The impact of entertainment experience of gamification on customer intention to buy: The mediating role of customer's intention to participate in gamification communities

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Abstract:

The growing integration of gamification into shopping apps has redefined how consumers interact with digital platforms, providing not only functional benefits but also entertainment experiences that can influence buying behavior. This study employs a quantitative approach, utilizing Structural Equation Modeling (SEM) to explore the impact of gamified entertainment on customers' purchase intentions. A sample of 390 participants, collected through non-probability snowball sampling, provided valuable insights into how gamified experiences enhance user engagement. The results show

that while these experiences increase purchase intentions, the intention to participate in gamified communities mediates this effect. These findings emphasize the importance of integrating gamified features that drive participation and, ultimately, purchasing decisions. Future research should delve into the longitudinal impacts of gamification and explore additional psychological factors that influence consumer behavior.

Keywords

Gamification, entertainment experience, customer participation intention, shopping communities, consumer behavior.

الملخص:

لقد أعاد التكامل المتزايد للألعاب الإلكترونية في تطبيقات التسوق تعريف كيفية تفاعل المستهلكين مع المنصات الرقمية، حيث تقدم هذه التطبيقات فوائد عملية وتجارب ترفيهية تؤثر على سلوك الشراء. تستخدم هذه الدراسة منهجا كميا معتمدا على النمذجة المعادلة الهيكلية لاستكشاف تأثير التجارب الترفيهية المدعومة بالألعاب على نوايا الشراء لدى العملاء. تم جمع بيانات من ٣٩٠ مشاركًا باستخدام تقنية العينة غير الاحتمالية (التوزيع التكتلي)، لتقديم رؤى حول كيفية تعزيز الألعاب التفاعلية للمشاركة. أظهرت النتائج أن هذه التجارب تزيد من نوايا الشراء، وأن النية في المشاركة في المجتمعات المدعومة بالألعاب تؤثر في هذا التأثير. تؤكد هذه النتائج على أهمية دمج الميزات المدعومة بالألعاب التي تحفز المشاركة وفي النهاية تؤثر على قرارات الشراء. ينبغي أن تتناول الأبحاث المستقبلية التأثيرات طويلة المدى للألعاب الإلكترونية وتستكشف العوامل النفسية الأخرى التي تؤثر في سلوك المستهلك.

الكلمات المفتاحية:

استخدام عناصر الألعاب الإلكترونية ، التجارب الترفيهية ، نية العميل في المشاركة في المجتمعات المدعومة بالألعاب ،مجتمعات الشراء ، سلوك العميل

1. Introduction

Gamification, the integration of game-design elements into non-game contexts, has become a powerful tool for enhancing user engagement and driving consumer behavior in various domains, including marketing and e-commerce (Seaborn & Fels, 2015). Within the context of shopping apps, gamification transforms the traditional consumer experience into a more interactive and enjoyable journey, often incorporating features such as rewards, challenges, and social interactions to increase user participation and loyalty (Trinidad & Calderon,2021; Hamari & Koivisto, 2015). One critical aspect of this transformation is the entertainment experience provided by gamified elements, which plays a significant role in influencing consumer attitudes and behaviors (Tan,2021).

The Uses and Gratifications Theory (UGT) provides a theoretical framework for understanding the impact of entertainment experience on consumer behavior (Camilleri & Falzon, 2021). UGT posits that individuals actively seek out media and content to satisfy specific needs, such as entertainment, information, and social interaction (Katz et al., 1973). In the context of gamified shopping apps, users engage with gamified features primarily for their entertainment value, which in turn influences their overall satisfaction and subsequent behavioral intentions (Halat,2024). The entertainment experience

can thus be seen as a crucial driver of user engagement and motivation within these platforms (Bitrián & Catalán, 2021).

This study investigates the impact of the entertainment experience on buying intention in the context of gamified shopping apps, with a particular focus on the mediating role of customers' intention to participate in gamification communities. By examining how the entertainment experience influences both the intention to participate in gamified communities and subsequent purchase decisions, this research aims to provide a deeper understanding of the mechanisms through which gamification impacts consumer behavior in e-commerce environments.

The structure of this study is as follows: First, a review of the relevant literature on gamification, entertainment experience, and the Uses and Gratifications Theory is presented. Next, the research methodology is outlined, including the development of the conceptual model and hypotheses. The study then presents the empirical findings, followed by a discussion of the results and their implications for theory and practice. Finally, the paper concludes with suggestions for future research directions in the field of gamified marketing and e-commerce.

2. Literature Review

2.1 Gamification overview

Gamification, the integration of game-like elements into non-game environments, has become a powerful tool in various industries, enhancing user engagement, satisfaction, and loyalty (Ciuchita et al., 2023). This approach leverages fundamental human desires for achievement, competition, and social connection to create more engaging and interactive experiences (Deterding et al., 2011). Across sectors like marketing, education, healthcare, and retail, gamification has proven to be an effective strategy for influencing consumer behavior and driving business outcomes (Hamari et al., 2014).

In the retail sector, for instance, the online fashion retailer ASOS uses gamification through its loyalty program, where customers earn points for purchases, social media engagement, and leaving reviews. These points can be redeemed for discounts, encouraging repeat purchases and fostering a sense of community among users (Leclercq et al., 2018). Similarly, the global coffee chain Starbucks has implemented a highly successful gamified loyalty program that allows customers to earn stars for every purchase. These stars can be redeemed for free drinks or food items, creating a rewarding cycle that encourages frequent visits and increased spending (Huotari & Hamari, 2017).

Furthermore, in the education sector, platforms like Duolingo have revolutionized language learning by incorporating gamified elements such as streaks, levels, and leaderboards (Wallenwein,2023). These features keep users motivated by tracking their progress and rewarding consistent practice, making the learning process more engaging and enjoyable (Cederberg & Rus,2024). Similarly, the fitness industry has embraced gamification with apps like Strava, which allows users to track their workouts, compete in challenges, and share achievements with friends (Şahin,2022). This not only enhances the user experience but also builds a supportive community that motivates individuals to stay active (Tu et al.,2019).

2.2 Gamified shopping applications

Gamification, the integration of game mechanics into non-game environments, has become a central strategy in modern marketing, aiming to enhance customer engagement, satisfaction, and loyalty (Ciuchita et al.,2023). This approach leverages the inherent human affinity for play, competition, and rewards, translating these elements into consumer-facing activities that drive interaction and brand loyalty (Chan,2023). Companies across various sectors are increasingly adopting gamification to influence consumer behavior, as it provides an innovative way to connect with customers on an emotional level and create memorable brand experiences (Hsu & Chen, 2018; Robson et al., 2015).

In the context of e-commerce, particularly within the Egyptian market, gamification has emerged as a potent tool for enhancing the online shopping experience (Hanna,2022). Egyptian retailers are increasingly incorporating gamified features to attract a growing population of tech-savvy consumers (Aly,2020). For instance, Amazon (Souq.com in the past), a leading e-commerce platform in the Middle East, utilizes gamified elements like timed flash sales and limited time offers to create a sense of urgency and excitement among customers (Hanna,2022). This strategy not only drives immediate purchases but also enhances user engagement by encouraging frequent visits to the platform (Al-Azzawi, 2019).

Another notable example is Talabat Egypt, one of the leading food delivery platforms, effectively employs gamification strategies to enhance user engagement and boost loyalty. Through dynamic promotional campaigns, the app introduces challenges and rewards, such as discounts unlocked after completing specific tasks like ordering from restaurants or reaching a set spending amount (Talbat,2024). Seasonal campaigns often feature interactive elements, such as spinning reward wheels or collecting points during promotional periods, which can be redeemed for discounts or free delivery (Talbat,2024). These gamified experiences not only make the app more engaging but also encourage repeat usage and higher

spending among users, solidifying Talabat's position in Egypt's competitive food delivery market (Atef,2024).

Similarly, Carrefour Egypt, a major retail player, has also adopted gamification in its mobile application by introducing a digital loyalty program. Customers earn points with each purchase, which they can later redeem for discounts or special offers. The app also features challenges and games that reward users with additional points or exclusive deals, creating a more engaging shopping experience that encourages repeat purchases (El Shaboury & Shamma,2021).

The effectiveness of gamification in the Egyptian e-commerce landscape is supported by empirical studies, which show that gamified systems significantly enhance user engagement and increase purchase intentions, especially when users perceive the gamified elements as enjoyable and rewarding (Hamari et al., 2014; Xu et al., 2017). In a similar vein, the importance of personalized experiences and interactivity in maintaining user interest in gamified environments is particularly relevant in the context of shopping apps, where personalization can drive customer satisfaction and loyalty (Mekler et al., 2017; Meylina, 2024).

Moreover, the use of gamification in shopping apps is aligned with the broader trends of digital transformation in Egypt, where mobile penetration and internet usage are on the rise (El

Shoubashy,2020). As more consumers turn to online platforms for their shopping needs (Sharma & Jhamb, 2020), the implementation of gamified elements becomes a critical strategy for businesses to differentiate themselves in a competitive market and build long-term relationships with their customers (Bogoslov et al.,2023).

2.3 Uses and Gratifications Theory (UGT)

Gamification has been framed using various theories to understand its impact on user behavior:

- **Self-Determination Theory (SDT):** Self-determination theory (SDT) explores the role of intrinsic motivations, emphasizing the basic psychological needs for autonomy, competence, and relatedness (Ryan & Deci,2020). Gamification leverages these needs by offering users a sense of control, opportunities for skill development, and a platform for social interaction, thereby enhancing their motivation to engage (Deci & Ryan, 1985).
- **Flow Theory:** Flow theory describes a mental state where individuals are fully absorbed and enjoying an activity (Csikszentmihalhi,2020). In the context of gamification, this theory helps to explain how game elements can create highly engaging and immersive experiences that capture and maintain users' attention (Csikszentmihalyi, 1990).

- **Uses and Gratifications Theory (UGT):** Uses and gratifications Theory suggests that people interact with media to satisfy specific needs, such as entertainment, information, and social connection (Kamboj,2020). In gamification, this theory is particularly relevant as it explains how users engage with gamified platforms to fulfill their desire for entertainment and interactive enjoyment (Katz et al., 1973).

  Among these theories, uses and gratifications theory is most pertinent when examining the entertainment experience in gamified settings (Che et al., 2023). UGT posits that users engage with gamified shopping apps to meet their entertainment needs, indicating that successful gamification strategies should focus on delivering enjoyable and satisfying experiences to enhance user engagement and influence consumer behavior positively (Wut et al., 2021). This theory is particularly relevant as recent research has shown that the fulfillment of entertainment needs significantly correlates with increased user loyalty and sustained engagement in digital environments (Hamari et al., 2022).

2.4 Hypotheses development

This study's conceptual model explores the impact of gamification's entertainment experience on customer intentions to participate in gamification communities and how this participation influences purchase intentions. The model incorporates a mediating

role, where the customer's intention to participate in gamification communities is examined as a key factor linking the entertainment experience to purchase intentions (Chang & Yu,2023). This framework provides a structured approach to understand how engaging and enjoyable gamification elements can drive consumer behavior through community involvement (Harwood & Garry,2015). The following hypotheses will be developed to investigate these relationships and the mediating effect of participation intention on the link between entertainment experience and purchase intentions.

2.4.1 Entertainment Experience

Entertainment experience, defined as the enjoyment and pleasure derived from engaging with gamified elements, is increasingly recognized for its role in shaping consumer behavior (Jang & Hsieh,2021; Lin et al.,2019). Research demonstrates that entertainment experience in gamification fosters user engagement, satisfaction, and loyalty by leveraging elements such as challenges, rewards, and interactive features (Hamari & Koivisto, 2015; Huotari & Hamari, 2017). Gamified applications that effectively provide an enjoyable and immersive experience can lead to heightened user motivation and positive emotional responses, which are crucial for influencing consumer intentions (Deterding et al., 2011).

Building on this foundation, the relationship between entertainment experience and customer intention to participate in gamification communities becomes pivotal(Yu & Huang,2022). According to uses and gratifications theory (UGT), individuals actively seek out media that fulfils their specific needs, such as entertainment and social interaction (Boudkouss& Djelassi,2021; Katz et al., 1973). In the context of gamified shopping apps, an engaging entertainment experience can fulfill users' needs for enjoyment and interaction, thereby increasing their willingness to participate in related communities (De Canio et al.,2021). This engagement not only enhances their overall experience but also motivates them to become more involved in gamified environments, contributing to a sense of belonging and active participation (Alsawaier,2018).

Based on these insights, it is hypothesized that:
H1: There is a positive impact between entertainment experience and intention to participate in gamification communities.

The association between entertainment experience and buying intention is robustly supported by theoretical frameworks and empirical research (Mustafi & Hosain, 2020). For instance, engaging entertainment experiences significantly influence consumer behavior (Mustafi & Hosain, 2020). According to uses and gratifications theory (UGT), individuals are motivated to engage with media that fulfill their needs for entertainment and

social interaction (Katz et al., 1973). In the realm of gamified shopping, heightened levels of entertainment not only enhance user satisfaction but also increase engagement, which in turn fosters positive buying intentions (Thakur et al.,2024).

Moreover, Flow theory, articulated by Csikszentmihalyi, further substantiates this relationship by positing that immersive and enjoyable experiences cultivate deeper engagement, thereby increasing the likelihood of purchase (Csikszentmihalyi, 1990; Pang et al.,2024). Empirical evidence corroborates these theoretical perspectives; for example, engaging and enjoyable gamified experiences enhance user satisfaction and engagement, subsequently leading to an uptick in buying intentions (Hamari & Koivisto, 2015). Similarly, a high entertainment value in gamified applications correlates with stronger purchase intentions (Mäntymäki & Salo, 2015; Yu & Huang,2022). In addition, users who perceive gamified experiences as entertaining are more inclined to exhibit positive buying intentions (Tóth et al., 2018; Vashisht,2023). Furthermore, enjoyable online experiences significantly enhance the probability of making purchases (Huang et al.,2023; Kim et al., 2016). Collectively, these studies substantiate the hypothesis that

H2: There is a positive impact of entertainment experience on buying intention

2.4.2 Intention to participate in gamification communities and buying intention

The link between the intention to participate in gamification communities and buying intention is grounded in several theoretical frameworks and supported by empirical research (Riar et al.,2022; Xi & Hamari,2020). According to social identity theory, individuals' involvement in communities can significantly influence their behavior and attitudes (Tajfel & Turner, 1979). When users intend to participate in gamification communities, their social identity becomes intertwined with the community, which can enhance their engagement and consequently increase their purchasing behavior (Liao et al.,2020). Additionally, the theory of planned behavior suggests that behavioral intentions are strong predictors of actual behavior (Ajzen, 1991; Halat,2024). In this context, a strong intention to engage in gamification communities can translate into increased buying intentions, as users are likely to align their purchasing decisions with their community involvement (Xu et al.,2020).

Some empirical studies reinforce these theoretical perspectives. For instance, individuals who are highly engaged in gamification communities exhibit stronger buying intentions, as their community involvement enhances their commitment and motivation to make purchases (De Canio et al.,2021). Similarly, participation in online communities can positively affect users' consumption behaviors, including their purchase intentions

(Lăzăroiu et al.,2020; Vasalou et al., 2008). Furthermore, users actively participating in gamification communities are more likely to demonstrate positive buying intentions (Tóth et al., 2018).These studies collectively support the hypothesis that

H3: There is a positive impact of intention to participate in gamification communities on buying intention.

2.4.3 The mediating role of customer intention to participate in gamification communities

Gamification shopping communities integrate game-design elements into online shopping environments to foster interactive and engaging experiences for users (De Canio et al., 2021). Specifically, these communities often feature rewards, leaderboards, and social interactions, which are designed to enhance customer engagement and loyalty (Hamari et al., 2016; Mekler et al., 2017). Furthermore, such environments capitalize on the appeal of gamification to create a more compelling and enjoyable shopping experience, which can significantly influence user behavior (Chou, 2019).

Moreover, the entertainment experience provided by gamified elements plays a crucial role in shaping users' intention to participate in these communities (Feng et al., 2019). According to the uses and gratifications theory (UGT), users are motivated to engage with media that meets their needs for enjoyment and

interaction (Boudkouss et al.,2021; Katz et al., 1973). In the context of gamified shopping apps, an engaging entertainment experience not only enhances users' satisfaction but also increases their involvement, leading them to actively participate in gamification communities (De Canio et al., 2021). Consequently, this participation can influence their buying intentions by creating a more engaging and rewarding shopping environment (Huang,2012; Klein & Sharma,2022).

Additionally, the self-determination theory (SDT) supports this linkage by highlighting that fulfilling users' psychological needs for autonomy, competence, and relatedness can enhance motivation and engagement (Alberts,2024; Deci & Ryan, 1985). In gamified shopping communities, an enjoyable entertainment experience meets these needs, thereby increasing users' intention to participate (Yu & Huang,2022). This heightened intention to participate is likely to mediate the relationship between the entertainment experience and their buying intentions, as active involvement in the community reinforces the desire to make purchases (Nobre & Ferreira, 2017). Based on this understanding, it is hypothesized that:

H4: Intention to participate in gamification communities mediates the impact between entertainment experience and buying intention.

2.5 Research model

Figure 1. illustrates the impact of entertainment experience on buying intention, with the intention to participate in gamification communities as a mediating factor.

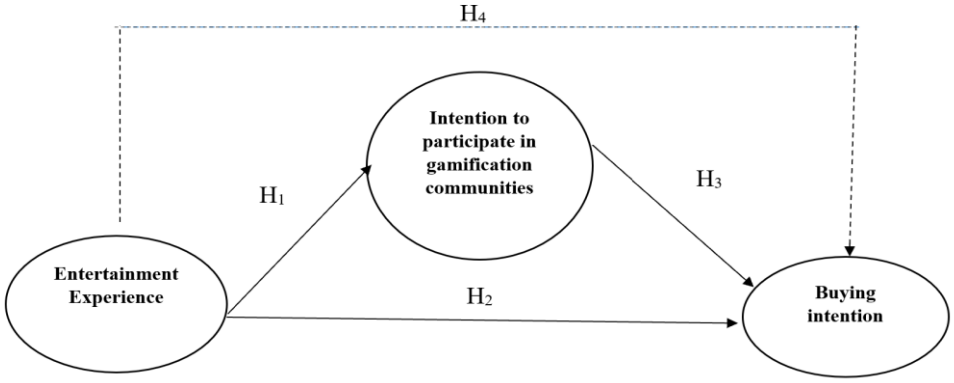

Figure 1 Conceptual Model outlining the impact of entertainment experience on buying intention, with the intention to participate in gamification communities as a mediating factor.

3. Research methodology

The methodology for this study was meticulously designed to investigate the influence of entertainment experiences derived from gamification on customer intention to buy, with a focus on the mediating role of customer intention to participate in gamification communities. By employing a robust and systematic

approach, the study ensured the reliability and validity of its findings, meeting the research objectives comprehensively.

3.1 Research strategy

This study adopts a quantitative causal research strategy to explore the impact of gamification's entertainment experiences on customer purchase intention while analyzing the mediating role of customer engagement in gamification communities. The strategy was chosen based on its alignment with the study's objectives, theoretical underpinnings, and practical constraints (Hair et al., 2019).

The central research question seeks to uncover how gamified entertainment experiences influence buying behavior and whether participation in gamification communities mediates this relationship. A causal research design is ideal for identifying and analyzing cause-and-effect relationships between the independent variable (entertainment experience), the dependent variable (intention to buy), and the mediator (intention to participate in gamification communities) (Hair et al., 2021). Through a structured framework, this study examines the mechanisms through which entertainment benefits of gamification affect consumer behavior, providing insights into theoretical and practical dimensions.

The research objectives include assessing the influence of gamification features on purchase intention, examining the mediating effects of community participation, and contributing to

the understanding of entertainment-driven gamification in shopping contexts. A quantitative approach facilitates hypothesis testing and allows for a detailed statistical analysis of direct, indirect, and mediating relationships (Creswell & Creswell, 2018). This strategy supports the comprehensive exploration of the entertainment elements of gamification while yielding insights into consumer behavioral dynamics.

Considering time and resource limitations, a cross-sectional design enables efficient data collection within a specific timeframe, ensuring that robust and reliable data are obtained (Wang & Cheng, 2020). The application of advanced statistical techniques such as structural equation modeling (SEM) further strengthens the study by allowing for simultaneous evaluation of multiple relationships, improving efficiency and analytical depth (Sarstedt et al., 2022).

The philosophical foundation of this study is grounded in positivism, emphasizing empirical measurement, objectivity, and hypothesis testing (Jackson et al., 2021). This orientation complements the causal research approach, ensuring that findings are objective, replicable, and generalizable (Bryman, 2016). By adhering to a positivist framework, the study contributes to a clearer understanding of how entertainment-driven gamification influences consumer purchasing behavior within the context of digital shopping environments.

3.2 Research design

A quantitative research design was selected as the most appropriate methodology for examining the relationships between the study variables. This approach allows for the collection and analysis of numerical data, essential for quantifying the effects of entertainment experiences as the independent variable on customer purchase intention, while considering the mediating role of community engagement (Creswell, 2018). A deductive reasoning framework guides the research, leveraging established theories such as self-determination theory and flow theory to test hypotheses about gamification's role in consumer behavior (Ryan & Deci, 2020).

The deductive approach aligns with the research question by enabling a structured exploration of theoretical relationships and testing of specific hypotheses (Ajzen, 2020). This method ensures that the study builds on prior research, contributing to the broader understanding of entertainment-driven gamification effects within retail environments.

Quantitative research is well-suited for testing hypotheses within large sample populations, enabling the generalization of findings (Field, 2018). The measurable nature of constructs such as entertainment experiences and participation intention ensures that data collection instruments, such as surveys, can be efficiently developed and distributed to the target audience. This

design facilitates the systematic exploration of relationships between constructs, providing robust insights that align with the research objectives (Rashid et al., 2021).

Additionally, the structured design ensures data reliability and validity while enabling the study to address practical constraints. By leveraging statistically sound methods, the study contributes meaningfully to the existing literature on gamification, consumer behavior, and community participation in digital shopping ecosystems. The focus on measurable variables enhances feasibility and ensures that the research aligns with both theoretical and practical objectives.

3.3 Target population and sampling approach

The target population for this study comprised users of gamified shopping applications in Egypt, representing a dynamic group of tech-savvy consumers who actively engage with gamified features for their purchasing needs. Due to the absence of a formal sampling frame, snowball sampling was employed as the primary technique, complemented by convenience sampling. Snowball sampling, widely recognized for its efficacy in reaching hard-to-access populations (Parker et al.,2019), enabled the recruitment of participants through referrals within existing networks, thus ensuring access to a broader and more diverse pool of respondents (Etikan,2017). This method was particularly advantageous for engaging users deeply involved in gamified

shopping app communities. Convenience sampling was strategically utilized at the initial stage to identify a starting point for participant recruitment. As an accessible and resource-efficient method (Jager et al., 2017), it facilitated the initial engagement process, thereby enabling the subsequent expansion of the sample via snowball sampling. Together, these techniques provided a robust dataset, capturing varied user perspectives while maintaining practical feasibility.

3.4 Sample size

The study's sample size of 390 respondents was determined based on stringent statistical criteria and analytical requirements, ensuring the robustness of the findings. Structural Equation Modeling (SEM) was employed as the primary analytical technique, necessitating adherence to the "10-times rule," which specifies that the sample size must be at least ten times the number of indicators for the most complex construct in the model (Hair et al., 2019). Given the complexity of the constructs involved, the sample size comfortably exceeded this threshold, providing sufficient statistical power for the detection of significant relationships between variables.

To further validate the adequacy of the sample size, a G*Power analysis was conducted, confirming that 390 participants were sufficient to achieve a statistical power of $\geq$ 0.80 for detecting medium effect sizes at a 0.05 significance level

(Faul et al., 2007). This sample size aligns with established benchmarks in similar studies examining gamification and consumer behavior, where sample sizes typically range between 300 and 400 (Hamari & Koivisto, 2015; Hsu & Chen, 2018). Consequently, the chosen sample size ensures the reliability and generalizability of the study's findings, meeting both theoretical and practical research standards.

3.5 Data collection instrument

A structured online questionnaire served as the primary data collection instrument, meticulously designed to assess participants' perceptions of the psychological benefits of gamification. The questionnaire focused specifically on the entertainment experience while also measuring intentions to participate in gamification communities and buying intentions. The use of an online format ensured efficiency and scalability, allowing participants across Egypt to engage in the study seamlessly (Fife-Schaw,2020). The questionnaires were disseminated through online shopping forums, social media networks, and platforms catering to shopping enthusiasts and consumer communities. Additionally, they were shared with university students, encompassing both undergraduate and postgraduate levels, to ensure a diverse participant pool. This strategic distribution facilitated the inclusion of a broad demographic, encompassing varied user experiences and behavioral patterns related to gamified shopping applications. To

enhance comprehension, the questionnaire was presented in Arabic, the respondents' native language, and was designed for clarity and brevity to mitigate response fatigue (Yaddanapudi& Yaddanapudi,2018). This approach ensured meaningful insights while maintaining high response quality.

3.6 Data analysis techniques

A combination of descriptive and inferential statistical methods was applied to analyze the collected data. IBM SPSS version 27 facilitated initial data cleaning, descriptive analyses, and reliability testing. For hypothesis testing and evaluation of the conceptual model, Smart-PLS version 4 was employed to conduct SEM. SEM allowed for the simultaneous assessment of complex relationships, including direct and mediated effects, ensuring a nuanced understanding of the data (Sarstedt et al., 2021). This rigorous analytical approach ensured the reliability and validity of the findings, supporting the study's theoretical and practical contributions.

3.6 Measurement items

The measurement items and survey questionnaire for this study were meticulously crafted, drawing on validated items from previous research by Johnson et al. (2015), Xu and Weber (2014), and Suh et al. (2018). To ensure content validity, a pilot study was conducted, which included consultations with an expert in the field and feedback from 12 users. The insights gained from this process

were instrumental in refining the measurement items to improve their validity and ensure they effectively captured the constructs related to gamification, customer satisfaction, and buying intention. This thorough approach confirms the reliability and relevance of the measurement tools used in this study, incorporating validated items from Hsu and Chen (2018), Xi and Hamari (2019), Hamari and Koivisto (2015), Suh et al. (2018), Tajvidi et al. (2021), Mekler et al. (2017), Teng (2010), and Hofacker et al. (2016), as well as Liu (2003) (see Table 1).

Table 1. Measurement items

Construct	Definition	Item	Sources
Entertainment experience	Entertainment experience in the context of online platforms refers to the subjective enjoyment and engagement that users derive from interactive digital environments, including social media, gaming, and e-commerce applications (Hsu & Chen, 2018). This experience is characterized by a blend of cognitive, emotional, and behavioral responses elicited by various elements such as multimedia content, gamification features, and social interactions. Specifically, online platforms that prioritize entertainment tend to offer immersive and enjoyable experiences, which can significantly influence user satisfaction, engagement, and ultimately, consumer behavior (Huang et al., 2020; Mekler et al., 2017).	Shopping online using a gamified app makes me happy. I find it enjoyable to use gamified shopping apps to buy products. I found online shopping using gamified app exciting.	(Johnson et al.,2015; Xu & Weber, 2014 ; Suh et al.,2018)

Intention to participate in gamification communities	Intention to participate in gamification communities refers to the motivation and willingness of users to engage actively in platforms that incorporate game-design elements into their interactions, such as rewards, challenges, and social interactions (Hamari et al., 2016). This intention is shaped by several psychological factors, including perceived enjoyment, social influence, and the fulfillment of intrinsic motivations (Hsu & Chen, 2018). Specifically, users who perceive gamified experiences as enjoyable and rewarding are more likely to express a strong intention to participate in these communities, as they expect that their engagement will lead to positive outcomes, such as social recognition and enhanced personal satisfaction (Hamari & Koivisto, 2015).	The content and game of mobile shopping app makes me want to share it with others. Online shopping allows me to socialize my purchases. I like it when other gamified e-commerce application users comment and like my achievement. I get admired by friends while moving up to a higher level on the gamified shopping application.	(Hsu & Chen, 2018; Xi & Hamari, 2019; Hamari & Koivisto, 2015; Suh et al., 2018; Tajvidi et al., 2021; Mekler et al., 2017; Teng, 2010; Hofacker et al., 2016; Liu, 2003)
Buying intention	Buying intention is defined as the likelihood or predisposition of a consumer to purchase a product or service in the future, shaped by multiple factors including perceived value, product characteristics, and personal preferences (Spears & Singh, 2004). Within the realm of digital platforms, this intention is influenced by user experiences, marketing stimuli, and the overall usability of the platform, all of which collectively impact the consumer's decision-making process (Ajzen, 1991).	I intend to continue to buy online using this mobile app. It is likely that I will shop online in the next month using this mobile app. I am willing to recommend others to shop for products online using this mobile app.	(Xi & Hamari, 2019; Hsu & Chen,2018; Suh et al.,2018)

3.7 Data analysis techniques

A combination of descriptive and inferential statistical methods was applied to analyze the collected data. IBM SPSS version 27 facilitated initial data cleaning, descriptive analyses, and reliability testing. For hypothesis testing and evaluation of the conceptual model, Smart-PLS version 4 was employed to conduct SEM. SEM allowed for the simultaneous assessment of complex relationships, including direct and mediated effects, ensuring a nuanced understanding of the data (Sarstedt et al., 2021). This rigorous analytical approach ensured the reliability and validity of the findings, supporting the study's theoretical and practical contributions.

4. Data analysis and results

This paper presents a three-stage statistical analysis: initial data examination (outlier detection, normality testing, and common method bias assessment), descriptive analysis of research variables, and deductive analysis using PLS-SEM to validate measurements and test hypotheses, utilizing IBM SPSS V.27 and Smart-PLS V.4.

4.1 Descriptive analysis of research variables

Table (1): Descriptive statistics

	Mean	Std. Deviation	Coefficient of variation	Rank
Ent1	3.71	1.010	27.22	3
Ent2	3.69	0.980	26.56	2
Ent3	3.67	1.022	27.85	4
Ent4	3.78	0.961	25.42	1
Ent5	3.55	1.017	28.65	5
Ent	3.677	0.866	23.55	
IPG1	3.27	1.156	35.35	6
IPG2	3.39	1.028	30.32	4
IPG3	3.04	1.018	33.49	5
IPG4	3.44	1.009	29.33	3
IPG5	3.69	0.937	25.39	2
IPG6	3.72	0.919	24.70	1
IPG	3.425	0.763	22.28	
IB1	3.65	0.963	26.38	1
IB2	3.52	1.160	32.95	5
IB3	3.79	1.018	26.86	2
IB4	3.61	1.118	30.97	4
IB5	3.66	1.115	30.46	3
IB	3.646	0.930	25.52	

Table 1 shows that there is a general tendency among the sample respondents to agree with the entertainment experience **(Ent)** items, which the mean of Ent is (3.677).We find that (Ent4) item is the first item that reflects the importance of entertainment experience **(Ent)** with

the lower coefficient of variation (25.42) due to the lower degree of dispersion between the responses, as the standard deviation was (0.961). Also, that there is a general tendency among the sample respondents to agree with customer intention to participate **(IPG)** items, which the mean of IPG is (3.425). We find that (IPG6) item is the first item that reflects the importance of IPG with the lower coefficient of variation (24.70). Finally, there is a general tendency among the sample respondents to agree with customer intention to buy (IB) items, which the mean of IB is (3.646). We find that (IB1) item is the first item that reflects the importance of customer intention to buy (IB) with the lower coefficient of variation (26.38), and the last item important of customer intention to buy is (IB2) with the highest coefficient of variation reaching (32.95) with standard deviation of (1.160).

4.2 Validity and reliability

Figure (1) illustrates the theoretical model of the research, detailing the variables, their measurement items, levels, types of measurement, and the relationships between the variables.

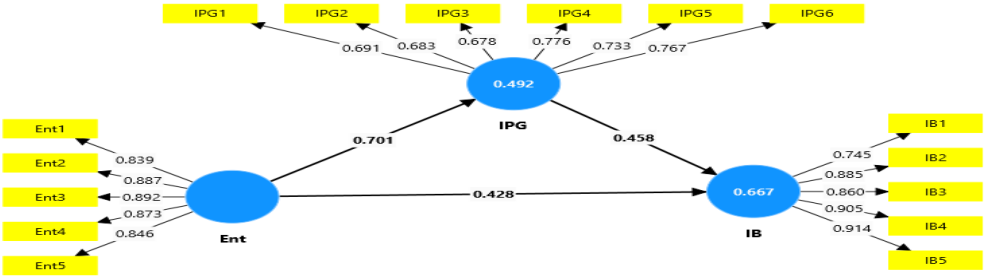

Figure 1: Measurement Model

Table (2) shows that all factor loading values for all items are higher than 0.68, which means that the covariance between the latent variable and its items is greater than the variance of measurement errors, thus all the questionnaire items were retained.

Table (2): Factor loading

	Ent	IB	IPG
Ent1	0.839		
Ent2	0.887		
Ent3	0.892		
Ent4	0.873		
Ent5	0.846		
IB1		0.745	
IB2		0.885	
IB3		0.860	
IB4		0.905	
IB5		0.914	
IPG1			0.691
IPG2			0.683
IPG3			0.678
IPG4			0.776
IPG5			0.733
IPG6			0.767

Table (3) shows the results of validity and reliability of the research model as follows:

Table (3): Reliability and validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Ent	0.918	0.919	0.938	0.753
IB	0.914	0.914	0.936	0.747
IPG	0.818	0.826	0.867	0.522

Table (3) shows that all Cronbach's alpha values exceed 0.7, indicating strong internal consistency. Since Cronbach's alpha assumes equal reliability for all items, SEM-PLS also uses Rho De Joreskog and composite reliability (CR) to account for external factor loads and errors. Both Rho_A and CR values are above 0.7, confirming high internal consistency. Additionally, the average variance extracted (AVE) values exceed 0.5, demonstrating strong consistency and convergence among the latent variable dimensions (Hair et al., 2014).

Discriminant validity assesses whether a latent variable is distinct from other constructs in the model and does not overlap with them (Hair et al., 2017). To establish discriminant validity, two criteria are used:

- **Fornell-Larcker Criterion**: This measures whether the square root of the average variance extracted (AVE) for each latent variable is greater than its correlations with other variables in the model. Table (4) shows that the diagonal values, representing the square root of the AVE for each variable, are higher than their

correlations with other variables, confirming that the study model variables exhibit discriminant validity.

Table (4): Discriminant validity using the Fornell-Larcker criterion

Fornell-Larcker	Ent	IB	IPG
Ent	0.868		
IB	0.749	0.864	
IPG	0.701	0.758	0.722

- **Heterotrait-Monotrait (HTMT) Criterion**: HTMT assesses the correlation between indicators across different constructs, with values below 0.9 indicating discriminant validity. Table (5) shows that all HTMT values are below 0.9, confirming the discriminant validity of the variables in the study model.

Table (5): Discriminant validity using Heterotrait-monotrait ratio (HTMT)

HTMT	Ent	IB	IPG
Ent			
IB	0.816		
IPG	0.799	0.858	

4.3 Hypotheses Test

Considering this stage, we focus on the shifting from latent and apparent variables to focus on the relationships between the main variables of the research, thus obtaining the estimates of the structural model (path coefficients), which represent the assumed

relationships between the variables as shown in the following figure (2).

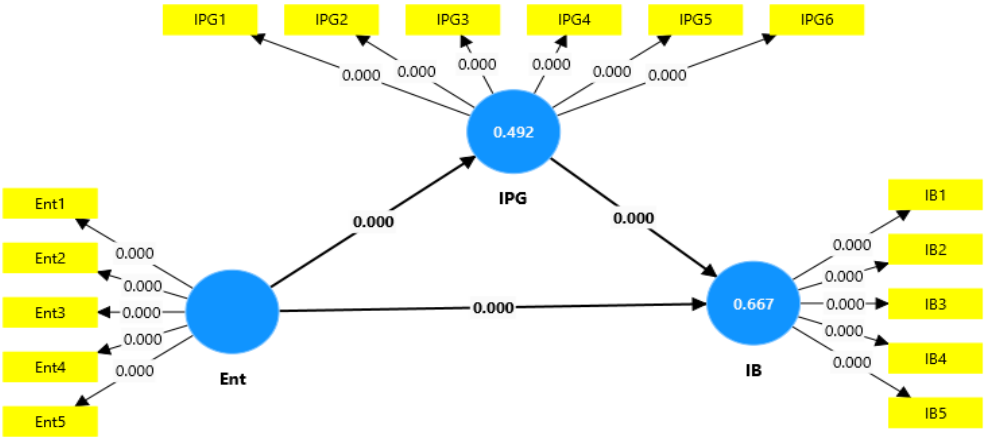

Figure (2): Structural Model

According to the results of the structural model of the research model (figure 2), the relationships between the main variables (Ent, IPG, and IB) of the study are examined to determine the extent to which the concepts adopted in the context of the current research contribute to examine the effect of psychological benefits of gamification dimensions (Ent) and customer intention to participate (IPG) on customer intention to buy (IB). According to the basic ten hypotheses, we test these hypotheses using path analysis based on the structural model in Figure (2).

H_1: There is a positive impact of entertainment experience on intention to participate in gamification communities.

Table (6): The first hypothesis result

H	Path analysis	Beta	T statistics	P values	Accepted /Rejected
H_3	Ent -> IPG	0.701	24.423	0.000***	Accepted
*** Significance level less than 0.001, confidence greater than 99.9%. ** Significance level less than 0.01, confidence greater than 99%. * Significance level less than 0.05, confidence greater than 95%.					

Table 6 shows that there is a positive impact of entertainment experience on customers' intention to participate in gamification communities (IBG), whereas the value of ($\beta = 70$; $P < 0.001$). This means that entertainment experience contributes to improving customers' intention to participate in gamification communities by 70%, at a significant level of less than 0.001. The value of "T" exceeds 1.96, which reflects the confidence level in the research results at a significant level of 99%, and therefore the first hypothesis is accepted.

H_2: There is a positive impact of entertainment experience on buying intention

Table (7): The second hypothesis result

H	Path analysis	Beta	T statistics	P values	Accepted /Rejected
H_2	Ent -> IB	0.428	8.803	0.000***	Accepted
*** Significance level less than 0.001, confidence greater than 99.9%. ** Significance level less than 0.01, confidence greater than 99%. * Significance level less than 0.05, confidence greater than 95%.					

According to the results in Table (7), there is a positive and significant impact of entertainment experience on customer intention

to buy (IB), whereas the value of ($\beta = 43$; $P < 0.001$). This means that entertainment experience contributes to improving customer intention to buy by 43%, at a significant level of less than 0.001. The value of "T" exceeds 1.96, which reflects the confidence level in the research results at a significant level of 99%, and therefore the second main hypothesis is accepted.

H_3: There is a positive impact of intention to participate in gamification communities on buying intention

Table (8): The third hypothesis result

H	Path analysis	Beta	T statistics	P values	Accepted /Rejected
H_3	IPG -> IB	0.458	9.556	0.000***	Accepted
*** Significance level less than 0.001, confidence greater than 99.9%. ** Significance level less than 0.01, confidence greater than 99%. * Significance level less than 0.05, confidence greater than 95%.					

Table (8) shows that there is a positive impact of customer's intention to participate in the gamification community on purchase intention to buy, whereas the value of ($\beta = 46$, $P < 0.001$). This means that the customer's intention to participate in the gamification community contributes to improving purchase intention to buy by 46%, at a significant level of less than 0.001. The value of "T" exceeds 1.96, which reflects the confidence level in the research results at a significant level of 99%, and therefore the third hypothesis is accepted.

H_4: Intention to participate in gamification communities mediates the relationship between entertainment experience and buying intention

Table (9): The third hypothesis result

H_4	Path analysis	Beta	T statistics	P values	Accepted /Rejected
	Ent -> IPG -> IB	0.321	8.846	0.000***	Accepted
*** Significance level less than 0.001, confidence greater than 99.9%. ** Significance level less than 0.01, confidence greater than 99%. * Significance level less than 0.05, confidence greater than 95%.					

Table (9) shows that there is an indirect, significant, positive effect of entertainment experience (Ent) on buying intention through its impact on intention to participate in gamification communities, whereas the value of ($\beta = 32$, $P < 0.001$). This indicates that the contribution of entertainment experience (Ent) to improving buying intention through intention to participate in gamification communities is at a rate of 32%, at a significant level of less than 0.001. Accordingly, the fourth main hypothesis is accepted.

We conclude from the previous table (10) that the overall effect of entertainment experience on buying intention is 43%. Also, we note that the effect size of the variance calculated from the mediation analysis is 43%, which indicates the presence of partial mediation. Thus, intention to participate in gamification communities is accepted as a mediator variable for the relationship between entertainment experience and buying intention

Table (10): The effect size of the mediator variable for the fourth hypothesis

Steps	Hypotheses	Path analysis	Beta
A- First Step: Calculating the direct effect between entertainment experience and buying intention without intention to participate in gamification communities.			
Step1	H_2	Ent -> IB	0.428***
Second step: Calculating the indirect effect between entertainment experience and buying intention through intention to participate in gamification communities			
Step2	H_4	Ent -> IPG -> IB	0.321***
Third Step: Total effect (direct effect + indirect effect)			
Step3	Ent -> IB		0.749***
Fourth Step: Calculated the variance size = indirect effect/total effect			
Step4	Ent -> IB		0.428
*** Significance level less than 0.001, confidence greater than 99.9%. ** Significance level less than 0.01, confidence greater than 99%. * Significance level less than 0.05, confidence greater than 95%.			

Table (11) shows that the coefficients of R^2 and R^2 adjusted are all statistically acceptable, as the coefficients of determination of the dependent variable are medium explanatory power. This means that the (R^2) of IB is 0.667, which means that psychological benefits of gamification dimensions (Ent), and customer intention to participate in gamification communities (IBG) explain 67% of customer intention to buy (IB) in addition to (R^2) of IPG is 0.49, which means that psychological benefits of gamification dimensions (Ent) explain 49% of customer intention to participate in gamification communities.

Table (11): coefficient of determination

Variable	R-square	R-square adjusted	interpretive ability
IB	0.667	0.665	Medium explanatory power
IPG	0.492	0.490	Medium explanatory power

According to our research model, we find that:

$$GOF = \sqrt{R2 * AVE} = \sqrt{0.579 * 0.674} = 0.62$$

As the GOF value of the model is approximately equal to 0.62, which is greater than 0.36, this indicates the great quality of the study model, or the results of this model can be relied upon with confidence because it is statistically acceptable.

5.Discussion

The findings of this study emphasize the critical role of entertainment experiences in gamified shopping applications in shaping consumers' buying intentions. Specifically, the results demonstrate that heightened enjoyment and engagement derived from gamification elements positively influence purchase intentions, which aligns with prior research on the psychological benefits of gamification (Hamari et al., 2014; Hsu & Chen, 2018).

The mediation analysis indicates that entertainment within gamified shopping apps indirectly enhances purchase intentions through increased participation in gamification communities. This

finding supports the Uses and Gratifications Theory (UGT), which posits that users engage with media to fulfill their needs for enjoyment and social interaction (Katz et al., 1973). Similar results have been observed in prior studies, which highlight the role of gamified elements in meeting these needs and fostering positive behavioral outcomes (Xi & Hamari, 2019; Suh et al., 2018).

Moreover, this study extends Self-Determination Theory (SDT) by demonstrating that the psychological benefits of entertainment in gamification, such as feelings of competence and relatedness, foster greater intention to participate in gamification communities (Deci & Ryan, 1985). These findings are consistent with existing literature that underscores the significance of intrinsic motivation in enhancing user engagement and subsequent behaviors like purchasing (Mekler et al., 2017; Leclercq et al., 2020).

Empirical evidence further validates these findings. For example, Suh et al. (2018) found that gamification features designed to enhance enjoyment and engagement lead to increased consumer loyalty and purchasing behavior. Similarly, Mekler et al. (2017) demonstrated that satisfying intrinsic psychological needs such as autonomy and relatedness strengthens users' commitment to gamified systems, translating into favorable behavioral outcomes.

This study contributes to the literature by highlighting the mediating role of gamification communities, where shared experiences and interactions amplify the impact of entertainment on user behavior (Hamari et al., 2014; Hsu & Chen, 2018). The integration of theoretical frameworks such as UGT and SDT with empirical findings provides a comprehensive understanding of how entertainment experiences and community participation collectively influence consumer behavior in gamified environments.

6. Implications

6.1 Theoretical Implications

This study provides valuable theoretical contributions by exploring the relationship between entertainment experiences in gamified shopping apps and customers' buying intentions, emphasizing the mediating role of customer intention to participate in gamification communities. By grounding the analysis in theoretical frameworks such as the uses and gratification theory (UGT), the research offers significant insights into how gamification addresses consumers' intrinsic needs for entertainment, competence, and relatedness (Katz et al., 1973; Deci & Ryan, 1985). This extension of UGT into the e-commerce domain broadens its traditional application in media consumption studies, revealing how gamified environments can simultaneously fulfill entertainment and social interaction needs, thus

motivating purchase behavior (Hamari et al., 2014; Leclercq et al., 2020).

The findings further align with self-determination theory (SDT), which highlights the role of intrinsic motivation in driving behavioral outcomes. The study confirms that when gamification elements are designed to promote psychological satisfaction—such as enjoyment, autonomy, and community engagement—they positively influence users' intention to participate in gamified environments and, subsequently, their purchase decisions (Mekler et al., 2017; Xi & Hamari, 2019). The mediating role of gamification communities contributes a nuanced perspective to the literature, reinforcing the idea that social interaction and shared experiences amplify the impact of entertainment on consumer behavior (Suh et al., 2018 ; Yadav et al.,2022).

By integrating these theoretical perspectives, the research highlights the interplay between entertainment experiences and social dimensions within gamified systems, offering a robust framework for understanding consumer behavior in digital marketplaces.

6.2 Practical Implications

From a practical standpoint, the findings of this study underscore the strategic importance of integrating engaging entertainment features and fostering active participation in gamification communities within shopping apps. These elements are crucial for enhancing customer experience and driving purchase

behavior, offering actionable insights for app developers and marketers. Specifically, the results suggest that entertainment-focused features, such as challenges, rewards systems, and leaderboards, not only provide immediate enjoyment but also create sustained user engagement by promoting interaction and competition (Kim et al., 2020; Hamari et al., 2014).

Moreover, the study highlights the necessity of cultivating gamification communities where users can interact, share experiences, and collaborate, as these environments significantly enhance the perceived value of gamified apps. By facilitating social connections, businesses can foster a sense of belonging and loyalty, which are critical for converting user engagement into tangible buying intentions (Leclercq et al., 2020; Xi & Hamari, 2019). For example, incorporating social features like team-based challenges or community-driven goals can further solidify these connections, encouraging higher user participation and repeat purchases.

Additionally, the integration of personalized gamification elements, tailored to individual user preferences and behaviors, can amplify the effectiveness of such strategies. For instance, leveraging data analytics to offer customized rewards or recommendations based on user activity can enhance perceived relevance and satisfaction, ultimately boosting conversion rates (Tajvidi et al., 2021). However, businesses must also address potential challenges, such as privacy concerns or the risk of over-gamification, to maintain trust and long-term engagement.

7. Conclusion

The findings of this study illuminate the significant relationship between the psychological benefits of gamification—particularly entertainment experience—and consumers' buying intentions in gamified shopping apps, with the mediating role of customer intention to participate in gamification communities. The entertainment experience was found to directly enhance purchase intentions while fostering stronger participation in gamification communities, which, in turn, amplified the effect on buying behavior. These findings are consistent with self-determination theory (Deci & Ryan, 1985), highlighting how gamified environments satisfy intrinsic psychological needs such as autonomy, competence, and relatedness, ultimately driving consumer engagement and purchasing actions.

The mediating role of gamification communities further supports theoretical frameworks such as uses and gratifications theory (Katz et al., 1973), which emphasize the role of social interaction and engagement in fulfilling consumer needs. Empirical studies corroborate this mechanism, with prior research indicating that active participation in gamification communities not only enhances enjoyment but also increases purchase intention (Hamari et al., 2014; Xi & Hamari, 2019). These findings invite a deeper exploration of contextual factors, such as cultural dynamics and app-specific features, which might moderate the strength of the mediation effect.

This study contributes to existing literature by elucidating the pivotal role of gamification communities as a mediator in the relationship between psychological benefits and purchase intentions. Future research should explore the interplay between community engagement and gamification elements across diverse e-commerce platforms and cultural contexts to better understand the dynamics at play. Such investigations could provide further insights into optimizing gamification strategies to enhance consumer engagement and drive purchasing behavior effectively.

8. Limitations and future research

While this study provides important insights into the relationship between entertainment experiences in gamified shopping apps and buying intention, several limitations highlight areas for future exploration. The reliance on non-probability sampling techniques, such as snowball and convenience sampling, restricts the generalizability of the findings. The sample predominantly included users from specific shopping communities and university students in Egypt, which may not reflect the broader population of gamified app users. Future research should adopt probability sampling methods to enhance external validity and provide a more comprehensive understanding of consumer behavior.

The cross-sectional design further limits the ability to infer causality between variables. Longitudinal studies could address this gap by investigating how the relationships among entertainment experiences, community participation, and buying intention evolve over time. Such designs would be particularly valuable in assessing the sustained effects of gamified communities and recurring interactions in e-commerce environments.

Additionally, the study's focus on Egyptian consumers restricts the applicability of findings to other cultural contexts. Future research should examine these relationships across diverse cultural and regional settings to assess the universality of the proposed model. Cultural differences in consumer motivations and perceptions of gamification elements, including entertainment and community engagement, warrant investigation to refine the model's global relevance.

While this study concentrated on entertainment experience as a critical dimension of gamification, it is essential to explore other elements such as competition, rewards, and social interaction. Each of these dimensions likely exerts distinct influences on consumer behavior, and their interactions could provide deeper insights into optimizing gamified experiences. Moreover, integrating advancements in artificial intelligence (AI) into gamified platforms can enhance personalization, adaptivity, and engagement. Future research should investigate how AI-

driven features, such as dynamic recommendation systems, predictive gamified scenarios, and real-time customization, influence user engagement and purchasing behavior.

Finally, while the mediating role of customer intention to participate in gamification communities was established, the study did not consider other potential mediators or moderators. Variables such as trust, perceived value, and AI-assisted personalization may further elucidate the relationship between gamification and buying intentions. Investigating the interplay between these factors, particularly with the integration of machine learning algorithms to analyze and predict user behavior, could significantly advance the understanding of gamification's impact in e-commerce.

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