Journal of Information Systems Engineering and Management
2025, 10(24s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Analyzing the Effect of Gamification Elements in E-Commerce on Buying Intention in Gen Z Students in the Jakarta Area

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ARTICLE INFO

Received: 18 Dec 2024

Revised: 05 Feb 2025

Accepted: 18 Feb 2025

ABSTRACT

Introduction: This study analyzes the influence of gamification features specifically Competition, Rewards, and Social Interaction on Customer Experience, Customer Engagement, and Repurchase Intention among Gen Z students in DKI Jakarta who are active users of the Shopee e-commerce platform. A quantitative research method was employed, utilizing Smart PLS version 4.1.0.9 for data analysis, with responses collected from 400 respondents. The findings reveal that Competition has a positive but statistically insignificant effect on Customer Experience, while Rewards demonstrate a positive and significant impact. Interestingly, Social Interaction does not significantly influence Customer Experience. However, both Competition and Rewards positively affect Customer Engagement. Furthermore, the study confirms that Customer Experience and Customer Engagement significantly and positively influence Repurchase Intention. These results provide valuable insights into the role of gamification in enhancing customer interactions and driving repeat purchases, particularly in the context of e-commerce platforms targeting younger demographics. The study highlights the importance of strategically implementing gamification elements, such as rewards, to foster deeper customer engagement and loyalty. This research contributes to the growing body of knowledge on gamification's potential to shape consumer behavior in digital marketplaces.

Keywords: Gamification, E-Marketplace, Generation Z.

INTRODUCTION

In the era of Industry 4.0, digitalization has transformed nearly every aspect of life, including commerce, Traditional methods no longer sufficient, businesses must now proactively engage customers by building relationships and communities. The proliferation of smartphones and social media has further integrated digitalization into daily life, making it a cornerstone of modern economic activities. According to a 2024 survey by the Indonesian Internet Service Providers Association (APJII), internet users in Indonesia grew by 79.5%, reflecting the rapid shift towards online platforms (Putra & Darma, 2021).

The global e-commerce market has seen significant growth, with projections indicating that retail e-commerce sales will reach $6.3 trillion by 2024, and continue to grow by 39%, surpassing $8 trillion by 2027 (Meilisa et al., 2023). The competitive landscape of these platforms has driven the adoption of innovative strategies, such as gamification, to enhance user experience, motivation, and loyalty (AdiAhdiat,2024). Gamification applies game-like elements to non-game contexts to encourage engagement and repeat purchases. This strategy is increasingly being used by e-marketplaces to boost customer interaction and competitive advantage. online shopping is a deeply ingrained habit, shaped by their familiarity with digital technologies and social media for Generation Z, Known as "digital natives," Generation Z exhibits high levels of consumption, often driven by the convenience and accessibility

of online platforms. Their purchasing behavior is influenced by factors such as price sensitivity, discounts, ease of use, and the appealing features of e-marketplaces, by (APJII, 2024).

In this study, the sample is focused on Generation Z students in Jakarta, The Secretary of the Jakarta Office of Empowerment, Child Protection, and Population Control (DPPAPP), Darwoto, stated that in 2024, nearly half (46%) of Jakarta's population consists of Generation Z, accounting for 23% of the total population. This suggests that almost all university students in Jakarta are Generation Z.

Given the increasing importance of gamification in enhancing customer experiences and driving repurchase intentions, this study focuses on examining the impact of specific gamification elements—competition, social interaction, and rewards—on customer experience and satisfaction among Generation Z students in Indonesia. This research seeks to fill gaps identified in previous studies by emphasizing the role of these gamification elements in influencing consumer behavior in e-marketplaces. (Chang & Yu, 2023a), (Wang & Yao, 2020a), (Chang & Yu, 2023b), (Djohan et al., 2022), (Halim et al., 2022), (Elgarhy et al., 2024), (Hsu, 2023a).

LITERATURE REVIEW

Gamification in E-Marketplaces

Gamification involves incorporating elements and principles typically used in game design into environments or activities that are not inherently game-related., such as e-commerce, to enhance cutomer experience and customer engagement. It is built on the foundation that by making online shopping more interactive and enjoyable, users are more likely to engage with the platform and return for future purchases (Insley & Nunan, 2014), (Minge & Cymek, 2020).

The Relationship Between Competition in Gamification and Customer Experience

In games, competition naturally triggers participants' adrenaline. According to Xu et al. (2020), the satisfaction derived from competing—whether against the system, others, or oneself—can enhance consumers' desire to achieve better results. Competition also amplifies the sense of uncertainty, as the achievement of challenges depends on the performance of other participants. In virtual learning environments, competitive elements have been shown to boost student motivation and engagement (Zairon et al., 2023). Research findings by Akbari & Bigdeli (2022) indicate that gamification has a positive impact on customer experience, with the competition element being the most influential factor.

H1: Competition positively influences customer experience.

The Relationship Between Social Interaction in Gamification and Customer Experience

As explained in the Theory of Planned Behavior and verified through case studies, both personal and social factors can influence consumers' purchase intentions. Social interaction also encompasses gamification elements designed to enable players to communicate, collaborate, and compete with one another (Miller et al., 2016; Morschheuser et al., 2017). The social interaction element encourages users to engage in social activities where they interact and collaborate with others. The study (Zandi & Sekhavat, 2024) highlights a strong positive relationship between the use of gamification strategies and improved customer experience, especially when social interaction components are integrated. This approach is recognized as an innovative and environmentally friendly method to elevate customer engagement and satisfaction.

H2: Social interaction positively influences customer experience.

The Relationship Between Rewards in Gamification and Customer Experience

The rewards element in gamification motivates users to continue playing in order to earn rewards. Users enjoy receiving prizes and experience a sense of achievement when earning rewards based on their accomplishments, perceiving these achievements as personal rewards (Schaffarczyk & Ilhan, 2019). Additionally, customers have the opportunity to redeem their points for rewards that can be exchanged for products sold on e-commerce platforms (Tsou & Putra, 2023). Since gamification incorporates a reward system, it influences consumer behavior (Shepperd, 2001) by offering incentives that foster a sense of appreciation and satisfaction among users. Research by (Wenli Zou et al., 2022) suggests that surprise (exclusive) rewards have a positive impact on customer experience.

H3: Rewards positively influence customer experience.

The Relationship Between Competition in Gamification and Customer Engagement

Competition can drive customers to participate in gamified marketing activities; therefore, we hypothesize that gamification mechanisms positively impact customer experience in Indonesia by enhancing their overall experience. It is recognized that losing in contests can have a combination of two potential negative effects on customer experience and engagement. On one hand, customers receive feedback on their performance in the contest, which involves the certainty of whether they will receive rewards or not (Malone, 1981). The research (Akbari & Bigdeli, 2022) shows that gamification has a positive effect on customer experience, and the competition element in gamification has the strongest positive effect.

H4: Competition positively influences customer experience.

The Relationship Between Social Interaction in Gamification and Customer Engagement

Social interaction also includes gamification elements designed to enable players to communicate, collaborate, and compete with one another in the game (Miller et al., 2016; Morschheuser et al., 2017). The elements of social interaction encourage users to engage in social activities where they interact and collaborate with other users. The research (Zandi & Sekhavat, 2024) states that there is a significant positive correlation between gamification strategies and customer experience. One of the elements is social interaction, which offers an innovative and environmentally friendly approach to enhance customer experience. In another study (Srivastava & Kaul, 2014), it was shown that convenience and social interaction influence both customer experience and customer satisfaction.

H5: Social interaction positively influences customer experience.

The Relationship Between Rewards in Gamification and Customer Engagement

Rewards elements in gamification motivate users to continue playing the game to earn rewards. Users enjoy receiving rewards and appreciate the feeling of obtaining them based on their achievements; they perceive achievements as personal rewards. Additionally, achievements and rewards are interconnected (Schaffarczyk & Ilhan, 2019). The research (Wenli Zou et al., 2022) suggests that surprising (exclusive) rewards have a positive impact on Customer Experience.

H6: Rewards positively influence customer experience.

The Relationship Between Customer Experience and Customer Engagement to Repurchase Intention

Customer experience plays a crucial role in the use of marketplace applications, where a pleasant experience encourages customers to continue using the application. The results indicate a positive effect of gamification on repurchase intention through customer experience and customer engagement (Djohan et al., 2022). Another study findings indicate that the gamification elements of rewards and competition have a positive impact on customer engagement and repurchase intention (Chang & Yu, 2023b).

The study by (Hsu, 2023b) reveals that gamification is the most effective approach to strengthen brand love, enhance customer engagement, and improve brand experiences and repurchase intention. The findings of (Elgarhy et al., 2024) also show that the implementation of gamification has a positive impact on repurchase intention, customer engagement, and intrinsic motivation.

H7: Customer Experience positively influences repurchase intention.

H8: Customer Engagement influences repurchase intention.

Based on the above literature and discussion following conceptual framework has been developed research framework as shown in **Figure 1.**

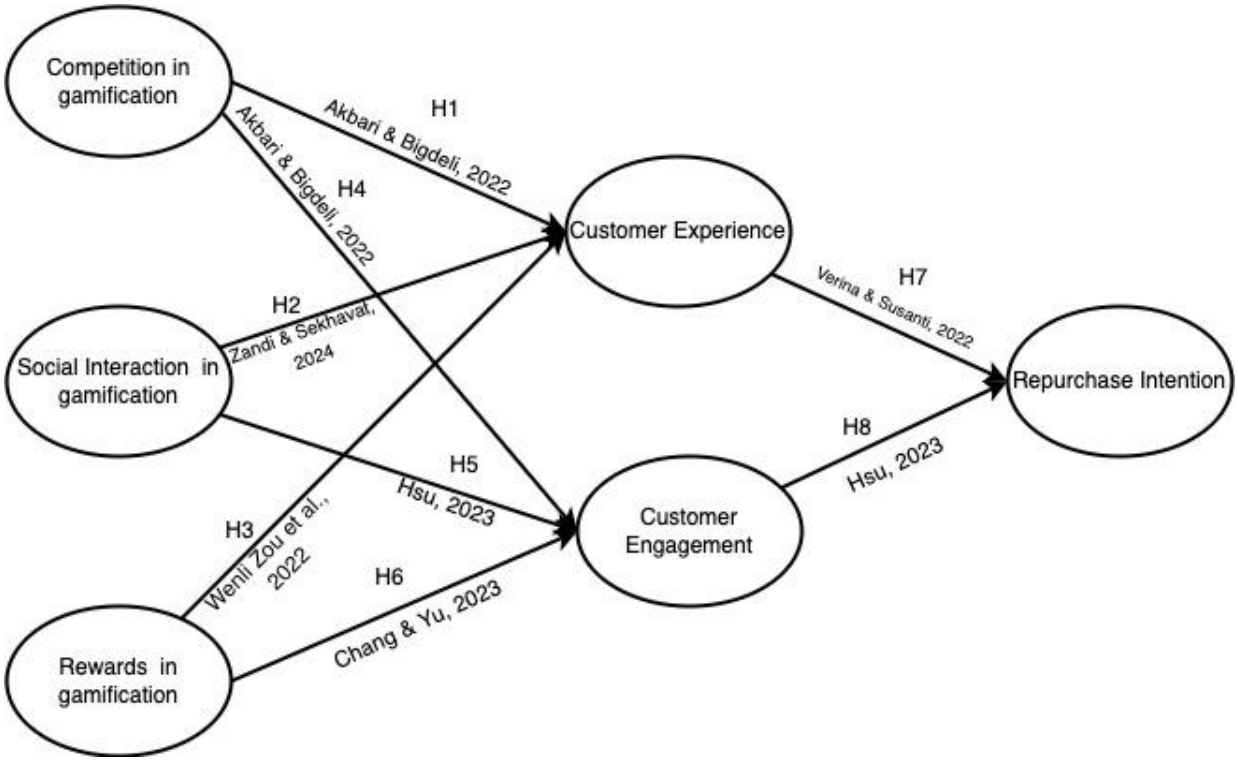

Figure 1. Conceptual Framework

METHODOLOGY

This research uses a quantitative method with a survey approach to examine the influence of gamification on repurchase intention, mediated by customer experience and customer engagement on an e-commerce platform. This method was chosen as it is suitable for measuring relationships between variables and enables data collection from a large sample in a short period of time. We collect data from Generation Z students in the Jakarta area, a questionnaire will be distributed online. The dissemination and completion of the questionnaire will be conducted via Google Forms, shared through Instagram, X (formerly Twitter), WhatsApp, and Telegram. The link to access the form is provided, and the complete version of the questionnaire is attached in the appendix.

According to information from the Central Bureau of Statistics (BPS), the number of university students in Jakarta, including both public and private institutions under the Ministry of Research, Technology, and Higher Education, is 701,366 individuals. The sample size in this study was calculated using the Slovin formula. With a margin of error of 5%, the required sample size is approximately 400 respondents.

Each variable is measured using a questionnaire. The purpose of the questionnaire is to gauge respondents' reactions to each variable using a Likert scale ranging from 1 to 4 points, where 1 stands for Strongly Disagree (SD), 2 for Disagree (D), 3 for Agree (A), and 4 for Strongly Agree (SA). The Likert scale, created by Rensis Likert, is designed to measure respondents' attitudes and opinions (Joshi et al., 2015). The questionnaire statements in this study are based on previous research, including works by (Aletha Shahisa & Fitri Aprilianty, 2022; Bouzaabia et al., 2024; Chang & Yu, 2023a; Högberg et al., 2019; Kim et al., 2020; Mominzada et al., 2022; Nilsson & Wall, 2017; Shang & Bao, 2022; Wang & Yao, 2020b; Yang et al., 2020).

RESULTS

This questionnaire collected responses from 400 participants, with 24 missing values, following Roscoe's rules and processed using SmartPLS (Adura et al., 2015; Al-Okaily et al., 2020). The respondents consisted of Generation Z students studying in Jakarta. The collected data encompasses various aspects, as presented in **Table 1.**

Table 1. Demographic Characteristics

Demographic Characteristics	Frequency	Presented
Are you a Gen Z student, studying in DKI Jakarta and a Shopee user?		
Yes	376	94%
No	24	6%
Gender		
Woman	240	63,8%
Man	136	36,2%
Age		
17-23	298	75,2%
24-28	80	24,8%
Are you currently a working student?		
Yes	231	61,4%
No	145	38,6%
How often do you shop on Shopee		
1-5 times a month	233	62%
6-10 times a month	108	28,7%
>11 times a month	23	6,1%
Others	12	3,2 %
How often do you play games on the Shopee app		
1-5 times a month	236	62,8%
6-10 times a month	79	21%
>11 times a month	26	6,9%
Others	35	9,3%

The data collected from the questionnaire were processed with SmartPLS version 4.1.0.9 to create a calculation model that reflects the results of the hypothesis testing in this research. The use of SmartPLS 4.1.0.9 supports the analytical approach of this study through SEM (Structural Equation Modeling), which includes steps such as convergent validity, discriminant validity, the Fornell-Larcker test, and hypothesis testing (Latan & Ghozali, 2015). The following **figure 2** illustrates the structural model of the study.

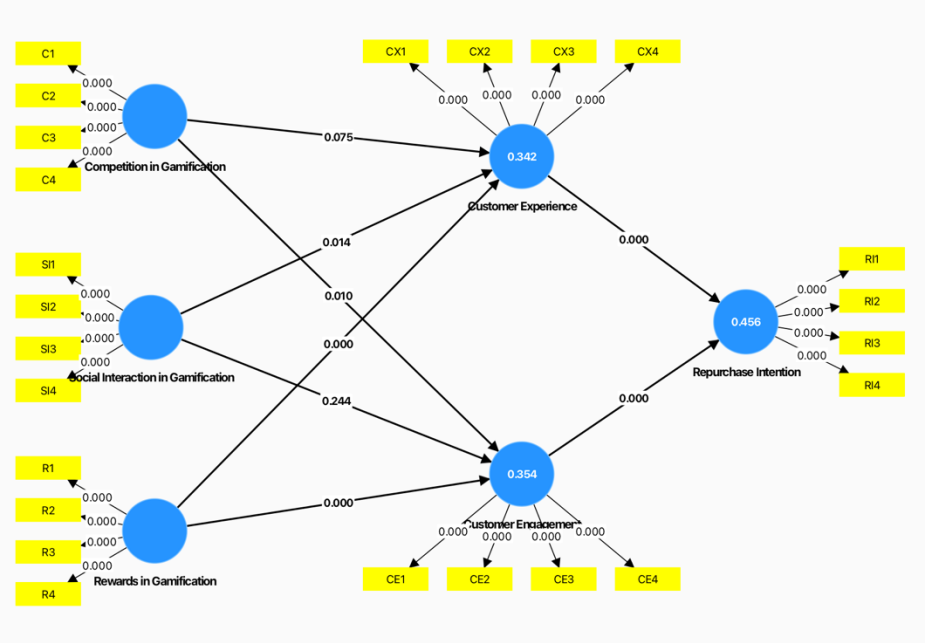

Figure 2. Structural Model

Validity Analysis

Before analyzing and interpreting the research results, it is essential to carefully identify and process the data to ensure its accuracy. Convergent validity helps assess the extent to which each indicator within a variable truly measures what it is intended to measure by analyzing the factor loading values. To determine whether the measurement items meet the validity requirements, this can be evaluated based on factor loading and AVE values.

Table 2. Convergent Validity

Indicator	Competition in Gamification	Customer Engagement	Customer Experience	Repurchase Intention	Rewards in Gamification	Social Interaction in Gamification
C1	0.891					
C2	0.881					
C3	0.892					
C4	0.887					
SI1						0.925
SI2						0.898
SI3						0.912
SI4						0.924
R1					0.923	
R2					0.912	
R3					0.775	
R4					0.905	
CX1			0.929			
CX2			0.912			

CX3		0.903		
CX4		0.922		
CE1	0.940			
CE2	0.910			
CE3	0.926			
CE4	0.911			
RI1			0.944	
RI2			0.930	
RI3			0.918	
RI4			0.939	

Based on **Table 2** the results from the outer loadings test show that all indicators meet the required criteria, as they fall within the specified validity range. According to (Cleff, 2019; J. F. B. Hair et al., 2014), the acceptable threshold for convergent validity is >0.70.

To further validate each construct and ensure the discriminant validity is met, The Fornell-Larcker test is employed to evaluate the values associated with each variable. **Table 3** presents the outcomes of this test applied to the questionnaire data, demonstrating that the data satisfies the necessary conditions for discriminant validity.

Table 3. Fornell-Lacker test

	Competition in Gamification	**Social Interaction in Gamification**	**Rewards in Gamification**	**Customer Experience**	**Customer Engagement**	**Repurchase Intention**
Competition in Gamification	0.888					
Social Interaction in Gamification	0.606	0.915	0.499	0.451	0.408	0.388
Rewards in Gamification	0.512		0.881	0.542	0.563	0.506
Customer Experience	0.438			0.917	0.556	
Customer Engagement	0.456				0.922	
Repurchase Intention	0.378			0.588	0.605	0.933

Reability Test

In addition to testing the validity of the research data, it is crucial for researchers to conduct reliability testing to ensure the data's dependability before proceeding with further analysis. Reliable data will enhance the quality of the information produced (J. F. Hair et al., 2019a). According to (Al-Okaily et al., 2020), Using SmartPLS for reliability analysis provides a robust and adaptable framework for interpreting item-level results and understanding

the relationships between key variables. In this process, Cronbach's alpha is utilized to evaluate the internal consistency of the items, while composite reliability (CR) is assessed to confirm the overall reliability of the data. The model is considered reliable if the average variance extracted (AVE) is > 0.50 and the composite reliability (CR) is > 0.70. The results confirm that the proposed model meets these criteria, demonstrating its reliability and validity (Sofyan Yamin & Heri Kurniawan, 2011).

Table 4. Construct validity and reliability data

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Competition in Gamification	0.911	0.915	0.937	0.789
Customer Engagement	0.941	0.942	0.958	0.850
Customer Experience	0.936	0.937	0.955	0.840
Repurchase Intention	0.950	0.950	0.964	0.870
Rewards in Gamification	0.903	0.918	0.932	0.776
Social Interaction in Gamification	0.935	0.938	0.953	0.837

Determinant Coeddicient

This test aims to determine the extent to which the model can explain the variation in the dependent variable. An R^2 value close to 1 indicates a strong influence of independent variables on the dependent variable (Chin & Marcoulides, 1998; J. F. Hair et al., 2014) classifies R^2 values of approximately 0.67 as strong, 0.33 as moderate, and 0.19 as weak. The testing process uses SmartPLS Ver 4.1.0.9, which can be seen in the **Table 5** below:

Table 5. Determinant Coeddicient

Variables	*R-square*	*R-square adjusted*	*Result*
Customer Engagement	0.359	0.354	Moderat
Customer Experience	0.347	0.342	Moderat
Repurchase Intention	0.458	0.456	Moderat

Based on the data presented in the table above, all three variables have R^2 values classified as moderate (between 0.25 and 0.75) according to (J. F. Hair et al., 2019b). This indicates that the model has a reasonably good predictive ability, although it has not yet reached the substantial category (≥ 0.75).

Hypothesis Testing

Hypothesis testing is conducted to determine the accepted relationships between variables. To perform the hypothesis test, the researcher utilized SmartPLS Ver. 4.1.0.9 to conduct a bootstrapping test. The projected results of the bootstrapping model are presented in the figure below.

Table 6. Hypothesis Testing

Variabels	T statistics (|O/STDEV|)	P values
Competition in Gamification -> Customer Experience	1.780	0.075

Social Interaction in Gamification -> Customer Experience	2.451	0.014
Rewards in Gamification -> Customer Experience	5.836	0.000
Competition in Gamification -> Customer Engagement	2.576	0.010
Social Interaction in Gamification -> Customer Engagement	1.164	0.244
Rewards in Gamification -> Customer Engagement	6.437	0.000
Customer Experience -> Repurchase Intention	5.306	0.000
Customer Engagement -> Repurchase Intention	6.067	0.000

Based on the hypothesis testing results presented in **Table 6**, there are several relationships between variables, such as the following:

Here's the revised text with "the hypothesis states that" replaced by just "the influence":

- In hypothesis 1 testing, the influence of “Competition in Gamification on Customer Experience” shows a T-statistics value of 1.780 < 1.96 with a P-Value of 0.075 > 0.05. Thus, it is considered influential but not significant (Cleff, 2019; Latan & Ghozali, 2015).
- In hypothesis 2 testing, the influence of “Social Interaction in Gamification on Customer Experience” is considered significant because the results show that the T-statistics value reaches 2.451 > 1.96 with a P-Value of 0.014 < 0.05. The hypothesis test results are based on (Latan & Ghozali, 2015; Sekaran & Bougie, 2016), stating that if the test values align with the specified criteria, it indicates a significant positive impact.
- In hypothesis 3 testing, the influence of “Rewards in Gamification on Customer Experience” is accepted, as the obtained results show a T-statistics value of 5.836 > 1.96 with a P-Value of 0.000 < 0.05. This confirms that the relationship has a significant positive impact as it meets the required criteria (Cleff, 2019).
- In hypothesis 4 testing, the influence of “Competition in Gamification on Customer Engagement” is considered significant, as the results indicate a T-statistics value of 2.576 > 1.96 with a P-Value of 0.010 < 0.05. According to (Latan & Ghozali, 2015; Sofyan Yamin & Heri Kurniawan, 2011), a T-statistics value greater than 1.96 with a P-Value below 0.05 confirms a significant positive impact.
- In hypothesis 5 testing, the influence of “Social Interaction in Gamification on Customer Engagement” shows a T-statistics value of 1.164 < 1.96 with a P-Value of 0.224 > 0.05. These results do not meet the specified criteria of T-statistics > 1.96 and P-Value < 0.05, indicating that while it has an impact, it is not significant (Cleff, 2019; Latan & Ghozali, 2015).
- In hypothesis 6 testing, the influence of “Rewards in Gamification on Customer Engagement” is confirmed, as the results indicate a T-statistics value of 6.437 > 1.96 with a P-Value of 0.000 < 0.05. This demonstrates that the positive influence of Gamification rewards in the Shopee application on Repurchase Intention aligns with the specified criteria of T-statistics > 1.96 and P-Value < 0.05 (Cleff, 2019).
- In hypothesis 7 testing, the influence of “Customer Experience on Repurchase Intention” is rejected, as the results show a T-statistics value of 1.177, which is lower than the required threshold of 1.645, and a P-Value of 0.240, which is greater than 0.05. Additionally, the path coefficient of 0.082 suggests that the positive influence of Customer Experience from Gamification in the Shopee application on Repurchase Intention is not significant.
- In hypothesis 8 testing, the influence of “Customer Engagement on Repurchase Intention” is accepted, as the obtained results show a T-statistics value of 2.469, which is greater than the required 1.645, and a P-Value of 0.014, which is below 0.05. Additionally, the path coefficient of 0.178 confirms the positive influence of Customer Engagement from Gamification in the Shopee application on Repurchase Intention.

CONCLUSION

This study examines the impact of gamification features on customer experience and engagement, and how these factors influence repurchase intention in shopee e-commerce users. the findings reveal that competition in gamification has a positive, though not significant, effect on customer experience, with features like leaderboards and badges enhancing user appeal. social interaction in gamification does not significantly impact customer experience, as gen z users tend to prefer higher-competition games. on the other hand, rewards significantly improve customer experience by offering redeemable points, and personalizing these rewards can further enhance user satisfaction.

Regarding customer engagement, competition in gamification shows a significant positive impact, motivating users to complete challenges and interact more with the app. while social interaction in gamification has a positive but insignificant effect on customer engagement, adding sharing features may help increase interaction. rewards significantly boost customer engagement, with users valuing vouchers that can be used for future purchases. furthermore, customer experience significantly influences repurchase intention, underlining the importance of engaging gamification features such as competition and rewards. lastly, customer engagement has a positive influence on repurchase intention, as gamification motivates users to return and increases the likelihood of repeat purchases.

This research highlights the significant role of Gamification features, particularly Competition and Rewards, in enhancing Customer Experience and Engagement on the Shopee platform. These elements not only contribute to user satisfaction but also drive higher Repurchase Intention, suggesting that e-commerce platforms should continue to innovate and tailor their Gamification strategies to meet the preferences of their users, especially the younger Gen Z demographic. By optimizing these features, companies can foster greater user loyalty and sustained engagement.

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