfaction; gamification

**Subjects Classification codes:** Marketing Strategy; Brand; Mobile Communication; Brand Application; Gamification

(1) In comment 1, reviewer ask the author to put more effort to make the concepts of reflex, reality, real place, and real communication stronger in the manuscript.

### ABOUT THE AUTHORS

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### PUBLIC INTEREST STATEMENT

Most companies incorporate game mechanics into their brand applications—software programs designed to deliver to consumers a brand-related online experience—to communicate effectively, and efficiently, with consumers. For that reason, branded application with gamification to improve work performance in business as well as to influence people and drive motivations has been a popular research topic.

It is therefore important for researchers to explore the convergence of gamification, social media, and brand apps as a means of delivering brand experiences. This study focuses on the significance of gamification concepts and the 4Rs regarding how consumers process information, which influences a brand's success

**Response:** In response to this comment, the author added and enrich the concepts of reflex, reality, real place, and real communication in considering the topic related articles. See page 10-12.

Benyon, D., Smyth, M., O'Neill, S., McCall, R., & Carroll, F. (2006). The place probe: exploring a sense of place in real and virtual environments. *Presence*, 15(6), 668–687.

Dodds, T.J., Mohler, B.J., & Bu' lthoff, H.H. (2011). Talk to the virtual hands: self-animated avatars improve communication in head-mounted display virtual environments. *PLoS ONE*, 6(10): e25759. doi:10.1371/journal.pone.0025759.

Di, L.M. (2010). New method to measure end-to-end delay of virtual reality. *Presence: Teleoperators and Virtual Environments*, 19: 585-600.

Marie, K., Shivam, M., Gijs M.W., Reichert, N. Z., Salamon, J., Timothy, B., Stephan G. L., & Rafael, B. (2018). STAR: Superhuman Training in Augmented Reality. In *Proceedings of Superhuman Sports Design Challenge (2018)*. ACM, New York, NY, USA, 6 pages. <https://doi.org/10.1145/3210299.3210306>

Slater, M., Spanlang, B., Sanchez-Vives, M.V., & Blanke, O. (2010). First person experience of body transfer in virtual reality. *PLoS ONE* 5. e10564. doi:10.1371/journal.pone.0010564.

Yu, W., & Yu, I. (2007). An artificial reflex improves the perturbation-resistance of a human walking simulator. *Medical Biological Engineering Computing*, 45, 1095–1104

Also, the author ends the paper stating that “Considering their consumption trends, this study can play a role in establishing marketing strategies for new brand launches and luxury brand expansion”. It is not clear in the manuscript which specific role is this. Thus, we decided to delete the sentence for general readers.

## 1. Introduction

The use of smartphones and augmented reality technologies alongside the emergence of a digital native generation of users as a major economic force has laid the foundation for gamification, which is the incorporation of the features of computer and online games into non-game applications (Maican, Lixandriou, & Constantin, 2016; Mekler, Brühlmann, Tuch, & Opwis, 2015; Seaborn & Fels, 2015). In addition, technological advances and demographic changes have led to changes in consumption and production patterns, leading to the growth of gamification. Gamified applications can attract customers and improve work performance in business, healthcare, welfare, education, training, and the public sector to influence people and drive motivations (Bunchball Inc., 2010; Goasduff & Pettey, 2011). Gamification is used by social media-based services to improve engagement and encourage loyalty (Jin, 2014, p. 16). Many companies currently incorporate game mechanics into their brand applications—software programs designed to deliver a brand-related online experience to consumers—to communicate effectively and efficiently with consumers. To keep up with the times and meet customers' needs, companies are also focusing on delivering brand experiences to consumers. Unlike mass media, social media enables companies to engage consumers and offer them brand experiences that differ from those they would encounter in the mass media. Therefore, it is important for researchers to explore the convergence of gamification, social media, and brand apps as a means of delivering brand experiences.

The types and nature of experiences that are created by indirect contact with brands differ from those offered by existing mass media. In cyberspace, user experiences involve the senses, emotions, cognition, behavior, and relationships (Schmitt, 1999) as well as entertainment and escape (Pine & Gilmore, 1999). The advance of communication devices has led companies to seek new ways to practice branding. Among these is the brand application or brand app, which delivers information on brands and products to customers, engages them, and drives interactive

communication (Jin, 2016). With brand apps, consumer experiences on social media can feel like real-world experiences (Lombard & Ditton, 1997). Even though consumers' brand experiences on the Internet are closely related to advertising, brand recognition, and purchase intention, there is scant research on consumer-brand satisfaction and brand attitude formation. The present study aims to fill this gap in the literature.

Based on the literature, it seems likely that brand apps with gamification elements can influence users' brand experiences and brand attitude formation. Therefore, this study aims to examine the relationships between several sub-factors of gamification, in particular, between gamification elements (fun, rewards, competition, and storytelling) and brand app experiences. The study also tests the moderating effects of the so-called 4Rs of brand apps (reflex, reality, real place, and real communication, explained in Subsection 2.3 below) on brand app experiences. Furthermore, the study explores the relationship between brand app experiences and consumer-brand satisfaction and purchase intention.

## 2. Theoretical and empirical background

### 2.1. Gamification

Gamification, one of the many marketing strategies that are designed to attract customers whose needs may vary widely, is drawing much attention. Gamification is a recently coined word that denotes the introduction of the main components of a game, such as fun, rewards, and competition, into a non-game context, such as a website or an application, to increase user engagement. The premise behind gamification is that people have an instinct to have fun and to pursue fun and interesting activities. Gamification is then a theory of fun, based on the notion that people are more willing to do things they find entertaining than those they do not. Gamification makes inconvenient or boring activities fun and enjoyable (Maican et al., 2016; Seixas, de Melo Filho, & Gomes, 2016).

The gamification concept has been defined as “the use of game elements and the process of game-thinking and game mechanics to engage users and solve problems.” The emergence of gamification can be explained in technological and cultural terms (Maican et al., 2016; Zichermann & Cunningham, 2011). In technological terms, gamification is a business strategy whereby game elements, such as fun, competition, rewards, and the voluntary participation of users, are incorporated into applications to sell goods and services (Maican et al., 2016; Seixas et al., 2016). The proliferation of smartphones since 2010 has led to the widespread use of interactive applications, creating new business strategies for selling products by using the components of a game and engaging people (Maican et al., 2016; Seixas et al., 2016). Goods and services using a gamification framework can engage people, give them incentives, and attract them with their entertaining aspects, which is a major element of game play. For this reason, gamification is gaining traction and drawing attention from companies and in academic circles. Gamification concerns changing the world through the power of games (Kuo & Chuang, 2016).

Gamification incorporates the process, programming, and software platform associated with game mechanics and game thinking to solve problems, create engaging experiences, and engage users (Swan, 2012). It is a dynamic integration of game mechanics into campaigns, content, community activities, services, and sites (Kuo & Chuang, 2016; Xu, 2011). In addition, gamification represents a system in which users build networks, share information, participate, and receive rewards. Gamification allows designers and users to utilize game techniques for advanced educational materials without making huge financial investments (Kapp, 2012). However, gamification has been introduced in many areas beyond education, including management, charitable giving, advertising, marketing promotion, and energy conservation (Jin, 2016; Kuo & Chuang, 2016; Maican et al., 2016; Seixas et al., 2016). Gamification elements that have been identified include rewards, competition, achievement, status, self-expression, and altruism. Gamification has been defined as a technique designed to encourage people to take part in some activity by incorporating

game mechanics and basic mechanisms (Jin, 2016; Kuo & Chuang, 2016; Maican et al., 2016; Seixas et al., 2016). For the purposes of this study, the elements of gamification include fun, rewards, competition, and storytelling. In this regard, we aim to explore the relationship between these elements and users' brand app experiences.

## **2.2. Brand applications**

The widespread use of smartphones has led to the development of apps designed to be viewed and operated on phones, increasing companies' interest in app marketing strategies. Brand apps have been conceptually defined as software that is downloadable to a mobile device and that prominently displays a brand identity, often via the name of the app and the appearance of a brand logo or icon, throughout the user experience (Bellman, Potter, Treleaven-Hassard, Robinson, & Varan, 2011, p. 191). To develop successful brand apps and gain benefits from them, companies should first analyze the needs and lifestyles of smartphone users and develop apps that consumers can use conveniently in their daily lives (Kuo & Chuang, 2016; Maican et al., 2016; Seixas et al., 2016; Shankar, Venkatesh, Hofacker, & Naik, 2010). Brand apps enable customers to experience products, services, and functions that enhance or support their lifestyles through brand experiences. Brand apps increase customers' engagement, draw immediate responses from them, and can be a great marketing tool (Calder, Malthouse, & Schaedel, 2009). App marketing uses mobile media or smart devices for marketing activities, such as advertising, promotions, and business transactions, in a direct or indirect way. Brand apps enable users to create completely new purchasing experiences and interaction models, with a corresponding set of capabilities, including location awareness, context sensing, and product customization (Zhao & Balague, 2015). App marketing uses apps as marketing tools. The advantage of app marketing lies in the portability and convenience of mobile devices. Users can easily obtain product information and brand experiences owing to such technologies as augmented reality (Bellman et al., 2011; Shankar et al., 2010; Zhao & Balague, 2015). To understand fully how brand apps work, it is important to understand marketing characteristics based on the components of brand apps. First, brand apps increase touch points with consumers, making it easier to understand their needs. App marketing allows companies to understand target consumers' lifestyles better, which helps companies better meet customers' needs and provide them with what they want. Second, brand apps utilize experience-based technologies that reflect the nature of the smartphone environment, whereby users can experience products on their smartphones. Third, brand apps offer users experiences that are customized for each user's lifestyle. Such one-on-one experiences can enhance a brand's intimacy and credibility. Fourth, brand apps can increase engagement and brand loyalty through existing marketing channels, photographs, communication, games, and social networking services (Bellman et al., 2011; Shankar et al., 2010; Zhao & Balague, 2015).

Brand app marketing enables marketers to build consumer-oriented marketing strategies. Existing marketing activities are carried out through conventional mass media, such as television, newspapers, radio, and magazines. Moreover, by employing customized marketing activities, companies can promote customized marketing activities for each customer by determining key customer information, such as lifestyle elements or consumption patterns (Bellman et al., 2011; Shankar et al., 2010; Zhao & Balague, 2015). Finally, brand app marketing enables companies to promote experiential marketing strategies that utilize the characteristics of smart devices. Technologies, such as touchscreens, cameras, and vibration sensors, are incorporated into apps, allowing users to experience brands and services in a way that gives them more than just information.

## **2.3. 4Rs for app marketing**

The consumer purchase decision process has changed over time. This change can be explained by changes in consumer purchase patterns. In the analogue age, consumers' purchase decision-making process was explained by the acronym AIDMA, which reflects a series of stages: consumers become aware of a product through mass media (attention), become interested in it (interest), form the desire to obtain it (desire), memorize it (memory), and actually purchase it

(action). However, in the digital age, people search for and store information for later use. As such, memory has given way to search, giving rise to a new acronym, AISAS (attention—interest—search and store—action—share), in which search and store occur simultaneously in an app store. Consumer segmentation should be conducted to analyze consumer tastes, characteristics, and preferences and to identify factors influencing purchase decisions. Since app marketing enables one-on-one marketing, marketing strategies should be established from the consumer's point of view (Shankar et al., 2010). To this end, the 4Rs (reflex, reality, real place, real communication—which are not the only sequence of Rs in the marketing literature) should be considered. The concept of the 4Ps (product, price, place, and promotion) was introduced in the 1950s. With the advent of the Internet, a new concept of the 4Cs (content, cost to customer, community, and communication) was adopted for application to media-based marketing strategies. This has led to the use of software applications for marketing purposes, which in turn has led to app marketing, creating demand for marketing tools that existing marketing mix models cannot cover. For the purposes of this study, we employ the 4Rs of reflex (Marie et al., 2018; Yu & Yu, 2007), reality (Di, 2010; Dodds, Mohler, & Bu Lthoff, 2011; Slater, Spanlang, Sanchez-Vives, & Blanke, 2010), real place (Benyon, Smyth, O'Neill, McCall, & Carroll, 2006), and real communication (Dodds et al., 2011). The 4Rs help companies provide consumers with customized information for their daily lives and drive actual purchases (Benyon et al., 2006; Di, 2010; Dodds et al., 2011; Marie et al., 2018; Yu & Yu, 2007).

The first R, reflex, means creating an instantaneous response to the consumer. Smart device-enabled app marketing can produce effective outcomes in a very short period of time through a consumer touch point (Marie et al., 2018; Yu & Yu, 2007). The second R, reality, means experiencing things as they actually exist. This can be further explained by the concept of augmented reality, which is popular among consumers owing to the popularity of smartphones (Di, 2010; Dodds et al., 2011; Slater et al., 2010). Augmented reality differs from virtual reality, in that it is a combination of a live view of a physical, real-world environment whose elements are integrated into the actual environment (Benyon et al., 2006; Di, 2010; Slater et al., 2010). With augmented reality, when a user snaps a photograph or hovers his or her smartphone camera over a person or object, he or she can see related images about the person or subject. The third R, real place, means giving users location information. This concept is based on location-based service, which uses location information to improve productivity and provide convenience and combines location information with user information, augmented reality, and social network services to provide a sophisticated marketing channel between a company and its customers (Benyon et al., 2006; Di, 2010; Dodds et al., 2011; Marie et al., 2018; Slater et al., 2010; Yu & Yu, 2007). The fourth R, real communication, means engaging in real-time information sharing with consumers. While online marketing activities have strengthened communication with customers, app marketing activities can provide even more advanced forms of communication (Dodds et al., 2011). While the 4Rs alone are not enough to replace existing marketing strategies, it is always necessary to add new marketing strategies to existing ones.

#### **2.4. Consumer brand experience**

Some scholars have suggested that there are five types of strategic experiential modules: sense, feel, think, act, and relate. These modules allow consumers to experience and establish relationships with brands (Schmitt, 1999). First, *sense marketing* appeals to consumers' senses (sight, sound, smell, taste, and touch), providing them with differentiated value. Sense marketing is about differentiating a company's goods and services to give customers value (Schmitt, 1999).

*Feel marketing* strengthen ties with customers and appeals to their moods, feelings, and emotions, whether positive or negative. In doing so, feel marketing generates positive effects on consumers' attitudes toward a brand and purchase intention (Schmitt, 1999) and appeals to customers' feelings about engaging with the brand. One example is Clinique's fragrance

“Happy.” Its promotional materials reinforce the name’s message, reflected by the product’s sunny orange packaging, which shows a picture of a model jumping and smiling joyfully.

*Think marketing* appeals to consumers’ intellect, so they can reevaluate the value of goods and services, and encourages divergent or convergent thinking by evoking feelings of curiosity or surprise. Think marketing is typically used for new technology products but is not limited to high-technology ones. It is also used in such areas as product design, retail business, and commutation, having positive effects on brand attitudes and purchase intention (Schmitt, 2003). For example, Microsoft’s campaign “Where do you want to go today?” spreads the message that technology can make anything possible and indicates Microsoft’s confidence in taking users wherever they want to go with its technology.

*Act marketing* targets physical behavior, lifestyles, and interactions (Lee & Kim, 2011). It is directly or indirectly related to people’s physical activities or lifestyles. It aims to engage people in a creative way and have positive effects on brand attitude and purchase intention (Schmitt, 1999). People want to reflect their lifestyles and express themselves through their brand choices (Schmitt, 2003). Therefore, brands should provide consumers with chances to experience new lifestyles (Kim, 2010; Liang, Chen, Duan, & Ni, 2013). For example, Nike’s “Just Do It” campaign features famous athletes, encouraging an action-oriented lifestyle.

Finally, *relate marketing* creates experiences by taking into account individuals’ desires to be part of a social context (e.g. boosting self-esteem and being part of a subculture or brand community), connecting consumers with social and cultural meaning by finding their reference groups, whereby they can interact with others and form a brand community in which the brand is a social institution (Schmitt, 1999). Relate marketing, then, aims to connect consumers’ social desires to specific brands to form a brand community. Relate marketing is about creating a new culture and community to which consumers want to belong, in which they can differentiate themselves from their social self-concepts (Kim, 2010; McLean & Wilson, 2016). For example, Harley-Davidson sponsors motorcycle-related tattoos for a group for people to identify with the brand. Experiences using online apps influence brand attitude, brand attachment, and brand immersion (Kim, 2010; McLean & Wilson, 2016; Pine & Gilmore, 1999). In light of the several theories of experience, this study explores the factors that influence the elements of gamification and investigate how brand app experiences influence brand success.

### 3. Research method and hypotheses

#### 3.1. Research method

This study used gamification elements, brand app experiences, consumer–brand satisfaction, and purchase intention to measure brand performance and the 4Rs of app marketing as the moderating variable measuring the impacts of gamification. Gamification involves the use of games or components of a game structure to engage people or help them solve problems for themselves or others (companies and society). Gamification uses game mechanics in a non-game context, such as consumer websites or mobile sites, to encourage the use of applications. This study referred to reports on gamification (Swan, 2012; Xu, 2011; Zichermann & Cunningham, 2011) to adapt the four components of gamification, which are fun, rewards, competition, and storytelling, to an app environment.

The study selected participants as college and graduate students who were very familiar with the smartphone and digital environment, including mobile applications. Such a sample is reasonable for dealing with sample bias. Survey respondents were presented with an image and information on a beauty brand’s app. Then, they were asked about demographic factors, such as gender, age, and monthly income. Respondents were then presented with questions about gamification elements of cosmetic brand apps, their brand app experiences, app marketing, and brand success. Respondents were men and women aged in their 20s and 30s with an interest in cosmetics.

Selected brand apps were distinguished from existing brand apps, because the former encourage user participation and make users feel fulfilled with humorous content and competitions with rewards (Jin, 2016). The study selected brand apps from cosmetic brands (e.g. the most popular cosmetic brand in Korea). The research was conducted using 500 college and business administration graduate students. First, researchers asked participants to download the brand app early in the spring semester by explaining the research and providing detailed information on the brand app. In all, 450 participants who were smartphone users were surveyed about their brand apps, of which 434 returned the questionnaire; these were used for the statistical empirical analysis. To increase the volume of statistical evidence and enhance the credibility of the results, actual data were collected from each respondent to identify those who had been using an app for at least 3 months, while participants who were not brand app users and not installed users were asked to stop filling out the questionnaire. Extra academic credit was given to participants. The researchers conducted the survey late in the spring semester in a classroom. The survey was open for 3 months. Participants filled out the survey in a self-administered manner.

### **3.2. Measurement tools**

The fun construct was measured by three questions regarding visual treats, interest, and joy. The specific questions were related to the following statements: “The brand app game provides me with various visual treats,” “The brand app game is interesting,” and “The brand app game entertains me.” The rewards construct was measured by three questions regarding statements on ranking up, the feelings associated with receiving rewards, and assuming a new identity: “I can upgrade my ranking by playing a game on this brand app,” “The brand app provides me with various rewards (e.g. presents for a game character),” and “I can receive a new identity by going to the highest ranking.” The competition construct was measured by questions regarding statements on forming relationships with others, comparison, and competition: “I can build relationships with others through games on my brand app,” “I can compare my score ranking with those of others,” and “I can compete with others on my brand app.” The storytelling construct was measured by questions on statements about interest, likability, and understanding: “The story of this brand is interesting,” “The story of this brand is likable,” and “The story of this brand is easy to understand.” Each of the 12 questions was measured using a five-point Likert scale.

Measurement items for brand app experience were determined based on the definition of a brand app experience (Brakus, Schmitt, & Zarantonello, 2009; Schmitt, 1999). The validity and credibility of the measures were verified, selected, and adjusted based on the features of brand apps (Brakus et al., 2009; Lee & Kim, 2011; Schmitt, 1999). For brand app experience, 12 items suggested by Brakus et al. (2009) were used for the study questions. For example, “The design of my brand app goes well with me,” consumer-brand satisfaction was defined by considering whether consumers found it pleasant, satisfying, or useful to use a brand (Blackstone, 1992; Duncan & Moriarty, 1998; Evard & Aurier, 1996; Fournier, 1998). Three items suggested by previous researchers were used in this study. For example, “My relationship with the brand feels pleasant to me.” Purchase intention was measured by adopting three items from the measurement scales of Bruner and Kumar (2000) and Haley and Case (1979). Questions regarding purchase intention included three items. All question items were recomposed to fit this study before measurement. This study measured all question items using a five-point Likert scale.

### **3.3. Moderating variables**

The survey item used to measure the 4Rs was adopted from prior research and modified for this study. To measure the components of the 4Rs, we used three subordinate concepts. To evaluate the effectiveness of the variables used as measuring variables (the 4Rs of app marketing), consumers were divided into two types, rational and emotional, in terms of brand experiences. To measure the impact of the subordinate variables in each group, subgroup analysis was conducted to adjust the roles of the moderating variables (Benyon et al., 2006; Di, 2010; Dodds et al., 2011; Marie et al., 2018; Slater et al., 2010; Yu & Yu, 2007). For reflex, the questions are related to the following statements: “I can order goods on my brand app,” “Ordering goods provides me with

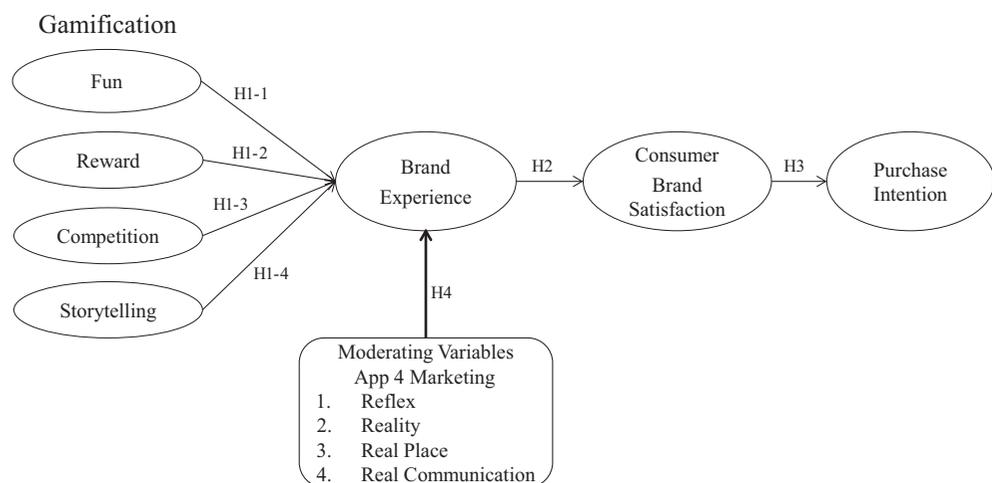
entertaining experiences,” and “Overall, I am satisfied with my brand app response.” For reality, the questions are related to the following statements: “My brand app can provide me with useful information on a store,” “My brand app can provide me with interesting and new experiences through a game,” and “My brand app can make me experience the real world.” For real place, the questions are related to the following statements: “My brand app offers hearing tests through automated voice services,” “My brand app offers information based on my location,” and “My brand app can provide me with real place.” For real communication, the questions are related to the following statements: “My brand app allows me to search places around me through menus and location information,” “My brand app features a friend invitation function,” and “My brand app can provide me with various useful functions.”

### 3.4. Research hypotheses and model

Market demand for experiential goods has increased, and thus, creativity and autonomy have become important production values. These trends have further increased the demand for gamification. The widespread use of smartphones has added to demand for game mechanics and the need to appeal to genders and users of all ages (Jin, 2016). With new technologies, such as motion recognition and augmented reality, games can be used for various purposes—not just for entertainment but for real-world activities, including healthcare and education (Jin, 2016; Kuo & Chuang, 2016; Maican et al., 2016; Seixas et al., 2016). As demand for experiential goods increases, gamification can be an excellent tool with which to provide consumers with two-way interactive services. In fact, gamification methods are not new. The use of scoring, ranking systems, or competition designed to engage people has long existed in many campaigns and intellectual services, such as blog ranking systems or giving badges as rewards. Gamification is currently drawing such attention, because these components of game structure are being introduced into real-world activities and incorporated into sales strategies for a wide range of goods and services (Kuo & Chuang, 2016; Maican et al., 2016; Seixas et al., 2016).

As existing studies show, brand experiences in the virtual world influence consumer attitudes toward advertising, brand attitudes, and purchase intention as well as brand success, as in brand expansion (Kim, 2010; McLean & Wilson, 2016). In addition, existing studies on brand experiences (Iglesias, Singh, & Batista-Foguet, 2011; McLean & Wilson, 2016) show that such experiences have direct/indirect impacts on brand immersion. This means that various brand experiences on brand apps are closely related to brand success. In this regard, it is expected that brand apps that incorporate elements of gamification will increase user engagement and have positive effects on brand success. The analysis is based on a theoretical model depicting the hypothesized relationships (Figure 1). Based on this model, the study used an online survey of brand application users to test the following hypothesis.

**Figure 1. Suggested research model**



**H1.** Elements of gamification (fun: H1-1, rewards: H1-2, competition: H1-3, storytelling: H1-4) are positively related to brand experience.

The customer experience involves undergoing a meaningful experience and feeling alive. In this regard, providing experiences has become a common marketing strategy (Iglesias et al., 2011; McLean & Wilson, 2016). When consumers use a brand, they assess the value the brand provides to them. For this reason, the importance of experiential marketing is growing. Experience refers to something that happens to a person or something a person gains because he or she has done it. It refers to value created by observing or experiencing an actual or virtual situation (Kim, 2010). In marketing terms, experiential marketing provides consumers with new experiences and satisfaction by triggering changes of mind (Kim, 2010). Direct or indirect brand experiences are stamped in people's memories, influencing their purchase behavior (Kim, 2010; Liang et al., 2013; McLean & Wilson, 2016). Brand experiences have positive effects by encouraging brand loyalty. Customers' experiences of products and services remain in their memories and shape their minds even without their recognition (Kim, 2010; Liang et al., 2013).

According to Weilbacher (1995), providing customers with brand experiences is one of the best ways to establish a strong brand. Experiential marketing focuses primarily on helping consumers experience a brand through their five senses. Consumers want new experiences and services that appeal to their senses instead of just receiving information. Brand experiences influence consumers' attitudes toward a brand, create positive images of the brand, and encourage brand loyalty, which in turn leads to repurchase and recommendation of the product or services. These considerations of experiential marketing and the brand experience lead to the following hypotheses.

**H2.** Brand experiences have direct, positive effects on consumer-brand satisfaction.

**H3.** Consumer-brand satisfaction has direct, positive effects on purchase intention.

Marketing activities using smartphone apps enable rapid customer interaction, producing successful outcomes. Therefore, when developing such apps, it is important to ensure that they are repeatedly used by customers, increase customer satisfaction, and provide brand identity, which is an important factor in generating brand loyalty (Liang et al., 2013; McLean & Wilson, 2016). Brand apps enable users to experience a brand on their mobile devices. With brand apps, active interaction between a brand and consumers takes place. As such, studies focusing only on a simple causal relationship, whereby brand app experiences influence the success of a brand, cannot explain the sophisticated effects of brand app experiences and in-depth information processing of brand apps. This study is designed to shed light on how gamification factors affect the brand app experience as well as on the potential of the 4Rs to moderate these relationships between gamification and the brand app experience. This leads to the following hypothesis.

**H4.** The components of the 4Rs of app marketing (reflex, reality, real place, and real communication) have moderating effects when the elements of gamification positively affect brand experience.

This study focused on the significance of gamification concepts and the 4Rs with regard to how consumers process information, which influences a brand's success. To this end, we designed a research model to illustrate the impacts of gamification and the 4Rs, as presented in Figure 1.

## 4. Results

### 4.1. Measurement assessment, validity, and reliability tests

In this study, the sample comprised 434 respondents; 47% of the respondents were male ( $n = 203$ ) and 53.2% were female ( $n = 231$ ). There were 420 college students and 14 graduate students.

They each earned monthly income of less than 200 dollars. Most were unmarried. On average, the respondents used the brand app more than once a day during the time of the study. Participants used the brand app in their homes, public places, school, public transportation, and cafeterias. Among the total participants, 424 are aged in their 20s and 10 in their 30s.

The initial factor analysis is described in Table 1. Although the measurement tools used in the study and based on the literature review are related to brand apps, it is important to test them for reliability and validity. For this purpose, a multi-method approach to confirming the reliability and validity of the constructs was applied (Jin, 2014). The study first performed principal component factor analysis with varimax rotation on the initial items, employing a factor weight of .50 as the minimum cutoff value. It then examined the underlying factor structure to determine whether any new dimension within each factor was conceptually meaningful and to examine the psychometric properties of the scales. The result of Bartlett's test of sphericity was found to be significant ( $=6473.9(df = 66)$ ,  $p < .01$  for gamification,  $= 3085.5(df = 28)$ ,  $p < .01$  for 4Rs of app marketing,  $= 2017.5(df = 23)$ ,  $p < .01$  for dependent variables), while the Kaiser-Meyer-Olkin measure of sampling adequacy was .894 for gamification, .887 for 4Rs of app marketing, and .893 for the dependent variables. Therefore, the data were suitable for analysis.

After collecting and cleaning the data, tests for internal consistency were run and item-to-total correlation was calculated and examined. Item-to-total correlation should be greater than .5. In all constructs, Cronbach's alpha exceeded the standard acceptance norm of .70 for all dependent variables. Using previous studies, 30 items were selected based on factor loadings, item total correlation, and item difficulty, while maintaining a multi-faceted scale. Reliability was measured at .93 (3 items for fun), .91 (3 items for rewards), .94 (3 items for competition), .96 (3 items for storytelling), .84 (3 items for reflex), .78 (3 items for reality), .84 (3 items for real place), .77 (3 items for real communication), .84 (12 items for brand app experience), .90 (3 items for consumer-brand satisfaction), and .94 (3 items for purchase intention).

The study's average variance extracted (AVE) satisfies the standard of .5 suggested by Bagozzi and Yi (1988) and Hair et al. (1998), which means that the measurement indexes satisfy the requirement for convergent validity. To verify discriminant validity, the AVE of each of the potential factors was compared with the square of the correlation between the potential factors. As Table 2 shows, the means of the squares of the correlation coefficients ( $r^2$ ) are lower than the AVE. Generally, the AVE should be greater than the means of the squares of all correlation coefficients. The extracted AVE is between .651 and .767, and the means of the squares of the correlation coefficients are between .014 and .479, which results in the AVE being greater than the means of the squares of the correlation coefficients ( $r^2$ ), thereby ensuring that the data collected for verification have sufficient discriminant validity.

#### 4.2. Hypothesis testing

Figure 2 shows the results of path analysis performed to verify the hypothesis that the sub-elements of gamification positively influence the brand app experience. The structural equation model was used to verify the hypotheses associated with the proposed model. The goodness of fit of the model hypotheses yielded  $\chi^2 = (314) = 866.9$ , CFI = .957, NFI = .911, NNFI = .954, GFI = .885, AGFI = .859, SRMR = .109, RMSEA = .049, which means that the model's goodness of fit satisfies the recommended minimum values. To test structural relationships, the hypothesized causal paths were estimated. Six hypotheses were supported. The results are shown in Figure 2. The results indicate that sub-factors of gamification (fun, rewards, competition, and storytelling) are positively related to brand experience. These proposed paths were significant in the hypothesized direction (fun with a standardized path coefficient for brand experience:  $\gamma = .306(.250)$ ,  $z = 6.679$ ,  $p < .001$  for H1-1, rewards with a standardized path coefficient for brand experience:  $\gamma = .239(.186)$ ,  $z = 3.856$ ,  $p < .001$  for H1-2, competition with a standardized path coefficient for brand experience:  $\gamma = .445$

**Table 1. Result of initial factor analysis**

Independent Variables			Dependent Variables		
Construct	Items	F.I	Construct	Items	F.I
Fun	Fun1	.834	Experience	Ex1	.796
	Fun2	.851		Ex2	.832
	Fun3	.672		Ex3	.774
Reward	Rew1	.757		Ex4	.758
	Rew2	.790		Ex5	.732
	Rew3	.696		Ex6	.754
Competition	Com1	.791		Ex7	.739
	Com2	.878		Ex8	.691
	Com3	.801		Ex9	.768
Storytelling	Sto1	.832		Ex10	.693
	Sto2	.701		Ex11	.773
	Sto3	.847		Ex12	.709
Moderating Variables			Consumer-Brand Satisfaction	CBS1	.835
Reflex	Ref1	.778		CBS2	.703
	Ref2	.881		CBS3	.826
	Ref3	.776	Purchase Intention	PI1	.794
Rea1	.802	PI2		.912	
Rea2	.821	PI3		.863	
Real Place	Rea3	.742	Factor	Eigenvalues	% of Variance
	RP1	.743	Factor 1	11.54	64.11
	RP2	.787	Factor 2	1.13	6.27
	RP3	.854	Factor 3	.962	5.34

(Continued)

**Table 1. (Continued)**

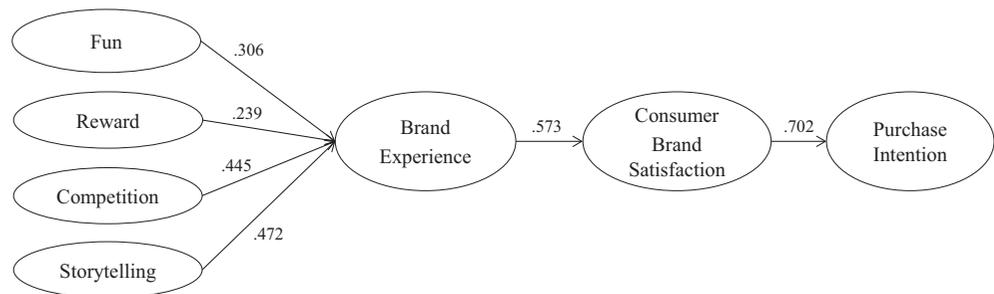
Independent Variables			Dependent Variables		
Construct	Items	F.L	Construct	Items	F.L
Real Communication	RC1	.877	75.7 % of total variance extracted		
	RC2	.853			
	RC3	.864			
Independent Variables					
Factor	Eigenvalues	% of Variance	Factor	Eigenvalues	% of Variance
Factor 1	8.58	71.5	Factor 1	5.66	70.8
Factor 2	.946	7.89	Factor 2	.797	9.96
Factor 3	.691	5.76	Factor 3	.437	5.46
Factor 4	.488	4.07	Factor 4	.321	4.01
89.2 % of total variance Extracted			90.2 % of total variance Extracted		
F.L: Factor Loadings					

**Table 2. Discriminant validity**

	AVE	1	2	3	4	5	6	7	8	8	10	11
Fun	.673	1										
Rew	.752	.014	1									
Comp	.767	.382	.114	1								
Stro	.667	.228	.062	.242	1							
Ex	.723	.345	.132	.043	.018	1						
Sat	.651	.323	.121	.143	.134	.479	1					
PI	.732	.011	.201	.143	.101	.125	.152	1				
Ref	.754	.167	.302	.121	.114	.138	.079	.351	1			
Rea	.751	.015	.207	.029	.160	.017	.148	.367	.507	1		
Pla	.672	.143	.055	.156	.181	.278	.312	.231	.212	.312	1	
Com	.723	.167	.259	.172	.181	.078	.247	.367	.276	.405	.320	1

\* squared correlation coefficients, A.V.E (Average Variance Extracted)

**Figure 2. Results of path analysis**



(.342),  $z = 7.184$ ,  $p < .001$  for H1-3, and storytelling with a standardized path coefficient for brand experience:  $\gamma = .472(.393)$ ,  $z = 10.285$ ,  $p < .001$  for H1-4. Thus, H1-1, H1-2, H1-3, and H1-4 were supported.

Brand experience is positively related to consumer-brand satisfaction. The proposed paths were significant in the hypothesized direction (brand experience, with a standardized path coefficient for consumer-brand satisfaction:  $\gamma = .573(.582)$ ,  $z = 16.137$ ,  $p < .001$  for H2). Thus, H2 was supported. Consumer-brand satisfaction was positively related to purchase intention. The proposed paths were significant in the hypothesized direction (consumer-brand satisfaction, with a standardized path coefficient for purchase intention:  $\gamma = .702(.821)$ ,  $z = 19.756$ ,  $p < .001$  for H3). Thus, H3 was supported.

To confirm the moderating effect in H4, this study performed hierarchical regression analysis, aimed at determining whether apps for marketing factors played a moderating role when the elements of gamification influenced the brand app experience. The study considered gender as a control variable. First, the relationship with gender was analyzed. Based on standardized regression coefficients, gender (mean vs. female) were revealed to have positive effects on brand experience ( $\beta = .148$ ,  $t = 3.111$ ,  $p < .05$ ). Thus, there are differences between the male and female groups (mean: 2.60 for males and mean: 2.82 for females,  $F = 9.676$ ,  $p < .05$ ).

As Table 3 shows, the interactions of three of the tested fun sub-factors of gamification with the real place and communication sub-factors of the 4Rs of app marketing were not significant predictors of brand app experience (for fun x real place,  $\beta = .071$ ,  $p > .05$ ; for fun x real communication,  $\beta = -.089$ ,  $p > .05$ ). However, the interactions of three of the tested fun sub-factors of

**Table 3. Results of moderating effect of 4R**

Variables		$\beta$	t	p-value
Constant			21.529	.000
Control Variable	Sex	.148**	3.111	.002
Main Effect	Fun	.150***	4.506	.000
	Reward	.180**	3.230	.001
	Competition	.176**	3.226	.001
	Storytelling	.152**	2.237	.026
Interaction Effect		.390**	7.551	.000
Fun * Reflex		.520**	2.324	.021
Fun * Reality		.337**	2.790	.006
Fun * Real Place		.071	.455	.649
Fun * Real Communication		-.089	-1.253	.211
Reward * Reflex		.508***	6.024	.000
Reward * Reality		-.101	-.794	.428
Reward * Real Place		.145**	2.565	.011
Reward * Real Communication		.035	1.271	.204
Competition * Reflex		.455***	5.831	.000
Competition * Reality		.717***	7.216	.000
Competition * Real Place		.074	.669	.504
Competition * Real Communication		.554***	3.570	.000
Storytelling * Reflex		.032	.900	.369
Storytelling * Reality		.560***	4.938	.000
Storytelling * Real Place		.573***	5.458	.000
Storytelling * Real Communication		.499**	3.040	.003
R <sup>2</sup>		.676		
F-value		40.97***		

\*\*\*  $p < .001$ , \*\*  $p < .05$

gamification with the reflex and reality sub-factors of the 4Rs of app marketing were significant predictors of brand app experience (for fun x reflex,  $\theta = .520$ ,  $p < .05$ ; for fun x reality,  $\theta = .337$ ,  $p < .05$ ). Thus, of the four interaction hypotheses, two sub-hypotheses (regarding fun x reflex, and fun x reality) were supported.

The interactions of three of the tested rewards sub-factors of gamification with the reality and real communication sub-factors of the 4Rs of app marketing were not significant predictors of brand app experience (for rewards x reality,  $\theta = -.101$ ,  $p > .05$ ; for rewards x real communication,  $\theta = .035$ ,  $p > .05$ ). However, the interactions of three of the tested rewards sub-factors of gamification with the reflex and real place sub-factors of the 4Rs of app marketing were significant predictors of brand app experience (for rewards x reflex,  $\theta = .508$ ,  $p < .001$ ; for rewards x real place,  $\theta = .145$ ,  $p < .05$ ). Thus, of the four interaction hypotheses, two sub-hypotheses (regarding rewards x reflex, and rewards x real place) were supported.

The interactions of three of the tested competition sub-factors of gamification with the real place sub-factor of the 4Rs of app marketing were not significant predictors of brand app experience (for fun x real place,  $\theta = .074$ ,  $p > .05$ ). However, the interactions of three of the tested competition sub-factors of gamification with the reflex, reality, and real communication sub-factors of the 4Rs of app marketing were significant predictors of brand app experience (for

competition x reflex,  $\beta = .455, p < .001$ ; for competition x reality,  $\beta = .717, p < .001$ ; for competition x real communication,  $\beta = .554, p < .001$ ). Thus, of the four interaction hypotheses, three sub-hypotheses (regarding competition x reflex, competition x reality, and competition x real communication) were supported.

The interactions of three of the tested storytelling sub-factors of gamification with the reflex sub-factor of the 4Rs of app marketing were not significant predictors of brand app experience (for storytelling x reflex,  $\beta = .032, p > .05$ ). However, the interactions of three of the tested storytelling sub-factors of gamification with the reality, real place, and real communication sub-factors of the 4Rs of app marketing were significant predictors of brand app experience (for storytelling x reality,  $\beta = .560, p < .001$ ; for storytelling x real place,  $\beta = .573, p < .001$ ; for storytelling x real communication,  $\beta = .499, p < .001$ ). Thus, of the four interaction hypotheses, three sub-hypotheses (regarding storytelling x reality, storytelling x real place, and storytelling x real communication) were supported.

## 5. Discussion and conclusions

This study focused on the gamification phenomenon in a business environment in which the widespread use of smartphones has led to the development of a wide range of mobile applications, increasing companies' interest in app marketing strategies. The study found that the sub-factors of gamification are positively related to brand app experiences. Moreover, competition and storytelling serve as motivating factors and have stronger effects on brand app experiences than do fun and rewards. Brand app users are more likely to seek competition and storytelling than other potential gamification sub-factors.

The sub-elements of gamification included fun, rewards, competition, and storytelling, while those of app marketing included the 4Rs (reflex, reality, real place, and real communication) as moderating variables. We confirmed the hypothesis that, when the sub-factors of gamification influence brand experiences, the 4Rs of app marketing may play a moderating role. We then developed two hypotheses positing that brand experiences might influence relationship satisfaction and that brand–consumer satisfaction might influence purchase intention. The results indicate that rewards and competition, as sub-elements of gamification, and brand app experiences do not influence each other. The study also found that fun and storytelling as sub-elements of gamification are significantly and positively related to brand app experiences. The study found that the brand app experience directly influenced consumer–brand satisfaction in a statistically significant way and that there was a statistically significant relationship between consumer–brand satisfaction and purchase intention.

The interactions of three of the tested fun sub-factors of gamification with the real place and communication sub-factors of the 4Rs of app marketing did not positively influence brand app experiences. However, the interactions of three of the tested fun sub-factors of gamification with the reflex and reality sub-factors of the 4Rs of app marketing were significant predictors of brand app experiences. The interactions of three of the tested rewards sub-factors of gamification with the reflex and real place sub-factors of the 4Rs of app marketing were significant predictors of brand app experiences. The interactions of three of the tested competition sub-factors of gamification with the reflex, reality, and real communication sub-factors of the 4Rs of app marketing directly affected brand app experiences. The interactions of three of the tested storytelling sub-factors of gamification with the reality, real place, and real communication sub-factors of the 4Rs of app marketing were significant predictors of brand app experiences. The results indicate that the 4Rs played a moderating role in the way in which the gamification sub-factors influence brand app experiences.

## 6. Implications and future research directions

As consumers' consumption patterns are becoming more diversified, sophisticated, individualized, and emotional, more research needs to be undertaken to understand the importance of

experiential factors. This study's findings provide valuable insights for marketers, designers, and companies that are considering branded apps to market their products or services. Specifically, formulating a marketing strategy using branded apps should increase opportunities for app users to interact with brands, promoting the development of deeper relationships between customers and brands. Gamification factors that should be considered include fun, rewards, competition, and storytelling. Gamification can deliver the outcomes marketers seek by making technologies fun. In doing so, gamification can make seemingly boring things fun to do.

The results of the study pertaining to brand app users indicate that not all the 4R sub-factors moderate the relationship between these gamification sub-factors and brand app experiences. However, reflex moderates the relationship between fun, rewards, and competition and the brand app experience. Reality moderates the relationship between fun, competition, and storytelling, and the brand app experience. Real place moderates the relationship between rewards and storytelling, and the brand app experience. Real communication moderates the relationship between competition and storytelling, and the brand app experience. These findings suggest that brand app users who seek fun with storytelling enjoy their app experiences depending on the level of 4Rs generated.

Brand apps are mobile applications that are integrated into social networking platforms, including multiple users, real identity, and casual entertainment configurations. To increase user satisfaction with apps, marketers provide brand apps with story-based fun. The results of this study indicate that companies should develop technologies to interact with customers, attract customers, and provide them with memorable experiences and fun. Lastly, instead of just sending messages or product information, companies should provide consumers with opportunities to use and participate in brand-related functions. In doing so, they can build relationships with customers and encourage brand loyalty.

Companies oriented toward e-commerce should consider increasing users' interest by the sub-factors of gamification, such as fun, rewards, competition, and storytelling. This might be the best way to increase users' attention. Mobile brand application through gamification and the 4Rs is expected to become a critical factor for successful business, increased brand engagement, a better consumer-brand relationship, and brand loyalty.

Given that current brand experiences are not well understood, this study has the following additional implications. First, having a better understanding of experiential values for consumers can help companies establish the right marketing strategies. In particular, the study provides advertisers, marketers, and manufacturers with information that can guide them in developing content that engages people. Second, understanding how the components of game structure (fun, rewards, competition, and storytelling) influence users' brand app experiences can help companies establish marketing strategies based on the 4Rs and the gamification characteristics of brand apps. Third, given that brand app experiences influence the success of a brand, the experiential economy theory of Pine and Gilmore (1999), which regards experience as a product, and Schmitt's (1999) theory of holistic experience can be introduced to the mobile environment. Fourth, there have been few studies on brand apps as experience providers; this study demonstrates the impacts of brand experiences on the success of a brand and should enhance the theoretical basis for and scientific recognition of mobile experiences influencing the success of a brand. Fifth, this study should provide important strategic information for companies seeking to enhance their brands' asset value by utilizing mobile devices featuring brand apps. Strengthening comprehensive marketing communication activities that enhance cognitive, entertaining, and escapist experiences can greatly improve brand performance in terms of brand awareness, brand image, brand loyalty, and purchase intention. Lastly, consumers of beauty products have highly individual styles and they represent fashion-oriented culture.

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