

# The Impact of Gamification on Game Design, Hedonic Value, and Customer Engagement at E-commerce

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**Abstract.** The purpose of this study is to determine the effect of Game Design and Hedonic Value on Customer Engagement through Gamification so that in the future game developers can consider these three aspects to produce gamification that can embrace new customers and maintain customer or user relationships. In the process of data collection, the authors used a questionnaire that will be distributed with a minimum sample size of 400 respondents using a purposive sampling technique and processed using SPSS with simple regression data processing methods and path analysis. The data collection technique is done by distributing questionnaires to active e-commerce users in Jakarta.

**Keywords:** Gamification, Game Design, Hedonic Value, Customer Engagement, E-Commerce

## 1. Introduction

McKinsey predicts, Indonesia will experience extraordinary development in the e-commerce industry [1]. E-commerce is a place for buying and selling transactions in the form of goods and services using a platform called the Internet [2]. The development of e-commerce itself makes gamification a strategy to embrace new customers and maintain relationships with old customers, this is considering the increasing number of e-commerce users. Gamification itself is a strategy or concept that uses game-based mechanics, which is a learning approach that uses elements in the game. Gamification strategies are made to attract the interest or interest of a particular group. Gamification function as a motivator for someone to react, promote material, to solve problems. Currently, many companies have launched special applications that contain gamification features, the gamification features that are made contain scoring systems, rewards & leaderboards that aim to attract and retain customers, expand brand recognition, and also experience sustainable development [3]. In 2018, e-commerce from Singapore succeeded in creating the "Shopee Shake" gamification feature which is played by shaking the cellphone while playing the gamification feature in the Shopee application.

The gamification Shopee shake also provides rewards in the form of Shopee coins to users who play the gamification, and the coins obtained from the gamification function as a means of payment when shopping at Shopee e-commerce. This gamification has been successfully played by more than 500 million players from 7 countries including Indonesia, this shows that a gamification is a new tool in marketing [4]. It doesn't stop here, e-commerce from Singapore has also created a new gamification called Shopee catch and to date, Shopee has been successful in increasing customer engagement [5]. While research from Babin et al. in [6], Hedonic Value is the value that customers receive in terms of experience and fun, and joy. Hedonic Value is

also very important in gamification, where e-commerce must think about enjoyment and playfulness that can be obtained from users who aim to have a sense of interest in playing gamification repeatedly provided by e-commerce [7]. Gameplay that has indicators of enjoyment and playfulness, will invite new players and make existing users more enthusiastic about playing the game. Gamification creates value by encouraging customers to adopt behaviors related to gamification, their engagement behavior also generates data that companies can use to gain a deeper understanding of customers that are profitable for the company [8].

From the results of the formulation above, the writer wants to know whether Game Design influences Gamification in e-commerce. Does Hedonic Value Affect Gamification in E-commerce? Does Gamification Affect Customer Engagement? Does Game Design Affect Customer Engagement with Gamification as a mediating variable? Does Hedonic Value Affect Customer Engagement with Gamification as a mediating variable?

## 2. Research Methods

Quantitative research methods with associative research types were used in this study. This approach is used to investigate particular populations or samples, collect data with the help of research instruments, and examine the data in order to test previously established hypotheses. [9]. Jakarta's active e-commerce user respondents are the intended unit of analysis. The cross-sectional approach is used for the time horizon in this study, and the questionnaire method was used for data collection. The questionnaire is a method for collecting data in which a number of questions or written statements are given to the respondent to be answered. [9]

## 3. Result and Discussion

The gamification studied here is the gamification provided by e-commerce companies in e-commerce applications. The gamification used is Shopee Tanam, Goyang Shopee, Tokopedia tap tap box, Blibli Capit, Shopee Arisan, etc. From the questionnaires that have been distributed online, the authors determine the sample size, this study uses the formula proposed by Slovin using a 95% Confidence Interval. The calculated sample size is 400 people which will then be used as the sample size in this study.

### 3.1 Partial Hypothesis Test (T Test)

The fractional test in this review was led to decide the impact of each game plan variable and gluttonous worth on gamification, for web-based business clients situated in Jakarta, so the outcomes acquired from the test are as per the following:

Table 3.1. Partial Hypothesis Test (T Test) Variable X1 to Y Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	16.671	.748		22.301	.000
	TOTAL_G D	.388	.033	.506	<b>11.723</b>	.000

a. Dependent Variable: TOTAL G

Source: Data Processing Results (2022)

It displays the sig based on the SPSS test results. With a calculated T value of 11,723

where the value is greater than t table 1.97, it is possible to draw the conclusion that  $H_a$  is accepted, indicating that the game design variable influences the gamification variable. The influence of  $X_1$  on  $Y$ , which is 0.000, is less than the value of (0.05).

Table 3.2 Partial Hypothesis Test (T Test) Variable  $X_2$  to  $Y$  Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	17.127	.840		20.383	.000
	TOTAL_H V	.474	.048	.443	<b>9.861</b>	.000

a. Dependent Variable: TOTAL\_G

Source: Data Processing Results (2022)

It displays the sig based on the SPSS test results. for the impact of  $X_2$  on  $Y$ , which is 0,000 not exactly the worth of  $\alpha$  (0.05), with a determined T worth of 9,861 more prominent than a t table worth of 1.97, so it very well may be reasoned that  $H_a$  is acknowledged, which shows the gluttonous worth variable impacts the gamification variable.

Table 3.3 Partial Hypothesis Test (T Test) Variable  $Y$  Against  $Z$  Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.203	.852		4.935	.000
	TOTAL_G	.526	.033	.619	<b>15.724</b>	.000

a. Dependent Variable: TOTAL\_CE

Source: Data Processing Results (2022)

Based on the SPSS test results, it shows the sig. for the influence of  $Y$  on  $Z$ , which is 0,000 less than the value of  $\alpha$  (0.05), with a calculated T value of 15,724 greater than a t table value of 1.97, so it can be concluded that  $H_a$  is accepted, which shows that the gamification variable has an effect on the customer engagement variable.

### 3.2 Path Analysis

Table 3.4 Path Analysis Test of Variable  $X$  to  $Y$  Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	16.671	.748		22.301	.000
	TOTAL_G D	.388	.033	.506	11.723	.000

a. Dependent Variable: TOTAL\_G

Table 3.5 Path Analysis test Variable  $Y$  to  $Z$  Coefficients<sup>a</sup>

	Unstandardized Coefficients	Standardized Coefficients		

Model		B	Std. Error	Beta	T	Sig.
1	(Constant)	17.127	.840		20.383	.000
	TOTAL_H V	.474	.048	.443	9.861	.000

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.203	.852		4.935	.000
	TOTAL_G	.526	.033	.619	15.724	.000

b. Dependent Variable: TOTAL\_CE

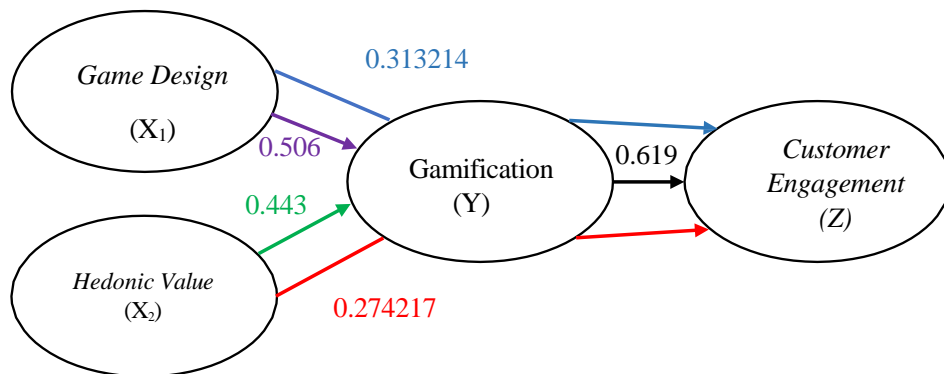


Figure 3.2 Overall Path Coefficient  
Source: Data Processing Results (2022)

Figure 3.2 shows the results of data processing that has been tested for path coefficients in the research model, namely coefficients that have a direct, indirect and total effect.

Table 3.6 Indirect total Effect

Indirect Impact		
<i>Game Design</i> →	<i>Customer Engagement through</i>	0.506 x 0.619 = 0.313214
<i>Gamification</i>		
<i>Hedonic Value</i> →	<i>Customer Engagement through</i>	0.443 x 0.619 = 0.274217
<i>Gamification</i>		

Table 3.6 shows the effect of game design on customer engagement through gamification with a value of 0.313214 which is obtained by multiplying the value of the effect of game design on gamification of 0.506 and the gamification value on customer engagement of 0.619 and also obtains the value of the effect of hedonic value on customer engagement through gamification with a value of 0.274217 which is obtained from the multiplication of the hedonic value of the effect on gamification of 0.443 and the value of gamification on customer engagement of 0.619.

## 4. Conclusion

The following conclusions are reached based on the results of the hypothesis testing:

- 1.1. The Game Design variable has a significant influence on the Gamification variable of 0.506 so that H1 is accepted.
- 1.2. The Hedonic Value variable has a significant influence on the Gamification variable of 0.443 so that H2 is accepted.
- 1.3. The Gamification variable has a significant influence on the Customer Engagement variable of 0.619 so that H3 is accepted.
- 1.4. The Game Design variable has a significant influence on the Customer Engagement variable of 0.313214 through the Gamification variable so that H4 is accepted.
- 1.5. The Hedonic Value variable has a significant influence on the Customer Engagement variable of 0.274217 through the Gamification variable so that H5 is accepted.

## References

- [1] Das, K., Tamhane, T., Vatterott, B., Wibowo, P., & Wintels, S. (2018). The digital archipelago: How online commerce is driving Indonesia's economic development. In McKinsey & Company. Somov, A.: Wildfire safety with wireless sensor networks. EAI Endorsed Transactions on Ambient Systems. pp. 1-11 (2011)
- [2] Khan, A. G. (2016). Electronic Commerce: A Study on Benefits and Challenges in an Emerging Economy. Type: Double Blind Peer Reviewed International Research Journal Publisher: Global Journals Inc, 16
- [3] Sen, A. (2015). Gamifying Customer Engagement to Drive Growth. <http://www.teletech.com/resources/articles/gamifying-customer-engagement-drive-growth#.WTavu-uGPZ5>
- [4] Jennifer, B., & Schiff, L. (2017). How gamification improves customer engagement and retention. CIO. <https://www.cio.com/article/3184368/how-gamification-improves-customer-engagement-and-retention.html>
- [5] Yeo, S. (2020). The new phase of user engagement. <https://www.techinasia.com/phase-user-engagement>
- [6] Chen, W., & Chen, C. (2017). The Role of Utilitarian and Hedonic Values on Users' Continued Usage and Purchase Intention in a Social Commerce Environment. *Journal of Economics and Management*, 13(2), 193–220
- [7] Hamari, J., & Koivisto, J. (2015). Why do people use gamification services? *International Journal of Information Management*, 35(4), 419–431. <https://doi.org/10.1016/j.ijinfomgt.2015.04.006>
- [8] Eisingerich, A. B., Marchand, A., Fritze, M. P., & Dong, L. (2019). Hook vs. hope: How to enhance customer engagement through gamification. *International Journal of Research in Marketing*, 36(2), 200–215. <https://doi.org/10.1016/j.ijresmar.2019.02.003>
- [9] Sugiyono. (2015). *Metode Penelitian Pendidikan. Kombinasi (Mix Methods)*. Bandung: Alfabeta.