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# Exploring the Role of Gamification in Enhancing Customer Participation: A Study of Brand Interaction and Ease of Use in the Saudi Telecom Industry

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## Abstract

Gamification has gained prominence as a strategic tool for enhancing customer engagement in various industries, including telecommunications. This study investigates the role of gamification in fostering customer participation within the Saudi telecommunications sector, with a focus on brand interaction as a mediator and ease of use as a moderator. Grounded in the Technology Acceptance Model (TAM) and Self-Determination Theory (SDT), the research examines how gamified elements—such as rewards, storytelling, and competition—affect customer behavior.

A quantitative survey approach was employed, collecting data from 378 customers of major Saudi telecom providers. The findings indicate that gamification positively influences brand interaction, which subsequently enhances customer participation. Furthermore, ease of use strengthens the link between gamification and brand interaction, suggesting that user-friendly designs are crucial for effective gamification strategies. However, ease of use does not significantly moderate the direct relationship between gamification and participation, implying that while an intuitive interface enhances engagement, other factors drive participation. Additionally, the results confirm that interaction partially mediates the relationship between gamification and participation, underscoring the importance of fostering meaningful brand-customer interactions.

The study contributes to gamification literature by validating the moderating role of ease of use in technology adoption models and providing empirical evidence from a service-based industry. From a managerial perspective, telecom providers should prioritize personalized and interactive gamification experiences, ensure seamless usability, and leverage social engagement

mechanisms to sustain customer participation. Future research should explore longitudinal effects of gamification and the integration of emerging technologies such as artificial intelligence and augmented reality to further enhance digital engagement strategies.

***Keywords-*** Gamification, Customer Participation, Brand Interaction, Ease of Use, KSA.

## 1. Introduction

Gamification has become an increasingly popular strategy in marketing, particularly in industries with high customer engagement, such as telecommunications. By incorporating game-like elements such as rewards, challenges, and storytelling, gamification enhances user motivation and fosters meaningful brand interactions (Leong et al., 2020). Businesses in the Saudi telecom sector are leveraging gamification to boost customer engagement and brand loyalty in a competitive digital landscape. However, while gamification has been extensively studied, its effectiveness in driving customer participation and interaction is influenced by several factors, including ease of use. When gamified systems are intuitive and user-friendly, they facilitate higher engagement levels, making participation more seamless and enjoyable (Venkatesh & Davis, 2000). Understanding how these elements interact can provide valuable insights into optimizing digital marketing strategies.

A key framework for analyzing the adoption and effectiveness of gamified marketing strategies is the Technology Acceptance Model (TAM). This model explains how perceived ease of use and usefulness influence individuals' acceptance and continued use of technology-driven applications (Davis et al., 1989). In the context of gamification, ease of use moderates the impact of gamified elements on customer participation and brand interaction. If a gamified system is perceived as easy to navigate, users are more likely to engage actively, enhancing their interaction with the brand and fostering long-term loyalty (Rodrigues et al., 2016). Conversely, complex and unintuitive gamified experiences can deter users, reducing participation rates and limiting the potential benefits of gamification strategies (Hastuti et al., 2022).

Despite the growing adoption of gamification in marketing, several research gaps remain, particularly within the Saudi telecommunications sector. While previous studies have examined the role of gamification in enhancing engagement and customer experience, little attention has been given to its impact on brand interaction and customer participation, especially within highly digitalized markets like Saudi Arabia. Additionally, while ease of use has been recognized as a critical factor in technology adoption, its moderating role in the relationship between gamification, customer participation, and brand interaction remains underexplored. Addressing these gaps is essential for optimizing gamification strategies tailored to the needs and preferences of Saudi customers. Given these considerations, this research seeks to address the following key questions:

***RQ1****: How does gamification influence brand interaction in the Saudi telecommunications sector?*

***RQ2**: What role does brand interaction play in mediating the relationship between gamification and customer participation?*

***RQ3**: How does perceived ease of use moderate the impact of gamification on customer participation and brand interaction?*

The study aims to investigate the role of gamification in enhancing customer participation within the Saudi telecommunications industry by examining key influencing factors. Specifically, it seeks to analyze the direct impact of gamification on brand interaction, exploring how game-like elements such as rewards, storytelling, and competition contribute to increased customer engagement. Additionally, it aims to assess the mediating role of brand interaction, determining how active engagement strengthens customer-brand relationships. Furthermore, the study evaluates the moderating effect of ease of use, identifying how user-friendly gamification platforms influence both customer participation and brand interaction. Lastly, the research provides practical recommendations for telecom companies in Saudi Arabia, offering insights on how to optimize digital marketing strategies through gamification to drive customer engagement and participation effectively.

The Saudi telecommunications industry presents a unique field for this study due to its rapid digital transformation and competitive environment. With major providers such as STC, Mobily, and Zain continuously innovating their marketing strategies, understanding how gamification enhances customer engagement is crucial for sustaining competitive advantage. By integrating gamification with ease-of-use principles, telecom companies can create more engaging experiences, strengthen customer-brand relationships. Customer engagement plays a crucial role in shaping customer experiences, particularly through factors like perceived usefulness, perceived information quality, and social contact (Fakhfakh et al., 2024). Similarly, financial technology has emerged as one of the world's most innovative industries, leveraging advanced technical tools to enhance digital finance and electronic banking services (Noureldin, 2022; Noureldin & Moawad, 2023). This study contributes to both academic literature and practical applications by providing a deeper understanding of gamification's role in digital marketing. By bridging theoretical insights with real-world implications, it offers a roadmap for leveraging gamification as a strategic tool to enhance brand interaction, customer participation, and long-term engagement in the Saudi telecom sector.

## 2. Conceptual Model

### *2.1 Gamification*

While the study defines gamification, a more comprehensive discussion on its evolution in digital marketing would enhance the conceptual foundation. Gamification is the integration of game elements and mechanics in non-game contexts to improve user engagement, motivation, and experience (Ahmad et al., 2020; Berglund et al., 2022). Initially applied in education and human resources to enhance learning and workplace engagement (Habib et al., 2025), gamification has become a widely adopted strategy in digital marketing, where businesses

integrate game-like mechanics such as rewards, levels, and challenges into mobile apps and online platforms to enrich customer experiences and foster engagement (Gupta et al., 2024; Lopes et al., 2023).

Gamification enhances customer-brand interactions by leveraging psychological and behavioral drivers, making marketing experiences more immersive and rewarding (Merhabi et al., 2021). According to Gupta et al. (2024), gamification comprises several key elements:

- Fun: Creates enjoyable and interactive experiences that entertain users while fostering brand engagement and loyalty.
- Reward/Points: Offers incentives such as discounts, virtual points, badges, or exclusive content, reinforcing customer motivation.
- Competition: Encourages users to challenge each other for higher performance or scores, leveraging social recognition and achievement motivation.
- Storytelling: Integrates narratives to create an emotionally engaging and immersive experience, making gamified interactions more memorable.

### *2.2 Customer Participation*

Customer participation refers to customers' active engagement in a gamified marketing experience. This can involve completing tasks, sharing content, offering feedback, or contributing to value creation within the gamified system. Various factors, such as rewards, competition, and entertainment, often drive participation, helping to strengthen the customer's connection with the brand (Gatautis et al., 2021).

### *2.3 Interaction*

Brand interaction within gamification occurs when customers actively engage with a brand through gamified platforms or marketing campaigns. This can include participating in branded games, social media challenges, or loyalty programs, often enhanced by gaming elements such as storytelling and achievement-based incentives (Syrjälä et al., 2021).

## 3. Literature review, hypotheses, research model, and Gap

### *3.1 Gamification and Interaction*

Gamification is widely acknowledged as an effective approach to enhancing interaction and engagement across various domains. By incorporating elements such as points, badges, leaderboards, rewards, and storytelling, gamification boosts motivation and encourages active participation in educational, marketing, and digital platforms. In education, gamification helps create dynamic learning environments that promote collaboration, instant feedback, and immersive experiences. For example, in distance learning, gamified strategies have been found to improve student engagement with course content, peers, and instructors, ultimately leading to greater satisfaction and better learning outcomes (Ferianda et al., 2018; Wulantari et al., 2023). Similarly, in massive open online courses (MOOCs), incorporating gamified features alongside social interaction has been shown to reduce dropout rates while fulfilling learners' psychological

needs for connection and recognition, as explained by social exchange theory (Dikcius et al., 2020). Gamification significantly enhances brand interaction by integrating interactive features that stimulate emotional and cognitive connections with customers. These elements not only promote customer engagement but also encourage long-term brand loyalty (Elwakeel et al., 2025).

In marketing, gamification plays a crucial role in strengthening brand interaction by offering both extrinsic motivation (such as rewards) and intrinsic motivation (such as enjoyment and social engagement). Research on online brand communities, including those of Xiaomi and Huawei, indicates that gamification elements focused on achievement and socialization significantly enhance intrinsic motivation, leading to stronger brand loyalty and repeated engagement (Hamari, 2017; Xi & Hamari, 2019). Similarly, in e-commerce, gamified experiences attract a broad range of customers by combining entertainment and competition, thereby increasing customer engagement (Koivisto & Hamari, 2019; Raman, 2020). Furthermore, adapting gamification strategies to different user types—such as Achievers, who respond best to performance-based designs, and Socializers, who thrive in interactive and community-driven environments—enhances its effectiveness. A one-size-fits-all approach may limit engagement, highlighting the need for personalized gamification experiences (Santos et al., 2021). Additionally, in online learning, gamification helps create adaptable, engaging activities for both real-time and self-paced interactions, facilitating meaningful communication and improved performance (Govindarajan, 2020). These insights demonstrate that gamification can significantly enhance engagement and interaction, leading to the following hypothesis:

***H1:*** *Gamification has a positive impact on brand interaction.*

### *3.2 Brand Interaction and Customer Participation*

Brand interaction and customer participation play a crucial role in building strong relationships between customers and brands, especially in digital and social media environments. When customers actively engage with a brand, they shift from being passive audiences to active contributors in the marketing process, thereby enhancing brand interaction (Wang et al., 2021). Additionally, customer participation—whether through interactions with other customers or directly with the brand—deepens emotional, cognitive, and behavioral engagement. This heightened engagement is essential for fostering behaviors such as repeat purchases and brand advocacy (Cheung et al., 2021).

Gamified brand experiences have become an innovative approach to encouraging both customer interaction and participation. By incorporating elements of entertainment and competition, these experiences not only enhance engagement but also contribute to the co-creation of brand value (Nobre & Ferreira, 2017). On social media platforms, such interactions play a vital role in increasing brand involvement and shaping customers' behavioral intentions (Martín-Consuegra et al., 2018). In digital markets, particularly in Saudi Arabia’s telecommunications sector, gamified brand interactions have been shown to increase customer engagement, loyalty, and advocacy. By leveraging interactive elements, brands can effectively

transform engagement into long-term participation and customer retention (Elwakeel et al., 2025). Actively engaging with a brand—whether through social media, events, or providing feedback—significantly strengthens customer trust and loyalty. When individuals participate in brand-related activities, they develop a deeper emotional connection, which fosters long-term commitment and advocacy (Gupta et al., 2024). This highlights the strategic importance of brand interaction in marketing, particularly in highly digitalized markets such as the telecommunications sector in KSA.

***H2:*** *Brand interaction positively influences customer participation.*

### *3.3 Gamification Elements and Customer Participation*

Gamification has gained recognition as an effective strategy for enhancing customer participation and engagement across various industries. Research suggests that incorporating gamification elements can positively shape customer behavior, particularly within e-commerce and online shopping platforms (Xu et al., 2020). Among the most widely utilized mechanisms are rewards and challenges, with commonly tested elements including points, badges, and leaderboards (Tobon et al., 2019). These gamification features are generally classified into achievement-driven and immersion-based categories, with the former being more frequently applied in current practices (Rahmadhan et al., 2023).

For example, in loyalty programs, self-focused rewards have been found to have a greater influence on customer responses compared to altruistic incentives (Hwang & Choi, 2019). Similarly, in the field of green logistics, customers often prioritize social aspects, such as interactive engagement, over competitive and achievement-based features (Liu et al., 2024).

Although gamification has the potential to boost customer participation, its effectiveness varies depending on individual preferences and personality traits. Research indicates that customizing gamification elements to align with user profiles can lead to more successful outcomes (Hallifax et al., 2019). Moreover, the impact of gamification is not consistent across all domains. For instance, in e-participation platforms, customer engagement remains low despite the presence of gamified systems (Thiel et al., 2016). By integrating personalized gamification strategies, businesses can enhance participation levels, ensuring long-term customer-brand relationships. However, the study also emphasizes that the effectiveness of gamification depends on user preferences and the proper combination of game elements to maintain engagement and prevent disengagement (Elwakeel et al., 2025). Overall, gamification offers a promising approach to increasing customer participation, particularly in digital settings. However, its effectiveness relies on strategic implementation that considers user preferences, contextual factors, and the optimal combination of game elements.

***H3:*** *Gamification positively influences customer participation.*

### *3.4 Mediating Effect of Customer Interaction*

The role of interaction as a mediating factor in the relationship between gamification and customer-related outcomes has garnered significant attention in the literature. Gamification fosters interactive environments by engaging users through challenges, rewards, and leaderboards, which encourage active participation and collaboration. Interaction serves as a critical driver that amplifies the effects of gamification, transforming passive users into active participants and fostering long-term engagement. According to Elwakeel et al. (2025), interaction bridges the gap between gamification and customer participation, strengthening emotional and cognitive connections with brands and enhancing loyalty in competitive digital markets like the Saudi telecommunications sector.

Gamification enhances customer participation by providing engaging opportunities for users to interact with the brand or platform. Research indicates that real-time feedback, competitive tasks, and social collaboration are key factors that encourage customers to actively participate, reinforcing their relationship with the brand (Hamari, 2017; Raman, 2020). Increased interaction intensifies the motivational effects of gamification, making participation more meaningful and frequent. As a result, businesses that effectively integrate gamification and interactive elements can foster higher levels of customer engagement, commitment, and advocacy (Elwakeel et al., 2025).

***H4:*** *Interaction mediate the relationship between gamification and customer participation.*

### *3.5 The Moderating Role of Ease of Use*

Ease of use is a fundamental factor in determining user engagement with technology-driven applications, particularly in gamified marketing contexts. Rooted in the Technology Acceptance Model (TAM), ease of use refers to the degree to which a system is perceived as effortless and intuitive, influencing users' adoption and continued engagement (Davis et al., 1989; Venkatesh & Davis, 2000). When gamification features, such as rewards, challenges, and leaderboards, are seamlessly integrated into user-friendly platforms, they reduce cognitive effort, making participation more engaging and accessible (Wu & Chen, 2017). Consequently, ease of use serves as a moderating factor that strengthens the relationship between gamification and customer participation, ultimately enhancing customer-brand interactions (Rodrigues et al., 2016).

Empirical studies highlight that ease of use significantly amplifies the motivational effects of gamification. In digital marketing, particularly within mobile-based platforms, user-friendly gamification elements foster continuous engagement by making interactions more enjoyable and intuitive (Hastuti et al., 2022). This effect is particularly pronounced in industries such as telecommunications and e-commerce, where seamless platform navigation is crucial for sustaining customer participation and loyalty (Denden et al., 2022). Furthermore, research in e-banking suggests that gamified applications with intuitive interfaces enhance customer enjoyment and retention, reinforcing the role of ease of use in driving engagement (Rodrigues et

al., 2016). Conversely, if users perceive a gamified system as complex or difficult to navigate, their motivation to participate declines, undermining the intended effects of gamification strategies (Elwakeel et al., 2025).

Additionally, ease of use is not only critical for user adoption but also for sustaining long-term engagement. Studies indicate that in highly digitalized environments, such as the Saudi telecommunications sector, the ease with which customers interact with gamified platforms determines whether they continue engaging with the brand (Denden et al., 2022). This aligns with findings suggesting that intuitive and accessible gamification strategies significantly influence customer behavior by minimizing resistance and enhancing participation (Ramayah & Ignatius, 2005). Moreover, the effectiveness of gamification varies across different user demographics, with ease of use acting as a determinant in whether customers embrace or disengage from interactive experiences (Lin, 2022). Thus, considering the crucial role of ease of use in moderating the relationship between gamification, customer participation, and interaction, the following hypotheses are proposed:

***H5:*** *Ease of use moderates the relationship between gamification and brand interaction.*

***H6:*** *Ease of use moderates the relationship between gamification and customer participation.*

***H7:*** *Ease of use moderates the indirect relationship between gamification and customer participation through Interaction.*

### *3.6 Research Gap*

Despite the growing adoption of gamification in marketing and digital engagement strategies, several research gaps remain, particularly within the Saudi telecommunications sector. While prior studies have extensively examined the role of gamification in enhancing customer engagement and experience, limited research has explored its direct impact on brand interaction and customer participation, especially in highly digitalized and competitive markets like Saudi Arabia. Additionally, although ease of use is widely recognized as a critical factor in technology adoption models, its moderating role in the relationship between gamification, customer participation, and brand interaction remains underexplored. Existing studies have primarily focused on Western markets and e-commerce applications, leaving a gap in understanding how gamification functions in service-based industries within the Middle Eastern context. Addressing these gaps is essential for optimizing gamification strategies tailored to the preferences of Saudi customers and ensuring their effectiveness in driving participation and interaction. This study seeks to fill these gaps by providing empirical evidence on the role of gamification, brand interaction, and ease of use in shaping customer participation in the Saudi telecommunications industry.

## 4. Conceptual Framework

The research model aims to explore the role of gamification in enhancing brand interaction by examining brand interaction as a mediating factor and ease of use as a moderating factor. This model is grounded in the Technology Acceptance Model (TAM) (Davis, 1989) and

the Self-Determination Theory (SDT) (Deci & Ryan, 2013), which emphasize how perceived ease of use, motivation, and engagement influence customer behavior in digital environments.

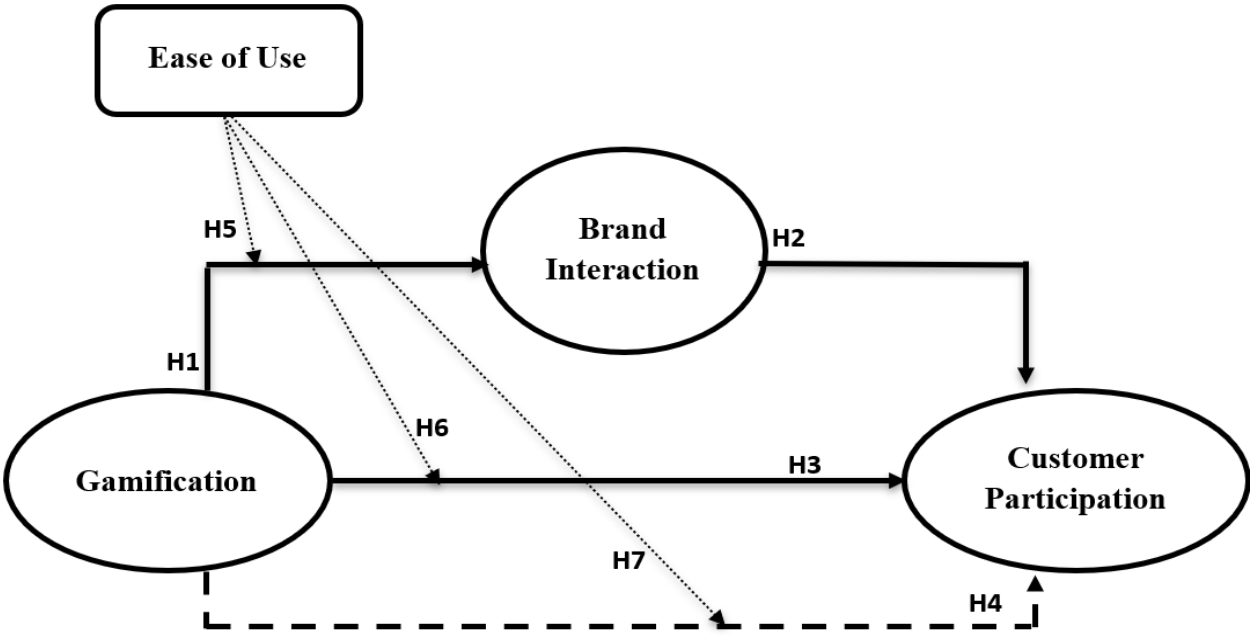


**Figure 1**: Conceptual Framework

## 5. Methodology

This study employs a quantitative research approach to analyze the relationships between gamification, customer interaction, and participation, and the moderate effect of ease of use in these relationships within the Saudi telecommunications industry. The research utilizes a survey-based method to collect primary data, as surveys have been widely adopted in similar research contexts. A structured questionnaire was distributed both manually and electronically to customers of leading telecom providers in Saudi Arabia, including STC, Zain, and Mobily.

### *5.1 Measures*

All variables in the study were measured using reflective constructs on a five-point Likert scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Gamification, conceptualized as a second-order construct, was assessed through four first-order dimensions: fun, rewards, competition, and storytelling. These were measured using 12 items adapted from Lee and Jin (2019). Interaction was assessed using five items derived from Harrigan et al. (2017). Meanwhile, customer participation was measured using five-item scale adapted from Chen and Chen (2017). Finally, ease of use was measured as a moderator variable using the Rodrigues et al., (2016) four-item scale.

### *5.2 Data Collection and Sample*

A survey method was implemented for primary data collection, as it is commonly used in similar studies. The questionnaire was distributed both manually and electronically to customers of Saudi telecom service providers. A total of 410 responses were collected. However, only 378

responses were deemed valid for analysis after data cleaning, with 32 responses excluded due to straight-lining (15 cases), outliers (9 cases), and missing values (8 cases).

### *5.3 Sample Demographics*

The study sample consists of 378 valid responses, representing a diverse group of telecom customers in Saudi Arabia. In terms of gender, 60% of respondents were male (227 participants), while 40% were female (151 participants). Regarding age distribution, the majority fell within the 20 to 30 age group (37.8%), followed by those aged 30 to 40 (27.8%). A smaller proportion comprised individuals under 20 (10.8%), between 40 and 50 (16.4%), and above 50 years old (7.2%). In terms of education level, the largest segment held a bachelor's degree (46.8%), followed by college-level education (22.5%), and postgraduate degrees (12.4%). Respondents with less than a college education accounted for 18.3% of the sample. Regarding monthly income, almost half of the participants (49.7%) reported earnings between 5,000 and 10,000 SAR, while 27% earned between 10,000 and 20,000 SAR. A smaller proportion earned less than 5,000 SAR (13%), and more than 20,000 SAR (10.3%). The respondents were customers of three major Saudi telecom providers. The highest percentage subscribed to STC (50.8%), followed by Mobily (30.2%), and Zain (19%). This demographic distribution ensures a balanced representation of various customer segments within the Saudi telecommunications industry.

### *5.4 Data Analysis*

This study utilizes SmartPLS 4.0 software and employs the partial least squares (PLS) method to examine the measurement model, estimate and analyze research hypotheses, and evaluate the structural model. PLS is a multivariate technique that minimizes the unexplained variance in endogenous variables (Quoquab et al., 2020b). For this research, PLS-SEM was chosen as the data analysis method because it is a non-causal prediction approach that allows for the simultaneous analysis of various variable relationships. Additionally, it can estimate complex models and structural paths without requiring any distributional assumptions about the data (Hair et al., 1989).

## 6. Results

### *6.1 Evaluating the Reflective Measurement Model*

The model included a second-order factor for gamification, so the reflective measurement model will be evaluated in the first and second order. The reflective measurement model was evaluated in the first-order in terms of indicator consistency, internal consistency reliability, convergent validity, and discriminant validity (Figure 2). Table 1 shows the results of factor loading tests for the main four variables (Gamification, Interaction, Participation, and Ease of

Use), including the sub-variables for gamification: fun, rewards, competition, and storytelling at the first-order.

**Table 1:** Measurement items of the first -order constructs

| Construct and Items | Standardized Loading (sig.) | Alpha | CR | AVE |
|---|---|---|---|---|
| ***Gamification*** | | | | |
| **Fun** | | 0.837 | 0.902 | 0.754 |
| Fun1: The mobile app game offered by the Saudi telecommunications brand provides a variety of visually appealing features. | 0.868** | | | |
| Fun2: The mobile app game offered by the Saudi telecommunications brand is engaging. | 0.878** | | | |
| Fun3: The mobile app game offered by the Saudi telecommunications brand provides entertainment. | 0.860** | | | |
| ***Reward*** | | 0.818 | 0.892 | 0.733 |
| Rew4: I can enhance my ranking by engaging with the game on the Saudi telecommunications brand's app. | 0.863** | | | |
| Rew5: The mobile app provided by the Saudi telecommunications brand offers various rewards (e.g., gifts for a game character). | 0.836** | | | |
| Rew6: I can achieve a new identity or status by reaching the highest ranking on the Saudi telecommunications brand's app. | 0.869** | | | |
| ***Competition*** | | 0.874 | 0.922 | 0.799 |
| Comp7: I can build relationships with other users through games on the Saudi telecommunications brand's app. | 0.893** | | | |
| Comp8: I can compare my score rankings with those of other users on the Saudi telecommunications brand's app. | 0.900** | | | |
| Comp9: I can compete with other users through the Saudi telecommunications brand's app. | 0.888** | | | |
| ***Storytelling*** | | 0.944 | 0.964 | 0.899 |
| Stor10: The story of the Saudi telecommunications brand is engaging. | 0.949** | | | |
| Stor11: The story of the Saudi telecommunications brand is likable. | 0.773** | | | |
| Stor12: The story of the Saudi telecommunications brand is easy to comprehend. | 0.921** | | | |
| ***Interaction*** | | 0.921 | 0.941 | 0.760 |
| Inter1: In general, I like to get involved in discussions within the telecommunications platform community. | 0.826** | | | |
| Inter2: I am someone who enjoys interacting with like-minded individuals in the telecommunications platform community. | 0.879** | | | |
| Inter3: I am someone who likes actively participating in | 0.893** | | | |

**Table 1:** Measurement items of the first -order constructs

| Construct and Items | Standardized Loading (sig.) | Alpha | CR | AVE |
|---|---|---|---|---|
| the telecommunications platform community discussions. | | | | |
| Inter4: In general, I thoroughly enjoy exchanging ideas with other people in the telecommunications platform community. | 0.889** | | | |
| Inter5: I often participate in activities organized by the telecommunications platform community. | 0.872** | | | |
| ***Participation*** | | 0.865 | 0.902 | 0.649 |
| Parti1: I spent a lot of time-sharing information about my needs and opinions with the staff during the service process. | 0.807** | | | |
| Parti2: I put a lot of effort into expressing my personal needs to the staff during the service process. | 0.824** | | | |
| Parti3: I always provide suggestions to the staff for improving the service outcome. | 0.785** | | | |
| Parti4: I have a high level of participation in the service process. | 0.811** | | | |
| Parti5: I am very much involved in deciding how the services should be provided. | 0.800** | | | |
| ***Ease of Use*** | | 0.942 | 0.958 | 0.851 |
| Eou1: I can quickly find the information I need about this telecom service. | 0.919** | | | |
| Eou2: It is easy to select the telecom plans and services. | 0.928** | | | |
| Eou3: Purchasing a telecom service or plan is not time-consuming. | 0.933** | | | |
| Eou4: My interaction with this telecom service is clear and easy to understand. | 0.910** | | | |

**Note:** **P <0.01. **Alpha** refers to Cornbach's Alpha, **CR** refers to Composite reliability and **AVE** is average variance extracted

Table 1 summarizes the measurement items and reliability metrics for the study constructs, demonstrating strong internal consistency. All constructs exhibit Cronbach's alpha values exceeding 0.7, with standardized loadings above 0.708 ($p < 0.01$), ensuring reliability and validity (Hair et al., 2019). For example, "fun" has a composite reliability (CR) of 0.902 and an average variance extracted (AVE) of 0.754, confirming its robustness. Similarly, "reward" (CR = 0.892, AVE = 0.733), "competition" (CR = 0.922, AVE = 0.799), and "storytelling" (CR = 0.964, AVE = 0.899) demonstrate high reliability. Constructs such as "interaction," "participation," and "ease of use" also show CR values above 0.85 and AVE values above 0.5, reinforcing the validity of the measurement items. These results confirm the reliability and validity of the measurement model, providing a solid foundation for further analysis.

In Table 2, we examined the discriminant validity of the measurement scale by analyzing all paired combinations of constructs. According to the criteria established by Fornell and

Larcker (1981), the square root of the average variance extracted for each construct is greater than the correlations between the constructs. This indicates that the constructs have discriminant validity.

**Table 2.** Descriptive statistics and correlations between constructs (Fornell-Lacker method)

| NO. | Construct | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | Fun | ***0.869**** | | | | | | |
| 2 | Reward | 0.493** | ***0.856**** | | | | | |
| 3 | Competition | 0.525** | 0.586** | ***0.894**** | | | | |
| 4 | Storytelling | 0.552** | 0.492** | 0.439** | ***0.948**** | | | |
| 5 | Interaction | 0.359** | 0.357** | 0.352** | 0.325** | ***0.872**** | | |
| 6 | Participation | 0.472** | 0.482** | 0.515** | 0.469** | 0.489** | ***0.806**** | |
| 7 | Ease of Use | 0.285** | 0.307** | 0.420** | 0.246** | 0.238** | 0.417** | ***0.923**** |
| | Mean | 4.057 | 3.933 | 3.896 | 3.748 | 3.915 | 3.931 | 3.992 |
| | Standard Deviation | 0.798 | 0.850 | 0.903 | 0.972 | 0.842 | 0.786 | 0.973 |

**Notes:** **P < 001; Square root of AVE is typed in *italics* **bold** along the diagonal.

Table 2 confirms discriminant validity using the Fornell-Larcker criterion, as the square root of the AVE for each construct exceeds its correlations with other constructs. For instance, "fun" (0.869), "reward" (0.856), and "competition" (0.894) all display higher diagonal values than their respective inter-construct correlations, supporting construct distinctiveness. Additionally, "competition" and "reward" show a strong correlation (0.586), reflecting their conceptual alignment within the gamification framework. The mean values (3.748 to 4.057) and standard deviations (0.786 to 0.973) indicate moderate variability, with "fun" rated highest. These results confirm that the constructs maintain reliability and distinctiveness, providing robust support for the measurement model.

**Table 3:** Heterotrait-monotrait (HTMT) criterion values

| NO. | Construct | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | Fun | | | | | | | |
| 2 | Reward | 0.592 | | | | | | |
| 3 | Competition | 0.611 | 0.693 | | | | | |
| 4 | Storytelling | 0.621 | 0.554 | 0.481 | | | | |
| 5 | Interaction | 0.404 | 0.413 | 0.392 | 0.350 | | | |
| 6 | Participation | 0.554 | 0.571 | 0.591 | 0.517 | 0.462 | | |
| 7 | Ease of Use | 0.318 | 0.351 | 0.462 | 0.260 | 0.069 | 0.536 | |

Table 3 shows that all heterotrait-monotrait (HTMT) criterion values are below the 0.85 threshold, confirming discriminant validity (Henseler et al., 2015). Notably, key relationships such as "competition" and "reward" (HTMT = 0.693) reflect a strong conceptual alignment, while weaker correlations, such as "ease of use" with "interaction" (HTMT = 0.069) and "storytelling" (HTMT = 0.260), indicate clear differentiation among constructs. These results

ensure that discriminant validity is achieved, supporting the distinctiveness of the measurement model's constructs. Figure 2 below illustrates the first-order reflective measurement model.

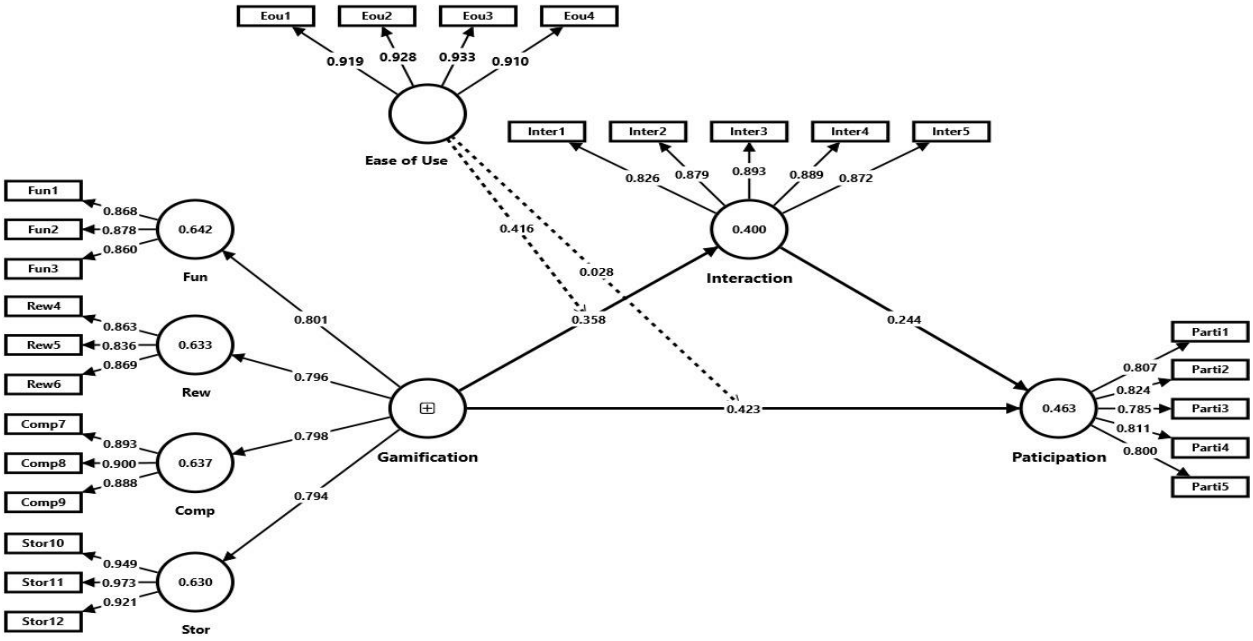


**Figure 2**. The reflective measurement model (First-order)

The second-order constructs were included in the initial analysis model using a repeated indicators approach but had not yet been examined or evaluated. To assess the constructs of the second-order reflective measurement model represented by Gamification, the two-stage approach proposed by Becker et al. (2012) was utilized. After evaluating the first-order constructs, the latent variables were identified and then used as manifest variables for the second-order constructs (see Figure 3). Tables 4 and 5 present the validity and reliability results for these constructs.

**Table 4:** Measurement items of the second-order constructs

| Construct and Items | Standardized Loading (sig.) | Alpha | CR | AVE |
|---|---|---|---|---|
| ***Gamification*** | | 0.809 | 0.875 | 0.636 |
| Fun | 0.804 | | | |
| Reward | 0.808 | | | |
| Competition | 0.807 | | | |
| Storytelling | 0.770 | | | |

**Note:** **P <0.01. **Alpha** refers to Cornbach's Alpha, **CR** refers to Composite reliability and **AVE** is average variance extracted

Table 4 presents the measurement items for the second-order construct, "gamification," which is formed by four first-order constructs: "fun," "reward," "competition," and "storytelling." The Cronbach's alpha value of 0.809, composite reliability (CR) of 0.875, and AVE of 0.636 all surpass the recommended thresholds, confirming internal consistency reliability and convergent

validity. These results indicate that the gamification construct is well-defined and suitable for further analysis.

**Table 5:** Heterotrait-monotrait (HTMT) criterion values for second-order

| NO. | Construct | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 1 | **Gamification** | | | | |
| 2 | **Interaction** | 0.505 | | | |
| 3 | **Participation** | 0.725 | 0.540 | | |
| 4 | **Ease of Use** | 0.451 | 0.250 | 0.462 | |

Table 5 assesses discriminant validity for the second-order constructs using the HTMT criterion. All values are below the 0.85 threshold, indicating acceptable psychometric properties. Notably, "gamification" and "participation" exhibit a moderate HTMT value (0.725), reflecting their conceptual alignment without redundancy. Meanwhile, the lower HTMT values between "gamification" and "ease of use" (0.451) and between "interaction" and "ease of use" (0.250) confirm strong discriminant validity between these constructs. These results validate the distinctiveness of the second-order constructs, reinforcing the robustness of the measurement model. Figure 3 below illustrates the second-order reflective measurement model.

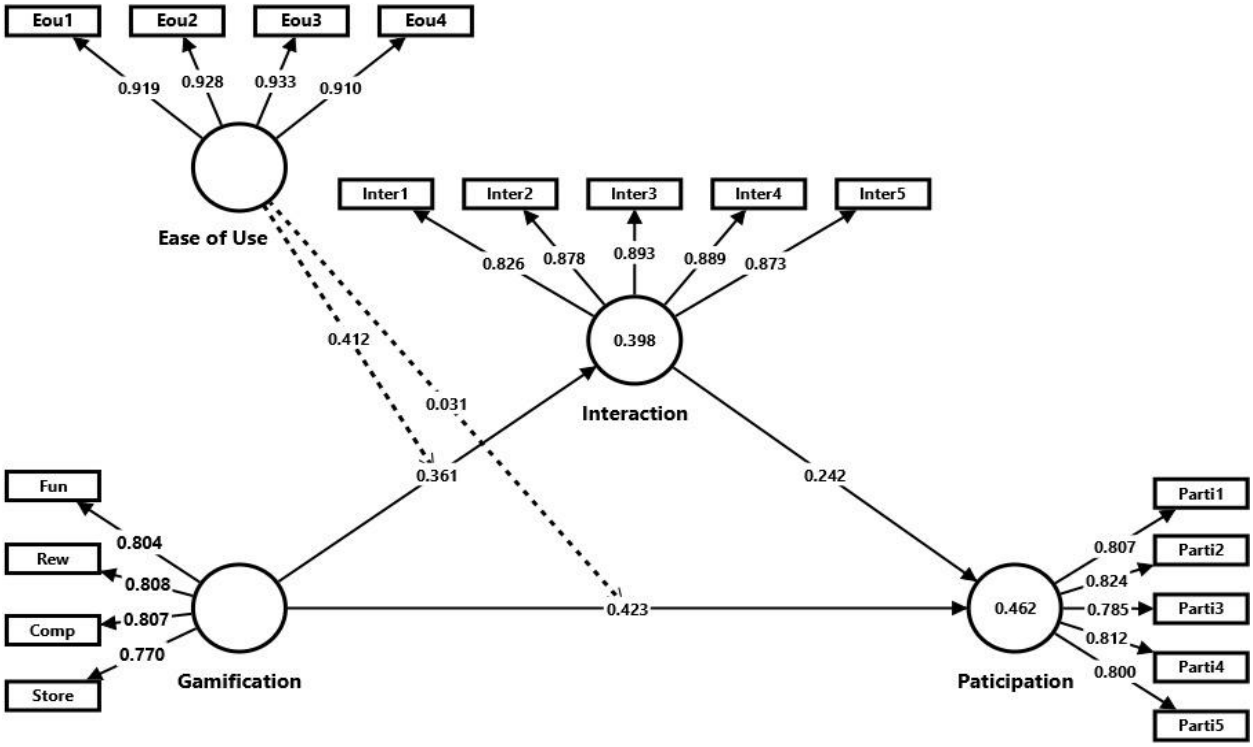


**Figure 3**. The reflective measurement model (Second-order)

### *6.2 Evaluating the Structural Model*

To evaluate the structural model shown in Figure 4, we used the variance inflation factor (VIF), effect size ($f^2$), and coefficient of determination ($R^2$) to assess the explained variance. The results of these three criteria are presented in Table 6.

**Table 6:** Structural model evaluation

| Construct | Variance Inflation Factor (VIF) Collinearity Assessment | Confidence Intervals 95% (BCa) Bootstrap | | F2 Effect Size | Level of R2 |
|---|---|---|---|---|---|
| | | 2.5% | 97% | | |
| Gamification | 1.197 | 0.228 | 0.495 | 0.181 | ----- |
| | 1.414 | 0.305 | 0.537 | 0.235 | |
| Ease of Use | 1.616 | 0.198 | 0.524 | 0.142 | ----- |
| | 1.845 | 0.084 | 0.350 | 0.046 | |
| Gamification × Ease of Use | 1.387 | 0.312 | 0.513 | 0.336 | ----- |
| | 1.854 | - 0.070 | 0.183 | 0.003 | |
| Interaction | 1.662 | 0.107 | 0.366 | 0.066 | 0.398 |
| Participation | ----- | ----- | ----- | ----- | 0.462 |

The structural model was assessed using the coefficient of determination ($R^2$), effect size ($f^2$), and variance inflation factor (VIF). First, the $R^2$ values indicate that the model explains 39.8% of the variance in "interaction" and 46.2% in "participation," demonstrating a moderate level of explanatory power. Second, the effect size ($f^2$) values range from weak (0.046) to strong (0.336), according to Cohen's (2013) guidelines. "Gamification × Ease of Use" shows the highest effect size (0.336), indicating a notable interaction effect. Third, all VIF values are below the conservative threshold of 3, confirming that collinearity is not a concern (Sarstedt et al., 2022). These results validate the robustness of the structural model.

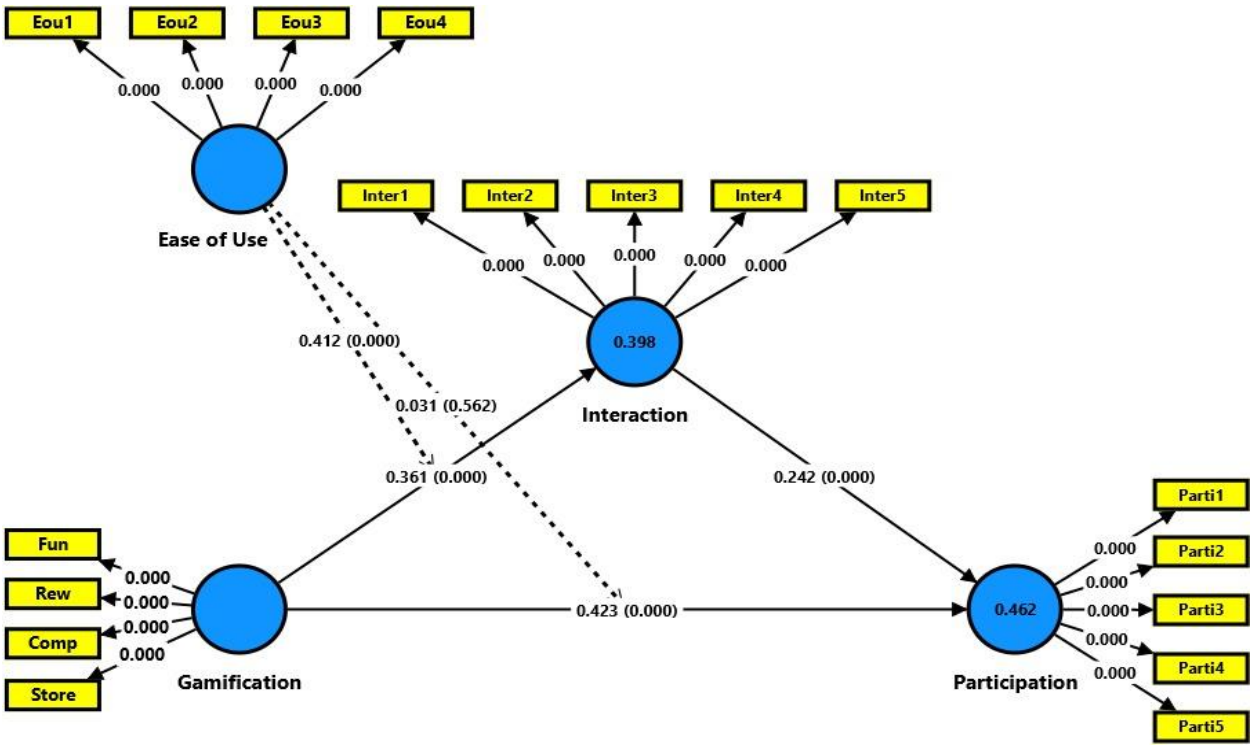


**Figure 4**: The structural model

### *6.3 Hypotheses tests*

The direct effect hypotheses were evaluated by analyzing standardized path coefficients (β) and their significance levels using a bootstrapping procedure with 5,000 resamples. As shown in Table 8, gamification has a significant positive impact on interaction (H1: $\beta = 0.361$, $p < 0.01$), confirming that gamified elements enhance brand engagement. Additionally, interaction positively influences participation (H2: $\beta = 0.242$, $p < 0.01$) and gamification directly increases participation (H3: $\beta = 0.423$, $p < 0.01$), supporting both hypotheses. For mediation effects, interaction partially mediates the relationship between gamification and participation (H4: $\beta = 0.087$, $p < 0.01$), indicating that interaction plays a role but does not fully account for the relationship.

**Table 7.** Structural model estimates

| Hypothesis | | | | | | $\beta$ | Critical ratio | P-Value | Results |
|---|---|---|---|---|---|---|---|---|---|
| **H1** | **Gamification** | → | **Interaction** | | | 0.361 | 5.260 | <0.01 | Supported |
| **H2** | **Interaction** | → | **Participation** | | | 0.242 | 3.623 | <0.01 | Supported |
| **H3** | **Gamification** | → | **Participation** | | | 0.423 | 7.098 | <0.01 | Supported |
| **H4** | **Gamification** | → | **Interaction** | → | **Participation** | 0.087 | 2.706 | <0.01 | Partial mediated |
| **H5** | **Gamification** x **Ease of use** | → | **Interaction** | | | 0.412 | 7.943 | <0.01 | Moderated |
| **H6** | **Gamification** x **Ease of use** | → | **Participation** | | | 0.031 | 0.580 | = 0.562 | Immoderate |
| **H7** | **Gamification** x **Ease of use** | → | **Interaction** | → | **Participation** | 0.100 | 3.304 | <0.01 | Moderated mediated |

The moderating role of ease of use was tested in H5 and H6. The results show that ease of use significantly moderates the relationship between gamification and interaction (H5: $\beta = 0.412$, $p < 0.01$), meaning that a more user-friendly platform strengthens the impact of gamification on interaction. However, H6 was not supported ($\beta = 0.031$, $p = 0.562$), indicating that ease of use does not significantly moderate the gamification–participation relationship. Finally, H7 confirms a moderated mediation effect, where ease of use enhances the indirect relationship between gamification and participation via interaction ($\beta = 0.100$, $p < 0.01$). This suggests that when ease of use is high, gamification's effect on participation through interaction becomes stronger. These results provide empirical support for the structural model, demonstrating the importance of gamification, interaction, and ease of use in enhancing customer engagement and participation. A summary of these results is presented in Table 7.

## 7. Discussion

This study examines the direct and indirect effects of gamification on customer participation within the Saudi telecommunications industry, emphasizing the mediating role of brand interaction and the moderating effect of ease of use. The findings confirm H1, demonstrating that gamification significantly enhances brand interaction. The integration of game elements such as points, rewards, storytelling, and competition effectively increases engagement by appealing to both intrinsic and extrinsic motivations. This is consistent with previous research by Hamari (2017) and Xi and Hamari (2019), who argue that gamification fosters customer loyalty and repeat engagement through enjoyment and social connectivity.

Moreover, Koivisto and Hamari (2019) suggest that gamified marketing strategies combining entertainment and competitive elements attract a diverse audience and strengthen brand interaction. However, the effectiveness of gamification depends on personalization, as highlighted by Santos et al. (2021), who emphasize that tailoring gamification designs to different user types increases engagement and effectiveness. Additionally, gamification strategies aligned with users' motivations and preferences are more likely to transform passive consumers into active participants, reinforcing its role as a valuable marketing approach for enhancing brand interaction.

The results also support H2, showing that brand interaction positively influences customer participation. Customers who actively engage with brands through social media, events, or feedback mechanisms are more likely to transition from passive observers to active contributors. This finding aligns with Wang et al. (2021), who suggest that higher levels of participation foster stronger emotional and cognitive connections with brands, leading to increased brand advocacy and future engagement. Similarly, research by Cheung et al. (2021) and Nobre and Ferreira (2017) indicates that gamified brand experiences leveraging entertainment and competition encourage deeper brand interaction and participation, fostering a co-creation process that enhances customer engagement. Furthermore, Martín-Consuegra et al. (2018) highlight those interactive digital platforms amplify customer involvement, influencing behavioral intentions and fostering loyalty. These findings underscore the importance of brand interaction as a key driver of customer participation in the highly digitalized Saudi telecommunications sector, where consumer engagement with technology is prevalent.

Furthermore, the study supports H3, demonstrating that interaction serves as a partial mediator between gamification and customer participation. In the case of H3a, gamification enhances participation by incorporating interactive features such as real-time feedback, competitive challenges, and social collaboration, all of which strengthen customers' connections with brands. This aligns with Hamari (2017) and Raman (2020), who suggest that immersive gamification experiences motivate participation by increasing user engagement and emotional investment. The mediating role of interaction highlights its amplifying effect, as customers who interact more frequently with gamified elements are more likely to participate in brand-related activities.

Additionally, the findings related to H4, H5, and H6 emphasize the moderating role of ease of use in gamification-driven engagement. The study confirms H4, showing that ease of use strengthens the relationship between gamification and brand interaction. This finding aligns with the Technology Acceptance Model (TAM) (Davis, 1989; Venkatesh & Davis, 2000), which suggests that an intuitive and user-friendly system enhances engagement by reducing cognitive effort. When gamification features such as rewards, challenges, and leaderboards are integrated into well-designed, easy-to-navigate platforms, they enhance interaction and encourage customer participation (Wu & Chen, 2017). However, H5 was not supported, indicating that ease of use does not significantly moderate the direct relationship between gamification and participation.

This suggests that while a user-friendly experience improves interaction, other factors—such as customer motivations or the appeal of gamified elements—may play a more significant role in driving participation. Finally, H6 was supported, confirming a moderated mediation effect, meaning that ease of use strengthens the indirect relationship between gamification and participation through interaction. This aligns with previous research, such as that by Rodrigues et al. (2016), which highlights that when a gamified system is intuitive, it encourages greater interaction, which in turn enhances participation. Similarly, Denden et al. (2022) emphasize that in digital environments like the Saudi telecommunications industry, seamless navigation and ease of use are essential for maintaining high levels of customer engagement.

## 8. Conclusion

This study highlights the significant role of gamification in enhancing customer participation within the Saudi telecommunications sector. By integrating game elements such as rewards, storytelling, and competition, brands can foster greater brand interaction, ultimately leading to higher levels of customer participation. The findings confirm that gamification positively impacts brand interaction, which, in turn, strengthens customer participation. Moreover, the study emphasizes the mediating role of interaction, demonstrating that engaged customers are more likely to actively participate in brand-related activities. Additionally, the research underscores the importance of ease of use as a moderating factor in gamification-driven engagement. While an intuitive and user-friendly gamified system enhances brand interaction, its direct impact on customer participation appears to be less significant. This suggests that while gamification can effectively drive engagement, its success depends on how seamlessly users can navigate and interact with the platform. Overall, the study provides valuable insights for telecom companies seeking to optimize their digital marketing strategies through gamification. By prioritizing user-friendly designs, interactive engagement, and personalization, brands can create compelling gamified experiences that enhance customer-brand relationships and encourage higher levels of participation. Future research should explore additional factors influencing gamification effectiveness, such as personalization, cultural preferences, and emerging technologies, to further refine its application in dynamic markets like Saudi Arabia.

## 9. Implications

### *9.1 Theoretical Implications*

This study expands the existing literature on gamification, brand interaction, and customer participation by demonstrating the interconnected relationships between these constructs within the Saudi telecommunications sector. While prior research has primarily examined the direct effects of gamification on customer behavior, this study highlights the mediating role of brand interaction, reinforcing its significance in transforming passive customers into active participants (Hamari, 2017; Xi & Hamari, 2019). Additionally, this research integrates the Technology Acceptance Model (TAM) by confirming that ease of use moderates the impact of gamification on interaction, suggesting that intuitive and user-friendly platforms enhance brand engagement (Venkatesh & Davis, 2000).

Moreover, the findings contribute to Self-Determination Theory (SDT) by illustrating how gamification fosters both intrinsic and extrinsic motivation, leading to higher levels of customer participation (Deci & Ryan, 2013). Specifically, game elements such as storytelling, competition, and rewards enhance engagement by fulfilling users' psychological needs for competence, autonomy, and relatedness (Koivisto & Hamari, 2019). Additionally, this study addresses a notable research gap by examining the role of gamification in the Saudi telecommunications industry, a highly digitalized yet underexplored market in gamification research (Elwakeel et al., 2025).

Furthermore, the study provides empirical evidence supporting the effectiveness of gamified marketing strategies tailored to cultural and market-specific factors. Unlike Western contexts, where gamification has been extensively studied in e-commerce and education, this research emphasizes its applicability in service-based industries, particularly within digital-driven economies such as Saudi Arabia (Rodrigues et al., 2016; Denden et al., 2022). Consequently, these insights extend theoretical discussions on digital consumer engagement, demonstrating how gamification can be optimized to drive customer participation in competitive industries.

### *9.2 Managerial Implications*

From a managerial perspective, the findings of this study provide several strategic insights for telecom companies looking to enhance customer participation through gamification. First and foremost, businesses should focus on the integration of diverse gamification elements, including rewards, storytelling, and competitive challenges, to appeal to different customer motivations (Kridiawan & Wang, 2024). While some users are driven by achievement-based incentives, others may engage more with immersive storytelling or social interaction, highlighting the need for personalized gamification experiences (Santos et al., 2021).

Moreover, fostering brand interaction through gamification is essential for encouraging customer participation. By incorporating interactive features such as real-time feedback, social media challenges, and community-driven competitions, telecom providers can create engaging brand experiences that encourage customers to participate actively (Cheung et al., 2021). Additionally, companies should leverage user-generated content and participatory marketing, allowing customers to contribute actively to the brand’s gamified ecosystem. This approach enhances emotional and cognitive connections with the brand, ultimately driving higher levels of participation (Wang et al., 2021).

Another key managerial implication is the importance of ease of use in gamified platforms. As this study demonstrates, an intuitive and user-friendly interface significantly enhances brand interaction, making it easier for customers to engage with gamified elements (Wu & Chen, 2017). Therefore, telecom companies should prioritize seamless navigation, simplified reward redemption processes, and clear instructional design to minimize friction and maximize engagement (Rodrigues et al., 2016). Furthermore, A/B testing of different

gamification features can help identify which mechanics resonate most with users, allowing for continuous optimization based on customer behavior analytics (Denden et al., 2022).

Lastly, leveraging data-driven insights is critical for optimizing gamification strategies. By analyzing customer interactions within gamified systems, businesses can identify key engagement patterns, refine gamification mechanics, and tailor marketing campaigns accordingly (Elwakeel et al., 2025). Moreover, incorporating predictive analytics and AI-driven recommendations can enhance personalization, ensuring that gamification strategies remain relevant and effective over time (Hastuti et al., 2022).

### *9.3 Practical Implications*

The findings of this study provide actionable insights for businesses, particularly telecom companies, aiming to leverage gamification as a strategic marketing tool. As the Saudi telecommunications sector continues to evolve with rapid digital transformation, companies can use gamification to increase customer participation and strengthen brand interaction. By implementing the following strategies, telecom providers can create engaging customer experiences and gain a competitive advantage.

One of the most important takeaways from this study is that well-designed gamification enhances participation. To ensure effectiveness, telecom providers should integrate a variety of game mechanics that appeal to different customer motivations. For instance, leaderboards and competition-based rewards can attract achievement-oriented users, while storytelling and interactive narratives can engage those seeking immersive brand experiences (Koivisto & Hamari, 2019). Additionally, personalizing gamification features is essential, as research suggests that tailoring game mechanics to individual user preferences significantly increases participation rates (Santos et al., 2021). Furthermore, companies must ensure that gamified rewards remain valuable and relevant over time. Providing a mix of short-term incentives, such as discounts or exclusive content, and long-term engagement mechanisms, like tiered participation levels, can help sustain engagement and encourage repeat participation (Kridiawan & Wang, 2024).

Beyond offering engaging game elements, strengthening brand interaction is key to fostering customer participation. Research highlights that customer are more likely to engage with brands when they feel a sense of community and involvement (Cheung et al., 2021). Therefore, telecom companies should implement social engagement strategies, such as multiplayer challenges, referral-based incentives, and collaborative tasks, to enhance brand interaction. Additionally, incorporating user-generated content into gamification efforts can amplify participation by encouraging customers to share their achievements on social media platforms (Wang et al., 2021). Moreover, integrating real-time feedback mechanisms, such as instant rewards or progress tracking, can create a sense of accomplishment and motivation, further strengthening brand interaction (Rodrigues et al., 2016).

While gamification can enhance customer participation, its success is highly dependent on ease of use. Customers are unlikely to engage with gamified experiences if they perceive them as overly complex or difficult to navigate. To address this, telecom providers should focus on designing intuitive user interfaces that simplify gamification processes and make them more accessible to a wider audience (Wu & Chen, 2017). Additionally, minimizing barriers to entry, such as eliminating unnecessary registration steps or providing clear onboarding instructions, can help reduce friction and encourage participation (Denden et al., 2022). To further optimize usability, companies can implement A/B testing to identify which game elements resonate most with customers and refine their gamification strategies accordingly (Elwakeel et al., 2025).

To maximize the effectiveness of gamification strategies, telecom companies should adopt a data-driven approach. By leveraging customer analytics, businesses can track engagement patterns and gain insights into which gamification features drive the highest levels of participation (Rodrigues et al., 2016). Moreover, using predictive analytics can help personalize gamification experiences by tailoring challenges and rewards to individual customer preferences (Hastuti et al., 2022). Additionally, machine learning algorithms can be employed to continuously optimize gamified experiences, ensuring that incentives and challenges remain fresh and engaging over time (Venkatesh & Davis, 2000).

## 10. Limitations and Future Research Directions

Despite its valuable contributions, this study has certain limitations that present opportunities for future research. First, the study focuses exclusively on the Saudi telecommunications sector, which may limit the generalizability of the findings to other industries and geographic regions. Future research could extend the scope to different service sectors such as banking, retail, or healthcare to determine whether gamification and AI stimuli produce similar engagement patterns across diverse industries .Second, this study primarily relies on quantitative survey data, which is effective for identifying causal relationships but may not fully capture the nuanced experiences, motivations, and perceptions of customers interacting with gamified and AI-driven marketing strategies. Future research could adopt qualitative methods, such as in-depth interviews, focus groups, or ethnographic research, to provide richer contextual insights into customer behavior. A mixed-methods approach could further strengthen the findings by integrating both statistical analysis and qualitative exploration .Third, while this research examines customer ability readiness as a moderating factor, other potential moderators—such as cultural influences, personality traits, trust in AI, or digital literacy levels—remain unexplored. Investigating these variables could offer a more comprehensive understanding of how different consumer segments respond to AI-driven gamification strategies. Additionally, longitudinal research could provide insights into how customer engagement evolves over time, as initial enthusiasm for gamified experiences may decline with repeated exposure .Lastly, with the rise of emerging technologies such as artificial intelligence, augmented reality, and blockchain, future studies should explore how these innovations can be integrated into gamification frameworks to further enhance customer engagement, personalization, and long-term retention. Understanding the synergy between gamification, AI, and next-generation digital experiences will be crucial for shaping the future of interactive marketing strategies.

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