



I-SMART

*International Seminar and Conference
on Management, Research, and Transformation*

THE INTERPLAY OF GAMIFICATION AND CUSTOMER SATISFACTION IN BUILDING CUSTOMER LOYALTY: EVIDENCE FROM THE E-COMMERCE SECTOR

Roni Nurohman

Faculty of Economics and Business, Siliwangi University, Tasikmalaya, Indonesia

223402065@student.unsil.ac.id

Abstract. This study aims to evaluate a model that explains the factors influencing customer loyalty in a highly competitive e-commerce environment, emphasizing the impact of gamification on customer loyalty through the mediating function of customer satisfaction. This study utilized a survey design and quantitative methodology to gather data from 135 active users of the Shopee e-commerce platform in Indonesia via an online survey, employing purposive sampling approaches. We used AMOS software and Covariance-Based Structural Equation Modeling (CB-SEM) to look at the direct and indirect links between variables. The findings indicate that gamification does not exert a direct influence on customer loyalty. Instead, its effect emerges indirectly through the enhancement of customer satisfaction, which functions as the mediating mechanism linking gamification initiatives to the formation of loyal customer behavior. Theoretically, this research amalgamates the Self-Determination Theory, Expectation-Confirmation Theory, and Theory of Planned Behavior to furnish a comprehensive knowledge of client loyalty in e-commerce. From a managerial perspective, these findings indicate that e-commerce platforms must enhance gamification methods as a potent means to elevate client pleasure and loyalty. This study presents a complete model that synthesizes user experience (gamification) and psychological dimensions (satisfaction), significantly contributing to the understanding of customer satisfaction's mediation role in connecting gamification and customer loyalty.

Keywords; Customer Loyalty, Gamification, Customer Satisfaction, E-Commerce.

1. Introduction

The e-commerce sector in Indonesia has undergone swift expansion, propelled by enhanced internet accessibility and widespread smartphone utilization. E-commerce is transforming transaction methods, establishing a distinctive purchasing experience, and endeavoring to cultivate customer loyalty to maintain competitiveness. Data from the Central Statistics Agency (2025) indicates that the value of e-commerce transactions in Indonesia in 2023 amounted to 1,100.87 trillion rupiah, with 32.74% of this value derived from marketplace sales (BPS, 2025). Platforms like Shopee have emerged as dominant entities, possessing substantial market share and a considerable number of active users (We Are Social, 2024). Intense competition in the e-commerce sector necessitates that companies continually innovate to sustain and enhance customer loyalty.

Customer loyalty is a key factor for business sustainability, as loyal customers tend to make repeat purchases, give positive recommendations, and resist competitor offers (Oliver, 1980). Increased customer loyalty occurs when customers feel satisfied with the service they receive, which meets or even exceeds their expectations (Taufik et al., 2022). Satisfied customers show loyalty to the brand and intend to make repeat purchases and reduce their search for other brands to reduce risk (Uzir et al., 2025). Other studies mention that satisfaction is a precursor to loyalty and has been proven to have a significant influence on loyalty (Lin et al., 2020). Thus, customer satisfaction has been proven to be

a major determinant of loyalty, so companies must focus on factors that can increase satisfaction to gain customer spending and loyalty.

Global companies have innovated by adopting gamification on e-commerce platforms to provide a more unique and enjoyable shopping experience. Gamification involves the integration of game features within a non-gaming context to enhance user engagement and motivation (Ahmad et al., 2020). Gamification involves features such as points, badges, challenges, and leaderboards that can make the shopping experience more interesting and enjoyable. Previous research tested loyalty programs using gamification implemented in mobile applications. The results showed that gamification-based loyalty programs were proven to increase customer participation in continuing to use and re-download the application (Hwang & Choi, 2020). In line with recent research showing that gamification has a positive impact on customer loyalty, both directly and indirectly through increased customer engagement (Zega et al., 2025). Based on this empirical evidence, gamification has been proven to be a predictor of customer loyalty. Game elements in a non-game context used on digital platforms such as e-commerce have been proven to be a direct predictor of customer loyalty. However, the role of customer satisfaction in bridging the relationship between gamification and loyalty has yet to be explored (Ramdhani et al., 2024).

To understand this relationship, this study integrates three main theoretical foundations, namely Self-Determination Theory (SDT), Expectation Confirmation Theory (ECT), and Theory of Planned Behavior (TPB). Based on SDT (Deci & Ryan, 1985), gamification can fulfill the basic psychological needs of users, namely autonomy, competence, and relatedness. These dimensions foster intrinsic motivation and a sense of satisfaction when interacting with the application (Dunn & Zimmer, 2020). This satisfaction plays an important role, as explained in ECT (Oliver, 1999), which states that satisfaction arises when the user's actual experience matches or exceeds their initial expectations. In the context of e-commerce, the confirmation of expectations regarding the quality of the gamification experience will strengthen customer satisfaction. Furthermore, the TPB (Ajzen, 1991) provides a framework for explaining how satisfaction influences loyalty intentions and behavior. In this model, positive attitudes toward e-commerce formed from gamification experiences and satisfaction will increase customers' intentions to continue using the application, recommend it to others, and make repeat purchases. Thus, customer satisfaction functions as a psychological mechanism that bridges the relationship between gamification and customer loyalty.

Although previous studies have examined the relationship between satisfaction and loyalty as well as gamification and loyalty, few have integrated the role of customer satisfaction in mediating the relationship between gamification and loyalty. In fact, the success of technical factors such as gamification can be measured through customer satisfaction, which ultimately increases loyalty simultaneously. This gap is what drives the need for this research. Based on the identified phenomena, problem statement, and research gap, this study aims to examine the relationship between gamification and loyalty, as well as the role of customer satisfaction in mediating this relationship. This study is expected to contribute a simple model that can serve as a practical guide for e-commerce companies in increasing satisfaction and loyalty through optimizing the shopping experience using effective gamification strategies. Based on this framework, the research hypotheses are formulated as follows:

H1: Gamification has a significant effect on customer loyalty.

H2: Gamification has a significant effect on customer satisfaction.

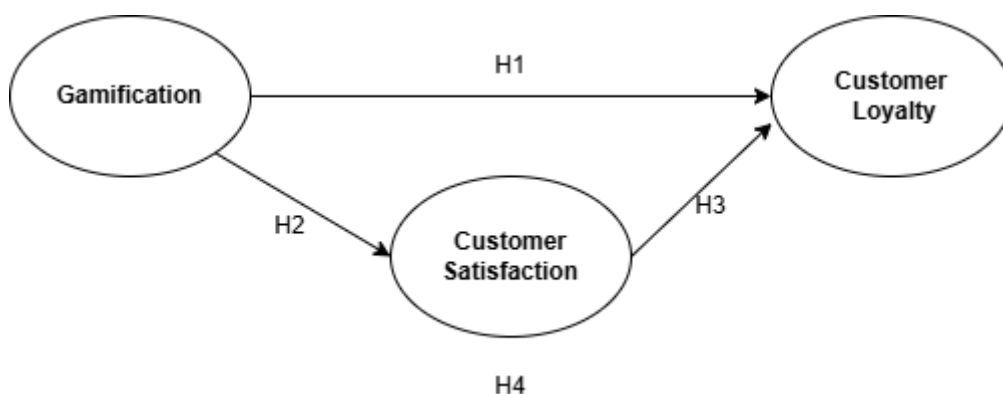
H3: Customer satisfaction significantly affects customer loyalty.

H4: Customer satisfaction mediates the relationship between gamification and customer loyalty.

2. Research Methods

This study uses a quantitative survey design to examine the relationship between gamification, customer satisfaction, and customer loyalty. Data were analyzed using Covariance-based and Variance-based Structural Equation Modeling (CB-SEM) in AMOS. The selection of CB-SEM was based on the main objective of this study, which was to test and confirm established theories derived from comprehensive literature reviews. CB-SEM is the most appropriate method for confirmatory purposes. This method minimizes the difference between the covariance matrix estimated from the theoretical model and the observed covariance matrix (Hair et al., 2013).

This study required respondents who had specific experience with the Shopee e-commerce platform, so purposive sampling was used. The criteria used for purposive sampling were as follows: 1) Respondents had made at least one transaction on the Shopee e-commerce platform in the last three months; 2) Respondents had used or been involved with gamification features such as coupons, spin wheels, reward points, Shopee planting, mini games, etc. The minimum sample size is 135 people, with an estimated number of parameters of 27 items (Hair et al., 2013). The sample size for this study is 140 respondents. The purpose of data collection is to measure the relationship between variables at a certain point in time without changing the variables. Thus, data collection is conducted cross-sectionally. (Creswell, 2014) The research uses a semantic differential scale questionnaire. On a continuum between two bipolar adjectives, this scale allows for the simultaneous measurement of the direction and intensity of respondents' feelings (Osgood et al., 1957). To explain the research thought process, the following model is used:



Source: Research Findings, 2025

Fig 1. Research Framework

Based on the structural research model, each construct was measured using indicators adapted from previous valid and reliable research, as follows:

Table 1. Source of Variable Indicators

Variable	Indicators	Source
Gamification	<i>Enjoyment</i>	(Xi & Hamari, 2020) and (Qian et al., 2023)
	<i>Happiness</i>	
	<i>Competition</i>	
	<i>Interaction</i>	
	<i>Engagement</i>	
	<i>Exploration</i>	
Customer Satisfaction	<i>Fulfillment</i>	(Oliver, 1999) and (Raza et al., 2020)
	<i>Expectation</i>	
	<i>Usability</i>	
Customer Loyalty	<i>Repurchase</i>	(Oliver, 1999) and (Anser et al., 2021)
	<i>Recommendation</i>	
	<i>Advocacy</i>	

Source: Research Results, 2025

3. Results and Discussion

An online poll utilizing purposive sampling approaches garnered 135 valid responses from 140 participants. The bulk of research participants were women, comprising 60.7%, while men constituted 39.3%. This is attributable to the group's high engagement with online platforms and e-commerce. The majority of respondents possessed a high school education (23.7%), followed by university or school students (76.3%), civil servants (12.6%), housewives (8.1%), entrepreneurs (21.5%), and others (27.4%). The majority of respondents said that their monthly internet expenditures range from Rp100,000 to Rp500,000. Moreover, notable disparities exist in the frequency of respondents' online shopping activities. A total of % engage in online shopping two to three times monthly, 4.4% shop once, 33.3% shop three to five times, and 25.5% shop more than five times every month. The data indicates that Generation Z, characterized by a consumptive disposition, engages in online shopping with moderate regularity and relatively low expenditure. Table 2 presents an overview of the characteristics of the respondents.

Table 2 . Respondent Characteristics

Characteristics	Attribute	Total	%
Gender	Male	53	39.3
	Female	82	60.7
Occupation	Student	41	30.4
	Civil Servant	17	12.6
	Housewife	11	8.1
	Entrepreneurs	29	21.5
	Others	37	27.4
Education	Senior High School	32	23.7
	Diploma/Bachelor's Degree	103	76.3
Monthly Online Shopping Expenditure	<100k	8	5.9
	100k-500k	59	43.7
	500k-1 million	40	29.6
	>1 million	28	20.7
	1 time	6	4.4
Online Shopping Frequency per Month	2-3 times	50	37
	3-5 times	45	33.3
	> 5 times	34	25.2

The Interplay of Gamification and Customer Satisfaction in Bulding Customer Loyalty: Evidence From The E-Commerce Sector

Source: Research Results, 2025

To ensure data suitability, basic SEM assumptions were tested prior to structural model testing (Hair et al., 2013). The test results showed that the critical ratio values for skewness and kurtosis were within the range of ± 2.58 , indicating that the data was relatively normally distributed. This shows that the research data distribution met the normality standard and allowed for additional model testing. Outlier tests were also conducted at the univariate and multivariate levels. The minimum and maximum Z-scores for each indicator were within the range of ± 3 at the univariate level, indicating that there were no significant extreme observations. Meanwhile, at the multivariate level, the highest Mahalanobis distance value was compared to the chi-square table value ($df = 12$; $p < 0.001$). The analysis results show that there are no observations with Mahalanobis values above the critical chi-square value, so the assumption test results indicate that the research data meets the normality criteria and does not contain outliers. In addition, the highest Mahalanobis distance value compared to the chi-square table value at the multivariate level.

Table 3. Measurement, Loadings, CR, and VE

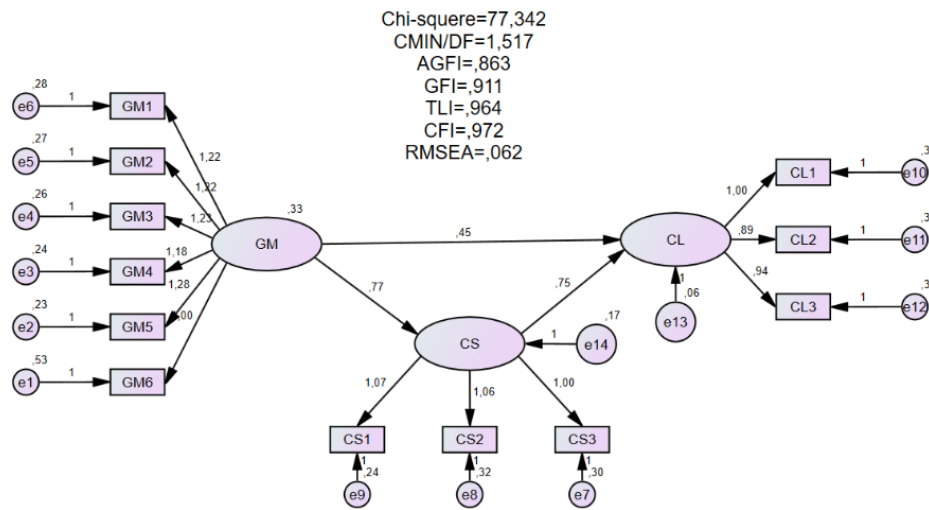
No	Questionnaire Statements	Construct	Indicator	Loading Factor	CR	VE
1	Collecting coins, points, badges, or levels in the Shopee game is fun.	Gamification	G1	0.801	0.904	0.615
2	Achieving challenge targets on Shopee is satisfying.		G2	0.806		
3	Competing with other users on the Shopee game leaderboard is fun.		G3	0.811		
4	Shopee game features, such as Shopee Tanam, allow interaction with friends.		G4	0.811		
5	Gamification features (e.g., spin wheel, mini games) make the shopping experience on Shopee more enjoyable.		G5	0.838		
6	Game elements make users want to keep exploring Shopee.		G6	0.620		
7	The experience of using Shopee is very satisfying.	Customer Satisfaction	CS1	0.799	0.809	0.585
8	Experience using Shopee is as expected.		CS2	0.754		
9	Shopee is very easy to use.		CS3	0.742		
10	Repeat purchases are always made on Shopee.	Customer Loyalty	CL1	0.794	0.807	0.583
11	Shopee is worth recommending to people who need advice.		CL2	0.729		
12	Positive aspects of Shopee will be shared with others.		CL3	0.767		

Source: Research Results, 2025

Reliability indicates measurement consistency, while validity describes the ability of indicators to represent constructs. The analysis results show that all indicators have factor loadings above 0.40, indicating that convergent validity is fulfilled. In addition, all constructs have Construct Reliability (CR) values > 0.70 and Variance

The Interplay of Gamification and Customer Satisfaction in Bulding Customer Loyalty: Evidence From The E-Commerce Sector

Extracted (VE) values > 0.50, thus meeting the reliability criteria. Therefore, the research instrument is declared valid and reliable for use in structural model analysis.



Source: Research Results, 2025

Fig 2. Research Model

The figure illustrates the structural equation model linking Gamification, Customer Satisfaction, and Customer Loyalty. Each latent construct is represented by multiple indicators with adequate loadings, reflecting strong measurement reliability. The structural pathways show that Gamification exerts no significant direct effect on Customer Loyalty, yet it demonstrates a strong positive influence on Customer Satisfaction, which subsequently has a substantial effect on Customer Loyalty. The overall fit indices, including GFI, CFI, TLI, and RMSEA, indicate that the model achieves an acceptable level of statistical fit, supporting the robustness of the proposed theoretical structure.

Table 4. Goodness of Fit (Gof) SEM-AMOS Model

<i>Goodness of Fit</i>	<i>Analysis Results</i>	<i>Cut-off Value</i>	<i>Model Evaluation</i>
<i>Chi-Square</i>	77.342	Expected to be small	Marginal Fit
<i>CMIN/DF</i>	1.517	< 2,000	Good Fit
<i>AGFI</i>	0.863	> 0.90	Marginal Fit
<i>GFI</i>	0.911	> 0.90	Fit
<i>TLI</i>	0.964	> 0.95	Good Fit
<i>CFI</i>	0.972	> 0.95	Good Fit
<i>RMSEA</i>	0.062	< 0.80	Fit

Source: Research Results, 2025

Based on the Goodness of Fit test results on the structural model, a Chi-Square value of 77.342 was obtained, indicating a model suitability level that is still acceptable (marginal fit). The CMIN/DF value of 1.517 is below the threshold of 2.00, so it is categorized as a good fit. The AGFI index of 0.863 is classified as marginal fit, while the GFI of 0.911 meets the model suitability criteria (fit). In addition, the TLI (0.964) and CFI (0.972) values indicate a good fit, and the RMSEA (0.062) is below the threshold value of 0.08, indicating that the model has a low level of approximation error. Overall,

the model fit test results indicate that this research model can be categorized as appropriate and feasible for use in further structural analysis, even though some indices do not meet the standards (Hair et al., 2013)

Hypothesis testing in this study aims to identify and analyze the causal relationships between latent variables estimated in the structural model. (Hair et al., 2013) The testing procedure was carried out using the Structural Equation Modeling (SEM) approach through path analysis using AMOS version 24 software. The evaluation of the hypothesis testing results was based on the critical ratio (CR) or t-value and probability value (p-value). A hypothesis was declared significant and accepted if the p-value was < 0.05, while the direction of influence between variables was determined based on the positive or negative sign of the t-value obtained (Hair et al., 2013).

Table 5. Hypothesis Testing

<i>Influence Relationship</i>			<i>Estimate</i>	<i>S.E.</i>	<i>C.R.</i>	<i>P</i>	<i>Decision</i>
<i>Gamification</i>	→	<i>Customer Loyalty</i>	0.445	0.024	1.000	0.080	<i>Rejected</i>
<i>Gamification</i>	→	<i>Customer Satisfaction</i>	0.774	0.561	1.009	0.021	<i>Supported</i>
<i>Customer Satisfaction</i>	→	<i>Customer Loyalty</i>	0.746	0.476	1.235	0.005	<i>Supported</i>

Source: Research Results, 2025

Table 6. Indirect Effect

<i>Indirect Effect</i>	<i>Estimate</i>	<i>Lower</i>	<i>Upper</i>	<i>P</i>	<i>Decision</i>
GM→CS→CL	0.578	0.365	0.873	0.012	<i>Supported</i>

Source: Research Results, 2025

The analysis demonstrates that Gamification does not exhibit a statistically significant direct effect on Customer Loyalty. Although the estimate value of 0.445 suggests a positive directional tendency, the p-value of 0.080 indicates that the relationship remains above the conventional significance threshold, thereby rendering the effect non-significant in empirical terms. Furthermore, Gamification also has a significant effect on Customer Satisfaction with an estimate value of 0.774 and a p-value of 0.021. In addition, Customer Satisfaction has a significant effect on Customer Loyalty with an estimate of 0.746 and a p-value of 0.005. The mediation test results show that Gamification has a significant effect on Customer Loyalty through Customer Satisfaction with an estimate value of 0.578 and a p-value of 0.012. This finding indicates that customer satisfaction acts as a mediating variable that strengthens the effect of gamification on customer loyalty.

Structural model analysis shows that gamification has a significant effect on customer satisfaction, while customer satisfaction significantly affects customer loyalty. Conversely, the direct relationship between gamification and customer loyalty is not statistically significant. The results of the indirect effect test confirm that customer satisfaction significantly mediates the effect of gamification on customer loyalty. These findings reveal that gamification indirectly increases customer loyalty through the mechanism of satisfaction. These results are in line with the Expectation-Confirmation Theory (Oliver, 1999), and Self-Determinant Theory (Dunn & Zimmer, 2020), which state that customer satisfaction arises when their psychological needs and expectations are met through an engaging experience. Gamification through elements such as rewards,

challenges, and progress stimulates intrinsic motivation and increases user engagement, which ultimately results in satisfaction. Finally, the Theory of Planned Behavior (Ajzen, 1991) provides a holistic view of the loyalty mechanism, where customers' intention to be loyal is influenced by the fulfillment of self-needs from gamification and the fulfillment of customer expectations.

Empirical evidence supporting these findings shows that gamification features positively influence brand loyalty through customer experience and engagement (Lin et al., 2020; Ramdhani et al., 2024). Similarly, Hosseini & Rezvani, (2021) found that customer satisfaction acts as an important mediator between gamification and loyalty on e-commerce platforms. Yang et al., (2023) emphasize that gamified customer experiences are effective only when they generate meaningful satisfaction, not just entertainment. Therefore, this study reinforces the view that customer satisfaction plays an important mediating role in the relationship between gamification and loyalty. Without satisfaction, gamification alone may fail to translate into sustainable loyalty. Practically, this highlights the need for companies to design gamification systems that provide psychological fulfillment and perceived value, not just customer engagement.

4. Conclusion and Recommendations

This study suggests that gamification significantly influences consumer satisfaction, hence enhancing customer loyalty. The direct impact of gamification on loyalty is insignificant, indicating that satisfaction completely mediates this relationship. Consequently, gamification indirectly enhances consumer loyalty via the satisfaction pathway. These findings enhance the comprehension of the motivational and sensory mechanisms that underpin loyalty creation in digital commerce. From a managerial standpoint, organizations ought to adopt gamification tactics that prioritize significant client experiences, including personalized rewards, progress monitoring, and interactive challenges, to enhance satisfaction and loyalty.

This study is confined by the use of a cross-sectional design and self-reported survey measures, which limit the capacity to observe changes in behavior over time and may introduce certain forms of response bias. The examination of only one e-commerce platform also reduces the extent to which the results can be applied to other digital market contexts. In addition, the purposive sampling procedure and relatively limited number of participants may not fully capture the characteristics of the wider online consumer population. The research framework also does not incorporate several conceptually important variables, particularly Service Quality, which is widely acknowledged as a key driver of satisfaction and loyalty in digital service settings. Excluding this variable may reduce the comprehensiveness of the model, especially in explaining how service performance within a platform may interact with gamification elements. Future investigations are advised to adopt longitudinal or multi-platform designs while incorporating behavioral data, customer relationship management information, and additional constructs such as E-commerce service Quality to generate a more complete understanding of how gamification supports the development of enduring customer loyalty.

References

- Ahmad, A., Zeshan, F., Khan, M. S., Marriam, R., Ali, A., & Samreen, A. (2020). The Impact of Gamification on Learning Outcomes of Computer Science Majors. *ACM Transactions on Computing Education*, 20(2). <https://doi.org/10.1145/3383456>

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. SAGE Publications. https://books.google.co.id/books?id=4uB76IC_pOQC
- Dunn, J. C., & Zimmer, C. (2020). Self-determination theory. *Routledge Handbook of Adapted Physical Education*, 55(1), 296–312. <https://doi.org/10.4324/9780429052675-23>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2013). *Multivariate Data Analysis*. Pearson Education Limited. <https://books.google.co.id/books?id=VvXZnQEACAAJ>
- Hosseini, E., & Rezvani, M. H. (2021). E-customer loyalty in gamified trusted store platforms: A case study analysis in Iran. *Bulletin of Electrical Engineering and Informatics*, 10(5), 2899–2909. <https://doi.org/10.11591/eei.v10i5.3165>
- Hwang, J., & Choi, L. (2020). Having fun while receiving rewards?: Exploration of gamification in loyalty programs for consumer loyalty. *Journal of Business Research*, 106(January), 365–376. <https://doi.org/10.1016/j.jbusres.2019.01.031>
- L, Richard, O. (1980). A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*, 17(November), 460–469.
- Lin, H., Zhang, M., & Gursoy, D. (2020). Impact of nonverbal customer-to-customer interactions on customer satisfaction and loyalty intentions. *International Journal of Contemporary Hospitality Management*, 32(5), 1967–1985. <https://doi.org/10.1108/IJCHM-08-2019-0694>
- Osgood, C. E., Suci, G. J., & Tannenbaum, P. H. (1957). The measurement of meaning. In *The measurement of meaning*. Univer. Illinois Press.
- Ramdhani, N., Sabil Hussein, A., & Rofiaty. (2024). The impact of gamification on loyalty mediated by consumer engagement and brand awareness. *International Journal of Research in Business and Social Science (2147- 4478)*, 13(5), 96–107. <https://doi.org/10.20525/ijrbs.v13i5.3495>
- Richard, L. (1999). Whence consumer loyalty ? *Journal of Marketing*, 63(Special Issue 1999), 33–44.
- Statistik, B. P. (2025). STATISTIK E-COMMERCE 2023 E-Commerce Statistics 2023 Volume 6, 2025. In *Badan Pusat Statistik Indonesia (Vol. 6, Issue 2)*. <https://www.bps.go.id/id/publication/2025/01/30/d52af11843aee401403ecfa6/statistik-e-commerce-2023.html>
- Taufik, A., Santoso, S., Fahmi, M. I., Restuanto, F., & Yamin, S. (2022). The Role of Service and Product Quality on Customer Loyalty. *Journal of Consumer Sciences*, 7(1), 68–82. <https://doi.org/10.29244/jcs.7.1.68-82>
- Uzir, M. U. H., Bukari, Z., Wahab, S. N., Jerin, I., Rasul, T., & Bin Amin, M. (2025). Investigation of customer satisfaction, brand trust and brand loyalty in electronics

home appliances: CB-SEM Approach. *Social Sciences and Humanities Open*, 12(January), 101943. <https://doi.org/10.1016/j.ssaho.2025.101943>

We Are Social. (2024). *Digital 2024: Indonesia Overview Report*. 91. <https://n9.cl/5udw2>

Yang, X., Yang, J., Hou, Y., Li, S., & Sun, S. (2023). Gamification of mobile wallet as an unconventional innovation for promoting Fintech: An fsQCA approach. *Journal of Business Research*, 155(PA), 113406. <https://doi.org/10.1016/j.jbusres.2022.113406>

Zega, L. R. L., Perdanakusuma, A. R., & Hariyanti, U. (2025). The Influence of Gamification Affordance on Customer Loyalty among E-Commerce in Indonesia. *Journal of Information Systems Engineering and Business Intelligence*, 11(2), 115–125. <https://doi.org/10.20473/jisebi.11.2.115-125>