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THE GAMIFICATION EFFECT: UNRAVELING THE ROLE OF COGNITIVE ABSORPTION AND HEDONIC VALUE ON CONSUMER PURCHASE INTENTION IN PAKISTAN'S E-BUSINESS SECTOR

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Abstract

The present study examined the relational dynamics of gamification, cognitive absorption, hedonic value, and consumer purchase intention in Pakistan's e-business sector. Guided by the published literature, it was hypothesized that a) gamification would have a positive relationship with consumer purchase intention, b) gamification, cognitive absorption, and hedonic value would predict consumer purchase intention, and c) cognitive absorption and hedonic value would mediate the relationship between gamification and consumer purchase intention. After adhering to ethical considerations, a non-probability convenience sample of 284 participants (n = 118 men, n = 166 women) with an age range of 18-35 years (M = 21.60, SD = 2.80) was recruited for this cross-sectional correlational research. The tools used were a demographic information sheet, the Gamification Scale, the Cognitive Absorption Scale, the Hedonic Value Scale, and the Purchase Intention Scale. Findings revealed that gamification, cognitive absorption, and hedonic value were positively correlated with consumer purchase intention, with cognitive absorption and hedonic value emerging as significant predictors. Additionally, cognitive absorption and hedonic value mediated the relationship between gamification and consumer purchase intention. The results contribute to enhancing the understanding of how gamification influences consumer behavior, offering practical insights for e-business practitioners to optimize their platforms for improved customer engagement and purchase outcomes.

INTRODUCTION

Pakistan's e-business sector is at a pivotal growth stage, with increasing internet penetration but relatively low online purchase participation. Despite over half the population now having internet access, only about 5% of Pakistani internet users had engaged in online shopping as of a few years ago (Hasan, 2024). This lag is attributed to factors like low trust, lack of engagement, and cultural preferences for traditional shopping (Hasan, 2024). There is a clear need for strategies to attract and retain online consumers, and gamification presents a compelling solution. Local commentators have already highlighted that incorporating gamified features in online marketplaces could pay dividends by drawing in Pakistan's young, tech-savvy demographic (Nagi, 2020). The present study is undertaken to investigate this proposition rigorously. By examining how gamification can

trigger "flow" states of engagement and enhance the fun factor of e-commerce, we aim to see if these psychological benefits can overcome some of the adoption barriers in Pakistan's context. In short, the study is motivated by the practical necessity to make online shopping more captivating for Pakistani consumers, thereby unlocking the sector's untapped potential.

Cognitive absorption is determined by measuring several components, all tied to distinctive aspects of engaging with gamified experiences. This measure estimates how distracted from time gamified tasks can make the audience. This approach measures how carefully consumers are engaged with the gamified parts. Heightened enjoyment analyzes the fun and enjoyment experienced when users take part in games designed into products/services, as this contributes to strong consumer interest in the brand. The experience of control indicates how much autonomy and mastery the user has over the features introduced by the game-like system. The authors state that wondering about different parts of a game, brought about by its gamified elements, encourages people to take a deeper interest and explore more (Agarwal & Karahanna, 2000). The enjoyment and satisfaction that consumers get from gamified parts of a product are known as its hedonic value. The enjoyment and entertainment of gamified jobs for participants is examined using the framework described by Holbrook and Hirschman (1982) and Babin et al. (1994). It gets consumers to rate the satisfaction they get for playing the games introduced on the platform. Conducting this study reveals how gamification impacts consumers' interests in the brand, making them more likely to buy. Game mechanics and how users interact are used to evaluate gamification (Deterding et al., 2011). Game mechanics describes how rewards, challenges and responses to users' actions encourage users to use the platform more. The level of engagement people have with a platform largely depends on how involved they become with the gamified parts of it (Hamari et al., 2014). Purchase intention is assessed by measuring consumers' behavioral intention to purchase after engaging with gamified features. Factors in this assessment are perceived usefulness, how easy the game is to use and the emotions that games create (Xu et al., 2020). It illustrates the chances that someone will buy a product thanks to their experience with gamified tasks. The decision to buy is an important result of research, confirming that gamified features have a direct influence on customer purchasing habits and intentions (Tilahun et al., 2023).

From a theoretical perspective, this study contributes to the growing body of gamification literature by integrating cognitive absorption (deep, immersive engagement) and hedonic value (user enjoyment) into models of online consumer behavior. Prior research has identified a need to clarify how gamified elements translate into higher purchase intentions (Xu et al., 2020). By examining cognitive absorption and hedonic value as mediating mechanisms, the research addresses this gap and expands existing models (e.g., stimulus–organism–response frameworks) to include these intrinsic psychological factors. For example, recent findings show that gamification-induced immersion (flow) significantly heightens user enjoyment and positive attitudes (Liao et al., 2024; Xu et al., 2020), which ultimately boosts purchase intention. Similarly, studies in other contexts have found that perceived enjoyment plays a key role in linking gamified experiences to behavioral intention (Suratmanto et al., 2025). This study's framework therefore advances theory by linking the "gameful" experience (through cognitive absorption and fun) to consumers' intention to buy, offering a richer explanation of the gamification effect than prior models focused only on utilitarian outcomes. In doing so, it responds to calls for research on the internal motivational processes through which gamification influences consumer decisions, and tests their applicability in a new cultural context (Suratmanto et al., 2025). Equally important are the practical implications for e-business firms, especially in Pakistan's emerging online market. The findings will inform digital retailers how gamified design features (e.g., reward points, contests, and narrative-based challenges) can foster a state of absorption in users, keeping them engaged and reducing distraction. Gamified apps are known to induce strong engagement, even "flow" states where users are wholly focused (Trang & Weiger, 2020), and this heightened engagement can be leveraged to

increase time on site, product exploration, and ultimately purchase conversions. Moreover, by increasing the hedonic value of online shopping, gamification transforms a routine transaction into an enjoyable experience. This is especially relevant in discretionary online shopping, where enjoyment strongly drives purchase intentions (Suratmanto et al., 2025). For instance, one study on mobile commerce found that adding fun mini-games not only absorbed users' attention but also mediated impulsive buying tendencies on the platform (Aprilia & Alfansi, 2024). By validating such effects in Pakistan's e-commerce sector, the research offers actionable insights for practitioners: online retailers can implement gamified loyalty programs, interactive challenges, or narrative "missions" to make shopping more playful. These strategies are expected to enhance customer engagement and enjoyment, leading to greater purchase intention and repeat usage. Ultimately, the study is relevant to any e-business seeking to convert casual browsers into buyers by enriching their digital experience with game-like gratification.

E-businesses are adopting gamification, leading them to change the way they interact with clients. Studies have proven that gamification boosts user engagement and satisfaction, but its role in encouraging people to buy, especially in emerging countries, is not as definite (Hamari et al., 2014; Deterding et al., 2011). Practitioners need to find out how the use of game elements influences consumers besides increasing their involvement, as these elements could also affect people by attracting their attention and delivering enjoyment. Many studies have analysed how gamification makes consumers take part in an activity, but there is not much attention on cognitive absorption (Agarwal & Karahanna, 2000) or the appeals of pleasure (Babin et al., 1994) in encouraging them to buy from an e-business (Zhao et al., 2018).

Literature and Hypothesis

Gamification, applying game mechanics like points, badges, and challenges to non-game contexts, has been shown to enhance customer experience and motivate purchases (Deterding et al., 2011). Studies find that gamified brand promotions increase purchase intention by boosting perceived coolness and appeal (Liao et al., 2024), while live-stream shopping with interactive mini-games and leaderboards heightens buyers' willingness to purchase (Yang et al., 2025). Hedonic value, the pleasure and enjoyment derived from shopping, strongly influences purchase decisions. Live-streaming e-commerce research in China reports that emotional value positively affects purchase intentions (Zhang et al., 2024), and a Pakistani study confirms that hedonic shopping value boosts repeat purchase intentions (Lata et al., 2024). Comparative research finds that in markets like Indonesia and Malaysia, hedonic motivations often outweigh utilitarian ones in predicting purchase behavior (Mawarni et al., 2023; Andriani et al., 2021). Cognitive absorption, a state of deep involvement akin to flow, has been linked to higher willingness to spend. In freemium gaming contexts, immersion predicts in-game purchase intentions (Zhao et al., 2022/2024), and in gamified shopping experiments, absorption leads to greater enjoyment and thus increased online purchase intentions (Xu et al., 2020). Empirical evidence shows gamification induces cognitive absorption: gamified mobile apps drive deep engagement through social comparison and achievement elements (Trang & Weiger, 2021), and marketers leverage flow experiences to enhance participation and purchase behavior in livestream commerce (Yang et al., 2025).

Cognitive absorption is essentially an adaptation of the flow concept within information systems, capturing that immersive state. The flow perspective suggests that if a gamified shopping platform can induce flow (through challenging yet manageable tasks, clear goals, and immediate feedback), users will experience greater enjoyment and involvement, which can heighten their intention to buy. Flow theory thus underpins why cognitive absorption is expected to drive purchase intention, a user in flow is less hindered by doubts or external distractions and is more likely to follow through on engaging activities, including buying products. By integrating flow theory with TAM, researchers have argued that flow (or cognitive absorption) serves as an antecedent to the usual acceptance factors, enriching our understanding of what makes consumers embrace online services (Acharya et al., 2023) .

Based on the reviewed literature and theoretical framework, the following hypotheses are proposed:

H1: Gamification is positively associated with consumer purchase intention in Pakistan's e-business sector.

H2: Gamification is likely to predict consumers' purchase intention in Pakistan's e-business sector.

H3: Cognitive absorption is likely to predict consumers' purchase intention in Pakistan's e-business sector.

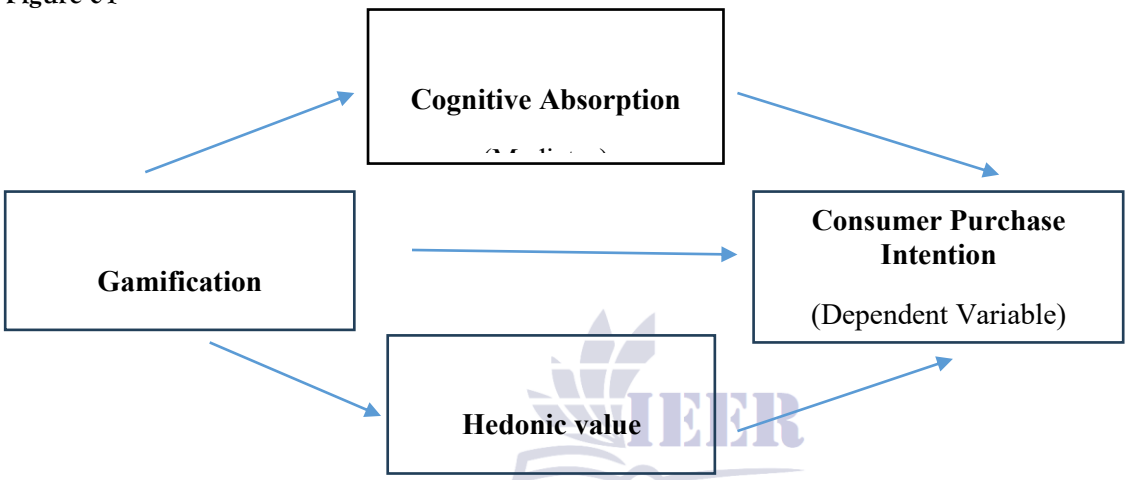
H4: Hedonic value is likely to predict consumers' purchase intention in Pakistan's e-business sector.

H5: Cognitive absorption mediates the relationship between gamification and consumer purchase intention.

H6: Hedonic value mediates the relationship between gamification and consumer purchase intention.

Proposed Research Model

Figure 01



Methodology and Results

A cross-sectional correlational research design was used to assess the relationship among gamification, cognitive engagement, hedonic values, and consumers' purchase intention. This research design enables researchers to uncover the relationships between variables, describe the patterns, and predict the outcomes (Creswell, 2014).

Sample and Sampling Strategy

The study employed non-probability, convenience sampling to collect data from 284 participants (n = 118 men, n = 166 women) aged 18–35 (M = 21.60, SD = 2.80), who typically shop on e-commerce platforms and online shopping sites that utilize gamification. An online questionnaire was made using different scales to assess the study variables. The main focus of the population is active users in Pakistan who use e-commerce websites that use games and rewards, challenges, and points systems. This group is chosen since the main aim is to see how gamification impacts consumer actions in the local e-commerce industry.

Assessment Measures

All assessment measures in this study are based on well-established scales validated in prior research.

Cognitive Absorption measured via components reflecting distinct facets of immersion in gamified experiences: temporal dissociation (how distracted from time users become), focused immersion (depth of engagement with gamified features), heightened enjoyment (fun derived from the game-like elements), and control (perceived autonomy and mastery). Respondents rate items adapted from Agarwal and Karahanna (2000), capturing how curiosity about game elements drives deeper exploration and engagement.

Hedonic Value assessed using items from Holbrook and Hirschman (1982) and Babin et al. (1994), this scale asks consumers to rate the enjoyment and satisfaction they derive from gamified parts of the platform, thereby linking fun and entertainment to purchase motivation.

Gamification was evaluated via game mechanics and user interactivity measures drawn from Deterding et al. (2011) and Hamari et al. (2014). Items capture the presence of challenges, rewards, and responsive feedback that foster deeper engagement with the platform's game-like components.

Purchase Intention is measured by consumers' self-reported behavioral intention to buy after engaging with gamified features. Items reflect perceived usefulness, ease of use, and emotional responses elicited by the game elements, adapted from Xu et al. (2020) and Tilahun et al. (2023) to illustrate the likelihood of purchase following a gamified experience.

Analytical Strategy

IBM SPSS 27 was used to test the hypothesis. Process Macro (Model 4) was used to run both mediation analyses. SmartPLS 4 is used to test the proposed model of the research. A series of analyses was run in IBM SPSS 27 to test all proposed hypotheses.

Reliability Analysis

Table 1 shows the Cronbach's Alpha reliability values of scales used in the current study. The reliability of the Purchase Intention is .73, and the reliability of the Cognitive absorption is .89. The reliability of the gamification scale is .82, and the reliability of hedonic values is .76. This indicates that all the measures have good reliability.

Table 1

Descriptive Statistics and Reliability Analysis of Study Variables (N=284)

Scale	M (mean)	Median	SD	Range	Cronbach's α
Consumers' Purchase Intention	19.97	20	3.46	9-27	.732
Cognitive Absorption	65.40	65	11.16	29-90	.895
Gamification	21.04	22	4.02	6-30	.826
Hedonic Value	16.09	16	3.53	6-25	.762

Note: M = Mean; SD = Standard Deviation; α = Cronbach's Alpha

Hypotheses Testing

Table 2

Pearson Product-Moment Correlation among Study Variables (N=284)

Variables	1	2	3	4	5
1. Educational Experience	-	-.039	-.064	-.165**	-.089
2. Gamification		-	.615**	.508**	.336**
3. Hedonic Value			-	.674**	.576**
4. Cognitive Absorption				-	.614**
5. Purchase Intention					-

Note. **p < .01, p < .05

Pearson Product-Moment Correlation indicates that Gamification, hedonic values, cognitive absorption, and consumers' purchase intention are all significantly and positively correlated with each other.

Table 3

Regression Analysis for Predicting Purchase Intention (N=284)

Predictors	B	SE B	β	t	p

(Constant)	5.397	1.991		2.710	.007
Gamification	-.081	.050	-.094	-1.634	.103
Hedonic Value	.334	.066	.341	5.073	.000
Cognitive Absorption	.139	.019	.450	7.158	.000

Note. p < .001

Regression analysis indicates that hedonic values and cognitive absorption are significant predictors of consumers' purchase intention, but gamification does not predict purchase intentions directly. This indicates the mediation role of hedonic values and cognitive absorption.

Table 4
Mediation Analysis for the Effect of Gamification on Purchase Intention via Cognitive Absorption (N=284)

Model	B	SE B	t	p
Outcome: Purchase Intention				
Gamification	.03	.05	.60	.548
Cognitive Absorption	.19	.02	10.94	<.001
Cognitive Absorption as the outcome of Gamification	1.41	.14	9.91	<.001
Indirect effect	**Effect**	***SE***	**BootLLCI**	**BootULCI**
Gamification > Cognitive Absorption > Purchase Intention	.26	.07	.15	.42

Note. B = unstandardized coefficient, SE = standard error, LL = lower limit, CI = confidence interval, UL = upper limit

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Mediation Analysis via Process Macro indicates that Cognitive absorption is a significant mediator in the relation between gamification and consumers' purchase intention. It also indicates significant direct effect a and direct effects b.

Table 5
Mediation Analysis for the Effect of Gamification on Purchase Intention via Hedonic Value (N=284)

Model	B	SE B	t	p
Outcome: Purchase Intention				
Gamification	-0.02	0.05	-0.46	.649
Hedonic Value	0.58	0.06	9.59	<.001
Hedonic Value as the outcome of Gamification	0.54	0.04	13.08	<.001
Indirect effect	**Effect**	***SE***	**BootLLCI**	**BootULCI**
Gamification > Hedonic Value > Purchase Intention	.31	.05	.22	.42

Note. B = unstandardized coefficient, SE = standard error, LL = lower limit, CI = confidence interval, UL = upper limit

Mediation Analysis via Process Macro indicates that Hedonic Value **is a significant mediator in the relation between gamification and consumers' purchase intention. It also indicates significant direct effect a and direct effects b.**

Figure 2

SEM using SmartPLS

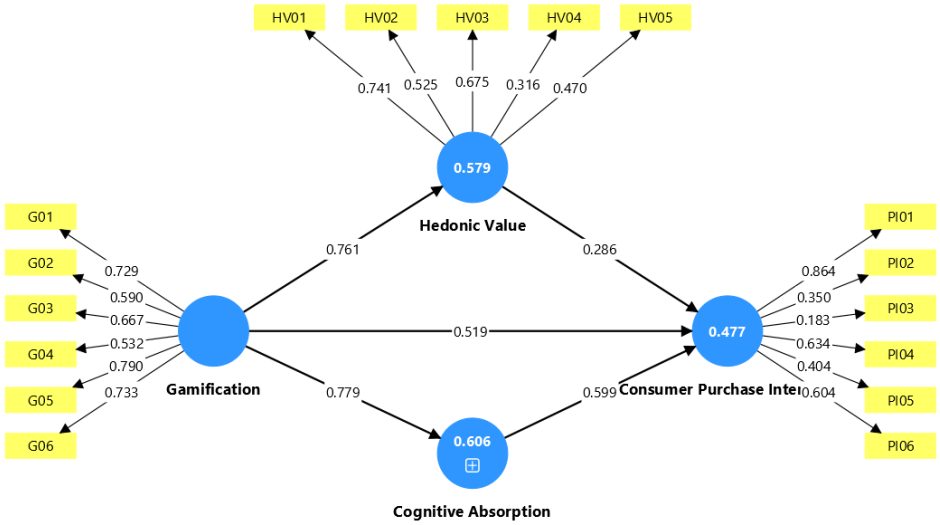


Table 6

Path	Path Coefficient
Cognitive Absorption -> Consumer Purchase Intention	0.599 (significant)
Gamification -> Cognitive Absorption	0.779 (significant)
Gamification -> Consumer Purchase Intention	0.165 (non-significant)
Gamification -> Hedonic Value	0.761 (significant)
Hedonic Value -> Consumer Purchase Intention	0.286 (significant)
Indirect Effect	
Gamification -> Cognitive Absorption -> Consumer Purchase Intention	0.466 (significant)
Gamification -> Hedonic Value -> Consumer Purchase Intention	0.218 (significant)

SEM via SmartPLS also confirms the mediating role of Hedonic Values and Cognitive Absorption in the relationship between Gamification and Consumer Purchase Intention.

Table 7

Independent Samples t-test for Gender Differences in Gamification, Hedonic Value, Cognitive Absorption, and Purchase Intention (N=284)

Variable	Male (n=118)	Female (n=166)	t	p	Cohen's d
Gamification	21.27 (4.52)	20.87 (3.63)	0.833	.405	0.100
Hedonic Value	16.41 (3.95)	15.86 (3.20)	1.283	.200	0.155
Cognitive Absorption	67.01 (12.23)	64.25 (10.21)	2.062	.040*	0.248
Purchase Intention	19.80 (3.71)	20.10 (3.28)	-0.719	.473	-0.087

Note. M = Mean, SD = Standard Deviation, Cohen's d = Effect Size

Independent sample t-test indicates there is no significant difference in Gamification, Hedonic Value, and Purchase Intention on the basis of gender. But Cognitive Absorption significantly differs in males and females, while male shows higher Cognitive Absorption compared to females.

Discussion

The H1 of the study stated that "Gamification is positively associated with consumer purchase intention in Pakistan's e-business sector." Person moment correlation showed that gamification has a positive relationship with purchase intention, suggesting that gamification is indeed positively associated with consumer purchase intention. However, in the regression analysis, gamification was not a significant direct predictor of purchase intention. This suggests that while gamification has a positive correlation with purchase intention, it does not directly predict it when other factors like cognitive absorption and hedonic value are considered. Several studies find that gamification features are positively correlated with consumers' purchase intentions. For example, Xu et al. (2020) report that game elements (rewards, competition, immersion) in a shopping context enhance enjoyment and ultimately affect consumers' online purchase intentions. Similarly, Liao et al. (2024) note that "gamification marketing plays a pivotal role in influencing customer purchase intention" and that in experiments gamified campaigns produce significantly higher purchase intention than non-gamified ones. Wu and Santana (2022) likewise found that both intrinsic (e.g., leaderboards, avatars) and extrinsic (e.g., points, badges) game elements in an online store increase consumers' purchase intention. These studies confirm the positive association between gamified features and purchase intention (as the correlation suggests), even if later analyses show this effect is largely indirect.

H2, H3, and H4 stated that gamification, cognitive absorption, and hedonic value are likely to predict consumers' purchase intention in Pakistan's e-business sector. The results of regression analysis support this hypothesis: cognitive absorption and hedonic value were significant predictors of purchase intention, confirming that both variables are likely to predict purchase intention. But gamification did not significantly predict purchase intention directly, though it has an indirect effect through cognitive absorption and hedonic value. In line with the study's finding that cognitive absorption (deep immersion) and hedonic enjoyment are stronger predictors than gamification per se, the literature shows that these psychological factors drive purchase behaviors. For example, Lee (2018) found that cognitive absorption (a state of deep engagement with the shopping medium) has a "significantly positive influence" on consumers' impulse-buying tendency. Likewise, Ruangkanjanases et al. (2024) demonstrate that users' flow experience (a concept closely related to cognitive absorption) has a strong positive effect on their continuous purchase intentions in e-commerce. With respect to hedonic value, Wu and Santana (2022) show that perceived enjoyment (a hedonic response) positively and significantly affects purchase intention.

H05 stated that cognitive absorption mediates the relationship between gamification and consumer purchase intention. Mediation analysis via Process Macro showed a significant indirect effect of gamification on purchase intention through cognitive absorption, indicating that gamification enhances cognitive absorption, which in turn increases purchase intention. This idea is supported by studies showing that gamified interactions induce an immersive state that in turn boosts intent. For instance, Xu et al. (2020) explicitly link gamification to absorption: they find that gamification elements (like rewards and challenges) heighten users' absorption and enjoyment, which then "ultimately affect[s] online purchase intention." Likewise, Liao et al. (2024) note that when gamification is well-matched to the user (e.g., game difficulty aligns with skill), it induces a flow experience that "effectively enhances customers' purchase intention." Ruangkanjanases et al. (2024) further show that such flow experiences have a significant direct effect on consumers' purchase intent.

H6 stated that hedonic value mediates the relationship between gamification and consumer purchase intention. Mediation analysis indicated that hedonic value also served as a significant mediator: gamification enhances hedonic value, which increases the likelihood of making a purchase. Wu and Santana (2022) explicitly test and confirm this: they report that perceived enjoyment "positively affects purchase intention and mediates the relationship between [game elements] and purchase intention." Liao et al. (2024) similarly

emphasize "fun and enjoyment" in gamified campaigns that lead to higher purchase intentions. Taken together, these sources confirm that the hedonic value created by gamification is the channel through which gamification boosts buying behavior.

Implications

Theoretical Contributions. This study advances gamification theory by integrating cognitive absorption (immersive engagement) and hedonic value (enjoyment) as key drivers of consumer purchase intention. Prior work has shown that gamified elements can boost enjoyment and intrinsic motivation; our findings concretely demonstrate how deep immersion in a shopping platform and the resulting fun and pleasure translate into higher purchase intent. In doing so, we extend existing frameworks (e.g., Cognitive Evaluation Theory) by pinpointing which game dynamics satisfy consumers' psychological needs and catalyze purchase behavior. This enriches consumer-behavior literature by highlighting that beyond utilitarian benefits, affective factors (flow, enjoyment) significantly influence e-commerce decisions. It also contributes to e-commerce research by validating these constructs in an emerging-market context, where gamification is still nascent.

Practical Implications. For e-business practitioners and platform designers, the results offer clear guidance. Gamified features should be designed to maximize user enjoyment and engagement. For example, adding interactive challenges, meaningful rewards, or immersive storylines can heighten cognitive absorption and enjoyment, thereby boosting purchase likelihood. Marketers can leverage these insights to craft game-like elements that tap into intrinsic motivation; this aligns with evidence that gamification often increases engagement, loyalty, and positive word-of-mouth. However, designers should be cautious: not all game elements work equally. Competitive mechanics may not always enhance enjoyment and can even demotivate some users. Thus, customization for local preferences is key. In Pakistan's context, where trust and usability are concerns, gamified incentives (e.g., fun rewards, status badges, or social recognition) could be combined with assurances of security to make the shopping experience both enjoyable and credible. Systematically integrating gameful elements—such as loyalty programs and narrative "missions"—can differentiate brands and build consumer loyalty by creating a more engaging and hedonic shopping environment.

Limitations

Methodological Limitations. First, the sample may be narrow: if our sample primarily consisted of digitally-savvy users (e.g., university students), the findings may not generalize to older or less tech-literate consumers. Using a cross-sectional survey and self-reported measures raises concerns of common-method bias and limits causal inference. Our statistical analysis assumes linear relationships and relies on respondents' perceptions; it cannot prove causality or capture long-term behaviors. Adapting existing scales to the local context may introduce measurement error or cultural misinterpretations. Finally, omitting variables such as brand engagement or trust leaves some explanatory power unexamined.

Contextual Limitations. Pakistan's e-business environment has unique cultural and economic features. Only a tiny fraction of Pakistanis shop online, reflecting issues like cash-based commerce, regulatory gaps, and low trust. Cultural norms (e.g., collectivism, risk aversion) might influence how game elements are perceived. Variations in internet access, payment infrastructure, and mobile usage across regions could limit applicability. These contextual factors constrain generalizability and should be kept in mind when interpreting our conclusions.

Future Research Directions

Explore additional mediators/moderators. Future studies should examine other psychological or relational factors, such as brand engagement, platform trust, social influence, utilitarian benefits, or personality traits, to reveal new pathways in the gamification–purchase link.

Cross-cultural and cross-industry replication. Replicating the research in different markets (e.g., China, Europe, India, Indonesia) and industries (e.g., m-banking, health e-commerce) would test cultural

generalizability and boundary conditions, strengthening external validity.

Longitudinal and experimental designs for causality. Employing A/B tests of gamified versus non-gamified site versions, field experiments, or longitudinal tracking of purchase behavior over time would establish causal relationships and reduce self-report biases.

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