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The Influence of Gamification on Repurchase Intention at E-Marketplace from a Habit Perspective

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ABSTRACT

This study investigates how gamification influences habit formation and repurchase intention in Indonesian e-marketplaces, focusing on key elements such as points, rewards, badges, and challenges. Using the Stimulus-Organism-Response (SOR) model and habit formation theory, the research examines how user engagement drives repeat purchasing behavior. Data were collected from 375 Shopee and Tokopedia users via an online survey, and the hypotheses were tested using Structural Equation Modeling (SEM). The results reveal that gamification significantly enhances customer engagement, which in turn strengthens habitual use and positively impacts repurchase intention. Among the gamification elements, rewards emerged as the most influential driver of repeat purchases, suggesting that incentive-based mechanisms are particularly effective in promoting customer retention. Unlike previous studies that primarily emphasize engagement and loyalty, this research highlights the specific role of gamification in shaping behavioral habits that lead to sustained purchasing. By integrating habit theory into the SOR framework, the study offers a fresh perspective on long-term consumer behavior in digital commerce. These findings have practical implications for e-marketplace platforms seeking to optimize their gamification strategies to maintain engagement and boost sales. Overall, the study emphasizes the importance of habit formation as a key factor in enhancing customer retention through gamification.

Keywords: Gamification, E-marketplace, Customer Engagement, Habit, Repurchase Intention

1. Introduction

The rapid advancement of information and communication technology (ICT) has transformed various sectors, particularly consumer shopping behavior, making online transactions more seamless and convenient [64][75]. The widespread adoption of the Internet and mobile technology has fueled the rise of e-marketplaces, significantly altering how consumers interact with digital platforms. Globally, internet usage has exceeded five billion, contributing to the exponential growth of e-marketplaces [67]. Among emerging markets, Indonesia has experienced rapid e-commerce expansion, with both revenue and user adoption increasing substantially [41]. By the end of 2024, Indonesia's e-marketplace user base is projected to reach 65.65 million, growing to 99.1 million by 2029, representing a 69.55% increase from 2020 [16]. With a population of over 270 million, Indonesia presents a vast market for e-marketplace expansion. The increasing accessibility of mobile devices and internet connectivity has further integrated e-marketplaces into consumer culture [6][68].

As competition intensifies, enhancing customer experience has become a key strategy for retaining and expanding the user base [13] [41]. Studies highlight customer engagement and loyalty as essential factors, with gamification emerging as a particularly effective approach [13][41]. Gamification, defined as the integration of game-like elements into non-gaming contexts, has been widely implemented to increase user engagement and interaction [6][27][74]. Research indicates that gamification enhances consumer engagement and fosters repeat interactions with digital platforms [52][53], thereby strengthening long-term customer retention [41]. Recognizing these benefits, leading e-marketplaces have incorporated gamification to enhance user experience and drive loyalty [5][59]. Global platforms such as Alipay [57], eBay, Flipkart, and Amazon (Raman, 2020) have successfully implemented gamified payment and shopping experiences. Similarly, Indonesian e-marketplaces, including Shopee [68], Tokopedia [70], Lazada [50], Bukalapak, and Blibli [19], have adopted gamification strategies to encourage customer retention and repeat purchases [6].

Existing research has explored gamification's influence on engagement, brand loyalty, attitudes, behavioral intentions, and purchase decisions [1][13][40][68][75]. While some studies have examined the impact of gamification on repurchase intention [5][20], and others have highlighted the role of habit in continued technology use [5][21], limited attention has been given to how gamification itself contributes to habit formation that drives repurchase behavior. Most prior studies consider habit as a general behavioral outcome, rather than investigating how specific gamified elements actively encourage repetitive engagement over time. To address this gap, this study examines how gamification elements contribute to habit formation and influence repurchase intentions in Indonesia's e-marketplaces by proposing a theoretical framework to explain this phenomenon. In detail, this study will adopt the Stimulus-Organism-Response (SOR) model to explain how gamification can stimulate habitual behaviors that lead to repurchase intention in e-marketplaces. Understanding repurchase behavior is essential for merchants aiming to increase sales and e-marketplaces striving to retain and acquire users. Long-term sustainability in e-marketplaces depends on fostering habitual engagement, which enhances customer loyalty and increases transaction frequency [40].

This study, overall, investigates how gamification encourages habit formation related to repurchase intentions in e-marketplaces. It introduces an approach that has not been widely explored in previous research, highlighting a gap in existing literature that can expand our understanding of the topic. Furthermore, the study examines the direct, indirect, and moderating effects of various factors influencing customer purchase intentions, which have not been thoroughly addressed in earlier studies. This, therefore, leads to the following research question: "How does gamification influence habit formation and affect consumers' intentions to repurchase from merchants in e-marketplaces?"

2. Literature Review

Extensive research has examined gamification's impact on user engagement and loyalty across various sectors, including education, workplace environments, and consumer behavior [62][12][13][26][27][68][75]. Gamification integrates game-like elements such as points, rewards, badges, and challenges into digital platforms to enhance user interaction. The SOR model has been widely used in studying gamified mobile applications, demonstrating that they positively influence perceived value, satisfaction, purchase intentions, and engagement in word-of-mouth communication [18]. From a service perspective, gamification improves user experience by making interactions with products and services more engaging and enjoyable [42]. In service marketing, gamification is not merely entertainment but a tool for value creation by integrating game mechanics into service delivery [19]. Research highlights gamification's role in customer engagement and brand equity, with e-marketplaces leveraging it to retain customers [27][28]. Studies on Shopee's gamification system show that its point-based reward system effectively attracts users through challenges, though rewards alone are not the primary motivation [68]. Instead, immersion in gamified experiences strengthens brand attachment, encouraging continued platform use. Gamification has also been shown to influence repurchase intentions. Research in India found that young female consumers are particularly drawn to gamified shopping experiences, with perceived enjoyment mediating gamification and behavioral intention [59]. However, gender-based differences exist [48], as male consumers tend to engage more in gamified features. Other studies emphasize the role of trust and ease of use in shaping customer retention and repurchase behavior, with vendor reputation and platform accessibility being key determinants [5].

Meanwhile, recent studies have examined gamification's impact on consumer behavior in e-marketplaces and mobile commerce platforms. Jia and Yu [76] explored how gamification affordances (achievement, self-expression, interaction, and cooperation) enhance consumer perceived value and influence recommendation acceptance in e-marketplaces. The study found that these affordances contribute to hedonic, utilitarian, and social values, shaping consumer decision-making. Similarly, [11] highlighted hedonic and utilitarian values as mediators between customer experience and repurchase intention in gamified platforms. Beyond traditional

e-marketplaces, gamification also impacts live-streaming commerce (live commerce). Fayola et al. [24] examined how social and achievement-based gamification elements influence engagement and purchase intention, finding that immersion and real-time interactions enhance consumer loyalty. Lim et al. [44] also studied gamification's influence on impulse buying in food retail e-marketplaces, concluding that fun and competition are stronger motivators than reward-based mechanisms.

However, while previous studies have focused on user engagement, brand loyalty, and purchase intentions, limited research has examined how gamification fosters habitual engagement, directly impacting repurchase behavior. Most studies assess engagement metrics, brand attachment, or gender-based behavioral differences, but do not explore how gamification elements shape habitual consumer behaviors in e-marketplaces. This study seeks to address this gap by applying the SOR model and a habit formation approach to examine gamification's impact on repurchase intentions. Specifically, it investigates how social and shopping motivations influence habitual engagement, ultimately affecting consumers' likelihood of making repeat purchases. The findings provide practical insights for e-marketplaces looking to optimize gamification strategies to enhance customer retention and long-term platform engagement.

2.1. Stimulus-Organism-Response Framework

This study examines how gamification influences habit formation and repurchase intentions in e-marketplaces, applying the Stimulus-Organism-Response (SOR) framework [56][68] and habit theory [34]. The SOR framework explains how individuals react to stimuli, shaping behaviors based on emotional and cognitive changes [37][43], while habit is defined as an automatic response to specific situations [34]. This study proposes a conceptual model integrating gamification elements (points, badges, rewards, and challenges) with perceived usefulness, trust, customer satisfaction, customer engagement, habit, and repurchase intention to analyze their influence on consumer behavior. In this research context, stimuli refer to gamification elements that trigger user engagement and behavioral responses [56]. The organism stage represents cognitive and affective states, including perceived usefulness, engagement, satisfaction, and trust, which mediate the impact of stimuli. Finally, the response phase captures repurchase intention, reflecting how gamification fosters habit formation and long-term engagement in e-marketplaces [68][73].

2.2. Hypotheses Development

The proposed research model was developed based on the hypothesized relationships identified in prior literature. Prior studies have demonstrated a strong relationship between gamification and customer engagement in e-marketplaces [15][68]. By integrating game-like elements, e-marketplaces encourage users to actively participate in tasks and challenges, fostering higher engagement levels. Challenges, a core gamification component, create an interactive, enjoyable, and rewarding experience [68]. When users complete challenges, they earn points, badges, rewards, or other incentives, reinforcing their motivation to engage with the platform [10][36][68]. In the SOR framework, gamification elements (points, badges, rewards, and challenges) act as stimuli that trigger user engagement and drive interaction with the platform [56]. Accordingly, the following hypotheses represent the Stimulus phase of the SOR model:

H1. Points positively affect customer engagement.

H2. Badges positively affect customer engagement.

H3. Rewards positively affect customer engagement.

H4. Challenges positively affect customer engagement.

The Organism phase of the SOR model represents the internal cognitive and affective processes that mediate the impact of stimuli (gamification elements) on consumer behavior [55][37]. Profoundly, within the SOR framework, gamification elements (stimuli) trigger internal evaluations (organisms), such as users' cognitive and emotional responses, which in turn shape behavioral outcomes like repurchase intention (response). When users actively engage with gamified features on an e-marketplace platform, they are more likely to perceive the platform as useful and enjoyable [60]. These positive evaluations enhance their satisfaction and ultimately build trust in the platform [17][3]. This study, therefore, posits customer engagement as a key trigger that indirectly strengthens trust through enhanced usefulness and satisfaction. Thus, the following hypotheses also belong to the Organism phase of the SOR model:

H5. Customer engagement positively influences perceived usefulness.

H6. Customer engagement positively impacts customer satisfaction.

Perceived usefulness refers to users' belief that a system adds value and enhances their overall experience [34]. When users find gamification features helpful, they are more likely to see the platform as trustworthy [69]. For instance, gamification can indirectly build trust by promoting transparency and perceived fairness

[8]. Clearly defined point systems or challenge-based rewards can make users feel that outcomes are predictable and equitable. This sense of fairness contributes to the establishment of trust, especially when gamification is viewed as enhancing the user experience rather than manipulating it. Over time, as users interact with these meaningful features, trust can grow through repeated positive experiences, ultimately leading to the development of habitual behavior [34]. Therefore, the following hypotheses were proposed:

H7. Perceived usefulness positively influences customer trust in gamification.

H8. Perceived usefulness positively influences the habit of using gamification.

Customer satisfaction is a key determinant of loyalty, competitive advantage, and long-term engagement in digital platforms [45][4]. Gamification contributes to satisfaction by delivering added value and encouraging frequent usage. This repeated interaction can lead to habit formation [34] as users become accustomed to engaging with gamified elements during their regular platform use. Over time, satisfied users are more likely to develop habitual behaviors, resulting in sustained platform engagement. In addition to habit formation, satisfaction also plays a crucial role in building trust. When a service consistently meets user expectations, it reinforces a sense of reliability, whereas dissatisfaction weakens trust [23][66]. Furthermore, the satisfaction derived specifically from gamified experiences can enhance trust by reducing uncertainty and promoting a sense of system credibility. When game elements such as rewards, challenges, or points operate consistently and fairly, they create a reliable environment that fosters user confidence in the platform [68]. Hence, this led to the following hypotheses:

H9. Customer satisfaction positively influences customer trust.

H10. Customer satisfaction positively influences customer habits.

The Response phase in the SOR framework represents the final behavioral outcome, where repurchase intention is shaped by habit formation and trust. Trust is a fundamental driver of repeat purchase behavior. Defined as "the psychological acceptance of the vulnerability of other parties based on their ability to meet individual expectations [34],” trust in both e-marketplace platforms and sellers significantly influences repurchase intentions [49][78]. Customers with positive experiences and high trust levels are more likely to make repeat purchases [30][45], and this led to the formulation of the following hypothesis:

H11. Trust positively influences customers' repurchase intentions in e-marketplaces.

When customers continuously engage with gamification, their repeated usage leads to increased and sustained participation [32]. This sustained usage can lead to habit formation, reinforcing long-term platform use [34][35][25]. Over time, these habits enhance user familiarity, influencing future purchasing behavior. As habitual interactions increase, gamified e-marketplace features become integral to customers' shopping routines, enhancing repurchase likelihood [9][25]. Therefore, the following hypothesis is proposed:

H12. Habit positively influences customers' repurchase intentions in e-marketplaces.

3. Research Design and Methodology

This study proposes a theoretical model to examine how gamification in e-marketplaces influences habit formation and repurchase intention. The research focuses on Shopee and Tokopedia, Indonesia’s largest e-marketplaces, where gamification features enhance customer engagement. A literature review (see Table 1) was conducted to identify research gaps in gamification, purchase intention, and repurchase intention, guiding the development of a research instrument based on the Stimulus-Organism-Response (SOR) framework. The questionnaire consisted of two sections: (1) demographic information, including gender, age, occupation, platform usage frequency, and transaction history; (2) statements measuring key variables, assessed using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Measurement items were adapted from validated instruments. The instrument underwent expert review and a pilot test to refine unclear questions and preserve conceptual accuracy. Data collection used purposive sampling, targeting frequent gamification users who had at least ten transactions in the past year. The sample included employees, students, and general consumers engaging with Shopee and Tokopedia merchants. Questionnaires were distributed online (Google Forms) and offline, with a target of 200 respondents, meeting the minimum Structural Equation Modeling (SEM) sample requirement [33][38]. This study employed Confirmatory Factor Analysis (CFA) to validate measurement constructs, followed by reliability testing (Cronbach’s Alpha) to assess internal consistency (Chin, 2015). Normality tests [39] and multicollinearity checks [63] ensured robust analysis. SEM and moderating effect assessments (multigroup analysis) were conducted using AMOS, following established guidelines [38].

4. Theoretical Model and Measurement

Figure 1 illustrates the proposed theoretical model. The measurement model in this study includes multiple constructs, each assessed using a validated set of indicators adapted from prior research. Gamification elements serve as key stimuli in the SOR framework, encompassing points, badges, rewards, and challenges. The point system was measured with four items [68][59], including "Making transactions on Shopee/Tokopedia will increase my points according to my shopping behavior", assessing how earning points through purchases and reviews influences engagement. Similarly, the badge system [22][5] was measured through four items, such as "The conditions to obtain the badge are already clear", evaluating users' motivation in earning badges. Rewards [68] were assessed with four items, including "Making transactions on Shopee/Tokopedia rewards me (such as discounts, coins, vouchers, cashback, etc.) based on shopping behavior", examining how these incentives drive purchasing behavior. Challenges [68] were measured with four items, such as "My shopping ability gradually improves by overcoming challenges," capturing the effect of increasing difficulty on engagement. The organism phase captures users' internal responses to stimuli, including perceived usefulness [34][51], customer engagement [68][21], customer satisfaction [34][51], trust [46][5], and habit [25][34], each measured with four indicators. These constructs evaluate how users perceive the usefulness of gamification, their level of interaction, satisfaction, and trust in the platform. Example items include "Gamification on Shopee/Tokopedia is useful for buying various types of products" (perceived usefulness) and "I feel satisfied with using gamification on Shopee/Tokopedia" (customer satisfaction).

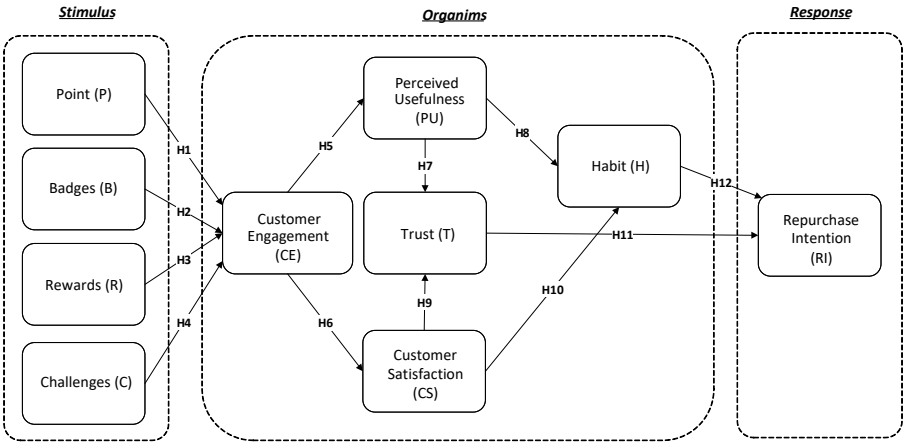

Figure 1. Proposed Theoretical Model

Finally, repurchase intention, representing the response phase, was measured using four items (Elgarhy et al., 2023; X. Lin & Wang, 2022), including "If needed, I would choose Shopee/Tokopedia again", assessing users' likelihood of continued platform use. All constructions were measured using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) to ensure response consistency.

5. Data Preparation and Descriptive Analyses

From the 554 collected responses, 179 were removed due to inconsistencies (89) and outliers (90), leaving 375 valid responses for analysis. Reliability testing using Cronbach's Alpha (CA) and Composite Reliability (CR) requires values ≥ 0.7 [14][61]. Nine of the ten factors met this criterion, but the "point" factor failed (CA = 0.682, CR = 0.692) and was removed from the model. Further, the validity assessment included convergent and discriminant validity. Convergent validity was confirmed as the Average Variance Extracted (AVE) was > 0.5 [31][69]. The results also indicated that Point failed to surpass the minimum threshold (0.366), confirming the removal of Point factors from the proposed model. This outcome was unexpected, given the central role of points in gamification strategies [68]. Upon closer inspection, two main reasons may explain the poor performance. First, the low loading values of P1 (0.548) and P4 (0.458) suggest that these items may not accurately capture the psychological or motivational engagement associated with points.

Specifically, P1 focuses on transactional accumulation ("Making transactions on Shopee/Tokopedia will increase my points according to my shopping behavior"). At the same time, P4 emphasizes technical clarity ("The way to earn points by providing reviews for purchased products is understandable"), which may not resonate with users' perceived value or emotional connection to the points system. Second, in the context of the Indonesian e-marketplace, users may view points as a secondary or background feature rather than a main motivator, particularly when the rewards associated with points are minimal or unclear. This perception can diminish their significance and perceived value.

It's important to note that while points are fundamental in theory, their effectiveness depends on how well they are implemented and how aware users are of them, which can differ across platforms. Therefore, the outcome doesn't necessarily mean that points are ineffective; rather, it suggests that the current measurement of their effectiveness or users' perceptions may be limited in this context.

Table 1 summarizes Reliability testing and Convergent validity.

Indicator	Factor loadings	AVE	CR	CA	Indicator	Factor loadings	AVE	CR	CA
B1	0.800	0.647	0.878	0.884	CE1	0.733	0.514	0.808	0.818
B2	0.632				CE2	0.756			
B3	0.889				CE3	0.759			
B4	0.870				CE4	0.608			
R1	0.641	0.551	0.830	0.829	CS1	0.884	0.741	0.919	0.925
R2	0.680				CS2	0.901			
R3	0.804				CS3	0.811			
R4	0.828				CS4	0.844			
C1	0.864	0.673	0.891	0.890	PU1	0.743	0.561	0.836	0.849
C2	0.896				PU2	0.740			
C3	0.806				PU3	0.739			
C4	0.702				PU4	0.773			
T1	0.761	0.556	0.833	0.836	H1	0.623	0.556	0.818	0.803
T2	0.765				H2	0.762			
T3	0.801				H3	0.769			
T4	0.648				H4	0.750			
RI1	0.583	0.572	0.840	0.820	P1	0.548	0.366	0.692	0.682
RI2	0.788				P2	0.676			
RI3	0.869				P3	0.705			
RI4	0.756				P4	0.458			

Table 1. Results of Reliability testing and Convergent validity

Further, discriminant validity, assessed using the Fornell-Larcker criterion, confirmed that the square root of AVE values exceeded correlations between constructs [34], ensuring distinctiveness, as provided in Table 2.

Indicator	B	R	C	PU	CE	CS	T	H	RI
Badges	0.804								
Rewards	.339**	0.743							
Challenges	.493**	.259**	0.82						
Perc. Usefulness	.466**	.477**	.461**	0.749					
Cust. Engagement	.459**	.550**	.457**	.726**	0.717				
Cust. Satisfaction	.397**	.472**	.395**	.750**	.695**	0.861			
Trust	.313**	.414**	.310**	.420**	.470**	.475**	0.746		
Habit	.391**	.566**	.318**	.608**	.647**	.648**	.472**	0.728	
Repurchase intention	.283**	.369**	.293**	.401**	.492**	.465**	.439**	.548**	0.756

Table 2. Results of discriminant validity

Meanwhile, normality was confirmed by assessing skewness (< 2) and kurtosis (< 7), meeting the thresholds for large samples (Kline, 2018). Multicollinearity testing, using Variance Inflation Factor (VIF) and Tolerance (TOL), found all VIF values below 3.3 and TOL values above 0.1, eliminating multicollinearity concerns [26][29][54]. To address Common Method Bias (CMB), Harman's Single Factor Test ensured no single factor accounted for more than 50% variance [2], with the first extracted factor at 37.54%. Thus, the data is valid, reliable, and free from multicollinearity and CMB, making it suitable for hypothesis testing.

The respondent characteristics show that 59.5% are female and 55.7% are employed. Regarding platform usage, 59.5% use Shopee, 13.1% use Tokopedia, and 27.5% use both. Shopee users predominantly have 3–5 years of experience (40.8%), while Tokopedia users mostly have 1–3 years (25.3%). Transaction frequency in the past year ranged between 10 to 20 transactions, with 68% on Shopee and 51.5% on Tokopedia. A one-sample t-test confirmed significant agreement with study indicators ($p \leq 0.05$, t-values above average), indicating that respondents generally align with the study's measured factors.

6. Analysis of direct, Indirect, and moderating effects

The results of the SEM analysis are presented in Table 3, which includes nine factors that have successfully passed reliability and validity tests. Each direct and indirect effect on the dependent variable is presented in unstandardized form (β), accompanied by significance markers: *, **, ***, or NS, corresponding to p-values of 0.05, 0.01, 0.001, or not statistically significant, respectively. The values in parentheses show the standardized coefficients, followed by S (small), M (medium), or L (large) to indicate the effect size. The hypothesis testing indicates that all direct influences in the research model are statistically significant. The indirect influences also show significant results regarding repurchase intention.

Causal effect	Total Effect	Status
Direct Effect		
Point → customer engagement(H1)	**Removed from model**	**Removed**
Badges → customer engagement(H2)	**0.114*****(0.195M)**	Accepted
Rewards → customer engagement(H3)	0.532***(0.478M)	Accepted
Challenges → customer engagement(H4)	**0.153*****(0.281M)**	Accepted
Customer Engagement → Usefulness (H5)	1.370***(0.948L)	Accepted
Customer Engagement → Satisfaction (H6)	**1.027*****(0.849L)**	Accepted
Usefulness → Trust(H7)	0.316***(0.347M)	Accepted
Usefulness → Habit (H8)	**0.392*****(0.467M)**	Accepted
Satisfaction → Trust (H9)	0.268*(0.246M)	Accepted
Satisfaction → Habit (H10)	**0.340*****(0.338M)**	Accepted
Trust → Repurchase Intention (H11)	0.162*** (0.209M)	Accepted
Habit → Repurchase Intention (H12)	**0.503*** (0.598L)**	Accepted
Indirect Effect		
B → CE → PU → H → RI	**0.031*** (0.052S)**	Accepted
B → CE → PU → T → RI	0.008*** (0.013S)	Accepted
B → CE → CS → H → RI	**0.020*** (0.033S)**	Accepted
B → CE → CS → T → RI	0.005* (0.009S)	Accepted
R → CE → PU → H → RI	**0.144*** (0.127M)**	Accepted
R → CE → PU → T → RI	0.037*** (0.033S)	Accepted
R → CE → CS → H → RI	**0.093*** (0.082S)**	Accepted
R → CE → CS → T → RI	0.024* (0.021S)	Accepted
C → CE → PU → H → RI	**0.041*** (0.074S)**	Accepted
C → CE → PU → T → RI	0.011*** (0.019S)	Accepted
C → CE → CS → H → RI	**0.027*** (0.048S)**	Accepted
C → CE → CS → T → RI	0.007* (0.012S)	Accepted

Table 3. Direct Effect and Indirect Effect

To ensure a model that appropriately fits the available data, model fit testing (Goodness of Fit) is essential [65]. According to the suggested requirements [38], the results of the model fit tests presented in Table 8 demonstrate satisfactory outcomes. The Normed Chi-Square value (χ^2/df) is 2.505, which falls within the

acceptable range of 2 to 3, indicating a reasonable fit. The RMR value is close to zero at 0.036, which also reflects a good fit. An IFI value of 0.90 is considered a reasonable fit, while the CFI, GFI, and NFI values fall within the range of 0.8 to 0.9, suggesting that the model is marginally fitting and still acceptable. Furthermore, the RMSEA value is 0.063, which falls within the range of 0.05 to 0.08 and is thus regarded as a reasonable fit. Table 4 provides the details of the model fit.

Model	Sample Size	Normed x2 (NC) = x2 / df	RMR	GFI	NFI	IFI	CFI	RMSEA
Theoretical Model	375	1452.751/580 = 2.505	0.036	0.805	0.844	0.900	0.899	0.063
	R2 = RI:0.508							

Table 4. Fit Statistics for Research Model

The analysis examined gender and employment status as moderating factors by categorizing respondents into two groups based on descriptive statistics. Gender was classified as male or female, while employment status was divided into two categories: employed and unemployed. The critical ratio value was used in a multigroup analysis to determine the significance of the moderation factors. A value greater than 1.96 was considered statistically significant [33]. The results showed that only gender had a significant effect. Specifically, gender significantly moderates the direct relationships between perceived usefulness (PU) and both habit (H) and trust (T), as well as the direct relationship between customer satisfaction (CS) and both habit (H) and trust (T). Furthermore, gender also had a significant moderating effect on the direct relationship between habit (H) and repurchase intention (RI). Notably, the impact of habit on repurchase intention was stronger among males compared to females. Additionally, the effect of trust on repurchase intention was significant only within the male group. Table 5 provides the details of the significant moderating effect.

Moderator	Direct effect		Direct effect		C.R.	Stat. Significant	Result
Gender	**Male (152)**		**Female (223)**				
PU → T	0.118	NS	0.540	***	2.250	*	Supported
PU → H	0.220	*	0.578	***	2.274	*	Supported
CS → T	0.557	***	-0.086	NS	-2.945	**	Supported
CS → H	0.514	***	0.141	NS	-2.070	*	Supported
H → RI	0.663	***	0.346	***	-2.594	**	Supported

Table 5. Result of the Moderating Effect

7. Discussion

The findings of this study indicate that habit formation has the strongest direct influence on repurchase intention for products and services from e-marketplace merchants, followed by customer trust, which is the second most influential factor. Additionally, rewards have the most significant indirect effect on repurchase intention, mediated through customer engagement, perceived usefulness, and habit formation. In data preparation, the points factor (H1) did not meet the Composite Reliability (CR) and Cronbach's Alpha (CA) criteria (≥ 0.7), leading to its removal from the model and the rejection of H1. However, hypotheses H2, H3, and H4 were accepted, with significant values of H2 ($\beta = 0.114$), H3 ($\beta = 0.532$), and H4 ($\beta = 0.153$), all with p-values ≤ 0.001. These results align with previous studies suggesting that badges, rewards, and challenges effectively enhance customer engagement [7][27][51][68].

Further, the result of H5 ($\beta = 1.370$) and H6 ($\beta = 1.027$) confirmed significant relationships, supporting prior research that indicates highly engaged customers perceive greater usefulness and satisfaction from gamification in the e-marketplace [3][72][77]. These results suggest that higher customer engagement leads to an increased perception of usefulness and satisfaction, reinforcing the value of gamification in e-marketplaces. Similarly, H7 ($\beta = 0.316$) was supported, indicating that greater perceived value from gamification enhances customer trust in the platform [71]. Testing H8 ($\beta = 0.392$) also yielded significant results, showing that increased perceived value strengthens the formation of habitual usage of e-marketplace

gamification features. These findings align with previous research highlighting that perceived value fosters customer trust and habitual interactions with an application [34][69][71].

Results for H9 (β = 0.268) and H10 (β = 0.340) were significant, supporting the idea that customer satisfaction directly influences customer trust in the e-marketplace, which aligns with a prior study [4][66]. Additionally, H10 confirms that satisfied customers are more likely to develop habitual behaviors, meaning they frequently engage with gamification elements to fulfill their shopping needs [34]. Meanwhile, the result of H11 (β = 0.162) showed a significant relationship, reinforcing that satisfied customers are more likely to make repeat purchases [30][45]. The results also confirm that trust in both the seller and the e-marketplace platform is a critical factor influencing repurchase intention [78]. Finally, H12 (β = 0.503) was accepted, demonstrating that habit formation significantly impacts repurchase intention [9][25]. However, it is important to acknowledge that habit formation can differ based on individual motivations. For instance, some users might be motivated by rewards, while others are driven by competition or social interaction. Additionally, infrequent shoppers may develop weaker habits due to limited exposure or the lower personal relevance of the platform. This suggests that the strength of a habit can depend on how often and why someone uses the platform [34]. These factors should be taken into account when assessing the role of habit in influencing repurchase behavior.

An analysis of indirect effects, meanwhile, indicates that repurchase intention is influenced by habitual shopping behavior, which is driven by perceived usefulness. The findings suggest that as customers derive more value from using the e-marketplace's gamification features, they naturally integrate the platform into their shopping routines, a pattern consistent with previous studies [7][20]. Among the three key gamification elements (badges, rewards, and challenges), rewards had the strongest indirect effect on repurchase intention (β = 0.144). This highlights that the more rewards merchants and the e-marketplace platform provide, the higher the customer engagement and perceived benefits, ultimately increasing their likelihood of repeat purchases.

The moderation analysis reveals that gender influences how users respond to gamification. Women are more likely to build trust through perceived usefulness and habit, while men tend to rely more on satisfaction. Additionally, the habit has a stronger effect on repurchase intention among male users, indicating that their loyalty is primarily developed through repeated use. These differences may originate from behavioral tendencies, in which men often engage more competitively with gamified systems [59], responding positively to structured goals and rewards. As a result, they focus on the satisfaction derived from engagement rather than its usefulness. On the other hand, the stronger impact of habit on repurchase intention among men may correlate with higher levels of digital literacy. In Indonesia, men generally demonstrate greater proficiency in using digital tools, particularly for complex tasks, and often have better access to technology that encourages frequent interactions with digital platforms. This regular usage can reinforce habitual behavior over time, making male users more likely to establish consistent technology usage patterns, leading to habit formation [47].

8. Implications

8.1. Theoretical Implications

The findings of this research contribute to the body of knowledge on gamification in e-marketplaces, particularly in the context of habit formation and repurchase intention. While previous studies have explored the impact of gamification elements on customer engagement and repurchase behavior in e-marketplaces [6][13][18][41][68], this study extends the discussion by examining how gamification fosters habitual engagement and sustains customer repurchase intentions in e-marketplaces. Additionally, it provides insights into key mediators—such as customer engagement, customer satisfaction, and perceived usefulness—that influence the relationship between gamification and consumer behavior.

This research proposes a new conceptual model within the SOR framework, illustrating the interplay between gamification, perceived usefulness, customer satisfaction, habit, trust, and repurchase intention. By analyzing direct, indirect, and moderating effects, the study identifies the dominant factors influencing repurchase behavior and offers strategic recommendations for enhancing customer retention in gamified e-marketplace settings. The findings reveal that habit formation is the strongest predictor of repurchase intention, followed by trust in the platform and sellers. Among the gamification elements, rewards exert the most significant impact (though indirectly), followed by challenges and badges, with their influence mediated by customer engagement, perceived usefulness, and habit. By adopting a habit-based perspective, which has

been underexplored in prior research, this study offers a novel theoretical contribution to the advancement of knowledge in gamification and e-marketplace consumer behavior.

8.2. Practical Implication

Based on the results of the hypothesis testing, this study presents several strategic recommendations for increasing customers' repurchase intentions in e-marketplaces. First, the research indicates that gamification elements, such as rewards, challenges, and badges, significantly influence customer engagement. To leverage this, e-marketplaces should implement personalized reward programs tailored to customers' shopping preferences and behaviors. These programs could include exclusive discounts, free shipping, or gift incentives for frequent shoppers, which can reinforce their motivation to keep engaging with the platform. Additionally, gamified challenges—such as milestone-based achievements or limited-time shopping events—can create a sense of competition and excitement, further enhancing platform engagement. Furthermore, the strategic use of badges as status symbols can strengthen customer loyalty by recognizing and rewarding high levels of participation.

Another key strategy is to enhance the perceived usefulness of gamification to boost customer retention. Merchants should provide detailed product and service information in their listings to ensure transparency and build trust. Offering educational content, such as tutorials, product guides, or FAQs, can help customers understand product features and make informed purchasing decisions. Because many customers reach out to merchants for verification of product details, it is essential for sellers to respond promptly and offer relevant recommendations to maintain customer interest. Encouraging customers to leave reviews and testimonials after a purchase can also enhance the credibility of products and services, positively influencing future customers' perceptions of value and fostering habitual shopping behaviors.

Improving user experience and interface design is another critical factor in reinforcing customer engagement and habit formation. E-marketplaces should ensure their platforms have a simple, intuitive, and user-friendly navigation process, making product discovery and purchasing seamless. Features such as personalized reminders, product subscriptions, and automated reorder options for frequently purchased items can help customers establish habits and maintain long-term engagement. A consistent and smooth shopping experience throughout browsing, purchasing, and delivery processes can build customer trust and satisfaction, strengthening their habitual interactions with the platform.

Lastly, merchants should strategically integrate gamification elements with a strong emphasis on customer engagement and satisfaction. Providing timely rewards and ensuring seamless interactions with customers through quick responses and personalized recommendations can significantly enhance habit formation. This approach not only increases customer satisfaction but also fosters long-term loyalty, ensuring that customers consistently return to shop from the same merchants on the e-marketplace. By aligning gamification strategies with customer needs and expectations, businesses can create a more engaging, rewarding, and sustainable shopping experience, ultimately driving higher repurchase rates and long-term retention.

9. Conclusion

This study developed a theoretical model using the Stimulus-Organism-Response (SOR) framework to examine the impact of gamification on customer engagement, habit formation, and repurchase intention in e-marketplaces. The findings confirm that rewards, challenges, and badges effectively enhance engagement, with rewards providing direct incentives and challenges and badges fostering competitive motivation. Users who perceive gamification as beneficial and satisfying are more likely to develop habitual shopping behaviors, increasing their repurchase intention. Additionally, customer engagement, satisfaction, and perceived usefulness mediate the relationship between gamification and habit formation, further strengthening repurchase behavior. However, points did not significantly influence engagement, as they failed reliability testing. Moderation analysis revealed gender differences, with men demonstrating greater familiarity with gamification and higher trust in e-marketplaces.

Despite its contributions, this study has several limitations. It examined only four gamification elements, excluding key features such as leaderboards and social interaction mechanisms, which are known to play an important role in fostering competitive and community-based engagement. Future studies should consider a broader range of gamification features to gain deeper insight into their individual and combined effects. Additionally, the study focused exclusively on Shopee and Tokopedia users, which may limit the generalizability of the findings to other e-marketplaces or emerging social commerce platforms. Future research should include more diverse platforms to capture varying user experiences. Using a cross-sectional

design also limits the ability to capture changes in user behavior over time. Since habit formation is a gradual process, longitudinal studies tracking user engagement and repurchase behavior over time would provide more robust insights. Lastly, employing a larger and more balanced sample would improve the reliability of moderation analysis and strengthen the overall model validation.

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