**International Journal on Semantic Web and Information Systems**
Volume 20 • Issue 1

# The Consequences of Gamification in Mobile Commerce Platform Applications

Olfa Bouzaabia, University of Sousse, Tunisia
Mohamed Ben Arbia, University of Sousse, Tunisia
https://orcid.org/0000-0001-8964-6622
David Juarez Juárez Varón, Universitat Politècnica de València, Spain*
https://orcid.org/0000-0003-3251-8851
Kwok Tai Chui, Hong Kong Metropolitan University, Hong Kong

## ABSTRACT

Gamification in mobile apps has a research gap, given the potential for gamification to enhance user repurchase intention in a mobile commerce context. This research investigates the concept of gamified m-commerce platform application through the lenses of customer experience and repurchase intention. The study proposes an empirical model to examine the relationship between hedonic value, utilitarian value, customer experience, and repurchase intention in the context of mobile commerce platform application. It is underscoring the importance of exploring the application of gamified m-commerce platforms and their impact on customer experience and repurchase intention. The findings contribute to the existing body of literature on online retail by offering new insights into the implications of gamified m-commerce platform applications. A quantitative research approach was employed, and an online questionnaire was used to gather data. The collected data from a sample of 270 mobile commerce shoppers was analyzed. The results supported all direct hypothesized associations among variables.

## KEYWORDS

Customer experience, Gamification, Hedonic value, m-commerce platform application, Repurchase intention, Utilitarian value

## INTRODUCTION

Living in an increasingly advancing dematerialized world, where technology plays an ever more significant role, has led to a growing dependency on advanced technological systems in various aspects of our lives (Deveci et al., 2022; Gupta & Panda, 2022). This trend encompasses diverse sectors and industries, ranging from communication and commerce to healthcare and education (Singh et al., 2022). The rapid development and widespread adoption of digital technologies have reshaped the way we interact, work, and engage with the world around us (Singh et al., 2022).

In recent years, the use of emerging interactive technologies and digital platforms can enhance the shopping experience, improve consumer loyalty, and increase retailers' profitability (Siregar & Kent,

DOI: 10.4018/IJSWIS.337599 *Corresponding Author

2019). Shopping intentions are determined by a combination of extrinsic and intrinsic motivations (Van der Heijden, 2004; Syed et al., 2021; Meena & Sarabhai, 2023). However, retailers' traditional strategies based on pricing and product innovation are no longer adequate (Insley & Nunan, 2014). To optimize the customer experience, retailers need to incorporate engaging methods. Gamification has been identified as an effective approach for creating memorable customer experiences and eliciting positive game-like experiences (Naqvi et al., 2021; Kusumawardani et al., 2023). As a result, more and more companies are turning to gamification as a marketing strategy. Gamification has become a significant research topic, as it has been shown to drive user engagement, enjoyment, and retention in user-platform interaction (Hofacker et al., 2016, García-Magro et al., 2023). The incorporation of gamified, ludic, and social elements in mobile apps can reduce consumers' cognitive effort, which could give retailers a competitive advantage. In 2018, gamification generated an estimated value of $5.5 billion and has the potential for a 600% increase in user downloads for gamified business apps (De Canio et al., 2021).

Despite its potential benefits as a powerful tool for creating an engaging environment with game-like features, the use of gamification in various settings remains understudied (Djhan et al., 2022). Only a few academic studies have explored its application in the service or marketing sectors. Moreover, the existing literature lacks a framework to predict and explain how gamification influences customer experience and repurchase intention (De-Marcos et al., 2014). As such, researchers have emphasized the need to further explore the impact of gamification on customer behavior and experiences with mobile apps (Perannagari & Chakrabarti, 2019).

Our study is groundbreaking in its explanation of the gamification phenomenon within mobile commerce platform application, offering novel insights into the role of utilitarian and hedonic value, as well as customer experience, in enhancing customer repurchase intention. Specifically, our research aims to investigate the impact of gamification on both repurchase intention and customer experience within mobile commerce platforms. Additionally, our study explores the relationship between gamification and utilitarian and hedonic value, providing further clarity on the factors driving customer behavior within these applications.

The paper is organized as follows. In the first section, we provide an overview of the literature on gamification. The second section presents the research hypotheses to be tested. Subsequently, we describe the study conducted to collect data from 270 customers of the Jumia mobile app who played games using the app. Finally, we discuss the results and offer managerial implications and suggestions for future research.

## LITERATURE REVIEW

### Gamification

The term "gamification" is relatively new, particularly in the virtual world, although the concept has been around for some time (Yang et al., 2017). It first emerged in the early 2000s (Leclercq et al., 2017) and has gained increasing attention since the early 2010s (Werbach & Hunter, 2012). The underlying idea of gamification is to leverage the motivational potential of video games by incorporating game design elements into non-game contexts or environments (Deterding et al., 2011).

The use of game design elements in non-game contexts is the core concept of gamification, as defined by Deterding et al. (2011). These game elements include challenges, levels, rewards, and stories, as described by Hamari et al. (2014) and Feng et al. (2020). Swan (2012) characterizes gamification as the process of adding game mechanics to platforms, processes, and programs that previously lacked them. When implemented effectively, gamification can enhance engagement and improve customer retention (Insley & Nunan, 2014; Hsu & Chen, 2018). Zichermann and Cunningham (2011) offer a more customer-oriented definition, describing gamification as a form of loyalty that encourages users to choose a particular service over comparable options.

When digital interactions seamlessly integrate game-like elements with marketing goals, both businesses and consumers can reap the rewards through engaging mobile marketing campaigns (Rakhmanita et al., 2022). Gamification of marketing is a fast-growing phenomenon and an innovation for mobile marketing. Gamification is a strategy for increasing the attractiveness of mobile consumers to encourage increased shopping behavior, loyalty, engagement, and product advocacy (Rakhmanita et al., 2022) Businesses leverage gamification, particularly mechanisms like points, badges, and leaderboards within loyalty programs, to boost consumer participation, brand awareness, and favorability (Li et al., 2023). For mobile shoppers, the incentive of redeemable rewards, free samples, or vouchers offered by gamified mobile marketing campaigns can be highly attractive, provided the required effort aligns with their expectations (Li et al., 2023)

Specifically, the strategic application of gamification techniques, blending enjoyable experiences with productive aims, is rapidly evolving as one of the most significant trends in m-commerce (Li et al., 2023).

In recent years, gamification has garnered significant attention from academics, practitioners, and consultants as a viable method for influencing user behavior (Dymek, 2017). It has been widely implemented across various industries and services, including banking (Rodrigues et al., 2017; Baptista & Oliveira, 2017), online travel sites (Sigala, 2015), healthcare (Hammedi et al., 2017), innovation (Leclercq et al., 2017), logistics (Warmelink et al., 2018), and fitness monitoring applications (Hamari & Koivisto, 2015). Furthermore, gamification has emerged as a marketing tool, allowing service providers to attract and engage customers in ways that positively influence their behavior (Schlager et al., 2018; Bauer et al., 2020). Recent marketing studies have underscored the potential benefits of gamification, suggesting that gamification services can increase consumer engagement and loyalty to service providers (Hammedi et al., 2017; Liu et al., 2017; Berger et al., 2017).

Gamification has been classified into three viewpoints. The first perspective is that of the designer, which has been widely agreed upon by scholars such as Deterding et al. (2011), Swan (2012), and Filsecker and Hickey (2014). This perspective defines gamification as a game-like mechanism designed for non-game contexts, primarily for commercial purposes. The second perspective on gamification pertains to the service provider's point of view. From this perspective, gamification is defined as the process by which companies convert customers' daily routines into enjoyable experiences with the aim of increasing engagement in activities and promoting sustainable behavior change (Robson et al., 2015). According to Gopinath Bharathi et al. (2016), this process makes companies more engaging and enjoyable, increasing customer loyalty and satisfaction (Harwood & Garry, 2015; Roth et al., 2015). The third perspective of gamification is the customer perspective, which sees gamification as a service improvement process that offers users play experiences to enhance the overall value creation (Huotari & Hamari, 2016), creating an experience that is based on real-world evidence and customer behavior and knowledge, placing the customer at the center of the process.

## Relationship Between Gamification and Retail

The retail industry is undergoing rapid disruption (Johnson et al., 2014; Shankar et al., 2021), as shopper behavior changes in response to modern technologies like apps and gamification. This presents both a challenge and an opportunity for retailers, who must strike a balance between past practices and future needs (Nilsson, 2022). Gamification has the potential to significantly impact service firms throughout the consumer decision process (Hofacker et al., 2016; Wünderlich et al., 2020), and is among the innovative technologies that retailers are adopting to stay ahead of the aggressive competition in the industry. Marketing efforts are made more efficient through the use of gamification (Sheetal et al., 2022). Retailers face challenges in encouraging customers to disclose their data, particularly when trust levels are low. Designing data requests to include relevant game elements can amplify the positive effect and increase customer engagement in a meaningful way (Bidler et al., 2020). Successfully executed gamified marketing can lead to increased brand stickiness among consumers. Fun is a key component of gamified marketing, and salespeople must provide

information and prizes that capture customers' initial attention before allowing them to participate in activities. The design of game mechanisms generates incentives like enjoyment and attraction and provides distinct feedback, enabling customers to enjoy the game and unwittingly compete for glory (Lu & Hu, 2020).

## HYPOTHESES DEVELOPMENT

### Hedonic and Utilitarian Value in Gamification

Hedonic value refers to the overall assessment of experiential benefits and satisfaction, including entertainment and leisure (Overby & Lee, 2006). Babin (1995) further described it as the emotional and entertainment value derived from the act of purchasing. In other words, consumers often engage in shopping activities not only to fulfill a task but also to enjoy the experience itself (Nurcahyo et al., 2023). On the other hand, utilitarian value is focused on the efficiency of the shopping process and relates to goal-oriented customers whose primary objective is to complete the shopping job (Kusumawardani et al., 2023).

Gamification is a technique that combines utilitarian activities with hedonic elements, according to Hamari et al. (2014) and Dicheva et al. (2019). Tobon et al. (2020) defined it as "the process of applying game design elements in non-game contexts to create enjoyable experiences". Huotari and Hamari (2016) and Högberg et al. (2019) explain that gamification aims to enhance the fun and enjoyment of tasks, often through hedonic pleasure, to encourage target behavior. Various researchers, including Seaborn and Fels (2015), and Su et al. (2016), have suggested that gamification can engage users by increasing hedonic value and creating positive experiences through game design elements. Hamari and Koivisto (2015) suggest that gamification can be viewed as a tool that employs hedonic and intrinsically motivated behavior to motivate users towards utilitarian goals and provide hedonic value. They, along with Högberg et al. (2019), further suggest that gamification can motivate and support users by generating enjoyable and useful experiences with added hedonic elements. Additionally, Csikszentmihalyi (1975) suggests that gamification adds hedonic value by enhancing the enjoyment of the experience, thus creating intrinsic motivation. Based on this literature, we propose the following hypothesis.

*Hypothesis 1 (H1)*: Gamification positively influences hedonic value.

In the context of gamification, Hamari and Koivisto (2015) suggest that utilitarian value is added through the use of gamification. To meet customers' expectations, gamification tactics should combine both hedonic and utilitarian value when they seek to purchase. Van der Heijden (2004) and Shahid and Arshad (2021) proposed that gamification is primarily used with services that serve an instrumental and utilitarian purpose, with a need to achieve external goals through gamification. Thus, gamification can affect utilitarian value. According to Hamari and Koivisto (2015), gamification is a complex concept that aims to motivate people to pursue and advance utilitarian goals, which in turn enhance utilitarian value. Furthermore, in cases of gamified applications, the services at their core are intended to support and generate a utilitarian purpose (Hamari & Koivisto, 2015). Gamification is viewed as an operation to implement competitive but enjoyable experiences, and such gamified services have been shown to influence utilitarian value (Mathwick et al., 2001; Huotari & Hamari, 2016; George et al.; 2023). Based on this, we propose the following hypothesis.

*Hypothesis 2 (H2)*: Gamification positively influences utilitarian value.

## Customer Experience

Enhancing customer experiences by incorporating gaming aspects into products and services has been a common strategy in recent years (Kusumawardani et al., 2023).

Customer experience is defined as the overall set of experiences that a customer goes through while purchasing or using a product or service and is considered a crucial element for companies to attract and retain customers (Becker & Jaakkola, 2020), presenting a gap in knowledge regarding how gamification influences consumer behavior and experience (Hsu & Chen, 2018). Gamification plays a crucial role in improving the consumer experience, positively influencing their repurchase intention (Silva et al., 2022). By integrating gamified elements such as rewards, challenges, and progression levels into m-commerce platforms, businesses can generate accumulated engagement among users. This creates a more immersive and entertaining shopping experience, enticing consumers to stay on the platform longer. So, by investing in gamification, companies can therefore not only improve the customer experience but also stimulate repurchase intention, thus creating a more solid and lasting relationship with their customers.

Thus, Djohan et al. (2022) and Xu et al. (2023) note that e-commerce gamification not only creates a fun experience but also rewards customers for completing specific tasks or achieving specific goals in the form of redeemed coins or vouchers. Vdov's (2020) study reveals that gamification contributes to positive emotions and experiences in digital environments and provides customers with rewards for attaining game objectives (Lee & Jin, 2019). This leads us to formulate the following hypothesis.

*Hypothesis 3 (H3)*: Gamification positively influences customer experience.

## Hedonic Value and Customer Experience

Numerous studies have demonstrated that favorable evaluations of hedonic benefits have a positive impact on customers' experience through mobile applications (Bilgihan et al., 2016). Hedonic value, as noted by Bridges and Florsheim (2008) and Liu et al. (2020), is a significant goal for online consumption that influences consumer behavior. Through hedonism, customers can be more satisfied with their user experience if they perceive an intrinsic motivation to use an online tool. Thus, creating an interactive and entertaining environment that meets the emotional needs of shoppers can increase online shopping and encourage purchases by providing pleasurable shopping elements that enhance marketing effectiveness and stimulate promotional incentives. These assumptions lead to the development of the following hypothesis:

*Hypothesis 4 (H4)*: Hedonic value positively influences customer experience.

## Utilitarian Value and Customer Experience

Several studies have demonstrated that utilitarian value is rational and task-oriented and can be regarded as a cognitive outcome instead of an emotional one (Jhon et al., 2006; Wang, 2022). Utilitarian value is associated with practical benefits that fulfill customers' functional needs (Rauschnabel et al., 2019). By using a mobile commerce platform application for utilitarian purposes, consumers can save time, reduce their efforts, and compare prices, which can lead to a positive evaluation of the experience (McLean et al., 2016). However, customers may experience negative emotions when using the application due to various constraints (McLean et al., 2016). Based on these findings, we propose the following hypothesis regarding the relationship between utilitarian value and customer experience.

*Hypothesis 5 (H5)*: Utilitarian value positively influences customer experience.

## Repurchase Intention and Customer Experience

Repurchase intention refers to the likelihood of customers purchasing goods or services again based on their prior experience with the quality and benefits of the product (Ilyas et al., 2020). The initial purchase and usage experience can determine whether customers will have a positive or negative intention to repurchase (Amoako et al., 2021). Febriani and Ardani (2021) demonstrated that customers who have a positive impression of a product are more likely to have a memorable experience and make repeat purchases (Annisa et al., 2019). Similarly, Hasman et al. (2019) suggested that customer experience has a positive and meaningful impact on repurchase intention. Based on these premises, we propose the following hypothesis.

*Hypothesis 6 (H6)*: Customer experience positively influences repurchase intention.

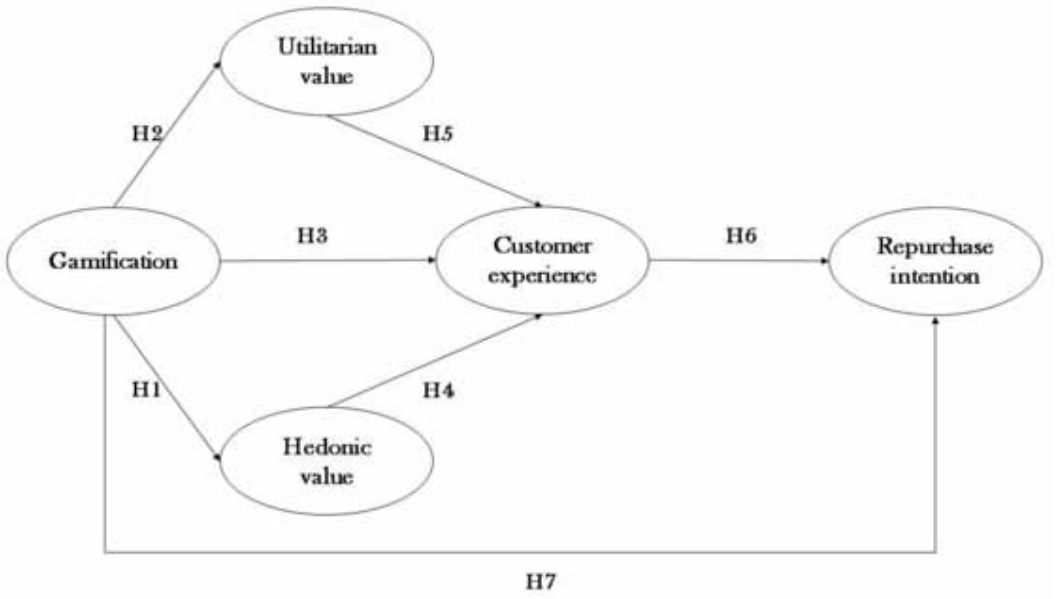
## Gamification and Repurchase Intention

The use of gamification can be an effective strategy for enhancing user intention and promoting user retention (Silic et al., 2020). Researchers have examined various dimensions that impact the likelihood of repurchase intention in different contexts (Mouakket, 2009), and have suggested leveraging gamification as a tool to influence customers' purchase decisions (Helmefalk & Marcusson, 2020; Raman, 2020) since repeated purchase intention serves as a more realistic metric for customer attitudes toward a company. Feng et al. (2020) found that customers who participate in mobile commerce activities with entertainment properties, such as games, are more likely to make repurchases. Therefore, based on the literature reviewed, we propose the following hypothesis:

*Hypothesis 7 (H7)*: Gamification positively influences repurchase intention.

The proposed hypotheses were used to develop the research model shown in Figure 1.

**Figure 1. Conceptual model**



## METHODOLOGY

### Sample and Data Collection

To validate our theoretical model, a quantitative research approach was employed. An online survey was employed to gather empirical data. We utilized multiple item scales to enhance both the validity and reliability of the results. Participants were instructed to express their agreement or disagreement with 36 statements using a five-point Likert scale ranging from 1—*strongly disagree* to 5—*strongly agree*, with a midpoint of *neutral*. The sampling technique used was convenience sampling, employing the approach of multiplying the number of observable variables by 10 (Sorbom and Jöreskog, 1982; Akrout, 2010), we got 270 samples. Our final sample consisted of 270 customers who had purchased and used the Jumia mobile app, without regard to their age or gender.

Jumia, an African-based e-commerce company, offers a variety of electronic, hygiene, and food products, and services, earning it the nickname "African Alibaba" or "African Amazon." The company's operations span more than ten African countries, including Morocco, Algeria, Tunisia, Kenya, Egypt, Uganda, Senegal, Ghana, South Africa, Nigeria, and Ivory Coast, as well as international countries like Portugal, China, and the United Arab Emirates.

The sample used in this study was a convenience sample. Descriptive statistics revealed that the sample consisted of 62.2% (N=168) female and 37.8% (N=102) male respondents. The age distribution of the sample was as follows: 10.4% of respondents were under 18 years of age, 68.5% were between 18 and 30 years of age, 11.1% were between 31 and 40 years of age, 6.7% were between 41 and 49 years of age, and 3.3% were over 50 years of age. With regard to the frequency of app use, 15.6% of respondents reported using the mobile application once a week or less, 13.3% reported using it several times a week, 21.5% reported using it once a month, 15.2% reported using it several times a month, and 34.4% reported using it once a year.

### Data Analysis

To analyze the data in this study, we will employ the Statistical Package for the Social Science (SPSS 23) and SmartPLS 4. PLS, a variance-based method, has an advantage over covariance techniques like LISREL or AMOS (Jöreskog & Wold, 1982). PLS is commonly used to evaluate hypothesized correlations in exploratory models (Mahmood et al., 2004), as well as in the context of online shopping (Ha et al., 2010; Rose et al., 2012).

### Measurement Scales

All measurement scales (see Table 1) used in this study were adopted from previous research in marketing and have demonstrated strong psychometric qualities. The scale for measuring gamification, consisting of six items, was derived from the work of Rodrigues et al. (2017). To measure hedonic value, we employed the eight-item scale developed by Babin et al. (1994). Utilitarian value was measured using the four-item scale by Lee et al. (2009). The three-item scale for measuring customer experience was adapted from Song and Zinkhan (2008), and the three-item scale used to measure repurchase intention was adapted from Fang et al. (2014).

## RESULTS

### Assessment of the Measurement Model

To assess the validity of the measurement model, we employed rigorous tests of convergent and discriminant validity. Convergent validity was evaluated by examining factor loadings, composite reliability (CR), and average variance extracted (AVE), as recommended by Hair et al. (2014).

**Table 1. Constructs, items, and their alpha**

| Construct | Items | Cronbach's alpha |
|---|---|---|
| Gamification | Playing Jumia can be useful since it can give information about products.<br>I feel pleasure in the use of Jumia with game elements.<br>I feel good while playing a game on the Jumia application.<br>I would like to participate in the game in Jumia.<br>I think that Jumia with content and animated elements is secure.<br>The Jumia mobile application should reward its customers.<br>The experience on the Jumia was truly a joy. | 0,879 |
| Hedonic Value | Compared to other applications, time spent on Jumia was truly enjoyable.<br>During the use of Jumia, I felt the excitement of the hunt.<br>The Jumia experience truly felt like an escape.<br>I enjoyed the Jumia experience for its own sake, not just for the items I may have purchased.<br>I continue using it, not because I have to, but because I want to.<br>I had a good time because I was able to act on the «spur of the moment.<br>While using Jumia, I was able to forget my problems. | 0,884 |
| Utilitarian Value | The prices of the products I purchased from Jumia were at the right level, given the quality.<br>The products I purchased from Jumia were good buy.<br>Jumia offered a good economic value.<br>I accomplished what I wanted to on Jumia. | 0,843 |
| Customer Experience | CE1: I am satisfied with the experience of shopping on Jumia.<br>CE2: The experience of shopping on Jumia is exactly what I needed.<br>CE3: The experience of shopping on the Jumia mobile application has worked out as well as I thought it would | 0,841 |
| Repurchase Intention | I'm likely going to buy online again from this mobile application in the short term.<br>I'm likely going to buy online again from this mobile application in the medium term.<br>I'm likely going to buy online again from this mobile application in the long term. | 0,837 |

Our study's CR results indicated strong internal consistency, as all scales demonstrated a Cronbach's alpha value exceeding the threshold of 0.7 (see Table 2). This suggests that the items within each scale reliably measure the underlying construct.

Furthermore, we assessed the AVE of each variable, with the expectation that it should exceed 0.50 to establish acceptable convergent validity (Bagozzi & Yi, 1988). In our study, all variables surpassed this threshold, indicating that the items within each construct explain more than 50% of their respective variances. This demonstrates the convergent validity of our measurement model.

To evaluate discriminant validity, we employed the Fornell-Larcker criterion, which compares the square root of the AVE with the correlations among latent variables. Consistent with this criterion, our results demonstrated that the correlation coefficients between constructs were lower than the square root of their respective AVE values (see Table 2). This suggests that the constructs in our study are distinct from one another, supporting their discriminant validity.

Additionally, we utilized the heterotrait-monotrait ratio of correlations (HTMT) as an additional measure of discriminant validity. As shown in Table 3, all HTMT values were below the recommended threshold of 0.85. This further confirms that the constructs in our measurement model are distinct and do not overlap excessively.

Overall, our findings indicate strong support for the convergent and discriminant validity of our measurement model. The factor loadings, CR, AVE values, Fornell-Larcker criterion, and HTMT ratios collectively demonstrate that our measurement model effectively captures the distinctiveness and reliability of each construct.

**Table 2. Test of CR, AVE, and discriminant validity**

| Variables | CR | AVE | Customer Experience | Gamification | Hedonic Value | Utilitarian Value | Repurchase intention |
|---|---|---|---|---|---|---|---|
| Customer Experience | 0,904 | 0,759 | 0,871a | | | | |
| Gamification | 0,909 | 0,625 | 0,664 | 0,790a | | | |
| Hedonic Value | 0,908 | 0,553 | 0,744 | 0,558 | 0,749a | | |
| Utilitarian Value | 0,895 | 0,680 | 0,718 | 0,669 | 0,648 | 0,825a | |
| Repurchase Intention | 0,905 | 0,760 | 0,796 | 0,638 | 0,712 | 0,718 | 0,872a |

**Table 3. Discriminant validity using Heterotrait-Monotrait ratios**

| | Customer Experience | Gamification | Hedonic Value | Utilitarian Value | Repurchase intention |
|---|---|---|---|---|---|
| Customer Experience | | | | | |
| Gamification | 0,764 | | | | |
| Hedonic Value | 0,846 | 0,625 | | | |
| Utilitarian Value | 0,850 | 0,771 | 0,750 | | |
| Repurchase Intention | 0,844 | 0,735 | 0,823 | 0,850 | |

*Note*: Values below the diagonal are heterotrait-monotrait ratios.

## Assessment of the Structural Model

To assess the quality of fit of the model, we considered two criteria: the coefficient of determination (R2) and the predictive relevance (Q2), as displayed in Table IV. The R2 measures the accuracy of the model's predictions by evaluating the impact of independent variables on dependent variables (Hair et al., 2014).

In our study, the R2 values for all variables exceeded 0.1, indicating that the model accounted for a substantial portion of the variance in the dependent variables. Notably, repurchase intention and customer experience exhibited high R2 values of 0.655 and 0.683, respectively. This suggests that the independent variables included in the model have a strong influence on these constructs. However, utilitarian and hedonic values demonstrated moderate R2 values of 0.448 and 0.311, respectively, indicating a comparatively moderate level of influence on these constructs.

Moving on to predictive relevance (Q2), this measure assesses the model's ability to predict the dependent constructs (Hair et al., 2014). A Q2 value greater than zero signifies good predictive relevance for a specific construct. Our results revealed that all Q2 values exceeded 0.1, indicating that the model has satisfactory predictive relevance.

Taken together, our findings demonstrate that the model achieved a significant level of accuracy in predicting the dependent variables. The R2 values indicate the proportion of variance explained by the independent variables, with repurchase intention and customer experience showing particularly strong relationships. Moreover, the Q2 values highlight the model's ability to predict the dependent constructs successfully. These results reinforce the robustness of our model in capturing and explaining the relationships among the variables under investigation.

## Hypothesis Testing

To verify our hypotheses, we assessed the significance of the relationships between the variables using the p-value, the t-value, and the original sample. Specifically, we considered a relationship

**Table 4. Value of R2 and Q2**

| | R-square (R2) | Cross validated redundancy ($Q^2$) |
|---|---|---|
| Customer Experience | 0,683 | 0.436 |
| Hedonic Value | 0,311 | 0.302 |
| Utilitarian Value | 0,448 | 0.441 |
| Repurchase Intention | 0,655 | 0.400 |

significant if the absolute value of the t-statistic was greater than 1.96 and the p-value was less than 0.05. Table 5 illustrates our findings, confirming all of our hypotheses.

## CONCLUSION AND DISCUSSION

In summary, our study makes a significant contribution to the existing literature by confirming the positive relationship between gamification and hedonic value, which is consistent with influential studies by Hsu and Chen (2018) and Högberg et al. (2019). Our findings support the idea that game-like activities on the mobile app enhance users' enjoyment, excitement, and pleasure. Additionally, we establish a significant positive correlation between gamification and utilitarian value, aligning with Hsu and Chen's (2018) research and emphasizing the potential cost savings for users. This suggests that gamification facilitates product acquisition through gameplay, leading to reduced prices or even free items, as previously discussed by Yu and Huang (2022).

Furthermore, our study builds upon the work of Lee et al. (2009) by emphasizing that utilitarian value is heightened when customers can effortlessly obtain products at a lower cost. By offering incentives and rewards through mobile app engagement, gamification directly influences utilitarian value and consumer purchasing behavior, supporting the arguments of previous researchers. Expanding our investigation to customer experience (H3), our findings align with the existing literature on the positive impact of gamification on customer experience, in line with the studies conducted by Vdov (2020) and Bitrián et al. (2021). The incorporation of gamification into the mobile app creates an enjoyable and engaging environment for customers, providing novel and entertaining activities that enhance their overall experience, as noted by Djohan et al. (2022) and Silva et al. (2023).

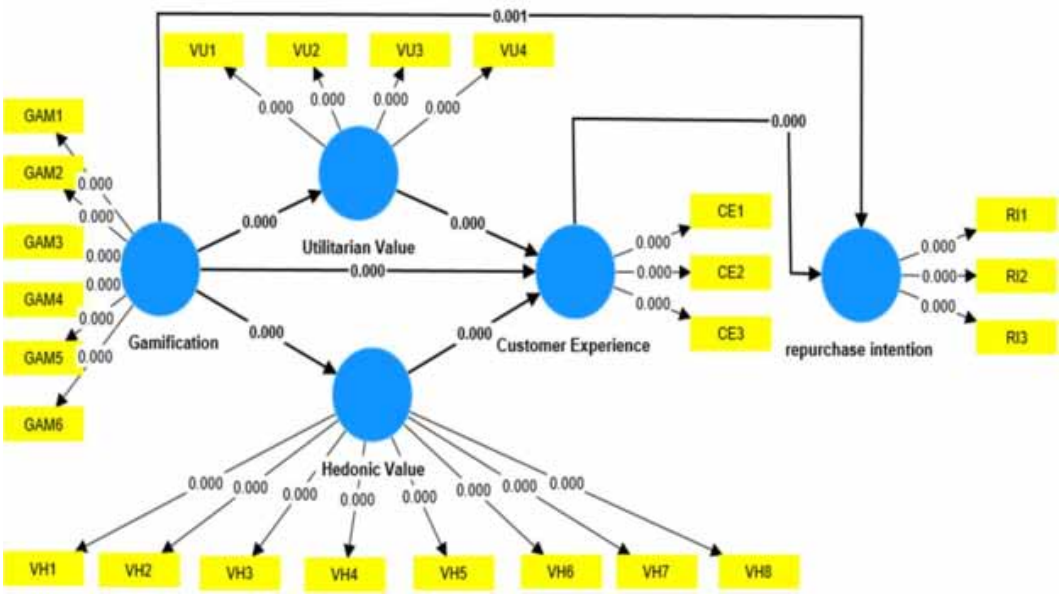
Consistent with the theoretical framework, our study establishes positive relationships between hedonic value and customer experience, supporting the findings of Naqvi et al. (2021) and Jami Pour et al. (2021). This further strengthens the evidence for the positive influence of hedonic value on

**Table 5. Results of hypotheses testing**

| Hypotheses | | Beta | P-values | T-Value | Decision |
|---|---|---|---|---|---|
| H1 | Customer Experience -> repurchase intention | 0,667 | 0,000 | 13,136 | Supported** |
| H2 | Gamification -> Customer Experience | 0,234 | 0,000 | 4,100 | Supported** |
| H3 | Gamification -> Hedonic Value | 0,558 | 0,000 | 11,527 | Supported** |
| H4 | Gamification -> Utilitarian Value | 0,669 | 0,000 | 18,962 | Supported** |
| H5 | Gamification -> repurchase intention | 0,195 | 0,001 | 3,359 | Supported** |
| H6 | Hedonic Value -> Customer Experience | 0,439 | 0,000 | 8,087 | Supported** |
| H7 | Utilitarian Value -> Customer Experience | 0,277 | 0,000 | 4,170 | Supported** |

*Note*: *Significance level of 1%; **Significance level of 5%.

**Figure 2. Structural model with path coefficients**




customer experience, specifically among Tunisian consumers in the context of gamification. Moreover, we find a positive relationship between utilitarian value and customer experience, aligning with Naqvi et al.'s (2021) research on the importance of utilitarian value in shaping customer experiences, particularly in the context of online shopping where engaging m-commerce platforms play a vital role. Regarding repurchase intention (H6), our findings align with the studies conducted by Febriani and Ardani (2021) and Herjanto and Amin (2020), supporting the notion that a positive customer experience is associated with an increased desire for repurchases. Furthermore, our study confirms the link between gamification and repurchase intention (H7), consistent with Djohan et al. (2022) and the argument that combining gamification with hedonic value components effectively drives consumers towards repurchasing, as suggested by Kim and Song (2020).

While our study differs from Kim and Song (2020) in finding a positive correlation between gamification and repurchase intention, as opposed to their non-significant effect, we attribute this variance to the nuanced interplay of hedonic value components within gamification. This highlights the need for further exploration in future research. To enhance the literature review, we acknowledge the importance of conducting a more comprehensive exploration of existing studies, theories, and concepts related to gamification, hedonic value, utilitarian value, customer experience, and repurchase intention. By addressing these aspects, our study aims to contribute to the ongoing discourse in this dynamic field.

In conclusion, our research not only aligns with the existing literature but also extends it by providing nuanced insights into the interrelationships among gamification, hedonic and utilitarian values, customer experience, and repurchase intention. This study serves as a valuable contribution to the field, and future research can build upon these findings to further unravel the intricacies of gamification in shaping user experiences and behaviors.

## THEORETICAL AND MANAGERIAL IMPLICATIONS

This study aims to fill the gap in research on the direct effect of gamification on repurchase intention and customer experience in the context of mobile app gamification. It also contributes to the

development of a framework to predict and explain how gamification influences customer experience and repurchase intention in this specific context. As a result, this research is an innovative endeavor to evaluate the impact of gamification on both customer experience and repurchase intention, as well as to explore the degree to which customer experience affects repurchase intention when using a gamified mobile commerce platform. Similarly, no prior study has investigated the direct impact of gamification on both repurchase intention and customer experience within the mobile application context.

The integration of gamification techniques in mobile commerce platforms offers opportunities for enhanced customer experiences and increased customer loyalty. The dematerialized nature of m-commerce also enables real-time data collection and analysis, providing insights into the effectiveness of gamification strategies. Surprising or unexpected results in this field have highlighted the influence of individual factors and the importance of careful design and implementation of gamified features. By further exploring these dynamics, researchers can continue to advance our understanding of gamification in the context of m-commerce and inform the development of effective gamification strategies for businesses.

Gamification can be utilized as a marketing tool to enhance customer experience and repurchase intention. The game feature is capable of attracting customers by providing an enjoyable game while they shop, leading to an increased frequency of visits to the app and an overall enhancement of their customer experience (Naqvi et al., 2021). Thus, managers should improve game designs by incorporating hedonic elements that can help retain customers and encourage them to revisit the application regularly (Hu & Huang, 2022). Based on the findings of this study, it can be concluded that gamification has a significant impact on utilitarian value and repurchase intention. Therefore, it is recommended that managers should consider incorporating a reward system that provides customers with incentives for playing games, which can be used for future purchases. This can motivate customers to make additional purchases as a way of redeeming the rewards they earned. Based on the findings of this study, it is recommended that marketing managers incorporate gamification elements such as points and badges into their m-commerce applications to enhance consumers' perceived enjoyment and ultimately their hedonic value (Hassan & Hamari, 2019).

By embracing gamification, businesses can create immersive and enjoyable mobile experiences, enhancing customer satisfaction and fostering a positive brand perception. Furthermore, the careful alignment of gamification mechanisms with specific customer behaviors can incentivize desired actions, thereby driving repurchase intentions. For instance, redeemable rewards, free samples, and vouchers offered through gamified mobile marketing campaigns can effectively attract and retain mobile shoppers, provided that the level of engagement required is perceived as reasonable by the users.

## LIMITATIONS AND FUTURE RESEARCH

This study acknowledges certain limitations that should be considered, which in turn provide valuable insights for future research in the field. Firstly, it is important to recognize that the sample size of 270 respondents and the exclusive focus on the Tunisian context may restrict the generalizability of the findings to other countries with distinct information and communication technologies, cultures, and customer experiences. To overcome this limitation, future research endeavors could be directed towards conducting cross-cultural studies, encompassing diverse cultural contexts, to validate and extend the tested model. By doing so, the generalizability of the findings can be enhanced, ensuring a more comprehensive understanding of the impact of gamification on repurchase intentions across various settings.

Secondly, the study's concentration on a specific online retail platform, namely the Jumia mobile app, might limit the applicability of the findings to other online contexts, such as websites. To address this limitation, future research could explore the impact of gamification in different online environments and service domains. This broader scope will enable researchers to gain a more

comprehensive understanding of how gamification influences customer experience and repurchase intentions across a wider range of platforms.

Furthermore, the study primarily focused on current customers, potentially overlooking insights from potential customers. To overcome this limitation, future research could adopt a customer segmentation approach and investigate the theoretical model among both current and potential customers simultaneously. This inclusive approach would allow for a more holistic understanding of the impact of gamification on repurchase intentions, providing insights into the influence of gamified experiences on both existing and prospective customers.

Additionally, the study did not differentiate between specific game types within the gamified environment, which may have implications for the accuracy of the results. To address this limitation, future research can delve into the characteristics and mechanics of different game types and their impact on customer experience and repurchase intentions. By exploring specific game types, researchers can uncover deeper insights into how distinct elements of gamification influence customer behavior and loyalty.

Lastly, while the study employed a positivist approach and quantitative methodology, it is worth considering the inclusion of qualitative methods to complement the findings. Future research could incorporate a mixed-methods approach, allowing for the collection of rich qualitative data that uncover additional insights into user experiences and motivations in gamified environments. This methodological expansion will provide a more comprehensive understanding of the phenomenon, combining statistical evidence with nuanced qualitative perspectives.

## REFERENCES

Amoako, G. K., Doe, J. K., & Neequaye, E. K. (2023). Online innovation and repurchase intentions in hotels: The mediating effect of customer experience. *International Hospitality Review*, *37*(1), 28–47. doi:10.1108/IHR-02-2021-0008

Annisa, A. N., Suwandari, L., & Adi, P. H. (2019). Analisis pengaruh customer experience, user experience, dan hambatan berpindah terhadap minat beli ulang (studi pada konsumen Go-Jek di kota Purwokerto) [Analysis of the effect of customer experience, user experience, and switching barrier on repurchase intention study in customer of Go-Jek Purwokerto]. *Sustainable Competitive Advantage, 9*(1), 361–372. http://jp.feb.unsoed.ac.id/index.php/sca-1/article/viewFile/1425/1454

Babin, B. J., & Darden, W. R. (1995). Consumer self-regulation in a retail environment. *Journal of Retailing*, *71*(1), 47–70. doi:10.1016/0022-4359(95)90012-8

Babin, B. J., Darden, W. R., & Griffin, M. (1994). Work and/or fun: Measuring hedonic and utilitarian shopping value. *The Journal of Consumer Research*, *20*(4), 644–656. doi:10.1086/209376

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, *16*(1), 74–94. doi:10.1007/BF02723327

Baptista, G., & Oliveira, T. (2017). Why so serious? Gamification impact in the acceptance of mobile banking services. *Internet Research*, *27*(1), 118–139. doi:10.1108/IntR-10-2015-0295

Bauer, J. C., Linzmajer, M., Nagengast, L., Rudolph, T., & D'Cruz, E. (2020). Gamifying the digital shopping experience: Games without monetary participation incentives increase customer satisfaction and loyalty. *Journal of Service Management*, *31*(3), 563–595. doi:10.1108/JOSM-10-2018-0347

Becker, L., & Jaakkola, E. (2020). Customer experience: Fundamental premises and implications for research. *Journal of the Academy of Marketing Science*, *48*(4), 630–648. doi:10.1007/s11747-019-00718-x

Berger, A., Schlager, T., Sprott, D. E., & Herrmann, A. (2018). Gamified interactions: Whether, when, and how games facilitate self–brand connections. *Journal of the Academy of Marketing Science*, *46*(4), 652–673. doi:10.1007/s11747-017-0530-0

Bidler, M., Zimmermann, J., Schumann, J. H., & Widjaja, T. (2020). Increasing consumers' willingness to engage in data disclosure processes through relevance-illustrating game elements. *Journal of Retailing*, *96*(4), 507–523. doi:10.1016/j.jretai.2020.10.001

Bilgihan, A., Kandampully, J., & Zhang, T. (2016). Towards a unified customer experience in online shopping environments: Antecedents and outcomes. *International Journal of Quality and Service Sciences*, *8*(1), 102–119. doi:10.1108/IJQSS-07-2015-0054

Bitrián, P., Buil, I., & Catalán, S. (2021). Enhancing user engagement: The role of gamification in mobile apps. *Journal of Business Research*, *132*, 170–185. doi:10.1016/j.jbusres.2021.04.028

Bridges, E., & Florsheim, R. (2008). Hedonic and utilitarian shopping goals: The online experience. *Journal of Business Research*, *61*(4), 309–314. doi:10.1016/j.jbusres.2007.06.017

Csikszentmihalyi, M. (1975). Play and intrinsic rewards. *Journal of Humanistic Psychology*, *15*(3), 41–63. doi:10.1177/002216787501500306

De Canio, F., Fuentes-Blasco, M., & Martinelli, E. (2021). Engaging shoppers through mobile apps: The role of gamification. *International Journal of Retail & Distribution Management*, *49*(7), 919–940. doi:10.1108/IJRDM-09-2020-0360

De-Marcos, L., Domínguez, A., Saenz-de-Navarrete, J., & Pagés, C. (2014). An empirical study comparing gamification and social networking on e-learning. *Computers & Education*, *75*, 82–91. doi:10.1016/j.compedu.2014.01.012

Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011, September). From game design elements to gamefulness: Defining "gamification." In *Proceedings of the 15th international academic MindTrek conference: Envisioning future media environments* (pp. 9–15). ACM. doi:10.1145/2181037.2181040

Deveci, M., Pamucar, D., Gokasar, I., Köppen, M., & Gupta, B. B. (2022). Personal mobility in metaverse with autonomous vehicles using Q-rung orthopair fuzzy sets based OPA-RAFSI model. *IEEE Transactions on Intelligent Transportation Systems*, *24*(12), 15642–15651. doi:10.1109/TITS.2022.3186294

Dicheva, D., Irwin, K., & Dichev, C. (2019). Exploring learners experience of gamified practicing: For learning or for fun? *International Journal of Serious Games*, *6*(3), 5–21. doi:10.17083/ijsg.v6i3.299

Djohan, S. A., Handhana, D., Castafiore, V. B., & Hendriana, E. (2022). Can gamification stimulate customers to repurchase in the e-marketplace? The mediation effect of customer experience and engagement. *Budapest International Research and Critics Institute-Journal*, *5*(1), 4781–4796. doi:10.33258/birci.v5i1.4186

Dymek, M. (2018). Expanding the magic circle–gamification as a marketplace icon. *Consumption Markets & Culture*, *21*(6), 590–602. doi:10.1080/10253866.2017.1361153

Fang, Y., Qureshi, I., Sun, H., McCole, P., Ramsey, E., & Lim, K. H. (2014). Trust, satisfaction, and online repurchase intention. *Management Information Systems Quarterly*, *38*(2), 407–A9. https://www.jstor.org/stable/26634932. doi:10.25300/MISQ/2014/38.2.04

Febriani, N. M. A., & Ardani, I. G. A. K. S. (2021). The influence of customer experience, ease of use, and trust on repurchase intention (case study of Tokopedia consumers in Denpasar). *American Journal of Humanities and Social Sciences Research*, *5*(2), 378–383. https://www.ajhssr.com/wp-content/uploads/2021/02/ZR2152378383.pdf

Feng, W., Tu, R., & Hsieh, P. (2020). Can gamification increases consumers' engagement in fitness apps? The moderating role of commensurability of the game elements. *Journal of Retailing and Consumer Services*, *57*, 102229. doi:10.1016/j.jretconser.2020.102229

Filsecker, M., & Hickey, D. T. (2014). A multilevel analysis of the effects of external rewards on elementary students' motivation, engagement and learning in an educational game. *Computers & Education*, *75*, 136–148. doi:10.1016/j.compedu.2014.02.008

García-Magro, C., Martín-Peña, M. L., & Sánchez-López, J. M. (2023). Emotional mechanics of gamification and value co-creation: The digital platform Nike+ as a B2B2C ecosystem. *Journal of Business and Industrial Marketing*, *38*(2), 414–428. doi:10.1108/JBIM-12-2021-0568

George, A., Joy, M. M., Nowfal, S. M., & Sajid, M. (2023). Does the utilitarian value of gamified virtual currency affect its usage intention in the context of e-commerce? *International Journal of Indian Culture and Business Management*, *28*(3), 285–300. doi:10.1504/IJICBM.2023.129708

Gopinath Bharathi, A. K. B., Singh, A., Tucker, C. S., & Nembhard, H. B. (2016). Knowledge discovery of game design features by mining user-generated feedback. *Computers in Human Behavior*, *60*, 361–371. doi:10.1016/j.chb.2016.02.076

Gupta, T., & Panda, S. P. (2022). Cloudlet and virtual machine performance enhancement with CLARA and evolutionary paradigm. *International Journal of Cloud Applications and Computing*, *12*(1), 1–16. doi:10.4018/IJCAC.298322

Ha, H. Y., Janda, S., & Muthaly, S. K. (2010). A new understanding of satisfaction model in e-re-purchase situation. *European Journal of Marketing*, *44*(7/8), 997–1016. doi:10.1108/03090561011047490

Hair, J. F. Jr, Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, *26*(2), 106–121. doi:10.1108/EBR-10-2013-0128

Hamari, J., & Koivisto, J. (2015). Why do people use gamification services? *International Journal of Information Management*, *35*(4), 419–431. doi:10.1016/j.ijinfomgt.2015.04.006

Hamari, J., Koivisto, J., & Sarsa, H. (2014, January). Does gamification work?—A literature review of empirical studies on gamification. In *2014 47th Hawaii international conference on system sciences* (pp. 3025–3034). IEEE. doi:10.1109/HICSS.2014.377

Hammedi, W., Leclerq, T., & Van Riel, A. C. (2017). The use of gamification mechanics to increase employee and user engagement in participative healthcare services: A study of two cases. *Journal of Service Management*, *28*(4), 640–661. doi:10.1108/JOSM-04-2016-0116

Harwood, T., & Garry, T. (2015). An investigation into gamification as a customer engagement experience environment. *Journal of Services Marketing*, *29*(6/7), 533–546. doi:10.1108/JSM-01-2015-0045

Hasman, H. C. P., Ginting, P., & Rini, E. S. (2019). The influence of e-service quality on e-satisfaction and its impact on repurchase intention in using e-commerce applications on students of Universitas Sumatera Utara. *International Journal of Research and Review*, *6*(10), 299–307. http://tinyurl.com/42u82j6y

Helmefalk, M., & Marcusson, L. (Eds.). (2020). *Utilizing gamification in servicescapes for improved consumer engagement*. IGI Global. doi:10.4018/978-1-7998-1970-7

Herjanto, H., & Amin, M. (2020). Repurchase intention: The effect of similarity and client knowledge. *International Journal of Bank Marketing*, *38*(6), 1351–1371. doi:10.1108/IJBM-03-2020-0108

Hofacker, C. F., De Ruyter, K., Lurie, N. H., Manchanda, P., & Donaldson, J. (2016). Gamification and mobile marketing effectiveness. *Journal of Interactive Marketing*, *34*(1), 25–36. doi:10.1016/j.intmar.2016.03.001

Högberg, J., Hamari, J., & Wästlund, E. (2019). Gameful Experience Questionnaire (GAMEFULQUEST): An instrument for measuring the perceived gamefulness of system use. *User Modeling and User-Adapted Interaction*, *29*(3), 619–660. doi:10.1007/s11257-019-09223-w

Högberg, J., Ramberg, M. O., Gustafsson, A., & Wästlund, E. (2019). Creating brand engagement through in-store gamified customer experiences. *Journal of Retailing and Consumer Services*, *50*, 122–130. doi:10.1016/j.jretconser.2019.05.006

Hsu, C. L., & Chen, M. C. (2018). How gamification marketing activities motivate desirable consumer behaviors: Focusing on the role of brand love. *Computers in Human Behavior*, *88*, 121–133. doi:10.1016/j.chb.2018.06.037

Huotari, K., & Hamari, J. (2017). A definition for gamification: Anchoring gamification in the service marketing literature. *Electronic Markets*, *27*(1), 21–31. doi:10.1007/s12525-015-0212-z

Ilyas, G. B., Rahmi, S., Tamsah, H., Munir, A. R., & Putra, A. H. P. K. (2020). Reflective model of brand awareness on repurchase intention and customer satisfaction. *The Journal of Asian Finance. Economics and Business*, *7*(9), 427–438. doi:10.13106/jafeb.2020.vol7.no9.427

Insley, V., & Nunan, D. (2014). Gamification and the online retail experience. *International Journal of Retail & Distribution Management*, *42*(5), 340–351. doi:10.1108/IJRDM-01-2013-0030

Iyer, P., Davari, A., & Mukherjee, A. (2018). Investigating the effectiveness of retailers' mobile applications in determining customer satisfaction and repatronage intentions? A congruency perspective. *Journal of Retailing and Consumer Services*, *44*, 235–243. doi:10.1016/j.jretconser.2018.07.017

Jami Pour, M., Rafiei, K., Khani, M., & Sabrirazm, A. (2021). Gamification and customer experience: The mediating role of brand engagement in online grocery retailing. *Nankai Business Review International*, *12*(3), 340–357. doi:10.1108/NBRI-07-2020-0041

Johnson, K. K., Kim, H. Y., Mun, J. M., & Lee, J. Y. (2015). Keeping customers shopping in stores: Interrelationships among store attributes, shopping enjoyment, and place attachment. *International Review of Retail, Distribution and Consumer Research*, *25*(1), 20–34. doi:10.1080/09593969.2014.927785

Jöreskog, K. G., & Wold, H. (1982). The ML and PLS techniques for modeling with latent variables: Historical and comparative aspects. In K. G. Jöreskog & H. Wold (Eds.), *Systems under indirect observation: Causality, structure, prediction, part 1* (pp. 263–270). Elsevier.

Kim, H. J., & Song, H. (2020). Effort justification for fun activities?: The effect of location-based mobile coupons using games. *Journal of Retailing and Consumer Services*, *54*, 102029. doi:10.1016/j.jretconser.2019.102029

Kusumawardani, K. A., Widyanto, H. A., & Tambunan, J. E. G. (2023). The role of gamification, social, hedonic and utilitarian values on e-commerce adoption. *Spanish Journal of Marketing-ESIC*, *27*(2), 158–177. doi:10.1108/SJME-09-2022-0188

Leclercq, T., Poncin, I., & Hammedi, W. (2017). The engagement process during value co-creation: Gamification in new product-development platforms. *International Journal of Electronic Commerce*, *21*(4), 454–488. doi:10.1080/10864415.2016.1355638

Lee, J. Y., & Jin, C. H. (2019). The role of gamification in brand app experience: The moderating effects of the 4Rs of app marketing. *Cogent Psychology*, *6*(1), 1576388. doi:10.1080/23311908.2019.1576388

Lee, M. Y., Kim, Y. K., & Fairhurst, A. (2009). Shopping value in online auctions: Their antecedents and outcomes. *Journal of Retailing and Consumer Services*, *16*(1), 75–82. doi:10.1016/j.jretconser.2008.11.003

Li, M., Jiang, Z. J., & Ma, G. (2023). The puzzle of experience vs. memory: Peak-end theory and strategic gamification design in M-commerce. *Information & Management*, *60*(2), 103749. doi:10.1016/j.im.2022.103749

Liu, D., Santhanam, R., & Webster, J. (2017). Toward meaningful engagement. *Management Information Systems Quarterly*, *41*(4), 1011–1034. https://www.jstor.org/stable/26630283. doi:10.25300/MISQ/2017/41.4.01

Liu, F., Lim, E. T., Li, H., Tan, C. W., & Cyr, D. (2020). Disentangling utilitarian and hedonic consumption behavior in online shopping: An expectation disconfirmation perspective. *Information & Management*, *57*(3), 103199. doi:10.1016/j.im.2019.103199

Mahmood, M. A., Bagchi, K., & Ford, T. C. (2004). On-line shopping behavior: Cross-country empirical research. *International Journal of Electronic Commerce*, *9*(1), 9–30. doi:10.1080/10864415.2004.11044321

Mathwick, C., Malhotra, N., & Rigdon, E. (2001). Experiential value: Conceptualization, measurement and application in the catalog and Internet shopping environment. *Journal of Retailing*, *77*(1), 39–56. doi:10.1016/S0022-4359(00)00045-2

McLean, G., Wilson, A., & Al Nabhani, K. T. S. (2016). The customer experience… Is there an app for that? A conceptual understanding of the customer experience with m-commerce mobile applications. In *26th RESER conference 2016*. Strath. https://strathprints.strath.ac.uk/59940/

Meena, R., & Sarabhai, S. (2023). Extrinsic and intrinsic motivators for usage continuance of hedonic mobile apps. *Journal of Retailing and Consumer Services*, *71*, 103228. doi:10.1016/j.jretconser.2022.103228

Mouakket, S. (2009). The effect of exogenous factors on the Technology Acceptance Model for online shopping in the UAE. *International Journal of Electronic Business*, *7*(5), 491–511. doi:10.1504/IJEB.2009.028153

Naqvi, M. H., Guoyan, S., & Naqvi, M. H. A. (2021). Measuring the influence of web features in the online gamification environment: A multimediation approach. *Wireless Communications and Mobile Computing*, *2021*, 1–17. doi:10.1155/2021/3213981

Nilsson, E. (2022). Changes in the retail landscape-A Nordic perspective. *International Review of Retail, Distribution and Consumer Research*, *32*(4), 349–350. doi:10.1080/09593969.2022.2101625

Nurcahyo, R., Limyongsen, F., & Thomas, N. (2023, July). The Impact of Gamification on Game Design, Hedonic Value, and Customer Engagement at E-commerce. In *Proceedings of the 3rd international conference on law, social science, economics, and education*. IEEE. doi:10.4108/eai.6-5-2023.2333562

Overby, J. W., & Lee, E. J. (2006). The effects of utilitarian and hedonic online shopping value on consumer preference and intentions. *Journal of Business Research*, *59*(10–11), 1160–1166. doi:10.1016/j.jbusres.2006.03.008

Perannagari, K. T., & Chakrabarti, S. (2020). Factors influencing acceptance of augmented reality in retail: Insights from thematic analysis. *International Journal of Retail & Distribution Management*, *48*(1), 18–34. doi:10.1108/IJRDM-02-2019-0063

Rakhmanita, A., Hurriyati, R., Gaffar, V., & Adi wibowo, L. (2022). Confirmatory factor analysis: User behavior m-commerce gamification service in Indonesia. *International Journal on Informatics Visualization*, *6*(2), 371–375. doi:10.30630/joiv.6.2.848

Raman, P. (2021). Examining the importance of gamification, social interaction and perceived enjoyment among young female online buyers in India. *Young Consumers*, *22*(3), 387–412. doi:10.1108/YC-05-2020-1148

Rauschnabel, P. A., Felix, R., & Hinsch, C. (2019). Augmented reality marketing: How mobile AR-apps can improve brands through inspiration. *Journal of Retailing and Consumer Services*, *49*, 43–53. doi:10.1016/j.jretconser.2019.03.004

Robson, K., Plangger, K., Kietzmann, J. H., McCarthy, I., & Pitt, L. (2015). Is it all a game? Understanding the principles of gamification. *Business Horizons*, *58*(4), 411–420. doi:10.1016/j.bushor.2015.03.006

Rodrigues, L. F., Costa, C. J., & Oliveira, A. (2017). How does the web game design influence the behavior of e-banking users? *Computers in Human Behavior*, *74*, 163–174. doi:10.1016/j.chb.2017.04.034

Rose, S., Clark, M., Samouel, P., & Hair, N. (2012). Online customer experience in e-retailing: An empirical model of antecedents and outcomes. *Journal of Retailing*, *88*(2), 308–322. doi:10.1016/j.jretai.2012.03.001

Roth, S., Schneckenberg, D., & Tsai, C. W. (2015). The ludic drive as innovation driver: Introduction to the gamification of innovation. *Creativity and Innovation Management*, *24*(2), 300–306. doi:10.1111/caim.12124

Seaborn, K., & Fels, D. I. (2015). Gamification in theory and action: A survey. *International Journal of Human-Computer Studies*, *74*, 14–31. doi:10.1016/j.ijhcs.2014.09.006

Shahid, A., & Arshad, S. (2021). Gamification and consumer loyalty: The role of utilitarian and hedonic benefit. *Lahore Journal of Business, 10*(1), 29–56. https://lahoreschoolofeconomics.edu.pk/assets/uploads/ljb/Volume10/02_Manuscript22Nov.pdf

Shankar, V., Kalyanam, K., Setia, P., Golmohammadi, A., Tirunillai, S., Douglass, T., Hennessey, J., Bull, J. S., & Waddoups, R. (2021). How technology is changing retail. *Journal of Retailing*, *97*(1), 13–27. doi:10.1016/j.jretai.2020.10.006

Sheetal, T., Tyagi, R., & Singh, G. (2023). Gamification and customer experience in online retail: A qualitative study focusing on ethical perspective. *Asian Journal of Business Ethics*, *12*(1), 49–69. doi:10.1007/s13520-022-00162-1

Sigala, M. (2015). Gamification for crowdsourcing marketing practices: Applications and benefits in tourism. *Advances in Crowdsourcing*, 129–145. 10.1007/978-3-319-18341-1_11

Silic, M., Marzi, G., Caputo, A., & Bal, P. M. (2020). The effects of a gamified human resource management system on job satisfaction and engagement. *Human Resource Management Journal*, *30*(2), 260–277. doi:10.1111/1748-8583.12272

Silva, J. H., Mendes, G. H., Teixeira, J. G., & Braatz, D. (2023). Gamification in the customer journey: A conceptual model and future research opportunities. *Journal of Service Theory and Practice*, *33*(3), 352–386. doi:10.1108/JSTP-07-2022-0142

Silva, S. C., De Cicco, R., Levi, M., & Hammerschmidt, M. (2022, November). Value creation in gamified chatbot interactions and its impact on brand engagement. In A. Følstad (Eds.), *Chatbot research and design* (pp. 50–65). Springer International Publishing. doi:10.1007/978-3-031-25581-6_4

Singh, G., Malhotra, M., & Sharma, A. (2022). An adaptive mechanism for virtual machine migration in the cloud environment. *International Journal of Cloud Applications and Computing*, *12*(1), 1–10. doi:10.4018/IJCAC.311504

Singh, S., Kumar, R., & Rao, U. P. (2022). Multi-objective adaptive manta-ray foraging optimization for workflow scheduling with selected virtual machines using time-series-based prediction. *International Journal of Software Science and Computational Intelligence*, *14*(1), 1–25. doi:10.4018/IJSSCI.312559

Siregar, Y., & Kent, A. (2019). Consumer experience of interactive technology in fashion stores. *International Journal of Retail & Distribution Management*, *47*(12), 1318–1335. doi:10.1108/IJRDM-09-2018-0189

Song, J. H., & Zinkhan, G. M. (2008). Determinants of perceived web site interactivity. *Journal of Marketing*, *72*(2), 99–113. doi:10.1509/jmkg.72.2.99

Swan, C. (2012). Gamification: A new way to shape behavior. *Communication World, 29*(3), 13–14. https://www.proquest.com/docview/1354337664?sourcetype=Trade%20Journals

Syed, S., Shah, S. R., & Ahmad, F. S. (2021). The influence of intrinsic motivational forces on consumers' product purchase intentions. *Journal of Mediterranean Tourism Research*, *1*(2), 70–80. doi:10.5038/2770-7555.1.2.1006

Tobon, S., Ruiz-Alba, J. L., & García-Madariaga, J. (2020). Gamification and online consumer decisions: Is the game over? *Decision Support Systems*, *128*, 113167. doi:10.1016/j.dss.2019.113167

Van der Heijden, H. (2004). User acceptance of hedonic information systems. *Management Information Systems Quarterly*, *28*(4), 695–704. doi:10.2307/25148660

Vdov, K. (2020). *The effect of gamification on customer experience in the digital environment* [Bachelor's Thesis, JAMK University of Applied Sciences]. Theseus.fi. https://www.theseus.fi/handle/10024/339309

Wang, E. S. T. (2022). Influences of innovation attributes on value perceptions and usage intentions of mobile payment. *Journal of Electronic Commerce Research*, *23*(1), 45–58. http://www.jecr.org/sites/default/files/2022vol23no1_Paper4.pdf

Warmelink, H., Koivisto, J., Mayer, I., Vesa, M., & Hamari, J. (2018, January 3–6). *Gamification of the work floor: A literature review of gamifying production and logistics operations* [Paper presentation]. Hawaii International Conference on System Sciences, Waikoloa Village, HI, United States. https://aisel.aisnet.org/hicss-51/da/gamification/2/

Werbach, K., & Hunter, D. (2012). *For the win: How game thinking can revolutionize your business*. Wharton Digital Press.

Wünderlich, N. V., Gustafsson, A., Hamari, J., Parvinen, P., & Haff, A. (2020). The great game of business: Advancing knowledge on gamification in business contexts. *Journal of Business Research*, *106*, 273–276. doi:10.1016/j.jbusres.2019.10.062

Xu, X. Y., Tayyab, S. M. U., Jia, Q. D., & Wu, K. (2023). Exploring the gamification affordances in online shopping with the heterogeneity examination through REBUS-PLS. *Journal of Theoretical and Applied Electronic Commerce Research*, *18*(1), 289–310. doi:10.3390/jtaer18010016

Yang, Y., Asaad, Y., & Dwivedi, Y. (2017). Examining the impact of gamification on intention of engagement and brand attitude in the marketing context. *Computers in Human Behavior*, *73*, 459–469. doi:10.1016/j.chb.2017.03.066

Yu, N., & Huang, Y. T. (2022). Why do people play games on mobile commerce platforms? An empirical study on the influence of gamification on purchase intention. *Computers in Human Behavior*, *126*, 106991. doi:10.1016/j.chb.2021.106991

Zichermann, G., & Cunningham, C. (2011). *Gamification by design: Implementing game mechanics in web and mobile apps*. O'Reilly Media, Inc.

*Olfa Bouzaabiaa is an Assistant Professor of Marketing at the Institute of High Commercial Studies of Sousse, University of Sousse, Tunisia. Currently directs a master's program in distribution and customer relationship. Her research is focused on retail logistics service, services marketing, consumer behavior, cross-cultural studies, augmented reality. She has contributed to the literature through many high impact articles published in many journals such as: Journal of Business Research, Journal of Retail and Distribution Management, Journal of Technology and Human Interaction and International Entrepreneurship and Management Journal.*

*Mohamed Ben Arbia is a Marketing PhD student at ISG Sousse, combining theoretical acumen with practical insights. With a Master's degree in Marketing from IHEC Sousse, his research focuses on contemporary marketing challenges, with an emphasis on digital dynamics. His areas of interest include retail, services marketing, consumer behavior, and the use of gamification in marketing strategies. Mohamed is dedicated to advancing knowledge in the field and aims to contribute valuable insights to the marketing community.*

*David Juárez-Varón received his PhD in Economics, Business and Society from the University of Alicante (Spain) in 2018. In 1999 he was hired as a professor and researcher by the Universitat Politècnica de València (Spain) and currently directs a master's program in applied neuromarketing and a master's program in user experience (UX). He researches neurotechnologies applied to areas such as consumer behaviour, entrepreneurship, or education.*

*Kwok Tai Chui received the B.Eng. degree in electronic and communication engineering - Business Intelligence Minor and Ph.D. degree from City University of Hong Kong. He had industry experience as Senior Data Scientist in Internet of Things (IoT) company. He is with the Department of Electronic Engineering and Computer Science, School of Science and Technology, Hong Kong Metropolitan University as Assistant Professor. He was the recipient of 2nd Prize Award (Postgraduate Category) of 2014 IEEE Region 10 Student Paper Contest. Also, he received Best Paper Award in IEEE The International Conference on Consumer Electronics-China, in both 2014 and 2015. He has published more than 100 research works including edited books, book chapters, journal papers, and conference papers. He has served as various editorial position in ESCI/SCIE-listed journals including Managing Editor of International Journal on Semantic Web and Information Systems, Topic Editor of Sensors, Associate Editor of International Journal of Asian Business and Information Management and International Journal of Energy Optimization and Engineering, Guest Editors of Future Generation Computer Systems, Journal of Innovation & Knowledge, Sustainability, Sensors, Energies, Applied Sciences and Journal of Internet Technology. His research interests include computational intelligence, data science, energy monitoring and management, intelligent transportation, smart metering, healthcare, machine learning algorithms and optimization.*