

THE EFFECT OF GAMIFICATION ON CUSTOMER ENGAGEMENT IN E-COMMERCE

JEREMY HERMON HERMAWAN¹, VIANY UTAMI TJHIN²

Information Systems Management Department,
BINUS Graduate Program — Master of Information System Management,
Bina Nusantara University,
Jakarta, Indonesia 11480

¹jeremy_hermawan@binus.ac.id, ²vtjhin@binus.edu

ABSTRACT

The purpose of this study is to determine the effect of using gamification features in e-commerce towards customer engagement. With the rapid growth of e-commerce in Indonesia, many e-commerce has implemented gamification in hopes of staying ahead of its competitor. Gamification is seen to be an alternative to attract customer and increase customer engagement. This research aims to learn the effect of gamification on customer engagement towards users that have used the gamification feature on e-commerce. This study used a quantitative method, and data had been obtained through questionnaires. In this research customer engagement were constructed by four variables, customer lifetime value, customer influence value, customer referral value, and customer feedback value. There were 114 valid data respondents, and were analysed using Smart PLS. The results stated that gamification had a positive effect towards four variables of customer engagement. Furthermore, implication had been provided and suggested companies, if to build a gamification feature, to focus on customer influence value and customer knowledge value.

Keywords: *E-Commerce, Gamification, Customer Engagement, Customer Influence, Customer Knowledge*

1. INTRODUCTION

E-commerce, or online business, is a means of buying and selling products that is carried out by utilizing the existence of the internet [1]. E-commerce can be described to utilizing the internet to conduct business or transaction [2]. Over the past few years, e-commerce in Indonesia has experienced rapid growth throughout the years. This growth has been further driven by the COVID-19 pandemic, which has led to an increase in the time people spend in front of computer/mobile phone screens. The time it took people to log into ecommerce increases from the average of 3.7 hour per day, to 4.7 hour per day during lockdown, and decrease to 4.2 hour per day after lockdown [3].

Currently, there are various e-commerce platforms in Indonesia, but the five most popular of which are Shopee, Tokopedia, Lazada, Bukalapak, and Blibli. The rapid growth in Indonesia over the past few years has led to intense competition between companies in the e-commerce industry. A study by *iPrice Indonesia* reveals that in the first quarter of 2022, top three most visited E-Commerce in Indonesia is Tokopedia, Shopee, and Lazada [4]. During the first quarter of 2022, Tokopedia

experienced an increase in the number of visits by 5,1% from the last quarter of 2021; while Shopee only increased by 0,6% [4].

During this increasingly fierce competition, Shopee has implemented various strategies to continue to excel in the competition, one of which is by implementing a gamification strategy in its application [5]. Even though it has implemented the gamification feature, at the beginning of 2022 Shopee experienced its first quarter-to-quarter decrease in the number of orders since the pandemic [6].

Gamification is a strategy technique that combines game mechanics with applications that are not included in the game category. Gamification is seen to be an alternative for engage customer [7]. User involvement in applications is very influential to win this increasingly competitive competition [8]. Users who are actively involved in the application, not only interact with the existing features, but can also help to promote the platform they are using. One example of the gamification feature in Shopee is "Shopee Tanam". Users can plant trees and water their plants every day to get prizes in the form of coins/vouchers. In addition to watering their own

plants, users can ask or give some assistance from their friends, so that their plants could grow faster and produce more prizes. With this mutual help feature, users can attract other users to login into the platform [9].

In the rapidly evolving Indonesian e-commerce landscape, the use of gamification as a customer engagement strategy remains underexplored. This research focuses on Shopee, a prominent player in the Indonesian market, and investigates the impact of gamification on customer engagement. What distinguishes our study is its unique context—the dynamic and competitive Indonesian e-commerce sector—and the recent challenges faced by Shopee, including a quarter-to-quarter decrease in orders in early 2022 despite gamification efforts. By addressing this gap, our research contributes valuable insights into the effectiveness of gamification strategies and their influence on customer engagement metrics. These findings have practical implications not only for Shopee but also for other e-commerce platforms operating in similar environments, offering actionable recommendations to enhance customer engagement strategies.

A study that investigates about the relationship of gamification, reveals that gamification has positively enhance customer engagement [10]. It is also stated that gamification could enhance revenues and attract new customer for the application [11]. Although gamification has already been implemented, Shopee has not experienced as much visitor growth as its competitor, namely Tokopedia. Other than that, Shopee has faced its first quarter-to-quarter decrease in the number of orders since the pandemic [6]. This research aims to see whether gamification have a positive effect towards customer engagement, that will be discussed using predetermined variables such as customer lifetime value, customer referral value, customer influence value, and customer knowledge value.

2. LITERATURE REVIEW

2.1 Gamification

Gamification is defined as using game design in a non-game context [12]. Gamification, as a side note, also triggers a psychological effect that are resolved in behavioural changes [13]. One of the examples is pride, that results in sharing one's achievement to others [12]. This behavioural change benefits the company through customer's involvement in their platform.

According to research conducted by Eisingerich et al. [12], there are six gamification principles that affect the motivation of user in using the gamified platform. First principle is social interaction, helps customer to stay in touch. Second is sense of control, the ability to give user the feeling of controlling one's destiny. Third is goals, gives user a purpose to complete. Fourth is progress tracking, an ability to track their progress. Fifth is rewards, the platform can offer gratification or rewards in completion of the task. The last principle is prompt, the ability to remind users of their commitment.

Gamification is seen as a great alternative for attract customer to engage with the application [7]. According to Gram Lucassen and Slinger Jansen [14], gamification impacts three core-marketing concepts, and one of those core concepts are engagement. Gamification increases user engagement through satisfaction of the needs for competence, autonomy, and relatedness [15]. A study conducted by Nannan Xi and Juho Hamari, reveals that gamification has a positive effect on brand engagement [16]. In short, gamification is the means to find user's motivation and uses it in certain activities. It helps company triggering users to engage with the platform and achieve their objectives [17].

2.2 Customer Engagement

Customer engagement definition is more than just transaction, it can also be defined as a customer's behavioural manifestations towards a brand that is driven by certain motivation [18]. Customer engagement can be defined into four dimensions: customer purchasing behaviour, customer referral behaviour, customer influencer behaviour, and customer knowledge behaviour [19].

Customer purchasing behaviour, could be indicated by repeat purchases or additional purchases (up-selling/cross-selling) made by the customer, and it is corresponding with customer lifetime value. Customer referral behaviour is an acquisition of new customer through the company's referral program, and it is corresponding with customer referral value. Customer influence behaviour is customers' influence, that could be in the form of word of mouth, on other acquired customer, and it is corresponding with customer influence value. Lastly, customer knowledge behaviour is feedback provided by the customers, and it is corresponding with customer knowledge value [19].

The four dimensions altogether had been proven to construct customer engagement. From the findings that had been discovered, further studies will be conducted based on the relationship proposition of the four components. Through this study, the relation between each dimension will be researched more deeply as a variable.

2.3 Previous Research

This section provides explanation previous related to this paper and the variables used in the research. In previous research, gamification has positively enhanced customer engagement [10]. User has participated with the application gamification feature, hence creating relations and engagement with the application. Customer engagement is a key factor on creating a lasting relationship between the company and their customer [20].

Gamification is the use of game design in a non-game context [12]. Gamification has six principles, first is social interaction that means the ability of the application in facilitating the customer to stay in touch with others. Second is sense of control, where the customer will experience the ability to control their destiny. Third is goals, an ability to specify achievable goals for the customer. Fourth is progress tracking, allows customer to see their progress. Fifth is rewards, giving back to the customers when they have reach certain goals. And finally, is prompts, which is the ability of the app to remind customer of their commitments.

Customer engagement is constructed by four variables: Customer Lifetime Value (CLV), Customer Referral Value (CRV), Customer

Influence Value (CIV), And Customer Knowledge Value (CKV) [19].

CLV is the value of a customer’s future profit that will be generated along their collaboration with the company. This variable represents the future profitability that a customer has and allowing company to create an analysis of their business’s health and to forecast future revenue [19].

CRV is an incentivized referral program that is initiated by the company. A referral program is important for a company due to its capability of reducing acquisition cost while bringing in the opportunity of future revenue. This value is mainly driven by rewards that the customer and potential new customer may receive when they join [19].

CIV is an interaction made by the customers on others. This value from the customer could be in the form of information sharing, word of mouth, interaction, and assistance. CIV is an intrinsic motivation that does not require compensation. A CIV contribution can be categorized as positive, negative, or zero depending on the customer and their experience [19].

CKV is a value that a customer can added to the company, by helping them to understand customer’s preference. Customers participation in knowledge development process is crucial for the succession of new product creation. It is stated that, people who have strong interest in the brand tends to be more involved in product related discussion [19].

2.4 Hypothesis

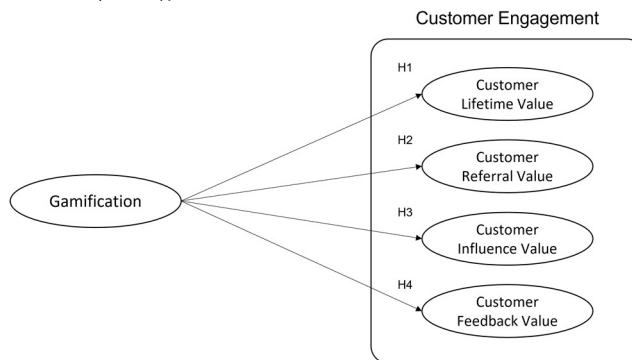


Figure 1: Research Model

H1: Gamification has a positive effect on customer lifetime value.

H2: Gamification has a positive effect on customer referral value.

H3: Gamification has a positive effect on customer influence value.

H4: Gamification has a positive effect on customer knowledge value.

Table 1: Operation Variable

Variable	Indicator	Code
Gamification	Social interaction	GM1
	Sense of control	GM2
	Goals	GM3
	Progress Tracking	GM4
	Rewards	GM5
	Prompts	GM6
Customer Lifetime Value	Repeat purchase	CLV1
	Cross-selling purchase	CLV2
	Up-selling purchase	CLV3
Customer Referral Value	Incentive for referral	CRV1
	Receive reward for join through referral	CRV2
	Help others	CRV3
Customer Influencer Value	Sharing personal experience	CIV1
	Helping others on the feature	CIV2
	Recommend the feature	CIV3
Customer Knowledge Value	Provide feedback	CKV1
	Report bugs/errors	CKV2
	Strong interest in the brand	CLV3

3. RESEARCH METHODS

The research is quantitative research where the data will be obtained using questionnaire data collection technique. The questionnaire will be shared through social media to receive respondents. Questions will be measured using the Likert Scale, where Strongly Disagree will be scored as 1, Disagree as 2, Neutral as 3, Agree as 4, and Strongly Agree as 5. The tools that will be involved in this research is publish or perish, SmartPLS to analyse the data that have been collected, and google form to create a questionnaire for respondent to fill.

The targeted respondents will be people who knew about the gamification feature that Shopee has implemented in their application. The questionnaire will specify on respondents who have used the Shopee games feature and eliminate those who haven't use the feature.

Method used in this research to calculate the number of samples needed is by using the Hair formula. The Hair method calculate samples by 20

observations for every independent variable, with the ratio of 20:1. In this research, there are 5 independent variables being used. Therefore, the sample needed for this research is 100 observations [21].

4. RESULT AND DISCUSSION

4.1 Respondents Profile

This study has collected data through the distribution of questionnaires using Google Form as a tool to conduct survey. The questionnaire has been distributed using several social media, such as Instagram, Line, and WhatsApp. From the process of collecting data, the questionnaire has collected 114 number of respondents that is valid, which uses the gamification feature on Shopee. Table 2 shows the profile of respondents that has used Shopee Games.

Table 2: Respondents Profile

Category	Description	Frequency	(%)
Gender	Male	46	40%
	Female	68	60%
Age	< 25 years	74	65%
	25-34 years	32	28%
	34-45 years	5	4%
	> 45 years	3	3%
Other e-commerce that has been used	Tokopedia	59	52%
	Lazada	12	11%
	Bukalapak	6	5%
	Blibli	6	5%
Domicile	Jakarta	75	66%
	Bogor	9	8%
	Bandung	12	11%
	Bekasi	5	4%
	Others	13	11%
The frequency of using Shopee app in a week	1-5 times	36	32%
	5-10 times	47	41%
	10-20 times	21	18%
	> 20 times	10	9%

4.2 Validity Test

The indicator for all the variables mentioned above has been tested for its validity using the tools Smart PLS. The result for the validity tests shows that not all indicators that is used in this research are valid. Indicators that have the loading factor bellow 0.7 is not valid and will be removed for further testing in this paper. Table 3 shows the Loading Factor (LF) for each indicator that is used in this paper. After calculation, it is found that indicator with the code of GM5, is not valid for further testing and has been removed from Table 3. All indicator

presented in Table 3 are valid to be used in this paper for further research.

Table 3: Validity Test Result

Variable	Code	LF
Gamification	GM1	0.815
	GM2	0.850
	GM3	0.899
	GM4	0.899
	GM6	0.731
Customer Lifetime Value	CLV1	0.806
	CLV2	0.909
	CLV3	0.867
Customer Referral Value	CRV1	0.829
	CRV2	0.826
	CRV3	0.738
Customer Influence Value	CIV1	0.924
	CIV2	0.942
	CIV3	0.915
Customer Knowledge Value	CKV1	0.864
	CKV2	0.760
	CKV3	0.777

Table 4: Convergent Validity Test Result

Variable	AVE	Validity
Gamification	0.708	Valid
Customer Lifetime Value	0.743	Valid
Customer Referral Value	0.638	Valid
Customer Influence Value	0.859	Valid
Customer Knowledge Value	0.642	Valid

Table 4 shows the convergent validity test results for each variable that will be used in this research. It is shown that the Average Variance Extracted (AVE) value for each variable is greater than 0.5. So, based on the results of validity testing on 114 respondents, it concludes that this research meets the requirements and is feasible to use.

4.3 Reliability Test

In this study, a reliability test is also carried out as a measurement for the consistency of the questionnaire. The testing for this study will be using Cronbach's alpha and composite reliability. To be determined as reliable, the Cronbach's alpha must be higher than 0.6, and the composite reliability needs to be higher than 0.7. As shown in Table 5, we can see that each value of the Cronbach's Alpha (CA)

and Composite Reliability (CR), both has a value that is higher than 0.6 and 0.7. Meaning that each variable is categorized as reliable and can be used in the research.

Table 5: Reliability Test Result

Variable	CA	CR	Reliability
Gamification	0.895	0.903	Reliable
Customer Lifetime Value	0.826	0.833	Reliable
Customer Referral Value	0.715	0.715	Reliable
Customer Influence Value	0.918	0.925	Reliable
Customer Knowledge Value	0.722	0.742	Reliable

4.4 Hypothesis Test

Path coefficient and t-statistic is the measurement that will be carried in this research. The significance effect of each variable will be concluded significant if P -Value of the variable is smaller than 0.05 and the T-Statistical value is greater than 1.98. The result of the significance testing of the model is shown in Table 6.

According to Table 6, all hypothesis is accepted due to the p-value is smaller than 0.05 and t-statistics is greater than 1.98.

- ✓ H1: Gamification has a positive effect on customer lifetime value.

Based on Table 6, we can see that gamification has a positive effect on the customer lifetime value. It is shown that p-values, which is 0.000, is smaller than 0.05; and the t-statistics value, which 5.532, is also greater than 1.98. Therefore, from the result obtained by calculation, gamification has a significant effect on the lifetime value.

- ✓ H2: Gamification has a positive effect on customer referral value.

Based on Table 6, we can see that gamification has a positive effect on the customer referral value. It is shown that p-values, which is 0.000, is smaller than 0.05; and the t-statistics value, which 8.011, is also greater than 1.98. Therefore, from the result obtained by calculation, gamification has a significant effect on the referral value.

- ✓ H3: Gamification has a positive effect on customer influence value.

Based on Table 6, we can see that gamification has a positive effect on the customer influence value. It is shown that p-values, which is 0.000, is smaller than 0.05; and the t-statistics value, which 9.179, is also greater than 1.98. Therefore, from the result obtained by calculation, gamification has a significant effect on the influence value.

- ✓ H4: Gamification has a positive effect on customer knowledge value.

Based on Table 6, we can see that gamification has a positive effect on the customer knowledge value. It is shown that p-values, which is 0.000, is smaller than 0.05; and the t-statistics value, which 10.603, is also greater than 1.98. Therefore, from the result obtained by calculation, gamification has a significant effect on the knowledge value.

Table 6: Hypotheses Result

Hypothesis	T-Stat	P Values	Results
Gamification → Customer Lifetime Value	5.532	0.000	Accepted
Gamification → Customer Referral Value	8.011	0.000	Accepted
Gamification → Customer Influence Value	9.179	0.000	Accepted
Gamification → Customer Knowledge Value	10.603	0.000	Accepted

4.5 Implication

Based on the findings in this research, it is known that gamification gives the most effect towards the enhancement of Customer Influence Value (CIV) and Customer Knowledge Value (CKV). Therefore, companies like e-commerce and e-marketplace, should develop a gamification feature that focuses on enhancing both variables.

The application's ability to help customers to stay in touch with others will encourage users to talk about the feature and increase their value in CIV [19]. The ability to see how each other is doing, could initiate a competitive yet enjoyable experience for the customer to talk about. Creating progress tracking for customer to check on their progress and giving rewards for their achievement is also a way to

increase CIV. The application's ability to portray customer's progress and the rewards that the customer will receive, is a trigger for them to voluntarily generates word of mouth regarding the company.

Leader board or score board could be implemented to track the customer's progress as well as their friend's progress on the gamification feature [22]. This ensures the ability to see other's progress and compete in an enjoyable manner between users. Rewards should also be displayed in this score board to motivate other user in completing the same achievements [23].

Sense of control gives the customer a feeling that they can make their own destinies to achieve the goals that the app has specify for them [24]. This feature gives motivation and enjoyment to the customer on using the application. Invested customer will grow a strong interest and triggers the intrinsic motivation for the customers to provide knowledge regarding their experiences while using the brand. Other than that, to maintain the knowledge participation from customers, the company should also show that the customer's feedbacks are valued.

It is important give appreciation for the customers that has provided knowledge, whether it's for new development or just service improvement. Appreciation could be in a form providing a token of appreciations, or just simply recognitions for the participations.

Creating an enjoyable experience for the customer should be the focus for companies when developing a gamification feature. It is crucial to formulate the value and environment that the application will provide for the customers. Based on the experience the customer had, it will determine the behaviour that they will contribute, either in a positive or negative way. The more interest customers have in a particular brand, the more willing they will be to contribute to their CIV and CKV values.

5. CONCLUSION

The findings that have been discovered in this paper shows that gamification has a positive affect towards all four variables that constructed customer engagement. The variable in question is Customer Lifetime Value (CLV), Customer referral value (CRV), Customer Influence Value (CIV), and

Customer Knowledge Value (CKV). This finding is also in accordance with a previous study that stated that gamification is a way of attracting customer to engage with the application [7]. Customer engagement is represented by four variables that has been proven to construct customer engagement [19]. Through hypotheses testing, amongst the four variables, it is had been found that gamification has the most effect towards Customer Influence Value (CIV) and Customer Knowledge Value (CKV).

Based on the implication discussed, the focus of companies when building a gamification feature should be towards enhancing CIV and CKV. CIV variables were motivated by an intrinsic factor that the customer experience from using the application. It is implied in the implication that a score board could be implemented to increase the intrinsic factor and enhance the CIV. While in the other hand, CKV could be motivated through intrinsic factor and extrinsic factor. As discussed in the implication, companies could reward customer a form of appreciation token to act as an extrinsic motivation. A customer with high interest in the brand, should resulted in a more willing way for them to give contribution for the company, whether it is from CIV or from CKV.

While our study contributes valuable insights into the relationship between gamification and customer engagement within the Indonesian e-commerce industry, it is important to recognize its limitations. Firstly, the scope of our research is intentionally narrow, focusing exclusively on the e-commerce sector in Indonesia. Consequently, the generalizability of our findings to other industries or global contexts may be limited. Secondly, we primarily employ quantitative methods to measure and analyse data, which offers statistical rigor but may not capture the full spectrum of qualitative nuances, such as user sentiments and experiences with gamification. These limitations highlight opportunities for future research to explore the applicability of our findings in diverse industry settings and to delve deeper into the qualitative aspects of gamification's influence on customer engagement.

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