

The Impact of Gamification Principles on Customer Loyalty Through Customer Engagement (Case Study on Branded Mobile Apps User in Jabodetabek)

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Abstract. This research aims to find out how the application and use of gamification principles in branded mobile apps can influence customer attitudes and behavior. The customer attitudes and behavior are defined into the customer loyalty variable, which is mediated by the customer engagement variable. In measuring research variables, quantitative research methods were used with explanatory aims. Furthermore, the sampling technique used in this research is accidental sampling, which is part of non-probability sampling. The sample used was 145 respondents who were users of branded mobile apps in the Jakarta, Bogor, Depok and Tangerang area. The method section at least contains the type of method used or the type of approach used, selection of the population and sample or object of research, data collection techniques, and analysis tools and software used. This research shows that the elements in gamification principles are helpful in supporting success in building closer and more interactive relationships with customers. This research found that customer engagement mediates the relationship between gamification principles and customer loyalty.

Keywords: Gamification principles, customer engagement, customer loyalty, circular economy, developing countries

1. Introduction

The growth of digital technology globally is experiencing exponential development that creates seamless connectivity by utilizing devices and applications connected to cloud computing, big data analysis, blockchains, and artificial intelligence [1] Of the various technology sectors, mobile technology is a sector that is overgrowing due to its proximity to people's daily lives. Based on existing data, it is estimated that more than 5 billion people worldwide own mobile devices, of which more than half are smartphones. Hence, this has a direct effect on mobile app

development, which is said to be experiencing the fastest growth in the smartphone industry where globally, the revenue from mobile apps has increased to more than US\$ 318 billion in 2020 or an increase of more than US\$ 60 billion compared to 2019 [2]. This condition is in line with the rise in downloads of mobile apps globally, from 140.7 billion in 2016 to 230 billion in 2021. The data shows a significant increase from the last five years to 2021. However, on the other hand, there are facts that the app retention rate 2019 has decreased quite sharply because only 32% of users use one application more than 10 times. Moreover, when looking at the app abandonment rate in 2019, it was found that 25% of mobile app users only used it once after downloading it. Both explanations can be interpreted that most users only download and use the application quickly, so the application becomes abandoned. As a result, it becomes difficult to achieve the objectives of the app utilization as the time spent by the users to use the app is very limited.

This reality shows how low user engagement is in the use of mobile apps. These problems ultimately challenge companies to maintain and increase user engagement using their branded mobile apps. Branded mobile apps (i.e., apps associated with a particular brand) aim to reach and increase customer engagement from new and existing customers. As a result, the gamification trend has emerged as a technique that is believed to increase user engagement because it can motivate changes in user behavior and encourage users to complete tasks and achieve given goals by implementing gamification principles in branded mobile apps. These gamification principles make mobile apps look like games and make their activities more satisfying and fun.

The existing context provides an understanding of gamification in business as a form of integration of game mechanics into business processes, websites, or marketing campaigns to encourage participation from the target audience. The involvement in question is in the form of customer engagement, defined as a psychological state formed based on interactive and creative customer experiences on an object, such as a relationship with a brand. Therefore, customer engagement can represent individual motivation that arises from two-way interaction, which will build customer loyalty in the psychological process. Thus, gamification is a form of voluntary exchange that can create motivation and customer engagement to affect the formation of customer behaviour.

The magnitude of the influence caused by implementing gamification strategies has made it widely used in various industrial sectors. It is stated that the interest of many industries is due to gamification's ability to increase engagement and loyalty and significantly impact the company's substantial revenue. This fact is further supported by an observation, n that the global gamification market is projected to grow from US\$ 9.1 billion in 2020 to an estimated US\$ 30.7 billion in 2025 with a CAGR (Compound Annual Growth Rate) of 27.4%, [3]. This projection is complemented by a geographical growth distribution map, which shows North America is anticipated to hold the largest market share in the gamification market.

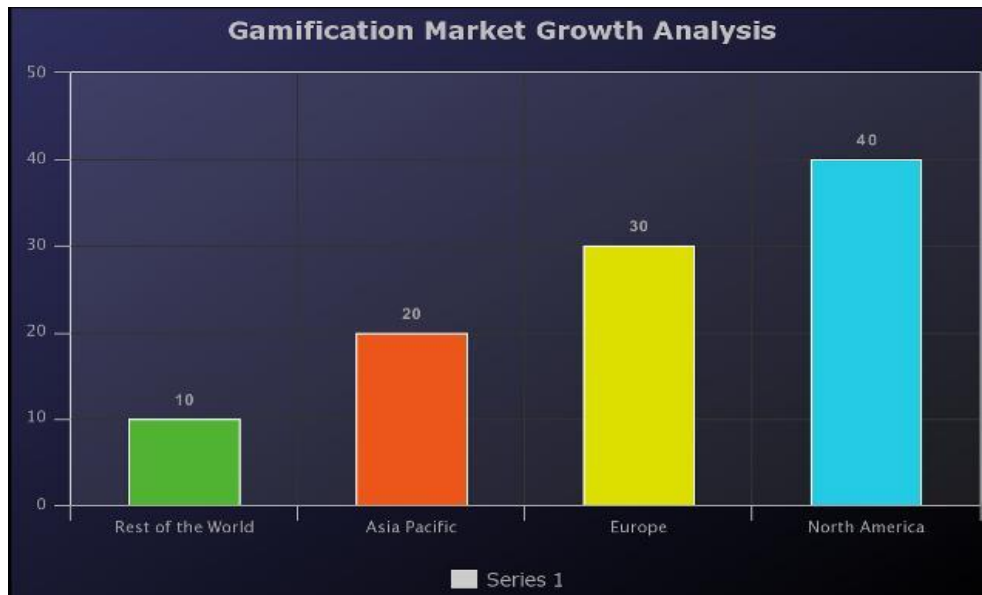


Figure 1 Gamification Market - Growth Rate by Region (2020-2025)

Figure 1.1 shows that in terms of development rate, Indonesia can be said to be a high-growth region in the application of gamification in the market. This analysis is supported by the increase in the number of internet users in Indonesia from year to year which until 2021-2022, there have been 210.03 million domestic internet users, so the internet penetration rate in Indonesia has reached 77.02%. Seeing this phenomenon, start-up businesses developing mobile commerce applications have sprung up, starting from the e-commerce sector, online transportation, online travel agents, mobile payment applications, etc.

This development has made competition in the digital business industry more complex, encouraging companies to develop effective marketing strategies to build customer satisfaction and loyalty. Customer loyalty has evolved into loyalty 3.0, built on three major concepts: motivation (human motivation), big data, and gamification. Understanding the domino effect of theoretical and practical aspects is a strong reason behind many digital industry companies launching their loyalty programmes in games using gamification principles. Some industries in Indonesia that have implemented it are Shopee with Goyang Shopee and Shopee Tanam, Tokopedia with Harvest Eggs, Lazada with Coin Tree, Traveloka with Reward Zone, Dana with mini-games, UOB with Game of Crown, Zenius with ZenCore features, and many others [4]. In principle, gamification features implemented in brand applications include social interaction, a sense of control, goals, progress tracking, rewards, and prompts. These elements will determine how customer engagement is built, which will evaluate customer loyalty. The causality between the application of gamification principles, customer engagement, and customer loyalty will be further examined in this scientific paper. This is because previous research is still limited to specific industry sectors (i.e., health or fitness apps and online dating services), and the difference in testing the dependent variable is limited to in-app purchases. In addition, some other studies also used different gamification principles as independent variables in their research, so not all gamification elements have been thoroughly tested. Not to mention that these studies also have the same limitations in terms of a limited sector as the object of research. Therefore, this research

is expected to provide new insights that can improve or complement the results of previous studies because it has a broader research industry sector by using gamification principles that have been identified as the main success factors in implementing gamification. Furthermore, to conduct this research, the researcher compiled each variable used in the hypothesis below.

- a) H1: Gamification Principles have a significant effect on Customer Engagement.
- b) H2: Customer Engagement has a significant effect on Customer Loyalty.
- c) H3: Gamification Principles have a significant effect on Customer Loyalty.
- d) H4: Customer Engagement mediates the relationship between Gamification Principles and Customer Loyalty.

Then, based on the background, hypothesis formulation, and theoretical studies containing relevant theories, this research is made into a research model as follows.

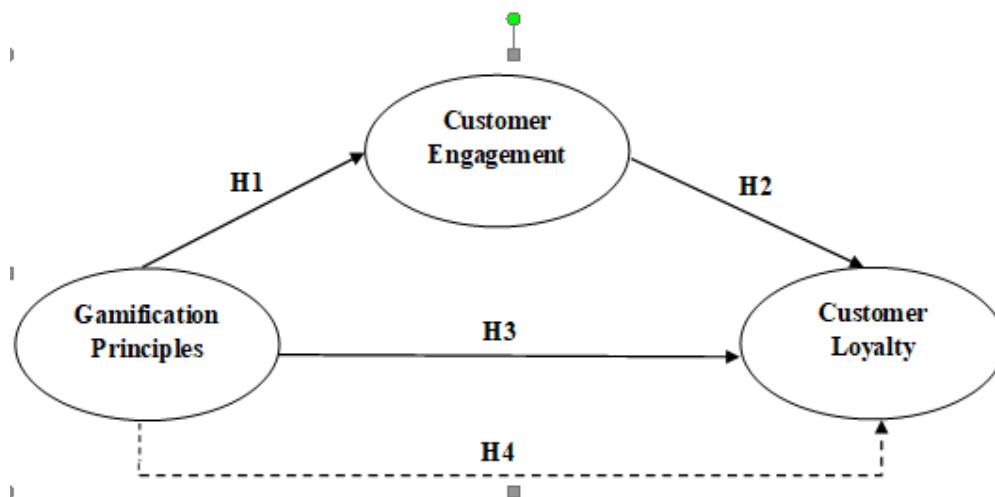


Figure 2: Research Model

Source: Author (2023)

Literature review

a. Global Marketing Strategy

Furthermore, a global marketing strategy is defined as an overall marketing strategy to expand business to all regions of the world which is achieved by adapting the company's marketing strategy and brand style to the culture and conditions of each area. The purpose of making adjustments to these cultures and conditions is so that companies can develop customer value creation by meeting local customer needs. However, the onset of globalization requires companies to no longer only focus on developing marketing strategies based on country by country but must involve a global approach. This approach is intended to increase scale to optimize resources and reduce costs so that companies can compete more effectively in world markets.

b. Branded Mobile Apps

Branded mobile apps are conceptually defined as software that can be downloaded through mobile devices that display brand identity explicitly which is often displayed through the name of the application and the display of brand logos that will become part of the user experience throughout using the application. Furthermore, based on interactivity theory and empirical research, branded mobile apps are said to have interactive properties that build persuasive impact on customers. In addition, there are also other advantages of branded mobile apps that are unique in that users, in this case customers, voluntarily intend to download the application and use their time to play with the application so that this condition is clearly very different from other advertising tools. This behaviour can occur because of the interpretation of branded mobile apps as entertainment for users so that in another definition branded mobile apps are also interpreted as persuasive marketing tools.

c. Gamification

In its application, game design principles are used in a non-game context so that it can increase user engagement, user activity, and enjoyment, which in the long run will contribute to increasing user retention [5] [6]. Thus, gamification can be defined as the process of incorporating game features and game-thinking into a non-gaming context that can provide significant stimulation to the formation of a person's motivation and drive to do something so as to increase user engagement [7]). The effect of gamification that brings users closer is then utilised by many companies to build communication with customers [8]. Therefore, gamification is referred to as a new method for advertising in marketing that specifically manages customer engagement [9]. Then based on existing observations, the role of gamification in e-marketing in recent years is considered to be one of the most effective and efficient strategies in motivating customers to continuously engage with companies. The effectiveness gained from its implementation is because gamification is related and positively affects three concepts in marketing, namely engagement, brand loyalty, and brand awareness [10]; [11].

2. Method

The approach used in this research is a quantitative approach with explanatory purposes based on positivism, which means experience and exact science are considered the basis of science. This statement supports the expression and explains that quantitative research is closely related to using numbers to collect, interpret, and present research results. This research belongs to the type of causal associative research that aims to determine the relationship between two or more variables. Furthermore, this research means research that explains the causal relationship by testing a hypothesis of several variables. This interpretation aligns with the statement that quantitative analysis requires researchers to explain how a variable affects other variables [12]. In this study, the data obtained through the questionnaire will be tested first to ensure that the data used has met the validity and reliability measurements. For this reason, researchers use the measurement model evaluation or what is referred to as the outer model in the Partial Least Square (PLS) programme. The validity test is carried out to ensure that the data used is valid and fulfils the requirements in reflective indicators, namely convergent and discriminant. The results in the validity test state that all statement items in this study are accurate. Then, reliability testing is used to ensure that the data used is reliable, reflecting the consistency and stability of respondents in answering the questionnaire. The reliability test uses two parameters, namely Cronbach's alpha and composite reliability, where the results also state that the data is reliable. After testing the instrument using the measurement model evaluation (outer model), the data declared valid and reliable will be processed using a data analysis technique called structural model evaluation (inner model), which aims to see the correlation of significance values between related variables. This structural model evaluation technique is also interpreted in other terms as

Structural Equation Modelling (SEM), where there are two main criteria for evaluating the structural model: the coefficient of determination and the path coefficient [13]. However, other measures can support the results of the structural model evaluation used in this study. Furthermore, structural model evaluation criteria include the coefficient of determination, Goodness of Fit (GoF), path coefficient, and predictive relevance. First, the coefficient of determination describes the magnitude of the influence of exogenous variables (independent variables) on endogenous variables (dependent variables). Then, Goodness of Fit (GoF) is used to validate the overall structural model, where the GoF index shows a measure of the goodness of the relationship between latent variables in the combination of the measurement model (outer model) and the structural model (inner model). Next, the path coefficient determines the strength of the direct influence between exogenous variables (independent variables) and endogenous variables (dependent variables). Then, predictive relevance in blindfolding analysis is used to see the value of the predictive relevance level of a construct model. In this study, the sample was taken using a non-probability sampling technique, which means that the sample selection is not randomly selected so that each member of the population does not have the same opportunity to be chosen as a sample. Furthermore, the non-probability sampling technique is purposive sampling, which is based on specific considerations determined in advance as criteria representative of the specified population. Looking at the large population size and not knowing the number of members in the selected population, sample determination is used using calculations involving the number of indicators in the study. It is stated that the formation of a suitable model will be complex if the sample is too large, so the sample size determination is proposed according to a technique called Maximum Likelihood Estimation (MLE). The method explains that a good sample size is a minimum of 100 samples and a maximum of 200 samples [14]. Thus, the number of samples in this study will be determined based on the minimum calculation results obtained from calculating the number of indicators times five ([15]. The number of samples used in this research was 145 respondents to represent the existing population.

3. Findings and Discussion

After distributing the questionnaire online via Google Forms, the data obtained was processed in instrument testing using the measurement model evaluation (outer model) in the Partial Least Square (PLS) programme. Convergent validity testing data with Average Variance Extracted (AVE) as a parameter is presented in the table 1.1.

Table 1 AVE Results

| Variable | AVE | Rule of Thumb | results |
|-------------------------|------------|----------------------|----------------|
| Gamification Principles | 0.501 | 0.500 | Valid |
| Customer Engagement | 0.625 | 0.500 | Valid |
| Customer Loyalty | 0.724 | 0.500 | Valid |

Source: Author (2023)

Table 1 shows that each variable, namely Gamification Principles, Customer Engagement, and Customer Loyalty had an Average Variance Extracted (AVE) value of more than 0.500. Thus, it can be concluded that the correlation between the scores of the manifest variables (items or indicators) and the scores of the latent constructs (latent variables) showed a high correlation, so

it can be said that the data obtained has met the criteria for convergent validity. The value of the coefficient of determination (R^2) obtained will show the magnitude of the influence of the exogenous variable (independent variable) on the endogenous variable (dependent variable) tested in this research.

Table 2 R-Square

| Variable | R Square |
|---------------------|----------|
| Customer Engagement | 0.355 |
| Customer Loyalty | 0.635 |

Source: Author (2023)

Table 2 shows that the gamification principles and customer engagement variables influence the 63.5% customer loyalty variable. The remaining 36.5% is explained by other variables not examined in this research. The following are the results of hypothesis testing processed in the Partial Least Square (PLS) program, which can directly and indirectly explain hypothesis testing.

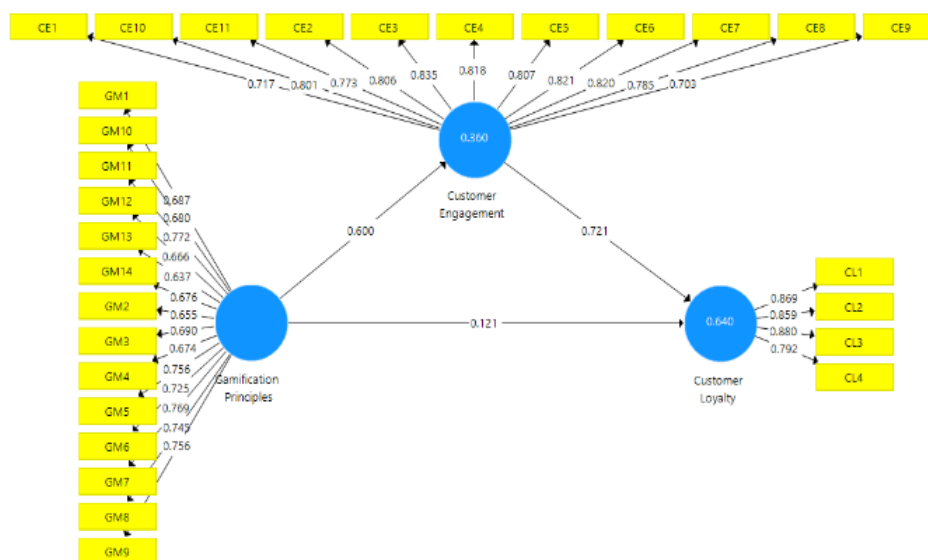


Figure 3: Hypothesis Testing Results in PLS

Based on Figure 3, it can be observed that there are three latent constructs (latent variables), namely gamification principles, customer engagement, and customer loyalty. The three existing latent constructs (latent variables) have manifest variables (items or indicators) that describe these variables with loading factor values used as validity testing parameters. Then, for customer engagement and customer loyalty, different values are included in the figure, where this value is the coefficient of determination (R^2), which is used to determine the magnitude of the influence of the exogenous variable (independent variable) on the endogenous variable (dependent variable). Then, the direction of the relationship between the three latent constructs

(latent variables) is depicted by the original sample value in each connecting line, where it is known that all three have positive values, which means the direction of the relationship is positive.

Testing the direct influence hypothesis in this research is part of evaluating the structural model (outer model), called the path coefficient. The hypothesis stating the direct effect in this research can be accepted if the T-statistics is greater than 1.96 (= 5%) and the P-values are less than 0.05. Based on the table 3.3, the T-statistics value is 1,591, which is smaller than 1.96. This is supported by the P-values of 0.112 which are greater than 0.05. Therefore, it can be concluded that H0 is accepted, which means that Gamification Principles do not significantly affect Customer Loyalty. This is different with previous research, which stated that Gamification Principles had a significant effect on Customer Loyalty [16]

Table 3 Direct Hypothesis Test

| Hypothesis | Relationship between variables | Original Sample | T-statistics | P-Values |
|--------------|--|-----------------|--------------|----------|
| Hypothesis 1 | Gamification Principles to Customer Engagement | 0.600 | 10.481 | 0.000 |
| Hypothesis 2 | Customer Engagement to Customer Loyalty | 0.721 | 11.598 | 0.000 |
| Hypothesis 3 | Gamification Principles to Customer Loyalty | 0.121 | 1.591 | 0.000 |

Source: Authors (2023)

The indirect influence hypothesis test in this research is part of the structural model (outer model) evaluation, which will compare data from the path coefficient with specific indirect effects. The hypothesis stating the direct effect in this research can be accepted if the T-statistics is greater than 1.96 (= 5%) and the P-values are less than 0.05.

Table 4 Indirect Hypothesis Test

| Hypothesis | Relationship between variables | Original Sample | T-statistics | P-Values |
|--------------|--|-----------------|--------------|----------|
| Hypothesis 4 | Gamification Principles → Customer Engagement → Customer Loyalty | 0.600 | 10.481 | 0.000 |

Sources: Authors 2023

Based on table 3.4 above , the T-statistics value is 8,961, which is greater than 1.96. This is supported by the P-values of 0.000, which are smaller than 0.05. Therefore, it can be concluded that Ha is accepted, which means that Customer Engagement mediates the relationship between Gamification Principles and Customer Loyalty. After completing the entire research process regarding the impact of gamification principles on customer loyalty through customer engagement, a conclusion can be drawn based on the results of analysis testing on the variables that have been determined in this research, namely gamification principles, customer engagement, and customer loyalty. The following is an explanation of the conclusions of this research.

1. Gamification Principles directly have a significant effect on Customer Engagement by 35.5%.
2. Customer Engagement directly has a significant effect on Customer Loyalty by 64.5%.
3. Gamification Principles do not directly have a significant effect on Customer Loyalty.

4. Customer Engagement perfectly mediates the relationship between Gamification Principles and Customer Loyalty, so Customer Engagement is a perfect mediation variable (complete mediation).

Then, based on all the results and discussions in this research, suggestions can be put forward for each party, namely for the company and further research. Below is a description of the recommendations for each party.

4. Conclusion

After completing the entire research process regarding the impact of gamification principles on customer loyalty through customer engagement, a conclusion can be drawn based on the results of analysis testing on the variables that have been determined in this research, namely gamification principles, customer engagement, and customer loyalty. The following is an explanation of the conclusions of this research.

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References

- [1] F. C. Pinto, I. Borges, and F. Santiago, "IoT Digital Service Provider," pp. 221–244, 2018, doi: 10.4018/978-1-5225-5763-0.ch012.
- [2] L. Silver, C. Huang, and K. Taylor, "In Emerging Economies, Smartphone and Social Media Users Have Broader Social Networks," *Pew Res. Cent.*, no. August, pp. 1–35, 2020, [Online]. Available: <https://www.pewresearch.org/internet/2019/08/22/social-activities-information-seeking-on-subjects-like-health-and-education-top-the-list-of-mobile-activities/> (accessed 9 July 2024)
- [3] M. Ranucci *et al.*, "The procoagulant pattern of patients with COVID-19 acute respiratory distress syndrome," *J. Thromb. Haemost.*, vol. 18, no. 7, pp. 1747–1751, 2020, doi: 10.1111/jth.14854.
- [4] F. Gunawan, A. S. Santoso, A. I. Yustina, and F. Rahmiati, "Examining the effect of radical innovation and incremental innovation on leading e-commerce startups by using expectation confirmation model," *Procedia Comput. Sci.*, vol. 197, no. 2021, pp. 393–402, 2021, doi: 10.1016/j.procs.2021.12.155.
- [5] Shafa, A. Puspasari, I. P. Wilujeng, and A. Ali, "The Effect of Gamification on Customer Satisfaction through Customer Engagement on the Marketplace," *Ekob. Bisnis*, vol. 29, no. 1, pp. 11–23, 2024, [Online]. Available: <http://journal2.um.ac.id/index.php/ekobis>

- [6] K. Gawel, E. Gibula, M. Marszalek-Grabska, J. Filarowska, and J. H. Kotlinska, "Assessment of spatial learning and memory in the Barnes maze task in rodents—methodological consideration," *Naunyn. Schmiedeberg's Arch. Pharmacol.*, vol. 392, no. 1, pp. 1–18, 2019, doi: 10.1007/s00210-018-1589-y.
- [7] J. Yan *et al.*, "How to improve new product performance through customer relationship management and product development management: evidence from China," *J. Bus. Ind. Mark.*, vol. 36, no. 1, pp. 31–47, 2021, doi: 10.1108/JBIM-05-2019-0190.
- [8] F. Noorbehbahani, A. Mohammadi, and M. Aminazadeh, *A systematic review of research on cheating in online exams from 2010 to 2021*, vol. 27, no. 6. Springer US, 2022. doi: 10.1007/s10639-022-10927-7.
- [9] J. Hamari and J. Koivisto, "Measuring flow in gamification: Dispositional Flow Scale-2," *Comput. Human Behav.*, vol. 40, pp. 133–143, 2014, doi: 10.1016/j.chb.2014.07.048.
- [10] Y. Chen and Y. J. Tan, *The effect of non-contributory pensions on labour supply and private income transfers: evidence from Singapore*, vol. 7, no. 1. IZA Journal of Labor Policy, 2018. doi: 10.1186/s40173-018-0099-3.
- [11] G. Lucassen and S. Jansen, "Gamification in Consumer Marketing - Future or Fallacy?," *Procedia - Soc. Behav. Sci.*, vol. 148, no. March, pp. 194–202, 2014, doi: 10.1016/j.sbspro.2014.07.034.
- [12] A. C. Klassen, J. Creswell, V. L. Plano Clark, K. C. Smith, and H. I. Meissner, "Best practices in mixed methods for quality of life research," *Qual. Life Res.*, vol. 21, no. 3, pp. 377–380, 2012, doi: 10.1007/s11136-012-0122-x.
- [13] Z. Mohamed, N. Ubaidullah, and S. Yusof, "An Evaluation of Structural Model for Independent Learning Through Connectivism Theory and Web 2.0 Towards Studentsr Achievement," no. December, pp. 0–5, 2018, doi: 10.2991/icase-18.2018.1.
- [14] N. Kock and P. Hadaya, "Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods," *Inf. Syst. J.*, vol. 28, no. 1, pp. 227–261, 2018, doi: 10.1111/isj.12131.
- [15] E. Amadea, "The Effect of Product Quality, Service Quality, Environment Quality, and Product Assortment on Customer Loyalty trough Customer Satisfaction of BCA Mobile Application," *J. Econ. Financ. Manag. Stud.*, vol. 05, no. 03, pp. 633–654, 2022, doi: 10.47191/jefms/v5-i3-17.
- [16] "Bull. Fac. Agric., Cairo Univ.,65: 344-359 (2014).", vol. 359, pp. 344–359, 2014.
- [17] P. Bitrián, I. Buil, and S. Catalán, "Making finance fun: the gamification of personal financial management apps," *Int. J. Bank Mark.*, vol. 39, no. 7, pp. 1310–1332, 2021, doi: 10.1108/IJBM-02-2021-0074.
- [18] D. E. Boyd, P. K. Kannan, and R. J. Slotegraaf, "Branded Apps and Their Impact on Firm Value: A Design Perspective," *J. Mark. Res.*, vol. 56, no. 1, pp. 76–88, 2019, doi: 10.1177/0022243718820588.
- [19] S. S. Volpi *et al.*, "Using a mobile health app to improve patients' adherence to hypertension treatment: A non-randomized clinical trial," *PeerJ*, vol. 9, pp. 1–16, 2021, doi: 10.7717/peerj.11491.
- [20] J. Mackiewicz, *A Mixed-Method Approach*. 2018. doi: 10.4324/9780429469237-3.
- [21] B. A. Pratidina, I. Darmastuti, and A. V. Almadana, "Pengaruh Spiritualitas di Tempat Kerja Pada Kinerja Karyawan Yang Dimediasi Perilaku Kewargaan Organisasi, Dan Kecerdasan Emosional Sebagai Variabel Moderasi (Studi di RSJD Dr. RM. Soedjarwadi)," *Diponegoro J. Manag.*, vol. 12, no. 1, pp. 1–11, 2023, [Online].

Available:

<https://ejournal3.undip.ac.id/index.php/djom/article/view/38821%0Ahttps://ejournal3.undip.ac.id/index.php/djom/article/download/38821/29091>

- [22] A. E. Taruli, A. Chan, and P. W. Tresna, "Pengaruh Gamification Versi 'Shopee Tanam' Terhadap Customer Engagement Aplikasi Mobile Shopee Indonesia (Survei Pada Pengguna Fitur Shopee in App Games Di Kota Bandung)," *AdBispreneur*, vol. 5, no. 3, p. 283, 2021, doi: 10.24198/adbispreneur.v5i3.30265.
- [23] S. Sihombing and M. Gustam, "The Effect of Internal Marketing on Organizational Commitment: an Empirical Study in a University Setting," *Polish J. Manag. Stud.*, vol. 15, no. 1, pp. 88–98, 2007.
- [24] A. Tihar, I. P. Sari, and B. L. Handoko, "Effect of Debt Default, Disclosure, and Financial Distress on the Receiving of Going Concern Audit Opinions," *The Winners*, vol. 22, no. 2, pp. 155–161, 2021, doi: 10.21512/tw.v22i2.7072.