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From Attention to Intention in Indonesia's E-Commerce: Gamification's Pathway to Repurchase

Dari Atensi ke Intensi dalam *E-Commerce* Indonesia: Peran Gamifikasi terhadap Niat Pembelian Ulang

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ABSTRACT

This study aims to examine the mechanism through which gamification influences repurchase intention in the e-commerce context. Specifically, it investigates the dual mediating roles of customer experience (CEX) and customer engagement (CE) based on the stimulus-organism-response (S-O-R) theoretical framework." Data were collected from e-commerce platform users who engage with gamified features. The proposed hypotheses were tested using a quantitative approach with partial least squares structural equation modeling (PLS-SEM). The analysis revealed that gamification does not have a direct significant effect on repurchase intention. Rather, its influence is fully mediated by internal consumer variables. Gamification positively and significantly affects both customer experience (β = 0.562) and customer engagement (β = 0.477). These mediators, customer experience (β = 0.449) and customer engagement (β = 0.230), significantly drive repurchase intention. This confirms full mediation, with customer experience being the more dominant predictor. Theoretically, this study strengthens the validity of the S-O-R framework within digital environments and highlights the critical role of internal processes as bridges between stimulus and response. In practice, it advises e-commerce managers to design gamification strategies that focus on enhancing experience quality and engagement rather than directly pushing transactions. This research provides clear empirical evidence of the indirect pathways through which gamification fosters loyalty, demonstrating that its value lies in cultivating superior user experiences and deeper customer relationships rather than in its gaming features.

***Keywords**: Customer engagement, customer experience, e-commerce, gamification, repurchase intention.*

ABSTRAK

Penelitian ini bertujuan untuk menguji mekanisme pengaruh gamifikasi terhadap niat beli ulang dalam konteks *e-commerce*, khususnya dengan menelaah peran mediasi ganda dari pengalaman pelanggan (CEX) dan keterlibatan pelanggan (CE) berdasarkan kerangka teoretis *Stimulus-Organism-Response* (S-O-R). Data dikumpulkan dari pengguna platform *e-commerce* yang menggunakan fitur gamifikasi, kemudian hipotesis diuji melalui pendekatan kuantitatif dengan *Partial Least Squares Structural Equation Modeling* (PLS-SEM). Hasil analisis menunjukkan bahwa gamifikasi tidak berpengaruh langsung signifikan terhadap niat beli ulang, melainkan pengaruhnya sepenuhnya dimediasi oleh variabel internal konsumen. Gamifikasi berpengaruh positif dan signifikan terhadap pengalaman pelanggan (β = 0,562) dan keterlibatan pelanggan (β = 0,477). Selanjutnya, pengalaman pelanggan (β = 0,449) dan keterlibatan pelanggan (β = 0,230) secara signifikan mendorong niat beli ulang, mengonfirmasi mediasi penuh dengan pengalaman pelanggan sebagai prediktor yang lebih kuat. Secara teoretis, penelitian ini memperkuat validitas kerangka S-O-R dalam lingkungan digital dan menekankan pentingnya proses internal sebagai penghubung antara rangsangan dan respons. Secara praktis, penelitian ini merekomendasikan agar manajer *e-commerce* merancang strategi gamifikasi yang fokus pada peningkatan kualitas pengalaman dan keterlibatan, bukan sekadar mendorong transaksi langsung. Temuan ini memberikan bukti empiris jelas bahwa manfaat gamifikasi terhadap loyalitas didapatkan melalui penciptaan pengalaman pengguna yang lebih baik dan hubungan yang lebih dalam, bukan hanya dari fitur permainan itu sendiri.

Kata kunci: *E-commerce*, gamifikasi, keterlibatan pelanggan, niat beli ulang, pengalaman pelanggan.

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INTRODUCTION

In the contemporary digital landscape, characterized by rapid transformation, attention has emerged as the scarcest and most valuable resource, superseding capital in the conventional economic framework (Simon, 1971; Davenport & Beck, 2001). This paradigm shift is often termed the "attention economy," wherein consumer attention has emerged as the primary competitive asset among digital platforms (Mears, 2023; Bruineberg, 2025). As the boundaries between industries become increasingly indistinct, e-commerce platforms find themselves in a competitive environment not only with other online stores but also with social media, streaming services, and digital gaming applications (Afanador, 2022; Mears, 2023; Jung & Kowalski, 2021). This cross-sector competition has led to a fundamental shift, requiring e-commerce platforms to evolve from passive transactional sites into dynamic digital destinations capable of capturing and retaining user attention amidst the ever-present digital distractions (Giraldo-Luque *et al*., 2020).

This strategic transition from a transactional model to an experience-driven one has become essential in fostering long-term customer relationships. While the ease of transactions remains a fundamental expectation, the quality of the customer experience has emerged as the pivotal factor in determining the success of a platform (Lemon & Verhoef, 2016; Pasharibu *et al*., 2018). Platforms that incorporate components of entertainment (Elmashhara & Soares, 2019), social interaction (Busalim *et al*., 2023), and user-explorable content (Clement Addo *et al*., 2021) are more likely to foster profound emotional bonds with users. This enhanced engagement has been identified as a primary catalyst for fostering long-term customer loyalty and repurchase intention (Brodie *et al*., 2011; Sharma & Singh, 2023).

The Indonesian e-commerce market, which is one of the largest in Southeast Asia, presents a significant opportunity to explore this phenomenon (ASEAN Business Partners, 2025; Unuzuglu, 2024). Following a period of rapid growth, the sector is now showing signs of maturation, with shifts in consumer behavior and a slowdown in transaction values (Saer *et al*., 2024; Wijaya, 2023). This deceleration signifies a transition from a concentration on aggressive user acquisition to a new phase that is centered on customer retention. In this market, which is becoming increasingly saturated, e-commerce platforms face the challenge of attracting new users and retaining existing ones. Consequently, as Wen *et al*. (2024) and Li *et al*. (2019) note, it is imperative to understand the psychological factors that drive repurchase intention, such as trust and satisfaction. A prevalent strategy to enhance customer retention is gamification, which involves the integration of game design elements into non-game contexts to augment user engagement (García-Jurado *et al*., 2021; Sharma *et al*., 2024). Major platforms such as Shopee and Tokopedia have effectively integrated gamification components, including daily missions, reward coupons, and interactive games, to promote user interaction and engagement (Tsou & Putra, 2023).

The Indonesian e-commerce market provides a unique theoretical boundary condition for testing the Stimulus-Organism-Response (S-O-R) framework. Theoretically, Indonesia represents a highly collectivist and mobile-first culture with one of the highest daily internet usage rates globally (APJII, 2025). As the market transitions from an aggressive user-acquisition phase to a retention-focused maturity phase (Wen *et al*., 2024), it offers a critical setting to examine whether external gamified stimuli still hold their efficacy in a saturated digital environment. Understanding this context theoretically advances the S-O-R model by testing its robustness when users are highly

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habituated to digital rewards, thereby shifting the academic focus from mere technology adoption to psychological retention mechanisms.

Conventional research approaches have predominantly conceptualized gamification as a singular entity, directly linked to customer loyalty (Elgarhy *et al*., 2023; Punwatkar & Verghese, 2025). However, there is a paucity of studies that have delved into the underlying motivational processes that underpin its multifaceted and specific effects. A considerable body of research posits a direct impact of gamification; however, in reality, gamification frequently exerts influence on consumer behavior through more complex pathways (Suratmanto *et al*., 2025; Sharma *et al*., 2024). The causal pathways linking various gamification elements to changes in consumer behavior, particularly with regard to repurchase intention, have not been systematically explored. This presents a critical opportunity for further research to investigate these mechanisms in greater depth (Seaborn & Fels, 2015; Hsu, 2023).

To address this gap, the present study adopts the Octalysis Framework, a motivation-driven gamification model developed by Yu-kai Chou (2015) that has been widely applied in various digital contexts. The framework delineates eight core drives, or motivational forces, that undergird gaming experiences and digital interactions. The present study focuses on the four core drives most relevant to the e-commerce context. The first of these is Core Drive 2: Development & Accomplishment, which relates to the drive for achievement and progress typically found in missions and challenges. The second is Core Drive 4: The concept of ownership and possession is associated with the accumulation of points, coupons, and digital rewards. The sixth core drive, Scarcity and Impatience, is often implemented through limited-time discounts and countdowns. The fifth core drive, Social Influence and Relatedness, is driven by features such as sharing, friend invitations, and social competition. The selection of these four core drives was informed by their prevalent application in gamification practices within the Indonesian e-commerce sector, as well as their pertinence to the motivational context of digital consumers (Tsou & Putra, 2023; Suratmanto *et al*., 2025).

The objective of this study is to develop and evaluate a serial mediation model within the Stimulus-Organism-Response (SOR) framework. The present model aims to elucidate the manner in which disparate gamification drives exert influence on repurchase intention through two mediation pathways: customer experience and customer engagement. The empirical testing of this integrative framework is expected to provide deeper insights into how e-commerce platforms can effectively transform user attention into sustainable commercial loyalty.

LITERATUR REVIEW

Main Theoretical Framework: The Stimulus-Organism-Response (SOR) model

The present study employs the Stimulus-Organism-Response (SOR) theoretical framework developed by Mehrabian and Russell (1974). This theory posits that stimuli from the external environment influence an individual's response through internal processes, both cognitive and affective, referred to as the Organism. This process subsequently elicits a particular behavioral response (Response). In the context of this study, gamification elements function as the stimulus influencing the users. As posited by Lemon and Verhoef (2016) and Brodie *et al*. (2011), the constructs of customer experience and customer engagement function as the organism, respectively. Li *et al*. (2019) posit that repurchase intention represents the response that arises from such engagement.

The Effect of Stimulus on Organism

Gamification

In the SOR framework, stimuli from the external environment function as the initial trigger that shapes consumers' perceptions and emotions. This study positions gamification as the primary stimulus, which is holistic in nature. The application of game elements in e-commerce platforms has been shown to transform user interactions from mere transactions into more interactive experiences (Sharma *et al*., 2024; Deterding *et al*., 2011). The integration of these gamification elements is synergistic, collectively contributing to the formation of a holistic perception of the platform by the user. This, in turn, enhances the overall quality of the customer experience. When users engage with gamification features, they are not merely executing transactions; they are also partaking in pleasurable activities. Achievements such as the completion of objectives (e.g., through missions) or interactions with a community have been demonstrated to elicit positive sentiments, including feelings of pride and connection. These sentiments are identified as fundamental to the provision of exceptional customer experiences (Tsou & Putra, 2023; Busalim *et al*., 2023). Moreover, gamification is designed to encourage active participation. The provision of clear goals and instant feedback is a critical aspect of gamification, as it motivates users to invest time and effort, which is central to customer engagement (Brodie *et al*., 2011; Hsu, 2023). This dynamic interaction has been shown to transition users from a state of passive consumption to one of active engagement within the platform ecosystem (Suratmanto *et al*., 2025). According to the aforementioned argument, gamification is expected to exert its influence on two fundamental aspects of the internal process (Organism).

H1: Gamification positively influences Customer Experience.

H2: Gamification positively influences Customer Engagement.

The Relationship Between Internal Processes (Organism)

In the SOR framework, the organism's components are interconnected, and the organism's response is influenced not only by the external stimulus but also by its internal components. The present study positions customer experience as a antecedent to customer engagement. Positive experiences, characterized by smoothness, enjoyment, and meaningfulness, have been shown to result in enhanced cognitive and affective evaluations, including satisfaction, trust, and perceived value. These enhanced evaluations, in turn, have been observed to foster increased engagement, participation, and investment of time and energy by customers within the platform. Conversely, adverse experiences have been shown to impede engagement (Lemon & Verhoef, 2016; Busalim *et al*., 2023; Hsu, 2023).

H3: Customer experience positively influences customer engagement.

The Effect of Organism (O) on Response (R)

Customer Experience

Customer experience is regarded as a pivotal element in influencing consumer behavior within the SOR framework. Customer experience is defined as the comprehensive evaluation of all interactions a customer has with the platform, encompassing aspects such as ease of use, transaction flow, and the emotional responses experienced during interactions (Lemon & Verhoef, 2016). Positive and memorable experiences have been shown to shape attitudes and memories, which are subsequently accessed when consumers make decisions (Heinonen & Murto, 2023). In practice, a

seamless, pleasurable, and valuable shopping experience has been shown to mitigate doubts and perceptions of risk in subsequent transactions. This enhances satisfaction and trust, thereby motivating consumers to return and repurchase (Pasharibu *et al*., 2018; Luo *et al*., 2011). In essence, a positive experience provides consumers with both rational and emotional justifications for maintaining their choice of the same platform.

H4: Customer experience positively influences repurchase intention.

Customer Engagement

As posited by the SOR framework, the initial stimulus that shapes the internal conditions is followed by customer engagement, which encompasses cognitive, emotional, and behavioral attachment. This engagement, in turn, serves as a proximal antecedent of behavioral intention. According to the tenets of relationship marketing, customers who exhibit higher levels of engagement are more likely to demonstrate stronger loyalty. Active engagement fosters relationships that transcend transactions, thereby cultivating a sense of community and emotional attachment to the brand (Brodie *et al*., 2011). Consequently, this fosters repeated preferences and platform selection over competitors. Empirical findings consistently demonstrate a significant positive effect of customer engagement on repurchase intention (Sharma & Singh, 2023; Hsu, 2023; Aggarwal *et al*., 2025).

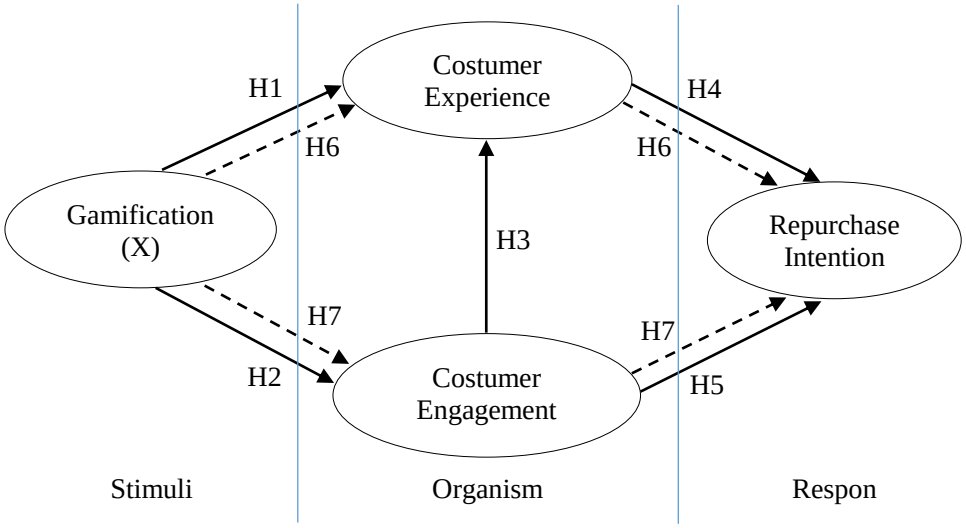
H5: Customer engagement positively influences repurchase intention.

The Mediating Role of Internal Processes (Organism)

According to the SOR framework, the influence of the stimulus (i.e., gamification) on the response (i.e., repurchase intention) does not occur directly; rather, it occurs through internal processes within the consumer (i.e., the organism). Consequently, customer experience and customer engagement are conceptualized as mediating variables that facilitate this relationship. Firstly, gamification fosters positive experiences, which in turn, have been shown to drive repurchase intention (Hsu, 2023). Secondly, gamification fosters active engagement, which is a critical factor in fostering the intention to return. This assertion is supported by previous studies that have identified the efficacy of this mediation path (Elgarhy *et al*., 2023; Suratmanto *et al*., 2025). The objective of this study is to assess the mediating roles of both internal variables independently.

H6: The relationship between gamification and repurchase intention is significantly mediated by customer experience.

H7: The relationship between gamification and repurchase intention is significantly mediated by customer engagement.



Gambar 1. Kerangka Konseptual Model

RESEARCH METHODS

The present study proposes and tests a theoretical model to analyze the impact of gamification on e-commerce platforms on customer experience, customer engagement, and repurchase intention. The focal point of this inquiry lies in the Indonesian e-commerce context, employing a case study approach with users from the three most prominent platforms that extensively implement gamification: Shopee, Tokopedia, and Lazada. The selection of these platforms is predicated on their status as market leaders, as indicated by Mordor Intelligence (2025). The development of the research instrument, which took the form of a questionnaire, was grounded in the Stimulus-Organism-Response (SOR) theoretical framework and a thorough literature review. The questionnaire under consideration includes demographic data as well as a series of statements intended to measure key variables using a five-point Likert scale. The measurement of these variables was facilitated by the adaptation of indicators derived from foundational literature. Specifically, the gamification variable was measured using four core drives from the Octalysis Framework (Chou, 2019) that were deemed most relevant to the e-commerce context. The first of these was Core Drive 2: Development & Accomplishment, referring to the drive for achievement and progress through missions and challenges. The second was Core Drive 4: The concept of ownership and possession, which pertains to the accumulation of points, coupons, and digital rewards, is a fundamental aspect of human behavior. The subsequent drive, identified as Core Drive 5, is characterized by social influence and relatedness, manifesting through activities such as sharing features, friend invitations, and social competition. Finally, Core Drive 6 encompasses the principles of scarcity and impatience, which play a significant role in human motivation and behavior. The measurement of customer experience was based on a multi-dimensional conceptualization from Lemon & Verhoef (2016). The construct of customer engagement was adapted from Brodie *et al*. (2011) as a multi-dimensional model encompassing cognitive, emotional, and behavioral dimensions. The measurement of repurchase intention was conducted using established scales from the consumer behavior literature to assess repurchase tendencies, as adapted from studies by Li *et al*. (2019) and Sharma & Singh (2023).

The data collection process was executed through purposive sampling, employing specific criteria to ensure the representativeness of the sample. The respondents were selected from Jakarta, Bandung, or Surabaya (APJII, 2025), and were required to be active users, defined as having at least one transaction in the previous three months. Additionally, the respondents were required to have been exposed to gamification, as indicated by a minimum of three interactions with features such as missions, points, games, or vouchers within the same period. The survey was disseminated online via Google Forms to employees, students, and general consumers, yielding 225 respondents, which was deemed sufficient for structural equation modeling. The analysis was conducted using partial least squares structural equation modeling (PLS-SEM) with SmartPLS software. The analysis process was comprised of two primary stages: Initially, the measurement model undergoes evaluation to ascertain indicator loadings (outer loadings), composite reliability (CR), convergent validity (AVE), and discriminant validity (Fornell-Larcker/HTMT criteria). Subsequently, the structural model undergoes evaluation to test hypotheses through bootstrapping (5,000 resamples), examining the coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and checking for multicollinearity (VIF), including mediation testing through indirect effects with confidence intervals.

Data collection was executed through purposive sampling. This non-probability sampling technique was chosen to ensure that respondents had the specific prior experience necessary to evaluate gamification features accurately. To minimize common method bias and response bias, the survey incorporated procedural remedies, including assuring respondents of their anonymity, ensuring there were no right or wrong answers, and providing clear, distinct instructions for each section. The online questionnaire was distributed over a four-week period via social media platforms (Instagram and X/Twitter) and WhatsApp groups targeting e-commerce user communities.

In the structural model, Gamification was treated as a first-order construct, measured directly by its behavioral indicators reflecting the core drives (e.g., missions, points). Operationally, Gamification is defined as the user's perception of game-design elements embedded in the platform. Customer Experience (CEX) is operationally defined as the user's holistic cognitive and affective evaluation of the platform, while Customer Engagement (CE) refers to the user's psychological state of continuous interaction and investment. Repurchase Intention (RI) is defined as the user's deliberate behavioral plan to continue buying from the same platform

RESULTS AND DISCUSSION

Result

Demographic Profile

Table 1 provides an overview of the characteristics of the respondents. The majority of respondents are female (65.33 percent) and between the ages of 21 and 25 (47.11 percent). The majority of the subjects are students (52.44 percent), followed by private employees (29.78 percent) and entrepreneurs (11.56 percent), indicating a youthful sample. The respondents are geographically dispersed, with 39.11 percent hailing from Jakarta, 31.56 percent from Bandung, and 29.33 percent from Surabaya. Shopee has emerged as the preferred platform (61.78 percent), followed by Tokopedia (24.00 percent) and Lazada (14.22 percent), underscoring its efficacy in marketing and gamification strategies. The frequency of transactions exhibited variability, with 41.78 percent of individuals conducting between one and five transactions, and 24.44 percent

engaging in over ten transactions within the previous three months. With respect to the application of gamification, the most prevalent strategy was the implementation of daily missions, accounting for 37.33 percent of the observed cases. This was followed by the utilization of points or coins (30.67 percent), vouchers or games (20.44 percent), and competitions or referrals (11.56 percent). These findings underscore the efficacy of continual incentives and challenges in fostering engagement and motivation. The sample's youth, female dominance, and preference for Shopee's gamification features highlight key market segments and digital marketing strategies in Indonesia's e-commerce sector.

Table 1. Distribution of Respondent Characteristics

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	78	34.67
	Female	147	65.33
Age	17–20 years	54	24.00
	21–25 years	106	47.11
	26–30 years	44	19.56
	>30 years	21	9.33
Occupation	Student	118	52.44
	Private employee	67	29.78
	Entrepreneur	26	11.56
	Others	14	6.22
Domicile	Jakarta	88	39.11
	Bandung	71	31.56
	Surabaya	66	29.33
Most Frequently Used E-Commerce Platform	Shopee	139	61.78
	Tokopedia	54	24.00
	Lazada	32	14.22
Transaction Frequency in the Last 3 Months	1–5 times	94	41.78
	6–10 times	76	33.78
	>10 times	55	24.44
Most Frequently Used Gamification Feature	Daily missions/challenges	84	37.33
	Points/coins	69	30.67
	Vouchers/games	46	20.44
	Competitions/referrals	26	11.56

Outer Model

The outer model, known as the measurement model, defines the relationship between latent variables and their indicators. Convergent validity is achieved when the indicators are highly correlated with their respective latent constructs. This is assessed through factor loadings of greater than 0.60 and an Average Variance Extracted (AVE) of greater than 0.50. Meeting these thresholds indicates that the construct is well represented by its indicators and suitable for further structural analysis.

Table 2. Outer Loading

Variable	Indikator	Outer Loading	Ket
Gamification	G1	0,817	Valid
	G2	0,771	Valid
	G3	0,692	Valid
Customer Engagement	CE1	0,801	Valid
	CE2	0,82	Valid
	CE3	0,747	Valid
	CE4	0,645	Valid
	CE5	0,786	Valid
Customer Experience	CX1	0,848	Valid
	CX2	0,852	Valid
	CX3	0,766	Valid
	CX4	0,772	Valid
	CX5	0,776	Valid
Repurchase Intention	RI1	0,821	Valid
	RI2	0,848	Valid
	RI3	0,736	Valid
	RI4	0,892	Valid

As shown in Table 2, all indicators have outer loading values that exceed the recommended threshold of 0.60 (Hair *et al*., 2021). This confirms that there is satisfactory convergent validity. For the gamification construct, loadings range from 0.692 (G3) to 0.817 (G1), indicating strong measurement consistency. The Customer Engagement indicators range from 0.645 (CE4) to 0.820 (CE2). CE4 is the lowest acceptable value, yet it still meets the validity requirement. The Customer Experience indicators exhibit consistently high loadings ranging from 0.766 (CX3) to 0.852 (CX2). Meanwhile, Repurchase Intention records the highest overall loading of 0.892 (RI4) and the lowest loading of 0.736 (RI3).

Table 3. AVE

Variabel	Average Variance Extracted (AVE)
Gamification	0,58
Customer Engagement	0,567
Customer Experience	0,646
Repurchase Intention	0,672

All constructs in Table 3 exceed the AVE threshold of 0.50 (Hair *et al*., 2021), ranging from 0.567 for Customer Engagement to 0.672 for Repurchase Intention. These results confirm that each construct explains over 50 percent of the variance in its indicators. This indicates satisfactory convergent validity and supports the suitability of the measurement model for further analysis.

Table 4. Composite Reliability and Cronbach's Alpha

Variable	Composite Reliability	Cronbach's Alpha
Gamification	0,805	0,738
Customer Engagement	0,867	0,807
Customer Experience	0,901	0,862
Repurchase Intention	0,891	0,837

Table 4 presents the Composite Reliability (CR) and Cronbach's Alpha (CA) values for all constructs. According to Hair *et al*. (2021), a CR value above 0.70 indicates adequate internal consistency, while a CA value above 0.70 suggests satisfactory reliability. All constructs meet these criteria, with CR values ranging from 0.805 (Gamification) to 0.901 (Customer Experience) and CA values from 0.738 (Gamification) to 0.862 (Customer Experience). These results confirm that all measurement items consistently represent their respective constructs and that the model possesses strong internal reliability, thus meeting the requirements for further structural model assessment.

Discriminant Validity

According to Hair *et al*. (2021), discriminant validity was assessed using cross-loading analysis, the Fornell–Larcker criterion, and the Heterotrait–Monotrait Ratio (HTMT). The cross-loading results show that each indicator loads most strongly on its intended construct. The Fornell–Larcker criterion confirms that the square root of the average variance extracted (AVE) for each construct exceeds its correlations with other constructs. HTMT values are below the 0.85 threshold (Henseler *et al*., 2015), indicating strong discriminant validity. These findings confirm that all constructs are empirically distinct, thus supporting the adequacy of the measurement model.

Table 4. Cross Loading

Indicator	Gamification	Customer Engagement	Customer Experience	Repurchase Intention
G1	0,817	0,642	0,481	0,469
G2	0,771	0,538	0,399	0,293
G3	0,692	0,519	0,395	0,335
CE1	0,721	0,801	0,581	0,506
CE2	0,637	0,820	0,643	0,466
CE3	0,451	0,700	0,550	0,443
CE4	0,472	0,645	0,372	0,463
CE5	0,503	0,786	0,660	0,450
CX1	0,461	0,622	0,848	0,514
CX2	0,467	0,686	0,852	0,530
CX3	0,453	0,567	0,766	0,693
CX4	0,419	0,574	0,772	0,455
CX5	0,455	0,569	0,776	0,429
RI1	0,419	0,458	0,517	0,821
RI2	0,417	0,529	0,580	0,848
RI3	0,358	0,514	0,546	0,793
RI4	0,412	0,519	0,514	0,817

Based on Table 4, each indicator has the highest loading value on its corresponding construct compared to the other constructs. The loading values range from 0.692 to 0.817 for gamification, 0.645 to 0.820 for customer engagement, 0.766 to 0.852 for customer experience, and 0.793 to 0.848 for repurchase intention. All primary loadings exceed

cross-loadings with other constructs, meeting the discriminant validity criteria recommended by Hair *et al*. (2019). These results suggest that each indicator accurately reflects its intended latent construct, without substantial interference from other constructs, thereby reinforcing the validity and robustness of the measurement model.

Fornell-Larcker Criterion Test

The Fornell-Larcker Criterion test is used to measure discriminant validity.In the Fornell-Larcker test, discriminant validity can be considered good if the root of the Average Variance Extracted (AVE) on a construct is higher than the construct's correlation with other latent variables.

Table 5. Fornell-Larcker Criterion Test

	CE	CX	GM	RI
Customer Engagement	0,753			
Customer Experience	0,752	0,804		
Gamification	0,749	0,562	0,762	
Repurchase Intention	0,617	0,659	0,489	0,820

Based on Table 5, the square root AVE values for all constructs—Customer Engagement (0.753), Customer Experience (0.804), Gamification (0.762), and Repurchase Intention (0.820)—are greater than their inter-construct correlations. According to Fornell and Larcker (1981), this indicates adequate discriminant validity of the measurement model. This confirms the measurement model has adequate discriminant validity.

Heterotrait-Monotrait Ratio (HTMT)

The Heterotrait-Monotrait Ratio (HTMT) test can be said to meet discriminant validity if the HTMT Ratio is less than 0.9 (HTMT < 0.9) to be declared to meet the discriminant validity criteria.

Table 6. Heterotrait-Monotrait Ratio (HTMT)

	CE	CX	GM	RI
Customer Engagement				
Customer Experience	0,894			
Gamification	0,825	0,752		
Reprchase Intention	0,752	0,766	0,657	

Table 6 presents the HTMT values used to assess discriminant validity. All of the values (ranging from 0.657 to 0.894) fall below the threshold of 0.90 (Henseler *et al*., 2015). This indicates that the constructs are empirically distinct and that the measurement model is robust.

Inner Model

The inner model analysis aims to evaluate the relationships among latent constructs. Structural model testing was conducted using the bootstrapping procedure in SMART PLS. The evaluation of the inner model includes several indicators, particularly the coefficient of determination (R^2).

R-Square

R-squared (R^2) is the coefficient of determination that quantifies the proportion of variance in an endogenous construct that is explained by its exogenous predictors. Values range from 0 to 1, with higher scores indicating stronger predictive accuracy. In structural

equation modeling (SEM), R^2 is a key indicator of the model's explanatory power. According to Chin (1998), R^2 values of 0.67, 0.33, and 0.19 are considered substantial, moderate, and weak, respectively.

Table 7. R-square

Variabel	*R-Square*	Kriteria
Customer Engagement	0,722	Kuat
Customer Experience	0,316	Moderat
Reprchase Intention	0,469	Moderat

According to Table 7, the R^2 value for customer engagement is 0.722, which indicates strong explanatory power. The model's predictors account for 72.2 percent of the variance. In contrast, customer experience ($R^2 = 0.316$) and repurchase intention ($R^2 = 0.469$) fall within the moderate category, explaining 31.6 percent and 46.9 percent of their respective variances. These results suggest that the model has strong predictive capabilities for customer engagement and moderate capabilities for customer experience and repurchase intention. Thus, the model provides empirical support for most of the hypothesized structural relationships.

Path Coefisien Test

Hypothesis testing is divided into direct influence and indirect effect. Hypothesis testing in this study was carried out by looking at the T-Statistics value and the P-Values value. The research hypothesis can be declared accepted if the P-Values <0.05. The following are the results of hypothesis testing obtained in this study through the inner model.

Tabel 8. Hypotesis

Hypothesis	Variable Relationship	Original Sample (O)	T Statistics	P Values	Result
H1	Gamification → Customer Experience	0.562	7.735	0.000	Supported
H2	Gamification → Customer Engagement	0.477	7.176	0.000	Supported
H3	Customer Experience → Customer Engagement	0.485	8.248	0.000	Supported
H4	Customer Experience → Repurchase Intention	0.449	5.363	0.000	Supported
H5	Customer Engagement → Repurchase Intention	0.230	2.221	0.027	Supported
H6	Gamification → CEX → Repurchase Intention	0.252	4.120	0.000	Supported (Mediation)
H7	Gamification → CE → Repurchase Intention	0.109	2.015	0.044	Supported (Mediation)

The PLS-SEM analysis revealed a robust structural model that highlights the pivotal roles of gamification and customer experience in shaping customer engagement and repurchase intention. The results support five of the six hypothesized relationships, demonstrating direct and indirect effects within the model. First, gamification significantly enhances both customer engagement ($\beta = 0.477$, $t = 7.176$, $p < 0.001$) and customer experience ($\beta = 0.562$, $t = 7.735$, $p < 0.001$). This indicates that well-designed gamification features effectively increase user interaction and satisfaction. These findings underscore the importance of gamification in improving customers' perceptions and

involvement with the platform. Second, customer experience positively influences customer engagement ($\beta = 0.485$; $t = 8.248$; $p < 0.001$), showing that superior experiential quality fosters deeper engagement. Additionally, customer engagement ($\beta = 0.230$; $t = 2.221$; $p = 0.027$) and customer experience ($\beta = 0.449$; $t = 5.363$; $p < 0.001$) have significant positive effects on repurchase intention. This confirms their essential roles in driving customer loyalty and repeat purchases. However, the direct path from gamification to repurchase intention is not significant ($\beta = 0.065$; $t = 0.649$; $p = 0.517$). This suggests that gamification predominantly influences repurchase behavior through enhanced customer experience and engagement rather than directly. Together, these results highlight the dual role of gamification. It directly improves the customer experience and engagement, which translates into increased repurchase intention. This aligns with existing literature that highlights experiential and relational factors as critical pathways to fostering sustained consumer loyalty. Therefore, while gamification alone may not directly drive repurchase intentions, its contribution to creating meaningful experiences and active engagement is vital in the customer decision-making process.

Discussion

This study tests a mediated relationship model between gamification and repurchase intention via internal consumer processes: customer experience (CEX) and customer engagement (CE). This model is based on the stimulus-organism-response (S-O-R) theoretical framework. The proposed model is strongly supported by PLS-SEM analysis, which confirms five out of six hypotheses and reveals the full mediating role of organism variables. The most fundamental finding is that gamification significantly and positively influences customer experience ($\beta = 0.562$) and customer engagement ($\beta = 0.477$). This finding supports the idea that gamification transforms user interactions from simple transactions into more interactive and enjoyable experiences (Sharma *et al*., 2024; Deterding *et al*., 2011). The stronger influence on CEX suggests that the primary function of gamification in e-commerce is to create a more satisfying, smooth, and emotionally resonant environment. As users complete missions or interact within a community, they pursue goals and gain positive sentiments, such as pride and connection. These sentiments are central to superior customer experiences (Tsou & Putra, 2023; Busalim *et al*., 2023).

Concurrently, the substantial impact of gamification on customer engagement (CE) underscores that providing clear objectives and prompt feedback motivates users to invest time and cognitive effort, the essence of engagement (Brodie *et al*., 2011; Hsu, 2023). These findings reinforce the role of gamification as an effective stimulus for triggering internal consumer conditions. The study also reveals the internal dynamics where CEX significantly influences CE ($\beta = 0.485$). This provides strong empirical support for the arguments of Lemon and Verhoef (2016) and Busalim *et al*. (2023), who posit that experience precedes engagement. Positive experiences, characterized by smoothness, enjoyment, and meaningfulness, improve cognitive and affective evaluations. These evaluations drive customers to participate more actively, engage more deeply, and invest more energy in the platform. In contrast, poor experiences hinder engagement, regardless of how appealing the initial stimulus.

A critical finding of this study is the lack of a direct relationship between gamification and repurchase intention ($\beta = 0.065$, $p = 0.517$). Theoretically, this implies that gamification features—such as points or badges—do not inherently possess transactional value. Consumers do not spend real money simply because a platform has a game. Instead, the value of gamification is strictly experiential. The lack of a direct effect confirms a full mediation mechanism: game elements must first succeed in making the

shopping process enjoyable (CEX) and psychologically involving (CE) before they can translate into financial loyalty.

This theoretical finding is strongly corroborated by the contextual data of the respondents. As shown in the demographic profile, daily missions (37.33 percent) and points/coins (30.67 percent) are the most frequently used features. In platforms like Shopee, completing a daily mission (e.g., watering a digital plant) requires consistent daily logins, which inherently builds habit and engagement (CE) over time. Furthermore, the act of claiming points provides micro-moments of satisfaction that elevate the overall user experience (CEX). Therefore, the data proves that gamification drives repurchase not as a direct promotional tool, but as a mechanism to build a daily habit loop and experiential satisfaction

A key finding of this study is that the direct relationship between gamification and repurchase intention (RI) is insignificant ($\beta = 0.065$, $p > 0.05$). However, both CEX ($\beta = 0.449$) and CE ($\beta = 0.230$) significantly influence RI, suggesting full mediation. This means that gamification does not directly drive repurchase loyalty; rather, its effect is fully channeled through enhanced customer experience and engagement. This finding aligns with the S-O-R framework, which posits that stimuli affect responses through internal organismic processes (Mehrabian & Russell, 1974). These results also support previous studies that identified this mediation pathway as a crucial mechanism (Elgarhy *et al*., 2023; Suratmanto *et al*., 2025). Gamification creates positive experiences that reduce doubt, increase trust, and ultimately drive repurchase intention (Pasharibu *et al*., 2018; Luo *et al*., 2011). Similarly, gamification fosters active engagement, building emotional connections and a sense of community and ultimately driving repeated platform preference (Sharma & Singh, 2023; Brodie *et al*., 2011).

Notably, the influence of customer experience (CEX) on repurchase intention (RI) ($\beta = 0.449$) is nearly twice that of customer engagement (CE) on RI ($\beta = 0.230$). In the e-commerce context, this suggests that relational engagement is important but that superior transactional and interactive experiences (e.g., ease of navigation, enjoyment while browsing, and smooth checkout) are more dominant drivers of consumers' repurchase decisions. These findings emphasize that, although gamification significantly enhances engagement and experience, the overall quality of the user interface and experience is critical in shaping repurchase behavior**.**

CONCLUSSIONS

This study makes a theoretical contribution by enriching the Stimulus-Organism-Response (S-O-R) framework with robust empirical evidence in a gamified digital environment. The study emphasizes that the "organism" is not a black box, but rather, it comprises interconnected internal processes, specifically the relationship between customer experience and customer engagement, that collectively mediate the influence of external stimuli on consumer behavior. These findings advance our understanding of how gamification elements affect user psychology and subsequent actions.

From a practical standpoint, the implications for e-commerce managers are significant. Enhancing customer loyalty requires strategic investments that focus on improving the quality of the user experience and fostering active engagement, rather than arbitrarily adding gamification features. The success of gamification should be measured not merely by immediate sales outcomes, but also by improvements in user satisfaction, increased time spent on the platform, and higher interaction levels. The finding that customer experience is the strongest driver of repurchase intention underscores the

necessity of preserving fundamental UX principles, such as usability and intuitive interface design, rather than implementing complex gamification mechanics that might detract from these basics.

Nonetheless, this research has limitations. The cross-sectional design limits the ability to establish definitive causal relationships, suggesting a need for longitudinal studies. A longitudinal approach is crucial because the impact of gamification is highly susceptible to the 'novelty effect.' Over time, users may experience fatigue or boredom with the same missions or points systems. Tracking user behavior over a prolonged period will verify whether the mediating roles of customer experience and engagement remain resilient as the novelty of the game elements wears off.

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