

PEER REVIEW FROM JRACR

1. 07 Januari 2025 : submit manuskrip
2. 19 Februari 2025 : permintaan revisi



3. 26 Februari 2025 : mengirimkan revisi dan response comment

Response Letter to Reviewer Comments

Dear Editor,

We would like to express our deepest appreciation to the anonymous reviewers who took their valuable time to carefully examine our manuscript. We have addressed their comments, thereby significantly improving the quality and presentation of the manuscript. Responses to reviewer comments are outlined point by point in the Table below, and a modified version of the manuscript incorporating the changes has been uploaded. Thank you very much on behalf of the author.

Reviewer A

	Comments	Response to Editor-Reviewer A
(1)	The SEM should be completed using both measurement modeling and structural modeling. The results must include Discriminant validity, Convergent validity, HTMT-ratation, Cross-loadings, Model fitness measures, Model evaluation, etc.	Thank you for your valuable feedback. We appreciate your suggestion to ensure a comprehensive analysis using Structural Equation Modeling (SEM). In response to your comment, we have revised our methodology and analysis to include both measurement modeling and structural

		modeling as part of the SEM process using AMOS.
(2)	Common Method Bias must be clearly stated in the manuscript.	Thank you for your insightful comments regarding Common Method Bias (CMB). We recognize the importance of addressing CMB, especially since all constructs in our study were measured using a self-reported Likert scale (1-7). Your feedback is invaluable in improving the quality of our manuscript. To ensure the reliability of our findings and reduce potential bias, we have adopted and added to the manuscript steps to assess and address CMB.
(3)	How the piloting is done needs to be explained.	Thank you for your comments on the pilot process. We appreciate the opportunity to explain how the pilot study was conducted and its role in refining our research instrument. We have explained the pilot process in the revised manuscript.
(4)	The authors are advised to check the results using robustness checking.	We appreciate your valuable suggestions on robustness checks. Your feedback is important to us, and we have conducted additional analyses to ensure the reliability of our results

Reviewer B

S/T	Reviewer Comments	Response to Reviewer Comments
1)	The study is timely and contributes to the growing literature on customer engagement strategies in e-commerce.	Thank you for your insightful feedback. We greatly appreciate your recognition of our study's timeliness and contribution to the growing literature on customer engagement strategies in e-commerce. Your comments

S/T	Reviewer Comments	Response to Reviewer Comments
		strengthen our perspective and encourage us to refine our findings further.
2)	The study employs Structural Equation Modeling (SEM) using AMOS, which is appropriate for analyzing complex relationships among latent constructs. A relatively large sample size (300 respondents) enhances the study's statistical power.	Thank you for your positive feedback regarding our choice of methodology. We are pleased that you agree that using Structural Equation Modeling (SEM) with AMOS to analyze the complex relationships among the latent constructs in our study is appropriate. We also appreciate your recognition of the sample size, as the relatively large sample of 300 respondents strengthens our analysis's reliability and statistical power. We hope this approach provides robust and meaningful insights into customer engagement strategies in e-commerce.
3)	The introduction contains repetitive statements regarding the importance of customer loyalty. Suggestions: consolidating similar ideas to improve readability.	Thank you for your constructive feedback. We appreciate your suggestion to improve the readability of the introduction by consolidating similar ideas. In response, we have revised the section to eliminate redundant statements regarding the importance of customer loyalty. We have streamlined the discussion, focusing on the central themes and ensuring that each idea is communicated without unnecessary repetition. These changes enhance the clarity and flow of the introduction while maintaining the key points. Thank you again for your valuable suggestion.
4)	The study uses purposive sampling, which may limit generalizability. Justify why this method was chosen and discuss its potential limitations. Please clarify whether	Thank you for your thoughtful feedback. We understand your concern

S/T	Reviewer Comments	Response to Reviewer Comments
	demographic diversity (e.g., occupation, location) was considered in respondent selection.	regarding the use of purposive sampling and its potential impact on the generalizability of the study's findings.
5)	The constructs are well-defined, but the justification for using specific dimensions (e.g., why only three dimensions for gamification?) and it will be concrete or needs further explanation.	Thank you for your insightful comment. We appreciate your recognition of the clarity in defining the constructs. The decision to use the three dimensions—enjoyment, absorption, and dominance—was based on a comprehensive review of existing literature and their established relevance in measuring gamification's psychological and behavioral effects. These dimensions were chosen because they capture key aspects of the gamification experience, most likely influencing customer engagement and loyalty in online marketplaces.
6)	Provide a citation or theoretical basis for the use of each measurement scale.	We appreciate the reviewer's comments regarding the need for a theoretical or empirical basis for using a 7-point Likert scale in our study. We have added an explanation in the revised article.
7)	In the hypothesis section, it will be good to include /consider discussing effect sizes and their practical significance.	Thank you for your valuable feedback. In response to your comment, we have revised the hypothesis section to include a discussion on effect sizes and their practical significance .
8)	Suggest to include reliability and validity tests (e.g., discriminant validity) for a comprehensive methodological assessment.	Thank you for your valuable suggestion. In response, we have revised the methodology to include a comprehensive set of reliability and validity tests to strengthen the

S/T	Reviewer Comments	Response to Reviewer Comments
		assessment of the measurement model.
9)	In the theoretical contribution the study claims to contribute to customer engagement literature, the theoretical implications need to be more explicitly stated. It will be good to include on how does this study advance existing theories?	We thank the reviewer for the valuable suggestion to clarify our study's theoretical implications. Below, we explicitly state how this study advances existing theories, particularly in the context of customer engagement literature.
10)	Suggest to include specific ways future studies could improve (e.g., longitudinal design, qualitative validation, cross-country comparison).	Thank you for your valuable suggestions, and we have added future research in the revised article.

Building Bonds: How Gamification and Online Reviews Influence Customer Loyalty

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Abstract

This study explores the influence of gamification and online customer reviews on customer loyalty within e-commerce marketplaces, explicitly focusing on the mediating role of purchase decisions. As e-commerce continues to grow globally, businesses face increasing competition, and customer loyalty has become a crucial factor in sustaining long-term success. This paper's novelty lies in its integration of gamification, online customer reviews, and purchase decisions as mediators of customer loyalty in e-commerce marketplaces. While prior research has separately examined these factors, this study is unique in exploring their combined influence within the same framework, specifically focusing on how gamification can drive purchase decisions and loyalty, with online reviews enhancing these effects. The research employs a quantitative approach, collecting data through online questionnaires distributed to 300 respondents who meet specific criteria as online marketplace users. The data analysis utilizes

Structural Equation Modeling (SEM) with AMOS to evaluate the hypothesized relationships. The study reveals that gamification positively impacts purchase decisions and customer loyalty, with purchase decisions as a significant mediator. Furthermore, online customer reviews enhance purchase intentions, which, in turn, lead to stronger customer loyalty. This research is unique in integrating gamification and purchase decision factors within the context of customer loyalty on online marketplaces. By examining the interaction between gamification, purchase decisions, and loyalty, this study addresses a gap in the literature on e-commerce customer retention strategies. For e-commerce practitioners, this study highlights the potential of gamification and online reviews as strategic tools to increase customer loyalty. Effective implementation of these elements can enhance user engagement, provide enjoyable shopping experiences, and increase repeat purchase intentions. Businesses can adopt these findings to enhance customer loyalty, especially in highly competitive digital markets.

Keywords: gamification, online customer reviews, purchase decision, customer loyalty

1. Introduction

Technological developments are progressing rapidly, particularly with the rise of internet-based technology [1]. Information and communication technology advancements have revolutionized how consumers shop in recent years. Online marketplaces, which serve as platforms connecting sellers and buyers, have become the leading choice for many in conducting transactions [2]. Despite these conveniences, maintaining consumer loyalty remains a central challenge for businesses in the e-commerce sector. Consumer loyalty is critical for long-term success in this industry [3], as many marketplace platforms face fierce competition, allowing customers to switch between platforms [4] easily [5]. In online marketplaces, e-commerce platforms must focus on strategies to retain customer loyalty.

One widely adopted approach is the integration of gamification into online marketplaces. Gamification, with its potential to influence behavior, foster innovation, and enhance marketing outcomes, has garnered significant attention across various industries [6]. By incorporating game elements, it captures customer attention, increases engagement, and has the potential to significantly boost loyalty [7]. Gamification utilizes game design elements in non-game activities to improve consumer behavior, such as enhancing consumption levels, increasing involvement, and encouraging product promotion [8]. Several studies support the notion that gamification can indeed have a positive impact on customer loyalty [9], [10], [11], [12], [13], [14].

However, some studies find that gamification does not impact consumer loyalty [15], [16], indicating inconsistencies in the literature and creating a significant research gap. To bridge this gap, this study explores the role of purchasing decisions as a mediating factor between gamification and customer loyalty. Purchasing decisions involve the consumer's evaluating needs and considering various factors before making a final purchase decision [17], [18]. In this context, these decisions are vital in linking gamification to loyalty. Game elements, such as points, challenges, and rewards, influence customer decision-making, fostering a sense of involvement and satisfaction leading to

stronger loyalty [19]. Thus, the need for further research to understand how gamification impacts purchasing decisions and, in turn, customer loyalty becomes essential.

In addition to gamification, online customer reviews play a crucial role in shaping consumer decisions before purchase [20]. Reviews serve as valuable references for customers when selecting products or services, providing insights into the quality of offerings [21]. Reading reviews can trigger emotional responses, signaling product quality [22]. Customer reviews have become a significant source of information, influencing both pre-purchase decisions and long-term loyalty [23], [24]. Based on their review experiences, satisfied customers are more likely to repurchase and recommend products, fostering a positive cycle that benefits the company and enhances loyalty [25]. The influence of online reviews is a key aspect that consumers should be aware of when purchasing.

The novelty of this study lies in integrating gamification with purchasing decisions in the context of customer loyalty in online marketplaces. While previous studies have separately explored gamification and online customer reviews about loyalty, this research attempts to fill the gap by examining how gamification, purchasing decisions, and customer loyalty interact in e-commerce settings.

2. Literature Review

2.1. The Effect of Gamification on Customer Loyalty

Gamification involves using game design elements like points, badges, challenges, and rewards to increase user engagement and experience [26]. According to [8], gamification can increase consumer value by encouraging desired behaviors, such as loyalty and engagement. The application of gamification is intended to attract attention and create a more enjoyable and interactive experience for users. Based on consumer behavior theory, high customer engagement is closely related to loyalty. Gamification elements can create deeper interactions between consumers and brands, increase satisfaction, and strengthen emotional connections [14]. Research [7] shows that positive experiences resulting from gamification can strengthen customer loyalty because customers feel more involved and appreciated. In online marketplaces, where interactions between sellers and buyers are often limited, gamification can be an effective tool to create a more engaging experience [19].

Based on this explanation, the following hypotheses are formulated:

H1: Gamification is related to Customer Loyalty

2.2. The Effect of Gamification on Purchase Decisions

In the increasingly competitive context of e-commerce, purchasing decision-making is crucial to business success. With the many choices available in the marketplace, consumers often face challenges in making their final choices [27]. Using game elements such as points, badges, challenges, and transaction rewards can increase user engagement and experience. Through interactive and fun experiences, gamification can attract consumers' attention and influence their behavior [28]. This is important in purchasing decision-making, where consumers choose experiences that provide added

value. Gamification also serves to motivate consumers. Reward elements, such as collecting points or special offers after completing challenges, can incentivize consumers to purchase [11]. Research [19] shows that these incentives increase the desire to buy and strengthen consumer commitment to the brand. In the context of online marketplaces, gamification can be an effective tool to improve purchasing decisions. By creating a more enjoyable and interactive shopping experience, the platform can help consumers feel more confident in their choices.

Based on this explanation, the following hypothesis is formulated.

H2: Gamification is positively related to Purchase Decision.

2.3. The Influence of Online Customer Reviews on Purchase Decisions

Online customer reviews are among the most influential sources of information in the decision-making process. These reviews provide an overview of product quality and create consumer perceptions and trust in brands and marketplaces [21], [29]. Today's consumers tend to do in-depth research before making a purchase decision, with many relying on online reviews as their primary reference and trusting the experiences and opinions of others rather than advertisements made by companies. This shows the importance of customer reviews in influencing purchase decisions [20]. Positive reviews can increase consumer confidence and reduce uncertainty related to purchase decisions [30].

Conversely, negative reviews can hinder purchase decisions, creating uncertainty that can lead to purchase cancellation. Studies [21] show that good reviews can significantly increase purchase intentions. Meanwhile [22] stated that emotions caused by reviews can be an important signal about product quality, which in turn influences consumer purchasing decisions.

Based on this explanation, the following hypothesis is formulated.

H3: Online Customer Reviews have a positive effect on Purchase Decision

2.4. The Effect of Purchase Decision on Customer Loyalty

A purchase decision is a process by which consumers determine the final choice before purchasing a product or service [31]. This process includes needs analysis, alternative assessment, and product selection. A good purchase decision can result in a positive experience that increases consumer satisfaction, contributing to their loyalty to the brand [17]. Positive experiences from purchasing decisions can increase consumers' sense of attachment to the brand. When consumers are satisfied with their products, they shop again and recommend them to others. A study [24] shows that positive decision-making experiences can create a strong relationship between consumers and brands, which is the foundation for customer loyalty. Purchasing decisions are not only influenced by rational factors but also by emotional factors [22]. Consumers feel more emotionally connected to the brand when they make decisions they consider suitable. Positive emotions from successful decisions can strengthen customer loyalty [7]. Therefore, it is essential to understand how purchasing decisions can form a lasting emotional bond with a brand.

Based on this explanation, the following hypothesis is formulated.

H4: Purchase Decision has a significant positive effect on Customer Loyalty

2.5. Purchase Decision Mediating Effect

Gamification is a marketing strategy to improve service quality by using game design elements that provide a fun experience to users so that it can increase loyalty, engagement, and brand awareness [32]. These elements are designed to increase customer engagement, which can influence purchasing behavior. According to [7], increased engagement can influence consumer attitudes and purchase intentions. When consumers make positive and satisfying decisions, they are more likely to develop brand loyalty. Research shows that good purchasing decisions can increase customer satisfaction, a critical factor in building loyalty [24]. In this context, purchasing decisions can function as a mediator connecting gamification with customer loyalty.

Gamification can also motivate users to continue playing the game until they get a reward that can later be used to purchase a product. The provision of this reward aims to encourage consumers to make purchases in exchange for the reward (Djohan et al., 2022). After consumers make a purchase decision and feel satisfied, it will encourage consumer loyalty [33].

Based on this explanation, the following hypothesis is formulated.

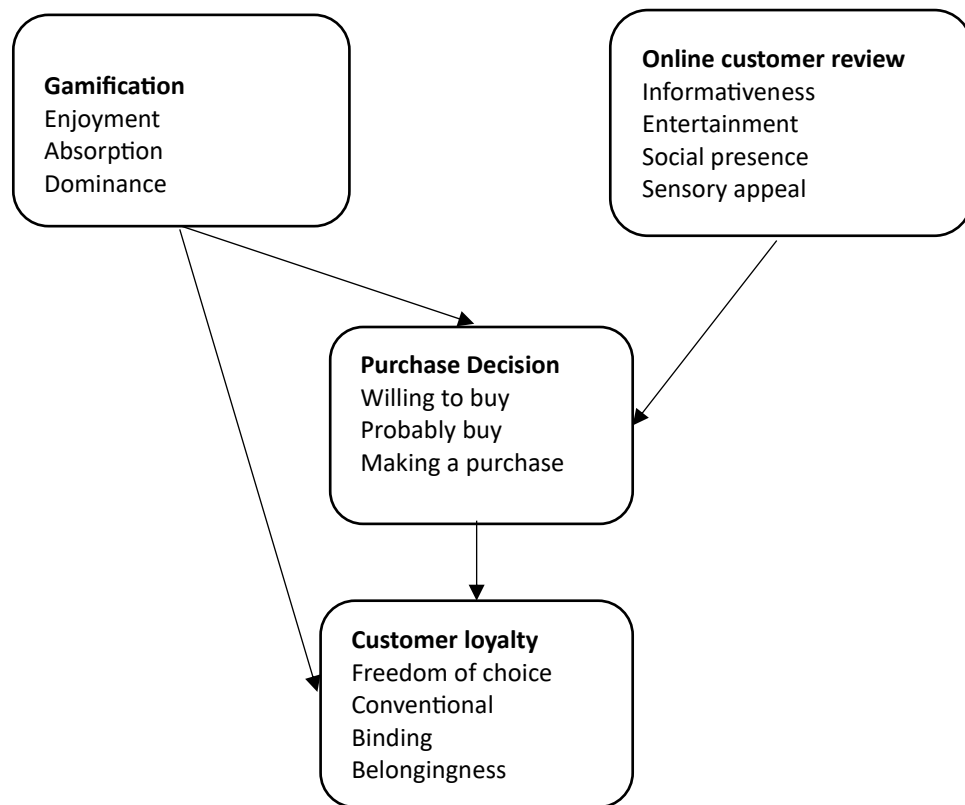
H5: Purchase Decision mediates the relationship between Gamification and Customer Loyalty

In a competitive e-commerce environment, online customer reviews are one of the primary sources of information influencing purchasing decisions [34]. These reviews provide insight into product quality and shape consumer perceptions and trust in the brand. In the context of an online marketplace, where consumers have quick access to various reviews and information, purchasing decisions become more complex [31]. Customer reviews can help simplify this process, and when consumers are satisfied with their decisions, they are more likely to remain loyal to the brand or platform. Business actors can optimize their marketing strategies by understanding the role of purchasing decisions. Positive emotions from reading good reviews can increase the desire to buy and develop an emotional attachment to the brand [35], [36]. This shows that reviews influence decisions rationally and through emotional influence, which then affects loyalty [25].

Based on this explanation, the following hypothesis is formulated.

H6: Purchase Decision mediates the influence of Online Customer Review on Customer Loyalty

Figure 1: Conceptual model



3. Method

This study uses a quantitative approach and data collection method with a questionnaire distributed via Google Forms. The Google Form link is distributed via the WhatsApp application—sampling with a non-probability technique using purposive sampling, namely, taking samples based on criteria. The purposive sampling method was chosen to ensure that respondents met specific criteria directly relevant to the research objectives [37], [38]. Since this study focused on online marketplace users, we targeted individuals who had engaged in e-commerce transactions at least twice. This criterion ensured that the sample consisted of participants with a minimum level of experience with online shopping, which is important for understanding customer behavior and loyalty in this context. Additionally, we set an age limit of 17 years and above to match the legal age for survey participation. This decision was made to ensure that respondents were capable of making informed decisions about their online shopping experiences, thereby enhancing the validity of the data [39]. It is important to note that while purposive sampling may limit the generalizability of the findings to a broader population, this method was chosen to provide a more focused and relevant sample [40]. This is a standard approach in exploratory research, which aims to investigate specific behaviors or experiences rather than generalize to a larger population. The trade-off between the focus of the sample and its generalizability was carefully considered, and the method was deemed suitable for the research objectives. The study sample consisted of 300 respondents.

The Gamification is measured by the dimensions developed [41] namely enjoyment, Absorption, and dominance. Although gamification is a multifaceted construct, the dimensions of enjoyment, absorption, and dominance were selected because they comprehensively capture the core aspects of user experience in gamification systems. These dimensions address affective (enjoyment), cognitive (absorption), and motivational (dominance) responses, which are widely recognized as central to gamification effectiveness [37, 41]. Importantly, these dimensions have been empirically validated in previous studies, ensuring their reliability and relevance in measuring gamification and adding robustness to our research.

The indicators measure the Online Customer Review developed [42]: informativeness, entertainment, social presence, and sensory appeal. The indicators measure the Customer Loyalty variable developed [43], namely freedom of choice, conventional, binding, and belongingness. Purchase Decision variables are measured using indicators developed [44], namely the willingness to buy, probably buy something, and making a purchase.

Statement items are measured using a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The use of a 7-point Likert scale is supported by its widespread adoption in social science research and its ability to provide a balanced range of response options, which enhances the sensitivity and reliability of measurement [42]. Additionally, the 7-point scale has been empirically shown to yield higher discrimination between responses compared to scales with fewer points while avoiding the complexity associated with scales containing more response options [43]. This approach aligns with recommendations from prior studies that emphasize the importance of using scales with an optimal number of points to capture nuanced variations in respondents' perceptions and attitudes [44]. Descriptive procedures for characterization data analysis were used to display the pre-test results, while demographic characteristics were collected via a questionnaire. The measurement model was determined along three criteria- reliability, convergent validity, and discriminant validity- to ensure their strength and distinction between latent structures. Two methods were employed for reliability testing: Cronbach's alpha and composite reliability. Both measures exceeded the cutoff of 0.70, indicating decent internal consistency (CR values ranging from 0.82 to 0.94). Convergent validity was evidenced using factor loadings and average variance extracted (AVE). All standardized factor loadings were found to be significant ($p < 0.001$) and were above 0.60, most being above 0.70. The AVE for each construct was more significant than 0.50 (0.56-0.78), confirming that variance was sufficiently explained in each indicator [45].

Discriminant validity was assessed via three methods: In the first instance, the Fornell-Larcker criterion that the correlations between the constructs (off-diagonal values) were lower than the square root of the Average Variance Extracted (AVE) for each construct, thus ascertaining that the constructs were indeed distinct from each other. A cross-loadings analysis was performed to further add to the case for each indicator loading more strongly on its construct than on any other construct, thus validating the

distinctiveness. Lastly, the HTMT ratios indicate that they were generally far from the cut-off of 0.85 based on [46], [47] and within the range of 0.12 to 0.83. Data analysis uses SEM-AMOS. More specific measurement items are presented in Table 1.

Table 1. Construct and Items

Construct	Item	Item abbreviation
Gamification	I feel entertained when playing gamification features in the marketplace.	E1 – Enjoyment 1
	I enjoy playing the gamification feature on the marketplace because there are many rewards.	E2 – Enjoyment 2
	The gamification feature allows me to interact with other users.	A1 – Absorption 1
	The gamification feature makes me return to the marketplace to continue the game.	A2 – Absorption 2
	The rewards offered in gamification on the marketplace can influence my online shopping.	D1 – Dominance 1
	The gamification feature influences me to continue accessing the marketplace	D2 – Dominance 2
Online Customer review	Online customer reviews can help me in choosing a product or service.	I1 - Informativeness 1
	Online customer reviews make finding information about the product or service I will use easier.	I2 - Informativeness 2
	Online customer reviews can provide reliable information.	En1 - Entertainment 1
	I trust reviews that have detailed explanations rather than short and general reviews.	En2 - Entertainment 2
	Reviews that include evidence, such as photos, can be more convincing when choosing a product or service.	SP1 - social presence 1
	I trust reviews that provide clear reasons regarding the advantages and disadvantages of a product or service.	SP2 - social presence 2
	I prefer products or services that have positive reviews.	SA1 - sensory appeal 1
	Positive reviews indicate that the product or service is of good quality.	SA2 - sensory appeal 2
	I trust products or services that have more positive reviews than negative reviews.	SA3 - sensory appeal 3
Purchase decision	I decided to purchase through the marketplace because the products matched my wishes.	Wil1 - willing to buy something 1
	I decided to purchase through the marketplace because the products offered were very diverse.	Wil2 - willing to buy something 2
	I purchased through the marketplace because I heard the experiences of other people who had purchased before.	Prob1 - probably buy something 1
	I recommend that others shop through the marketplace if the product I buy is as expected.	Prob2 - probably buy something 2
	I recommend that others buy products through the marketplace because they are guaranteed safe, and the shipping is fast.	Purc1 - making a purchase 1
	I have made purchases through the marketplace more than once because I feel satisfied shopping through the marketplace.	Purc2 - making a purchase 2
	I will make purchases through the marketplace in the future.	Purc3 - making a purchase 3
Customer loyalty	I shop online using the marketplace repeatedly because purchasing is speedy.	FC1 - freedom of choice 1
	I shop again using the marketplace because it is easy to use.	FC2 - freedom of choice 2
	I always use the marketplace every time I shop online.	C1 – conventional 1
	I shop online using the marketplace repeatedly because purchasing is speedy.	C2 – conventional 2
	I shop again using the marketplace because it is easy to use.	B1 – Binding 1
	I always use the marketplace every time I shop online.	B2 – Binding 2

	I shop online using the marketplace repeatedly because purchasing is speedy.	BE1 – belongingness 1
	I shop again using the marketplace because it is easy to use.	BE2 - Belongingness 2

4. Result and Discussion

The research data was collected in July 2024 via an online survey. The respondents' demographic data were compiled based on the survey results, as shown in Table 2.

Table 2. Demographic data

Education level	%	Age	%
High school	75	17 – 24 Years	92
Bachelor's degree certificate	25	25 – 32 Years	5
Job	%	33 – 40 Years	0
Job Seeker	5	41 – 50 Years	1
Student	63	> 51 Years	92
Freelancer	4	Gender	%
Private Employee	20	Male	17
Government employees	2	Female	83
Housewife	6		

The majority of respondents in this study were from the young age group, with 92% aged between 17-24 years, and the majority had high school education (75%), with only 25% having a bachelor's degree. The majority of respondents Were students (63%), followed by private employees (20%), job seekers (5%), freelancers (4%), and civil servants (2%), while 6% were homemakers. A striking gender disparity was observed, with 83% of respondents female and only 17% male. These demographic characteristics indicate a predominance of young age and secondary education, as well as a majority of respondents, involved in early education or employment, with women being significantly more involved in this study.

Table 3. HTMT Matrix

	Customer loyalty	Gamification	Online customer review	Purchase decision
Customer loyalty				
Gamification	0.767			
Online customer review	0.749	0.626		
Purchase decision	0.747	0.752	0.727	

Table 3 shows the Heterotrait-Monotrait Ratio (HTMT) Matrix values and produces findings where the HTMT between constructs is below the threshold of 0.85, indicating no excessive correlation caused by CMB. All HTMT values are consistently below the critical limit, indicating that the variances between constructs are not artificially overlapping.

Table 4. Fornel Cornell Criterion

	Customer loyalty	Gamification	Online customer review	Purchase decision
Purchase decision	0.781	0.712	0.832	0.866

Online customer review	0.720	0.597	0.645
Gamification	0.734	0.725	
Customer loyalty	0.890		

Table 4 shows the Fornell-Larcker Criterion, which proves discriminant validity by ensuring that each construct's Average Variance Extracted (AVE) is higher than its squared correlation with other constructs. This result confirms that each construct uniquely explains item variance without CMB contamination.

Table 5. Cross loading

	Customer loyalty	Gamification	Online customer review	Purchase decision
A1	0.885	0.667	0.465	0.608
A2	0.914	0.634	0.543	0.629
B1	0.905	0.702	0.679	0.815
B2	0.898	0.722	0.647	0.820
BE1	0.911	0.632	0.598	0.770
BE2	0.869	0.654	0.538	0.684
C1	0.889	0.608	0.622	0.737
C2	0.926	0.660	0.638	0.783
D1	0.859	0.611	0.523	0.626
D2	0.895	0.649	0.477	0.594
E1	0.873	0.670	0.581	0.660
E2	0.909	0.652	0.587	0.679
En1	0.657	0.574	0.739	0.808
En2	0.610	0.508	0.702	0.850
FC1	0.862	0.624	0.703	0.828
FC2	0.855	0.614	0.682	0.817
I1	0.554	0.457	0.665	0.835
I2	0.585	0.529	0.501	0.867
Prob1	0.732	0.657	0.699	0.856
Prob2	0.737	0.584	0.709	0.839
Purc1	0.786	0.645	0.648	0.848
Purc2	0.794	0.654	0.787	0.905
Purc3	0.798	0.631	0.736	0.890
SA1	0.610	0.471	0.685	0.849
SA2	0.620	0.476	0.699	0.836
SA3	0.650	0.520	0.763	0.864
SP1	0.573	0.501	0.682	0.875
SP2	0.600	0.487	0.691	0.847
Wil1	0.765	0.605	0.754	0.894
Wil2	0.726	0.536	0.704	0.824

The items in the cross-loading table 5 show the highest loadings on the appropriate constructs, with no indication of significant cross-loading on other constructs. This absence of significant cross-loading further solidifies the validity of our findings, eliminating any suspicion of CMB. Based on a

rigorous evaluation through HTMT, Fornell-Larcker, and cross-loading, this study not only meets the criteria for freedom from common method bias but also significantly strengthens the validity of the findings. This ensures that participant responses are not influenced by bias in the data collection method, underscoring the importance of the research.

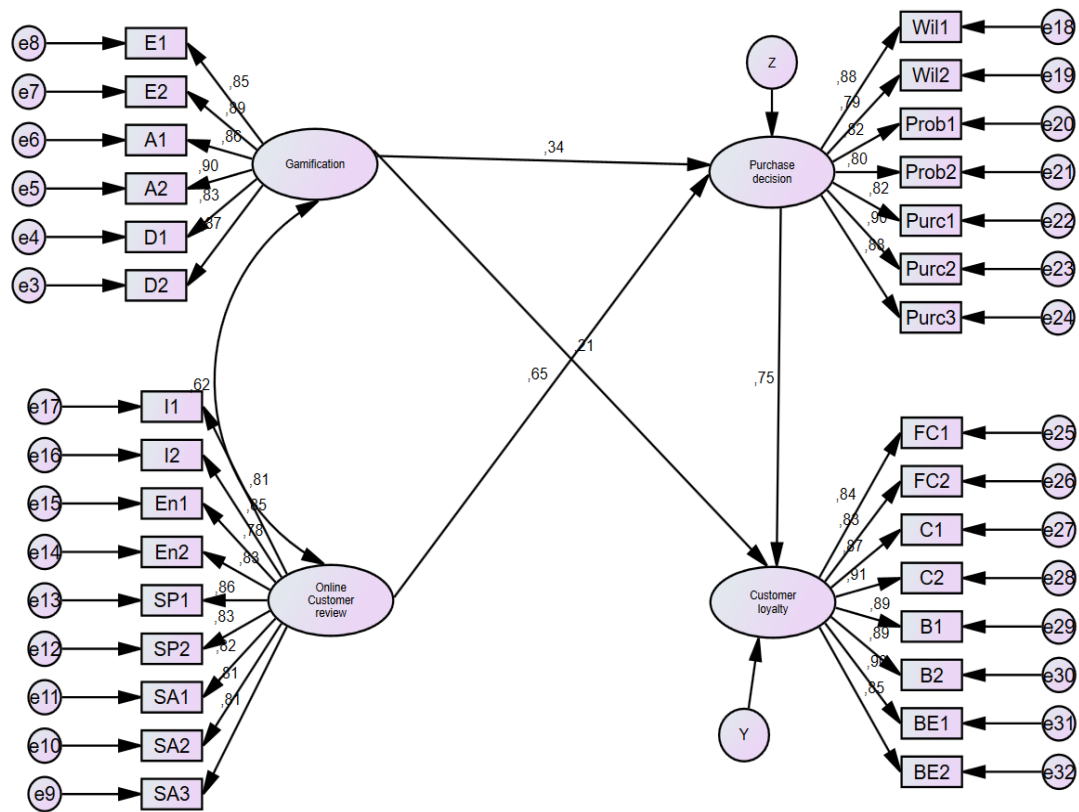
A preliminary study was conducted using face validity through 8 experts, whose invaluable feedback on the wording and structure of the items led to significant improvements in clarity. After the experts declared the instrument appropriate and reliable, statistical testing was conducted using a sample of 30 respondents. Reliability analysis using Cronbach's alpha confirmed the internal consistency of all constructs, with values exceeding the recommended threshold of 0.7. The preliminary study also validated the survey length and structure appropriateness, ensuring that the final instrument was well-suited for primary data collection. In this study, we focused on measurement modeling, which involves evaluating the relationship between observed variables (indicators) and the underlying latent constructs. To ensure the validity and reliability of our measurement model, we used convergent validity to examine factor loadings, Average Variance Extracted (AVE), and Composite Reliability (CR). All factor loadings were above the recommended threshold of 0.7, and the AVE and CR values met the criteria (AVE > 0.5 and CR > 0.7), indicating strong convergent validity.

Table 6. Constructs validity and reliability

Construct	Item	Loading Factor	CR	AVE	Construct	Item	Loading Factor	CR	AVE
Gamification	D2	,872	0.947	0.75	Purchase decision	Wil1	,876	0.94	0.71
	D1	,827				Wil2	,795		
	A2	,897				Prob1	,818		
	A1	,862				Prob2	,804		
	E2	,890				Purc1	,816		
Online Customer review	E1	,847	0.95	0.68	Customer loyalty	Purc2	,902	0.96	0.76
	SA3	,813				Purc3	,884		
	SA2	,811				FC1	,840		
	SA1	,824				FC2	,831		
	SP2	,830				C1	,868		
	SP1	,861				C2	,914		
	En2	,831				B1	,894		
	En1	,784				B2	,892		
	I2	,848				BE1	,897		
	I1	,812				BE2	,852		

Based on Table 6, all statement items are declared valid and reliable. The next stage is to conduct a complete research model analysis to test the hypothesis. The results of the hypothesis testing are presented in Figure 2 and Table 7.

Figure 2. Full model analysis



Hypothesis testing is done by looking at the t statistic and p values to determine whether the hypothesis has a positive and significant effect. The relationship is declared positive and significant if the t-statistics value is >1.96 and the p-value is < 0.50 [48].

Table 7. Hypothesis Test Results

Hypothesis	Effect	Estimate	SE	T Statistics (>1.96)	P value	Decision
H1	Gamification -> Customer Loyalty	.143	.032	4,424	0.000	Supported
H2	Gamification -> Purchase Decision	.244	.031	7,996	0.000	Supported
H3	Online Customer Review (X2) -> Purchase Decision	.768	.061	12,585	0.000	Supported
H4	Purchase Decision -> Customer Loyalty	.728	.056	13,010	0.000	Supported
H5	Gamification-> Purchase Decision -> Customer Loyalty		0.026	6.718	0.000	Supported
H6	Online customer review -> Purchase -> Decision Customer Loyalty		0.062	9.0578	0.000	Supported

Source: Authors' own elaboration based on primary data (2024)

In the analysis, p-value = 0.000 and t-statistic > 1.96 on direct paths for hypotheses 1-4 indicate statistical significance. So, the results confirm the hypotheses as hypothesized. Hypotheses 5 and 6, which represent indirect tests, were also significant, indicating that the purchase decision acts as a mediator between the other variables as well (p-values of 0.000 and t-statistics > 1.96).

Along with statistical significance, discussing the effect sizes for these relationships is crucial. Effect sizes reflect the magnitude of the relationship between variables, which is important for assessing the practical relevance of the results. The effect size for hypothesis 1 (Gamification → Customer Loyalty) is equal to 0.143 and indicates a moderate effect. Between Hypothesis 2 (Gamification → Purchase Decision) with effect size 0.244 (medium effect), Hypothesis 3 (Online Customer Review → Purchase Decision) shows a 0.768 effect size, which is considerable, which means online reviews affect purchase decisions significantly. In hypothesis 4 (Purchase Decision → Customer Loyalty), again, the 0.728 effect size indicates a strong influence.

Even though the effect sizes for the indirect effects in hypotheses 5 and 6 are smaller at 0.026 and 0.062, they still represent meaningful, albeit less impactful, effects of the indirect relationships. This underscores the complexity of the consumer behavior model. For managers and marketers, the practical importance of these effect sizes is significant. For instance, Online customer reviews can significantly impact purchase decisions (0.768), which underscores the need for businesses to focus on online consumer reviews. These reviews are a major contributor to consumer behavior. Similarly, purchase decisions have the most significant effect on customer loyalty (0.728), indicating that driving customers towards purchases can create loyalty. This understanding of the power of online reviews and purchase decisions can guide your marketing strategies.

As a result, while the statistical significance of the relationships in hypotheses 1-6 is clear, the practical importance of the effect sizes cannot be overstated. They provide valuable insight into the relative power of these effects and their role in formulating marketing strategies.

5. Discussion

The analysis shows that gamification has a significant positive relationship with customer loyalty. This finding strengthens previous studies (Al-Zyoud, 2021; Fathian et al., 2019; Hwang & Choi, 2020; Kunkel et al., 2021; Mustikasari, 2022; Torres et al., 2022). However, it differs from studies (Nichora & Sondari, 2023; Shahisa & Aprilianty, 2022), where gamification does not affect consumer loyalty. Gamification, the application of game elements in a non-game context, has become a popular strategy for increasing customer engagement (Huseynov, 2020). Gamification makes marketplace services more fun and exciting because gamification designs services to provide a gaming experience for consumers by creating value and increasing positive responses [49]. When customers play games, it can increase emotional engagement transaction frequency and create a community so that companies can build strong customer loyalty. Elements in gamification provide customers with direct feedback, enhancing the user experience. This helps customers feel valued and recognized, which contributes to long-term loyalty. However, it is essential to design a gamification strategy that is appropriate and relevant to the audience to maximize its results. With the right approach, gamification increases loyalty and creates a more satisfying customer experience.

Gamification also has a positive relationship with purchase intention. One of the main reasons why gamification can increase purchase intention is through the motivation it generates [50]. Gamification elements such as points, levels, and badges can encourage intrinsic motivation, where consumers feel more involved and satisfied in the purchasing process [19], [51]. In addition, extrinsic motivation, driven by rewards or incentives, increases purchase intention [52]. Gamification can also create interactive and fun experiences, increasing consumer engagement. When consumers are more engaged, they tend to spend more time and attention on the product or service being offered. This high engagement often increases purchase intentions, as consumers feel more connected and motivated to make a transaction [53]. Effective gamification implementation can be tailored to consumer preferences and behaviors.

The study's results also support the third hypothesis, which shows that online customer reviews positively affect purchase intention. One of the main factors explaining the positive relationship between online customer reviews and purchase intention is the role of trust [54]. Reviews written by other consumers are often considered more credible than direct promotions from the company. Consumers also tend to trust the opinions of others who have real experience with a product or service. Positive reviews can increase consumer trust, encouraging purchase intention [30], [36]. According to [55], Online customer reviews are used by consumers as a reference or consideration in choosing a product or service because the review can show whether the quality of the product or service is good. Online customer reviews serve as information that helps consumers evaluate products before purchasing. Consumers' intention to buy increases when they feel more confident in their decisions. The study's results also support the hypothesis that purchasing decisions positively and significantly affect consumer loyalty. Purchasing decisions are the process of consumer decision-making in purchasing, where consumers make choices and then decide to buy and feel satisfied with that choice that meets their needs [56]. After making a purchase, consumers' pleasant and satisfying experiences can strengthen loyalty [57]. If consumers are satisfied with the product or service they receive, this increases their likelihood of returning to shop. The value consumers perceive from a product or service also plays a vital role in forming loyalty. When consumers feel that their purchasing decision provides more significant benefits than other alternatives, they are more likely to choose that brand again. Loyalty is often formed from decisions based on solid values.

The data analysis results also support the indirect effect of Gamification on Customer Loyalty, which Purchase Decision mediates. Gamification provides a pleasant experience for consumers when using services, and providing attractive rewards can motivate consumers to continue to be loyal to using marketplace services, thus influencing consumers to make purchasing decisions [58]. The existence of the reward motivates consumers to make purchasing decisions because of the various benefits, so consumers will use the platform again and again, reflecting consumer loyalty [59]. When gamification elements attract consumers' attention, they tend to be more involved in purchasing (Behl et al., 2024). This involvement can lead to positive purchasing decisions. Consumers who feel connected and

involved are likelier to choose the same product in the future, increasing their loyalty. The study's results also support the sixth hypothesis, where Online Customer Reviews influence Customer Loyalty mediated by Purchase Decisions. When consumers read positive reviews, they are more likely to make profitable purchasing decisions [17]. If supported by a positive experience after purchase, this decision will increase customer loyalty [60]. In other words, purchasing decisions influenced by positive reviews can contribute to the formation of stronger loyalty. A positive purchasing experience, driven by decisions based on good reviews, increases customer satisfaction. When consumers are satisfied with the products they purchase, they are more likely to become loyal customers [33]. This satisfaction creates a desire to shop again in the future, which is the essence of customer loyalty.

6. Conclusion

Theoretical Implications

This study contributes to the literature on customer loyalty by integrating the concepts of gamification and online customer reviews as factors influencing purchase decisions and loyalty. The results of this study support and extend the theory of customer engagement, indicating that gamification elements (enjoyment, absorption, and dominance) can deepen emotional attachment, increase purchase intentions, and strengthen customer loyalty. Specifically, our findings advance existing theories in the following ways: Enhanced Understanding of Customer Engagement. By demonstrating the synergistic effects of gamification and online customer reviews, this study provides a more comprehensive framework for understanding customer engagement. It highlights how interactive and social elements jointly foster emotional connections and drive loyalty, thereby enriching the theoretical foundations of customer engagement. Mediation Mechanism: This study identifies purchase decisions as a key mediator between gamification, customer reviews, and loyalty. This advances the theoretical model by elucidating the sequential process through which engagement factors translate into behavioral outcomes, offering new insights into the pathways linking engagement to loyalty. Contextual Contribution to Gamification Theory: By contextualizing gamification within e-commerce, this study extends the applicability of gamification theory to online shopping environments. It demonstrates how gamified experiences can enhance emotional attachment and sustained engagement, contributing to the growing body of literature on gamification in digital commerce. Moreover, our findings have practical implications for marketing and consumer behavior, as they show how the integration of social proof (through reviews) and interactive elements (through gamification) can create a more immersive shopping experience and influence consumer behavior.

Practical Implications

For e-commerce companies, the results of this study underscore the importance of implementing the correct gamification elements to increase customer loyalty. Reward facilities in the form of points,

challenges, or awards can create a pleasant shopping experience and increase customer transaction frequency. Moreover, these results suggest that customer reviews should be managed well to strengthen customer trust in products or services, making it easier for them to make purchase decisions. By implementing the right strategy in both aspects, companies can strengthen loyalty and increase their competitiveness amidst the tight competition in the e-commerce market. This emphasis on practical implications should leave the audience feeling informed and equipped with actionable insights.

Research Limitations

This study, like any other study, has limitations. These limitations include that data collection through an online questionnaire can lead to respondent bias or underrepresentation of responses. By acknowledging these limitations, the audience will feel aware of the scope of the study and its potential biases. This study used quantitative methods, so aspects of customer experience may not have been explored in depth.

While this study provides valuable insights into the role of gamification and online customer reviews in influencing purchase decisions and customer loyalty, there are several avenues for future research to build upon and enhance these findings. Specific recommendations include:

Longitudinal Research Design: Future studies could adopt a longitudinal approach to examine how the effects of gamification and customer reviews on loyalty evolve over time. This is a crucial step that would provide deeper insights into the sustainability of engagement and loyalty and the long-term impact of gamified experiences and review systems in e-commerce. The urgency and importance of this approach should be felt by all researchers in the field.

Qualitative Validation: A mixed-methods approach, combining quantitative and qualitative techniques, could be employed to explore customer experiences more deeply. For instance, in-depth interviews or focus group discussions could uncover the underlying motivations, emotions, and perceptions triggered by gamification and customer reviews. This would complement the quantitative findings and offer a richer understanding of the psychological mechanisms.

Cross-Country Comparisons: Expanding the sample to include respondents from diverse geographical regions would enable cross-country comparisons. This could reveal cultural differences in how gamification and customer reviews influence purchase decisions and loyalty, providing insights into global e-commerce strategies.

Experimental Designs: Controlled experiments could be conducted to isolate the specific effects of

individual gamification elements (e.g., points, badges, leaderboards) or review features (e.g., star ratings, review length). This would provide more granular insights into which components are most effective in driving engagement and loyalty. Industry-Specific Studies: Replicating this study in different industries (e.g., travel, fashion, or food delivery) could highlight how the impact of gamification and customer reviews varies across sectors. This would offer practical insights for tailoring strategies to specific market contexts. By pursuing these directions, future research can further validate and extend this study's findings, contributing to a more comprehensive understanding of the interplay between gamification, customer reviews, and loyalty in e-commerce. This potential for a more comprehensive understanding should intrigue and inspire researchers in the field, sparking their curiosity and driving them to explore these avenues.

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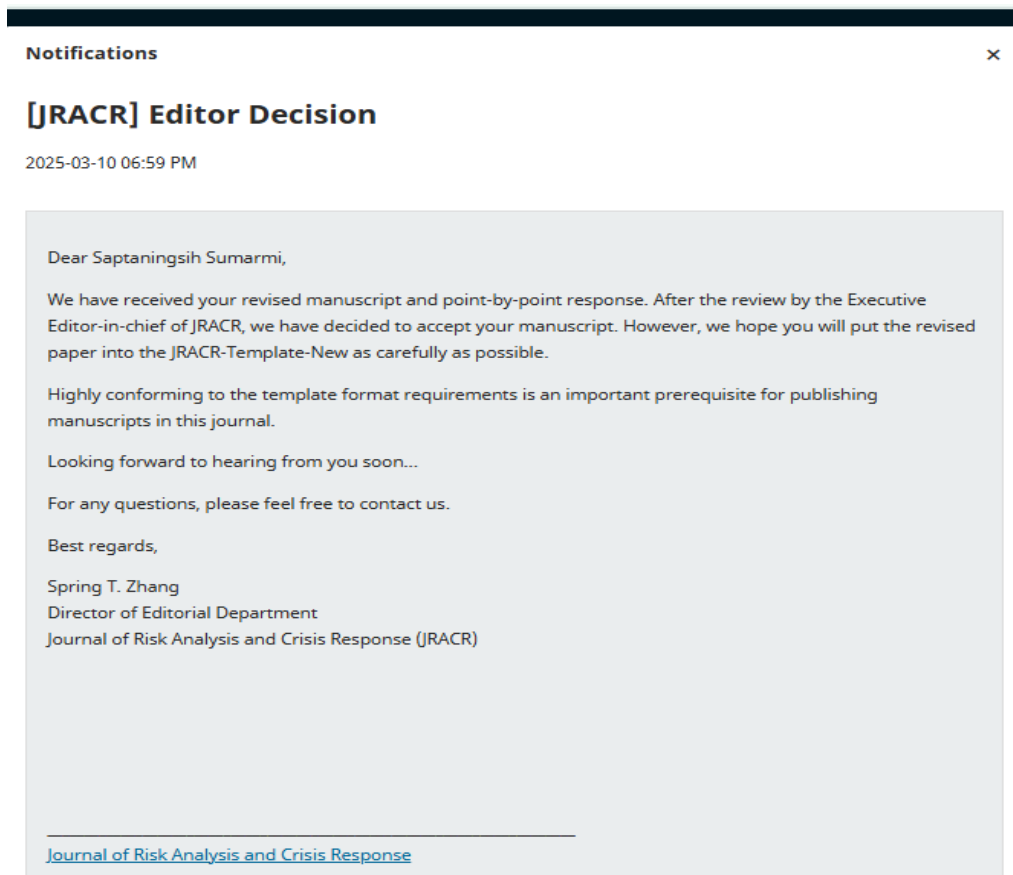
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Article

Building Bonds: How Gamification and Online Reviews Influence Customer Loyalty

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Abstract: This study explores the influence of gamification and online customer reviews on customer loyalty within e-commerce marketplaces, explicitly focusing on the mediating role of purchase decisions. As e-commerce continues to grow globally, businesses face increasing competition, and customer loyalty has become a crucial factor in sustaining long-term success. This paper's novelty lies in its integration of gamification, online customer reviews, and purchase decisions as mediators of customer loyalty in e-commerce marketplaces. While prior research has separately examined these factors, this study is unique in exploring their combined influence within the same framework, specifically focusing on how gamification can drive purchase decisions and loyalty, with online reviews enhancing these effects. The research employs a quantitative approach, collecting data through online questionnaires distributed to 300 respondents who meet specific criteria as online marketplace users. The data analysis utilizes Structural Equation Modeling (SEM) with AMOS to evaluate the hypothesized relationships. The study reveals that gamification positively impacts purchase decisions and customer loyalty, with purchase decisions as a significant mediator. Furthermore, online customer reviews enhance purchase intentions, which, in turn, lead to stronger customer loyalty. This research is unique in integrating gamification and purchase decision factors within the context of customer loyalty on online marketplaces. By examining the interaction between gamification, purchase decisions, and loyalty, this study addresses a gap in the literature on e-commerce customer retention strategies. For e-commerce practitioners, this study highlights the potential of gamification and online reviews as strategic tools to increase customer loyalty. Effective implementation of these elements can enhance user engagement, provide enjoyable shopping experiences, and increase repeat purchase intentions. Businesses can adopt these findings to enhance customer loyalty, especially in highly competitive digital markets.

Keywords: gamification, online customer reviews, purchase decision, customer loyalty

1. Introduction

Technological developments are progressing rapidly, particularly with the rise of internet-based technology (Asy'ari & Sukresna, 2023). Information and communication technology advancements have revolutionized how consumers shop in recent years. Online marketplaces, which serve as platforms connecting sellers and buyers, have become the leading choice for many in conducting transactions (Soleimani, 2022). Despite these conveniences, maintaining consumer loyalty remains a central challenge for businesses in the e-commerce sector. Consumer loyalty is critical for long-term success in this industry (Aslam et al., 2020), as many marketplace platforms face fierce competition, allowing customers to switch between platforms (Costa & Castro, 2021) easily (Hänninen et al., 2018). In online marketplaces, e-commerce platforms must focus on strategies to retain customer loyalty.

One widely adopted approach is the integration of gamification into online marketplaces. Gamification, with its potential to influence behavior, foster innovation, and enhance marketing outcomes, has garnered significant attention across various industries (Ciuchita et al., 2023). By incorporating game elements, it captures customer attention, increases engagement, and has the potential to significantly boost loyalty (Suh et al., 2018). Gamification utilizes game design elements in non-game activities to improve consumer behavior, such as enhancing consumption levels, increasing involvement, and encouraging product promotion (Hofacker et al., 2016). Several studies support the notion that gamification can indeed have a positive impact on customer loyalty (Al-Zyoud, 2021; Fathian et al., 2019; Hwang & Choi, 2020; Kunkel et al., 2021; Mustikasari, 2022; Torres et al., 2022).

However, some studies find that gamification does not impact consumer loyalty (Nichora & Sondari, 2023; Shahisa & Aprilianty, 2022), indicating inconsistencies in the literature and creating a significant research gap. To bridge this gap, this study explores the role of purchasing decisions as a mediating factor between gamification and customer loyalty. Purchasing decisions involve the consumer's evaluating needs and considering various factors before making a final purchase decision (Chen et al., 2017; Qazzafi, 2019). In this context, these decisions are vital in linking gamification to loyalty. Game elements, such as points, challenges, and rewards, influence customer decision-making, fostering a sense of involvement and satisfaction leading to stronger loyalty (Tobon et al., 2020). Thus, the need for further research to understand how gamification impacts purchasing decisions and, in turn, customer loyalty becomes essential.

In addition to gamification, online customer reviews play a crucial role in shaping consumer decisions before purchase (Maslowska et al., 2017). Reviews serve as valuable references for customers when selecting products or services, providing insights into the quality of offerings (Thakur, 2018). Reading reviews can trigger emotional responses, signaling product quality (Wang et al., 2020). Customer reviews have become a significant source of information, influencing both pre-purchase decisions and long-term loyalty (Changchit et al., 2021; Khan et al., 2022). Based on their review experiences, satisfied customers are more likely to repurchase and recommend products, fostering a positive cycle that benefits the company and enhances loyalty (Siebert et al., 2020). The influence of online reviews is a key aspect that consumers should be aware of when purchasing.

The novelty of this study lies in integrating gamification with purchasing decisions in the context of customer loyalty in online marketplaces. While previous studies have separately explored gamification

and online customer reviews about loyalty, this research attempts to fill the gap by examining how gamification, purchasing decisions, and customer loyalty interact in e-commerce settings.

2. Literature Review

2.1. The Effect of Gamification on Customer Loyalty

Gamification involves using game design elements like points, badges, challenges, and rewards to increase user engagement and experience (Raed S. Alsawaier, 2018). According to (Hofacker et al., 2016), gamification can increase consumer value by encouraging desired behaviors, such as loyalty and engagement. The application of gamification is intended to attract attention and create a more enjoyable and interactive experience for users. Based on consumer behavior theory, high customer engagement is closely related to loyalty. Gamification elements can create deeper interactions between consumers and brands, increase satisfaction, and strengthen emotional connections (Torres et al., 2022). Research (Suh et al., 2018) shows that positive experiences resulting from gamification can strengthen customer loyalty because customers feel more involved and appreciated. In online marketplaces, where interactions between sellers and buyers are often limited, gamification can be an effective tool to create a more engaging experience (Tobon et al., 2020).

Based on this explanation, the following hypotheses are formulated:

H1: Gamification is related to Customer Loyalty

2.2. The Effect of Gamification on Purchase Decisions

In the increasingly competitive context of e-commerce, purchasing decision-making is crucial to business success. With the many choices available in the marketplace, consumers often face challenges in making their final choices (Tian et al., 2018). Using game elements such as points, badges, challenges, and transaction rewards can increase user engagement and experience. Through interactive and fun experiences, gamification can attract consumers' attention and influence their behavior (De Canio et al., 2021). This is important in purchasing decision-making, where consumers choose experiences that provide added value. Gamification also serves to motivate consumers. Reward elements, such as collecting points or special offers after completing challenges, can incentivize consumers to purchase (Hwang & Choi, 2020). Research (Tobon et al., 2020) shows that these incentives increase the desire to buy and strengthen consumer commitment to the brand. In the context of online marketplaces, gamification can be an effective tool to improve purchasing decisions. By creating a more enjoyable and interactive shopping experience, the platform can help consumers feel more confident in their choices.

Based on this explanation, the following hypothesis is formulated.

H2: Gamification is positively related to Purchase Decision.

2.3. The Influence of Online Customer Reviews on Purchase Decisions

Online customer reviews are among the most influential sources of information in the decision-making process. These reviews provide an overview of product quality and create consumer perceptions and trust in brands and marketplaces (Chakraborty & Bhat, 2018; Thakur, 2018). Today's consumers tend to do in-depth research before making a purchase decision, with many relying on online reviews as their primary reference and trusting the experiences and opinions of others rather than advertisements made

by companies. This shows the importance of customer reviews in influencing purchase decisions (Maslowska et al., 2017). Positive reviews can increase consumer confidence and reduce uncertainty related to purchase decisions (Grewal & Stephen, 2019).

Conversely, negative reviews can hinder purchase decisions, creating uncertainty that can lead to purchase cancellation. Studies (Thakur, 2018) show that good reviews can significantly increase purchase intentions. Meanwhile (Wang et al., 2020) stated that emotions caused by reviews can be an important signal about product quality, which in turn influences consumer purchasing decisions. Based on this explanation, the following hypothesis is formulated.

H3: Online Customer Reviews have a positive effect on Purchase Decision

2.4. The Effect of Purchase Decision on Customer Loyalty

A purchase decision is a process by which consumers determine the final choice before purchasing a product or service (Lăzăroiu et al., 2020). This process includes needs analysis, alternative assessment, and product selection. A good purchase decision can result in a positive experience that increases consumer satisfaction, contributing to their loyalty to the brand (Chen et al., 2017). Positive experiences from purchasing decisions can increase consumers' sense of attachment to the brand. When consumers are satisfied with their products, they shop again and recommend them to others. A study (Khan et al., 2022) shows that positive decision-making experiences can create a strong relationship between consumers and brands, which is the foundation for customer loyalty. Purchasing decisions are not only influenced by rational factors but also by emotional factors (Wang et al., 2020). Consumers feel more emotionally connected to the brand when they make decisions they consider suitable. Positive emotions from successful decisions can strengthen customer loyalty (Suh et al., 2018). Therefore, it is essential to understand how purchasing decisions can form a lasting emotional bond with a brand.

Based on this explanation, the following hypothesis is formulated.

H4: Purchase Decision has a significant positive effect on Customer Loyalty

2.5. Purchase Decision Mediating Effect

Gamification is a marketing strategy to improve service quality by using game design elements that provide a fun experience to users so that it can increase loyalty, engagement, and brand awareness (Lu & Ho, 2020). These elements are designed to increase customer engagement, which can influence purchasing behavior. According to (Suh et al., 2018), increased engagement can influence consumer attitudes and purchase intentions. When consumers make positive and satisfying decisions, they are more likely to develop brand loyalty. Research shows that good purchasing decisions can increase customer satisfaction, a critical factor in building loyalty (Khan et al., 2022). In this context, purchasing decisions can function as a mediator connecting gamification with customer loyalty.

Gamification can also motivate users to continue playing the game until they get a reward that can later be used to purchase a product. The provision of this reward aims to encourage consumers to make purchases in exchange for the reward (Djohan et al., 2022). After consumers make a purchase decision and feel satisfied, it will encourage consumer loyalty (Arslan, 2020).

Based on this explanation, the following hypothesis is formulated.

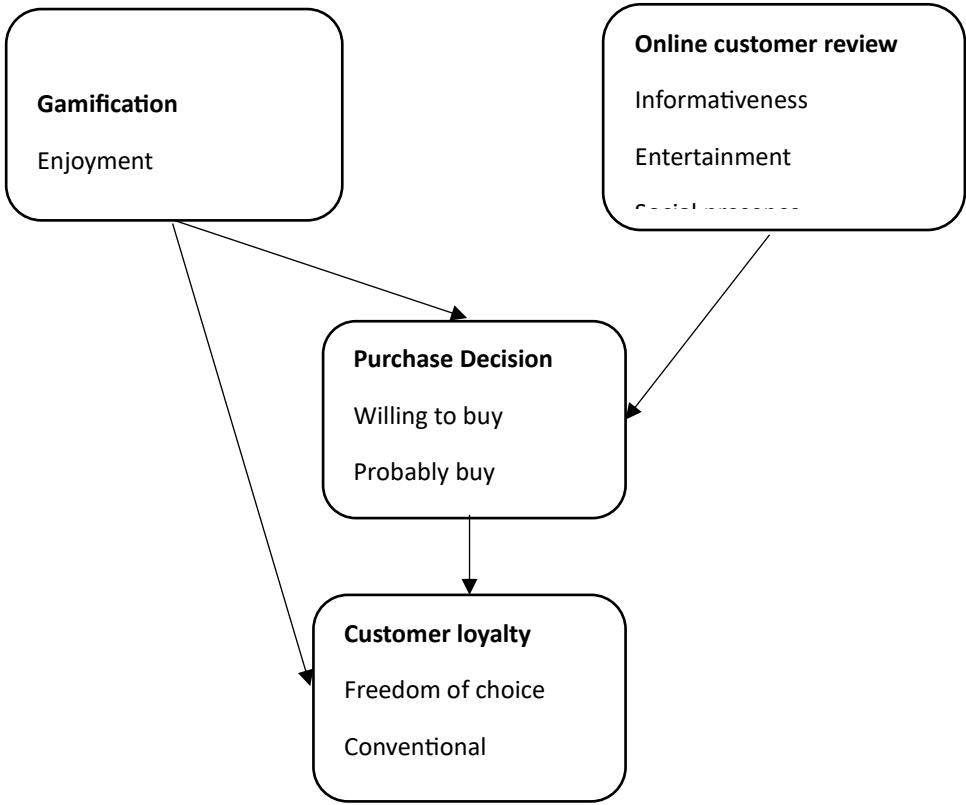
H5: Purchase Decision mediates the relationship between Gamification and Customer Loyalty

In a competitive e-commerce environment, online customer reviews are one of the primary sources of information influencing purchasing decisions (Kang et al., 2022). These reviews provide insight into product quality and shape consumer perceptions and trust in the brand. In the context of an online marketplace, where consumers have quick access to various reviews and information, purchasing decisions become more complex (Lăzăroiu et al., 2020). Customer reviews can help simplify this process, and when consumers are satisfied with their decisions, they are more likely to remain loyal to the brand or platform. Business actors can optimize their marketing strategies by understanding the role of purchasing decisions. Positive emotions from reading good reviews can increase the desire to buy and develop an emotional attachment to the brand (Currás-Pérez et al., 2018; Ruiz-Mafe et al., 2018). This shows that reviews influence decisions rationally and through emotional influence, which then affects loyalty (Siebert et al., 2020).

Based on this explanation, the following hypothesis is formulated.

H6: Purchase Decision mediates the influence of Online Customer Review on Customer Loyalty

Figure 1: Conceptual model



3. Methods

This study uses a quantitative approach and data collection method with a questionnaire distributed via Google Forms. The Google Form link is distributed via the WhatsApp application—sampling with a non-probability technique using purposive sampling, namely, taking samples based on criteria. The purposive sampling method was chosen to ensure that respondents met specific criteria directly relevant to the research objectives (Ames et al., 2019; López, 2023). Since this study focused on online

marketplace users, we targeted individuals who had engaged in e-commerce transactions at least twice. This criterion ensured that the sample consisted of participants with a minimum level of experience with online shopping, which is important for understanding customer behavior and loyalty in this context. Additionally, we set an age limit of 17 years and above to match the legal age for survey participation. This decision was made to ensure that respondents were capable of making informed decisions about their online shopping experiences, thereby enhancing the validity of the data (Izogo & Jayawardhena, 2018). It is important to note that while purposive sampling may limit the generalizability of the findings to a broader population, this method was chosen to provide a more focused and relevant sample (Ghai et al., 2024). This is a standard approach in exploratory research, which aims to investigate specific behaviors or experiences rather than generalize to a larger population. The trade-off between the focus of the sample and its generalizability was carefully considered, and the method was deemed suitable for the research objectives. The study sample consisted of 300 respondents.

The Gamification is measured by the dimensions developed (Eppmann et al., 2018) namely enjoyment, Absorption, and dominance. Although gamification is a multifaceted construct, the dimensions of enjoyment, absorption, and dominance were selected because they comprehensively capture the core aspects of user experience in gamification systems. These dimensions address affective (enjoyment), cognitive (absorption), and motivational (dominance) responses, which are widely recognized as central to gamification effectiveness [37, 41]. Importantly, these dimensions have been empirically validated in previous studies, ensuring their reliability and relevance in measuring gamification and adding robustness to our research.

The indicators measure the Online Customer Review developed (Bleier et al., 2019): informativeness, entertainment, social presence, and sensory appeal. The indicators measure the Customer Loyalty variable developed (Närvänen et al., 2020), namely freedom of choice, conventional, binding, and belongingness. Purchase Decision variables are measured using indicators developed (Pei et al., 2014), namely the willingness to buy, probably buy something, and making a purchase.

Statement items are measured using a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The use of a 7-point Likert scale is supported by its widespread adoption in social science research and its ability to provide a balanced range of response options, which enhances the sensitivity and reliability of measurement [42]. Additionally, the 7-point scale has been empirically shown to yield higher discrimination between responses compared to scales with fewer points while avoiding the complexity associated with scales containing more response options [43]. This approach aligns with recommendations from prior studies that emphasize the importance of using scales with an optimal number of points to capture nuanced variations in respondents' perceptions and attitudes [44]. Descriptive procedures for characterization data analysis were used to display the pre-test results, while demographic characteristics were collected via a questionnaire. The measurement model was determined along three criteria- reliability, convergent validity, and discriminant validity- to ensure their strength and distinction between latent structures. Two methods were employed for reliability testing: Cronbach's alpha and composite reliability. Both measures exceeded the cutoff of 0.70, indicating decent internal consistency (CR values ranging from 0.82 to 0.94). Convergent validity was evidenced using factor loadings and average variance extracted (AVE). All standardized factor loadings were found

to be significant ($p < 0.001$) and were above 0.60, most being above 0.70. The AVE for each construct was more significant than 0.50 (0.56-0.78), confirming that variance was sufficiently explained in each indicator (Fornell & Larcker, 1981).

Discriminant validity was assessed via three methods: In the first instance, the Fornell-Larcker criterion that the correlations between the constructs (off-diagonal values) were lower than the square root of the Average Variance Extracted (AVE) for each construct, thus ascertaining that the constructs were indeed distinct from each other. A cross-loadings analysis was performed to further add to the case for each indicator loading more strongly on its construct than on any other construct, thus validating the distinctiveness. Lastly, the HTMT ratios indicate that they were generally far from the cut-off of 0.85 based on (Henseler et al., 2015; Roemer et al., 2021) and within the range of 0.12 to 0.83. Data analysis uses SEM-AMOS. More specific measurement items are presented in Table 1.

Table 1. Construct and Items

Construct	Item	Item abbreviation
Gamification	I feel entertained when playing gamification features in the marketplace.	E1 – Enjoyment 1
	I enjoy playing the gamification feature on the marketplace because there are many rewards.	E2 – Enjoyment 2
	The gamification feature allows me to interact with other users.	A1 – Absorption 1
	The gamification feature makes me return to the marketplace to continue the game.	A2 – Absorption 2
	The rewards offered in gamification on the marketplace can influence my online shopping.	D1 – Dominance 1
	The gamification feature influences me to continue accessing the marketplace	D2 – Dominance 2
Online Customer review	Online customer reviews can help me in choosing a product or service.	I1 - Informativeness 1
	Online customer reviews make finding information about the product or service I will use easier.	I2 - Informativeness 2
	Online customer reviews can provide reliable information.	En1 - Entertainment 1

	I trust reviews that have detailed explanations rather than short and general reviews.	En2 - Entertainment 2
	Reviews that include evidence, such as photos, can be more convincing when choosing a product or service.	SP1 - social presence 1
	I trust reviews that provide clear reasons regarding the advantages and disadvantages of a product or service.	SP2 - social presence 2
	I prefer products or services that have positive reviews.	SA1 - sensory appeal 1
	Positive reviews indicate that the product or service is of good quality.	SA2 - sensory appeal 2
	I trust products or services that have more positive reviews than negative reviews.	SA3 - sensory appeal 3
Purchase decision	I decided to purchase through the marketplace because the products matched my wishes.	Will1 - willing to buy something 1
	I decided to purchase through the marketplace because the products offered were very diverse.	Will2 - willing to buy something 2
	I purchased through the marketplace because I heard the experiences of other people who had purchased before.	Prob1 - probably buy something 1
	I recommend that others shop through the marketplace if the product I buy is as expected.	Prob2 - probably buy something 2
	I recommend that others buy products through the marketplace because they are guaranteed safe, and the shipping is fast.	Purc1 - making a purchase 1
	I have made purchases through the marketplace more than once because I feel satisfied shopping through the marketplace.	Purc2 - making a purchase 2
	I will make purchases through the marketplace in the future.	Purc3 - making a purchase 3
Customer loyalty	I shop online using the marketplace repeatedly because purchasing is speedy.	FC1 - freedom of choice 1
	I shop again using the marketplace because it is easy to use.	FC2 - freedom of choice 2

	I always use the marketplace every time I shop online.	C1 – conventional 1
	I shop online using the marketplace repeatedly because purchasing is speedy.	C2 – conventional 2
	I shop again using the marketplace because it is easy to use.	B1 – Binding 1
	I always use the marketplace every time I shop online.	B2 – Binding 2
	I shop online using the marketplace repeatedly because purchasing is speedy.	BE1 – belongingness 1
	I shop again using the marketplace because it is easy to use.	BE2 - Belongingness 2

3. Results and Discussion

The research data was collected in July 2024 via an online survey. The respondents' demographic data were compiled based on the survey results, as shown in Table 2.

Table 2. Demographic data

Education level	%	Age	%
High school	75	17 – 24 Years	92
Bachelor's degree certificate	25	25 – 32 Years	5
Job	%	33 – 40 Years	0
Job Seeker	5	41 – 50 Years	1
Student	63	> 51 Years	92
Freelancer	4	Gender	%
Private Employee	20	Male	17
Government employees	2	Female	83
Housewife	6		

The majority of respondents in this study were from the young age group, with 92% aged between 17-24 years, and the majority had high school education (75%), with only 25% having a bachelor's degree. The majority of respondents Were students (63%), followed by private employees (20%), job seekers (5%), freelancers (4%), and civil servants (2%), while 6% were homemakers. A striking gender disparity was observed, with 83% of respondents female and only 17% male. These demographic characteristics indicate a predominance of young age and secondary education, as well as a majority of respondents, involved in early education or employment, with women being significantly more involved in this study.

Table 3. HTMT Matrix

Customer loyalty	Gamification	Online customer review	Purchase decision
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Customer loyalty				
Gamification	0.767			
Online customer review	0.749	0.626		
Purchase decision	0.747	0.752	0.727	

Table 3 shows the Heterotrait-Monotrait Ratio (HTMT) Matrix values and produces findings where the HTMT between constructs is below the threshold of 0.85, indicating no excessive correlation caused by CMB. All HTMT values are consistently below the critical limit, indicating that the variances between constructs are not artificially overlapping.

Table 4. Fornel Cornell Criterion

	Customer loyalty	Gamification	Online customer review	Purchase decision
Purchase decision	0.781	0.712	0.832	0.866
Online customer review	0.720	0.597	0.645	
Gamification	0.734	0.725		
Customer loyalty	0.890			

Table 4 shows the Fornell-Larcker Criterion, which proves discriminant validity by ensuring that each construct's Average Variance Extracted (AVE) is higher than its squared correlation with other constructs. This result confirms that each construct uniquely explains item variance without CMB contamination.

Table 5. Cross loading

	Customer loyalty	Gamification	Online customer review	Purchase decision
A1	0.885	0.667	0.465	0.608
A2	0.914	0.634	0.543	0.629
B1	0.905	0.702	0.679	0.815
B2	0.898	0.722	0.647	0.820
BE1	0.911	0.632	0.598	0.770
BE2	0.869	0.654	0.538	0.684
C1	0.889	0.608	0.622	0.737
C2	0.926	0.660	0.638	0.783

D1	0.859	0.611	0.523	0.626
D2	0.895	0.649	0.477	0.594
E1	0.873	0.670	0.581	0.660
E2	0.909	0.652	0.587	0.679
En1	0.657	0.574	0.739	0.808
En2	0.610	0.508	0.702	0.850
FC1	0.862	0.624	0.703	0.828
FC2	0.855	0.614	0.682	0.817
I1	0.554	0.457	0.665	0.835
I2	0.585	0.529	0.501	0.867
Prob1	0.732	0.657	0.699	0.856
Prob2	0.737	0.584	0.709	0.839
Purc1	0.786	0.645	0.648	0.848
Purc2	0.794	0.654	0.787	0.905
Purc3	0.798	0.631	0.736	0.890
SA1	0.610	0.471	0.685	0.849
SA2	0.620	0.476	0.699	0.836
SA3	0.650	0.520	0.763	0.864
SP1	0.573	0.501	0.682	0.875
SP2	0.600	0.487	0.691	0.847
Wil1	0.765	0.605	0.754	0.894
Wil2	0.726	0.536	0.704	0.824

The items in the cross-loading table 5 show the highest loadings on the appropriate constructs, with no indication of significant cross-loading on other constructs. This absence of significant cross-loading further solidifies the validity of our findings, eliminating any suspicion of CMB. Based on a rigorous evaluation through HTMT, Fornell-Larcker, and cross-loading, this study not only meets the criteria for freedom from common method bias but also significantly strengthens the validity of the findings. This ensures that participant responses are not influenced by bias in the data collection method, underscoring the importance of the research.

A preliminary study was conducted using face validity through 8 experts, whose invaluable feedback on the wording and structure of the items led to significant improvements in clarity. After the experts declared the instrument appropriate and reliable, statistical testing was conducted using a sample of 30 respondents. Reliability analysis using Cronbach's alpha confirmed the internal consistency of all constructs, with values exceeding the recommended threshold of 0.7. The preliminary study also validated the survey length and structure appropriateness, ensuring that the final instrument was well-suited for primary data collection. In this study, we focused on measurement modeling, which involves evaluating the relationship between observed variables (indicators) and the underlying latent constructs. To ensure the validity and reliability of our measurement model, we used convergent validity to examine factor loadings, Average Variance Extracted (AVE), and Composite Reliability (CR). All factor loadings

were above the recommended threshold of 0.7, and the AVE and CR values met the criteria (AVE> 0.5 and CR> 0.7), indicating strong convergent validity.

Table 6. Constructs validity and reliability

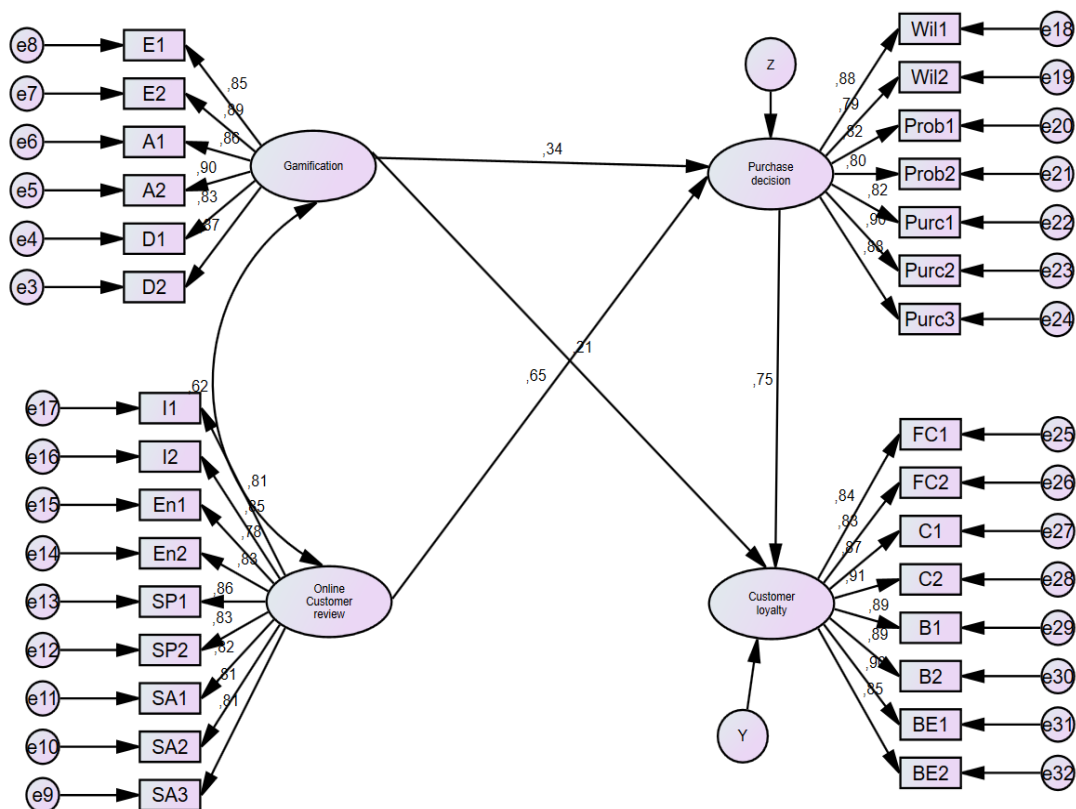
Construct	Item	Loadings	CR	AVE	Construct	Item	Loadings	CR	AVE
Gamification	1	0.87	0.92	0.78	Perceived ease of use	1	0.87	0.92	0.78
	2	0.79				2	0.79		
	3	0.82				3	0.82		
	4	0.88				4	0.88		
	5	0.85				5	0.85		
	6	0.81				6	0.81		
	7	0.83				7	0.83		
	8	0.86				8	0.86		
	9	0.84				9	0.84		
	10	0.89				10	0.89		
Gamification	1	0.87	0.92	0.78	Perceived ease of use	1	0.87	0.92	0.78
	2	0.79				2	0.79		
	3	0.82				3	0.82		
	4	0.88				4	0.88		
	5	0.85				5	0.85		
	6	0.81				6	0.81		
	7	0.83				7	0.83		
	8	0.86				8	0.86		
	9	0.84				9	0.84		
	10	0.89				10	0.89		
Gamification	1	0.87	0.92	0.78	Perceived ease of use	1	0.87	0.92	0.78
	2	0.79				2	0.79		
	3	0.82				3	0.82		
	4	0.88				4	0.88		
	5	0.85				5	0.85		
	6	0.81				6	0.81		
	7	0.83				7	0.83		
	8	0.86				8	0.86		
	9	0.84				9	0.84		
	10	0.89				10	0.89		
Gamification	1	0.87	0.92	0.78	Perceived ease of use	1	0.87	0.92	0.78
	2	0.79				2	0.79		
	3	0.82				3	0.82		
	4	0.88				4	0.88		
	5	0.85				5	0.85		
	6	0.81				6	0.81		
	7	0.83				7	0.83		
	8	0.86				8	0.86		
	9	0.84				9	0.84		
	10	0.89				10	0.89		

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Based on Table 6, all statement items are declared valid and reliable. The next stage is to conduct a complete research model analysis to test the hypothesis. The results of the hypothesis testing are presented in Figure 2 and Table 7.

Figure 2. Full model analysis



Hypothesis testing is done by looking at the t statistic and p values to determine whether the hypothesis has a positive and significant effect. The relationship is declared positive and significant if the t-statistics value is >1.96 and the p-value is <0.50 (Hair et al., 2022).

Table 7. Hypothesis Test Results

Hypot hesis	Effect	Esti mate	S E	T Stati stics ($>1,96$)	P v al u e	Decis ion
H1	Gamific ation -> Custom	.143	,0 3 2	4,42 4 2	0. 0 0 0	Supp orted

	er Loyalty					
H2	Gamific ation -> Purchas e Decisio n	.244	,0 3 1	7,99 6	0. 0 0 0	Supp orted
H3	Online Custom er Review (X2) -> Purchas e Decisio n	.768	,0 6 1	12,5 85	0. 0 0 0	Supp orted
H4	Purchas e Decisio n -> Custom er Loyalty	.728	,0 5 6	13,0 10	0. 0 0 0	Supp orted
H5	Gamific ation-> Purchas e Decisio n -> Custom er Loyalty		0. 0 2 6	6.71 8	0. 0 0 0	Supp orted
H6	Online custome r review -> Purchas e ->		0. 0 6 2	9.05 78	0. 0 0 0	Supp orted

Source: Authors' own elaboration based on primary data (2024)

In the analysis, $p\text{-value} = 0.000$ and $t\text{-statistic} > 1.96$ on direct paths for hypotheses 1-4 indicate statistical significance. So, the results confirm the hypotheses as hypothesized. Hypotheses 5 and 6, which represent indirect tests, were also significant, indicating that the purchase decision acts as a mediator between the other variables as well ($p\text{-values}$ of 0.000 and $t\text{-statistics} > 1.96$).

Along with statistical significance, discussing the effect sizes for these relationships is crucial. Effect sizes reflect the magnitude of the relationship between variables, which is important for assessing the practical relevance of the results. The effect size for hypothesis 1 (Gamification \rightarrow Customer Loyalty) is equal to 0.143 and indicates a moderate effect. Between Hypothesis 2 (Gamification \rightarrow Purchase Decision) with effect size 0.244 (medium effect), Hypothesis 3 (Online Customer Review \rightarrow Purchase Decision) shows a 0.768 effect size, which is considerable, which means online reviews affect purchase decisions significantly. In hypothesis 4 (Purchase Decision \rightarrow Customer Loyalty), again, the 0.728 effect size indicates a strong influence.

Even though the effect sizes for the indirect effects in hypotheses 5 and 6 are smaller at 0.026 and 0.062, they still represent meaningful, albeit less impactful, effects of the indirect relationships. This underscores the complexity of the consumer behavior model. For managers and marketers, the practical importance of these effect sizes is significant. For instance, Online customer reviews can significantly impact purchase decisions (0.768), which underscores the need for businesses to focus on online consumer reviews. These reviews are a major contributor to consumer behavior. Similarly, purchase decisions have the most significant effect on customer loyalty (0.728), indicating that driving customers towards purchases can create loyalty. This understanding of the power of online reviews and purchase decisions can guide your marketing strategies.

As a result, while the statistical significance of the relationships in hypotheses 1-6 is clear, the practical importance of the effect sizes cannot be overstated. They provide valuable insight into the relative power of these effects and their role in formulating marketing strategies.

4. Discussion

The analysis shows that gamification has a significant positive relationship with customer loyalty. This finding strengthens previous studies (Al-Zyoud, 2021; Fathian et al., 2019; Hwang & Choi, 2020; Kunkel et al., 2021; Mustikasari, 2022; Torres et al., 2022). However, it differs from studies (Nichora & Sondari, 2023; Shahisa & Aprilianty, 2022), where gamification does not affect consumer loyalty.

Gamification, the application of game elements in a non-game context, has become a popular strategy for increasing customer engagement (Huseynov, 2020). Gamification makes marketplace services more fun and exciting because gamification designs services to provide a gaming experience for consumers by creating value and increasing positive responses (Sundjaja et al., 2022). When customers play games, it can increase emotional engagement transaction frequency and create a community so that companies

can build strong customer loyalty. Elements in gamification provide customers with direct feedback, enhancing the user experience. This helps customers feel valued and recognized, which contributes to long-term loyalty. However, it is essential to design a gamification strategy that is appropriate and relevant to the audience to maximize its results. With the right approach, gamification increases loyalty and creates a more satisfying customer experience.

Gamification also has a positive relationship with purchase intention. One of the main reasons why gamification can increase purchase intention is through the motivation it generates (Yu & Huang, 2022). Gamification elements such as points, levels, and badges can encourage intrinsic motivation, where consumers feel more involved and satisfied in the purchasing process (Tobon et al., 2020; Xi & Hamari, 2019). In addition, extrinsic motivation, driven by rewards or incentives, increases purchase intention (Meyer-Waarden et al., 2013). Gamification can also create interactive and fun experiences, increasing consumer engagement. When consumers are more engaged, they tend to spend more time and attention on the product or service being offered. This high engagement often increases purchase intentions, as consumers feel more connected and motivated to make a transaction (Wongkitrungrueng & Assarut, 2020). Effective gamification implementation can be tailored to consumer preferences and behaviors. The study's results also support the third hypothesis, which shows that online customer reviews positively affect purchase intention. One of the main factors explaining the positive relationship between online customer reviews and purchase intention is the role of trust (Ventre & Kolbe, 2020). Reviews written by other consumers are often considered more credible than direct promotions from the company. Consumers also tend to trust the opinions of others who have real experience with a product or service. Positive reviews can increase consumer trust, encouraging purchase intention (Grewal & Stephen, 2019; Ruiz-Mafe et al., 2018). According to (Aradatin et al., 2017), Online customer reviews are used by consumers as a reference or consideration in choosing a product or service because the review can show whether the quality of the product or service is good. Online customer reviews serve as information that helps consumers evaluate products before purchasing. Consumers' intention to buy increases when they feel more confident in their decisions. The study's results also support the hypothesis that purchasing decisions positively and significantly affect consumer loyalty. Purchasing decisions are the process of consumer decision-making in purchasing, where consumers make choices and then decide to buy and feel satisfied with that choice that meets their needs (Dwijantoro et al., 2022). After making a purchase, consumers' pleasant and satisfying experiences can strengthen loyalty (Molinillo et al., 2017). If consumers are satisfied with the product or service they receive, this increases their likelihood of returning to shop. The value consumers perceive from a product or service also plays a vital role in forming loyalty. When consumers feel that their purchasing decision provides more significant benefits than other alternatives, they are more likely to choose that brand again. Loyalty is often formed from decisions based on solid values.

The data analysis results also support the indirect effect of Gamification on Customer Loyalty, which Purchase Decision mediates. Gamification provides a pleasant experience for consumers when using services, and providing attractive rewards can motivate consumers to continue to be loyal to using marketplace services, thus influencing consumers to make purchasing decisions (Djohan et al., 2022). The existence of the reward motivates consumers to make purchasing decisions because of the various

benefits, so consumers will use the platform again and again, reflecting consumer loyalty (Diansyah & Putera, 2017). When gamification elements attract consumers' attention, they tend to be more involved in purchasing (Behl et al., 2024). This involvement can lead to positive purchasing decisions. Consumers who feel connected and involved are likelier to choose the same product in the future, increasing their loyalty. The study's results also support the sixth hypothesis, where Online Customer Reviews influence Customer Loyalty mediated by Purchase Decisions. When consumers read positive reviews, they are more likely to make profitable purchasing decisions (Chen et al., 2017). If supported by a positive experience after purchase, this decision will increase customer loyalty (Kumar & Anjaly, 2017). In other words, purchasing decisions influenced by positive reviews can contribute to the formation of stronger loyalty. A positive purchasing experience, driven by decisions based on good reviews, increases customer satisfaction. When consumers are satisfied with the products they purchase, they are more likely to become loyal customers (Arslan, 2020). This satisfaction creates a desire to shop again in the future, which is the essence of customer loyalty.

5. Conclusions

Theoretical Implications

This study contributes to the literature on customer loyalty by integrating the concepts of gamification and online customer reviews as factors influencing purchase decisions and loyalty. The results of this study support and extend the theory of customer engagement, indicating that gamification elements (enjoyment, absorption, and dominance) can deepen emotional attachment, increase purchase intentions, and strengthen customer loyalty. Specifically, our findings advance existing theories in the following ways: Enhanced Understanding of Customer Engagement. By demonstrating the synergistic effects of gamification and online customer reviews, this study provides a more comprehensive framework for understanding customer engagement. It highlights how interactive and social elements jointly foster emotional connections and drive loyalty, thereby enriching the theoretical foundations of customer engagement. Mediation Mechanism: This study identifies purchase decisions as a key mediator between gamification, customer reviews, and loyalty. This advances the theoretical model by elucidating the sequential process through which engagement factors translate into behavioral outcomes, offering new insights into the pathways linking engagement to loyalty. Contextual Contribution to Gamification Theory: By contextualizing gamification within e-commerce, this study extends the applicability of gamification theory to online shopping environments. It demonstrates how gamified experiences can enhance emotional attachment and sustained engagement, contributing to the growing body of literature on gamification in digital commerce. Moreover, our findings have practical implications for marketing and consumer behavior, as they show how the integration of social proof (through reviews) and interactive elements (through gamification) can create a more immersive shopping experience and influence consumer behavior.

Practical Implications

For e-commerce companies, the results of this study underscore the importance of implementing the correct gamification elements to increase customer loyalty. Reward facilities in the form of points, challenges, or awards can create a pleasant shopping experience and increase customer transaction frequency. Moreover, these results suggest that customer reviews should be managed well to strengthen

customer trust in products or services, making it easier for them to make purchase decisions. By implementing the right strategy in both aspects, companies can strengthen loyalty and increase their competitiveness amidst the tight competition in the e-commerce market. This emphasis on practical implications should leave the audience feeling informed and equipped with actionable insights.

Research Limitations

This study, like any other study, has limitations. These limitations include that data collection through an online questionnaire can lead to respondent bias or underrepresentation of responses. By acknowledging these limitations, the audience will feel aware of the scope of the study and its potential biases. This study used quantitative methods, so aspects of customer experience may not have been explored in depth.

While this study provides valuable insights into the role of gamification and online customer reviews in influencing purchase decisions and customer loyalty, there are several avenues for future research to build upon and enhance these findings. Specific recommendations include: Longitudinal Research Design: Future studies could adopt a longitudinal approach to examine how the effects of gamification and customer reviews on loyalty evolve over time. This is a crucial step that would provide deeper insights into the sustainability of engagement and loyalty and the long-term impact of gamified experiences and review systems in e-commerce. The urgency and importance of this approach should be felt by all researchers in the field. Qualitative Validation: A mixed-methods approach, combining quantitative and qualitative techniques, could be employed to explore customer experiences more deeply. For instance, in-depth interviews or focus group discussions could uncover the underlying motivations, emotions, and perceptions triggered by gamification and customer reviews. This would complement the quantitative findings and offer a richer understanding of the psychological mechanisms. Cross-Country Comparisons: Expanding the sample to include respondents from diverse geographical regions would enable cross-country comparisons. This could reveal cultural differences in how gamification and customer reviews influence purchase decisions and loyalty, providing insights into global e-commerce strategies. Experimental Designs: Controlled experiments could be conducted to isolate the specific effects of individual gamification elements (e.g., points, badges, leaderboards) or review features (e.g., star ratings, review length). This would provide more granular insights into which components are most effective in driving engagement and loyalty. Industry-Specific Studies: Replicating this study in different industries (e.g., travel, fashion, or food delivery) could highlight how the impact of gamification and customer reviews varies across sectors. This would offer practical insights for tailoring strategies to specific market contexts. By pursuing these directions, future research can further validate and extend this study's findings, contributing to a more comprehensive understanding of the interplay between gamification, customer reviews, and loyalty in e-commerce. This potential for a more comprehensive understanding should intrigue and inspire researchers in the field, sparking their curiosity and driving them to explore these avenues.

Contributions: SS: Conceptualization; Data curation; Resources, Supervision; writing – original draft; Writing – reviewer & editing, review manuscript; AN: Project administration; Resources; Software;

FJEL: Formal analysis; Funding acquisition; Investigation, Validation; Visualization; SW: Investigation; Methodology; Project administration; Resources; LP: Funding acquisition; Investigation; Methodology; Project administration

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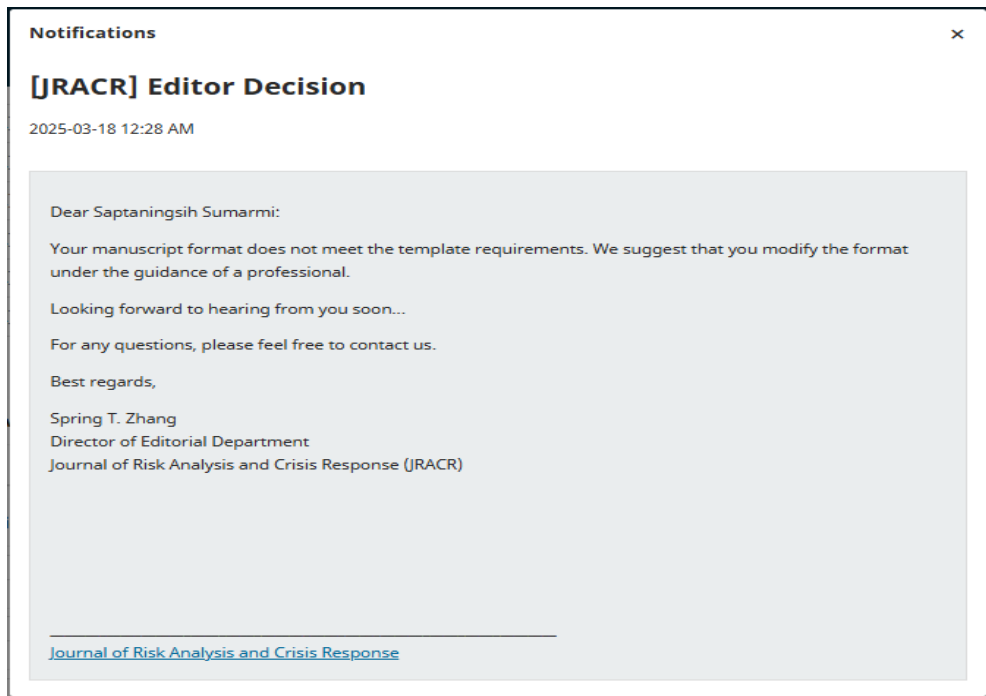
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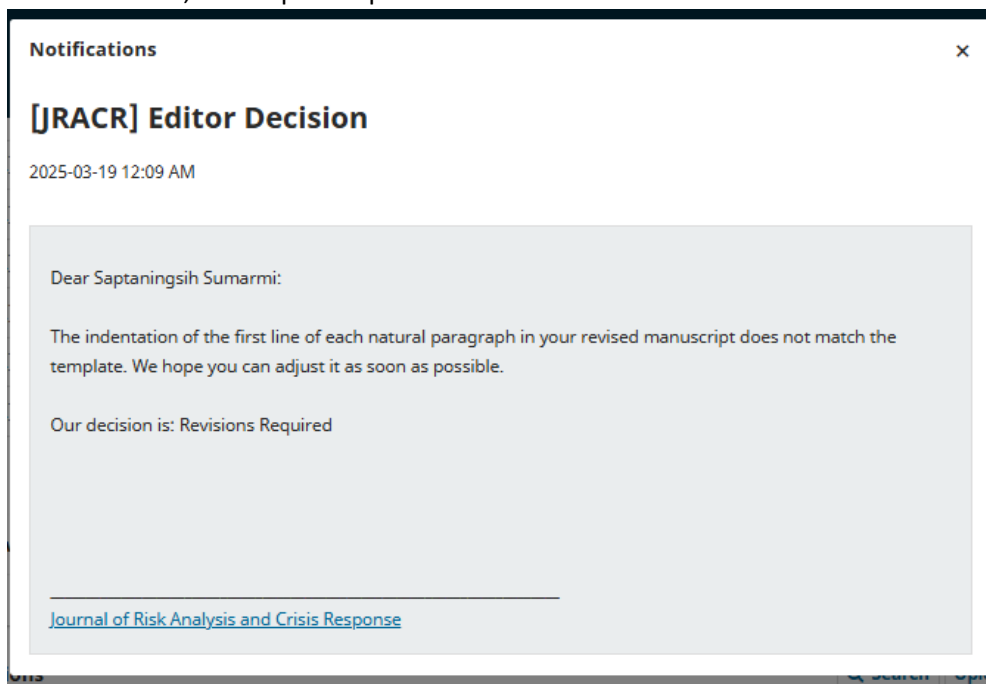
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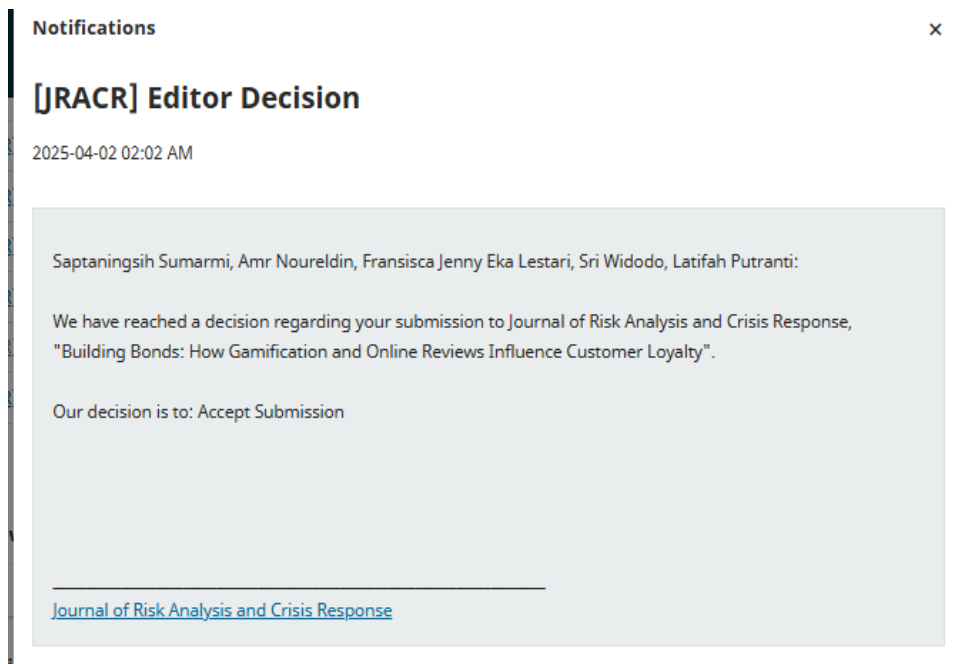
6. 18 Maret 2025, mendapatkan notifikasi untuk menyesuaikan dengan format ulang



7. 18 Maret 2025, penulis mengirimkan kembali manuskrip yg sudah disesuaikan
8. 19 Maret 2025, mendapatkan permintaan untuk revisi format



9. 19 Maret 2025, penulis mengirimkan kembali manuskrip yang sudah direvisi
10. 02 April 2025, mendapatkan notifikasi dari editor yang menyatakan ACCEPT SUBMISSION



9. 04 April 2025, mendapatkan notifikasi jika artikel sudah terbit

