Understanding Gamification Behavior in Indonesian's E-commerce Applications: A Qualitative Study of University Students

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ABSTRACT

E-commerce in Indonesia is growing rapidly and has become the largest market capitalization in Southeast Asia and has the highest growth rates in the world. This fast growth has also led to foreign direct investment in Indonesia, which has entered various Indonesian e-commerce sites. Gamification strategies have become extremely popular in the e-commerce industry. Although studies have been conducted on how gamification elements impact e-commerce, there needs to be more focus on how Millennials and Z generations play games. We interviewed 16 Indonesian university students to discover game-playing behaviors on e-commerce applications. Transcribed interviews were evaluated thematically using an inductive coding approach. We cluster the thematic analysis into five different headings-frequency of playing games, played gamification models, reward systems, preference of daily login systems, and preference of mission systems. The finding shows that our participants soon became bored and closed the app, even though they played the fixed-reward gamification model daily. Participants prefer special discount vouchers as a reward system because they can cut the total shopping price. The daily login and task/mission systems are popular with our users because they get rewards quickly and in different ways. This study contributes to evaluate the future gamification model and helps organizations in the e-commerce industry.

CCS CONCEPTS

• **Human-centered computing** → **Empirical studies in HCI**; • **Applied computing** → **Online shopping**; **Computer games**.

KEYWORDS

gamification, reward systems, e-commerce applications, university students

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1 INTRODUCTION

According to Kemp [16], the marketplace has become a global trend, especially in Indonesia, as seen by statistics on marketplace usage in Indonesia, which ranks first in the world with 88.1% of internet users utilizing the marketplace and ranks third in the world with 61% of online purchases in e-commerce made via mobile devices. Furthermore, Indonesia has one of the world's highest e-commerce growth rates with 78% [18]. Moreover, the impact of e-commerce in Indonesia is more than USD 20 billion in new consumption revenue and has become the largest online commerce market in Southeast Asia [5]. This is because the number of people who use the internet in Indonesia is growing all the time. E-commerce is growing quickly in Indonesia, which has made it a very competitive place to do business for companies in the e-commerce industry. E-commerce application providers' primary objective is to increase consumers' engagement with their applications.

Despite being in the early phases of digitalization due to uneven ICT infrastructure, e-commerce transactions in Indonesia now account for 30% of total country transactions. This trend is reinforced by the rapid expansion of the e-commerce start-up ecosystem, which benefits the national economy by employing 26 million people in the Small and Medium Enterprise sector. This fast growth has also brought foreign direct investment to Indonesia, which has gone into a number of e-commerce sites in Indonesia. A new generation of digitally savvy millennials is increasing the number of "mobile-first" e-commerce buyers. This rise has also resulted in an increase in export volume of USD 22 billion, primarily in fashion, automotive/hobby, health/beauty, and jewelry products [5].

E-commerce businesses have used a variety of strategy methods, including one of the most popular, gamification [14], to help the marketplace increase the number of consumer transactions [22], get customers more involved, keep the ones they already have, and find new ones. Gamification enhances the enjoyment, excitement, and motivation of products, services, and applications [10]. One of the causes is the shift in behavior patterns of contemporary millennial customers, who enjoy playing online games so much that the gamification method is ideal for attracting millennials [15]. Furthermore, millennials are especially familiar with game elements due to their direct and frequent engagement with video and online games.

Gamification is the method for providing consumers with an engaging experience and developing information systems that imitate interactions and motivations found in games, intending to influence user behavior [17, 21]. The application of gamification depends on different factors, such as the domain of usage, the elements used, and the types of users [12, 13]. Gamification may be utilized in e-commerce for several purposes, including content creation, conversion optimization, and user retention [10].

Furthermore, several practitioners have questioned gamification's usefulness in the short, medium, and long terms. As a result, the question of how companies and organizations might apply gamification to affect consumers and enterprises, as promised positively, is still being debated and researched [27]. To be successful with gamification, designers must know what could happen with a particular game feature in a specific situation and whom they are designing for. Gamification's design, implementation, and effectiveness depend on the users and application context. However, the field needs to grow by generalizing and reviewing existing studies and results [1].

Examining the present state of Indonesia, which is plagued with the expansion of digital-based sectors, mainly e-commerce, is an urgent matter for this study. In Indonesia, gamification-based digital marketing strategies foster the formation of novel phenomena that have yet to be well studied. This research is expected to have a practical impact because it will serve as a tool for evaluating the future and help organizations, especially those in the e-commerce industry, figure out how to use gamification. This paper presents the results of interviews that were focused on understanding game-playing behaviors in university students, as Millennial and Z generation customers, on e-commerce applications: when (frequency) they play, what kind of gamification model they play, and what benefits (rewards) they get and use them for. We also develop an understanding of daily login and mission system preferences.

We define gamification models for e-commerce applications in four categories. First, fixed reward model is dependent on the completion of preset activities. Customers will know exactly which actions they need to complete to get rewards, and they will be able to see how far they have progressed toward their goal. *Shopee tanam*, *Tokopedia mission box*, and *Tokopedia panen Telur* are fixed reward gamification models on e-commerce applications. Second, the random reward model is the unpredictable reward given to the customers. Customers are excited to get the random reward because they know that whatever they get will be a surprise. The gamification model on the e-commerce application in this part is *Shopee capit*, *Shopee lempar*, and *Shopee shake-Shake*. Third, level model is defined thresholds that customers can achieve through system actions. *Shopee candy* is a level gamification model on the e-commerce application. Fourth, the social interaction model which includes any relationship between two or more consumers in the system, as well as the actions, activities, or habits of people who interact with others. *Shopee arisan* is a social interaction gamification model on e-commerce application.

2 RELATED WORKS

A study by Halim et al. [11] sought to better understand the effectiveness of applying Shopee Tanam gamification elements in the Shopee Indonesia marketplace and find gamification elements that have the most significant impact on user continuance intention of Shopee Tanam game on the Shopee marketplace. Halim et al. [11] found that the gamification elements, like letting users choose what they want to plant, letting them interact with each other, giving them points, leaderboards, and virtual gifts as rewards, not only make users want to play, but also make them happy and likely to use the Shopee Tanam Game again, since they do not have to work too hard to get something out of it, like a reward that they can use to buy something at the marketplace.

Willis and Tjhin [26] conducted a survey study on Tokopedia, Indonesian e-commerce, to investigate the effect of interactions with the gamification feature on purchase intention and brand engagement as a mediator. They found that the interaction with immersion and achievement gamification aspects increases brand engagement and purchase intent. Interaction with social gamification elements is only beneficial to brand engagement. The interaction with immersion and achievement gamification aspects, as mediated through brand engagement, is considered a supplementary mediator of purchase intention. On the other hand, the social gamification part is mediated as a full mediation of purchase intent.

Arifah [2] conducted an experimental study with a quantitative approach to 250 frequent e-commerce users. This study examined the effect of gameful experience (GAMEX) and game design of e-commerce advergames on self-brand connections that motivate purchases. The author found that gameful experience, game design, and brand engagement mediation all have a positive effect on the self-brand connection. This is expected to affect purchase intention and encourage e-commerce platforms to improve the user experience through advertising games.

Sukmaningsih, Wandoko, and Panggati [25] investigated the impact of gamification on various generations (generation X versus Millennials). They found that there was a significantly different effect on both generations. Generation X showed that perceived usefulness and recognition were essential aspects of gamification, while millennials showed that playfulness and social influence were important factors.

In summary, previous research has provided useful perspectives on how gamification elements impact e-commerce. A common theme is that, with the presence of gamification and reward systems, many customers are engaged and have purchase intentions in e-commerce. Prior research also gives us a limited perspective on university students playing games in e-commerce applications, specifically regarding their motivations for doing so, which are many and varied.

3 METHODOLOGY

To gain a better understanding of gamification in Indonesian E-commerce from university students' perspectives, we conducted interview sessions. This allows us to build a natural understanding of participant experiences and preferences based on real-world empirical data.

3.1 Participants

We recruited participants using a non-probability sampling method called purposive sampling technique [8, 24] because it is commonly

used in qualitative research, and we would want to gain a comprehensive understanding of a particular phenomenon regarding the gamification behavior of university students in Indonesian E-commerce applications. In order to collect a wide variety of information on students' experiences with gamification in Indonesian E-commerce apps, we select a number of students with varying levels of education, majors, semesters, and study years.

The remote interviews were done with 16 participants (10 male and six female) between the ages of 18 and 25. Most were in their twenties, with the mean age being 21 (SD = 1.58). The fifteenth interviewees were undergraduate students, and one interviewee was a graduate student. Based on the field of study, nine participants from Science, Technology, and Engineering disciplines, (such as, Physics, Agriculture, Information Systems, Informatics Engineering, and Environmental Engineering) and seven participants from the Humanities and Social Sciences disciplines (such as, History, Economic Law, Public Politics, Accounting, Management, and Business Administration). Most participants used Shopee and Tokopedia (Indonesian E-commerce Applications) when playing games in E-commerce Applications and they are already familiar with those E-commerce applications.

3.2 Procedures

The interviews were conducted in a semi-structured manner (in Indonesian), approximately 60 to 70 minutes, and remotely using Google Hangout. The opening questionnaire had questions about the university, level of education, major, semester, study year, age, gender, and where the person lived. The closing questionnaire contained a preference for daily login and mission. The starting main interview question was always, *"Have you ever played games on e-commerce applications?"*. If the participant answered yes, the probing questions were, *"If so, what do you usually play?"*, and *"Why do you like playing it?"*. However, if the participant answered no, the probing questions were, *"If not, why do you not like playing games on e-commerce applications?"*. Then, participants were directly asked in closing questionnaires about their daily login and mission preferences.

When participants talked about their experiences playing games on e-commerce applications, we focused on interesting parts of the story and asked more detailed questions. Commonly asked questions were: *"When do you play games?"*, *"What reward do you usually get when you play the game?"*, *"What will the reward be used for?"*. Furthermore, the closing interview questionnaires were always: *"If you open e-commerce applications, there is usually a daily login system that will get you a reward in the form of coins or points." Do you like the daily login system?"*, and *"Why do you like or dislike it?"*, *"If the mission system, do you like it?"*, and *"Why do you like or dislike it?"*. Each participant's answers were used as a reference when conducting the interviews.

3.3 Data Analysis

These interviews were transcribed and analyzed thematically using an inductive coding approach. Starting by broadly exploring common themes and gradually focusing on the themes of gamification behaviors. The answers from the participants were merged into the themes that formed our findings on gamification behaviors. The quotes presented in this paper were translated into English by the authors.

4 FINDINGS

In this section, we present data from direct quotations from the thematic analysis of our interview data. We cluster this in five different headings. First, *frequency of playing games*, refers to whether participants have ever played games on e-commerce applications and when they usually play. Second, *played gamification models*, is the gamification model participants play and why they like to play it. Third, *reward systems*, is what reward systems participants get and what it is used for. Fourth, *preference of daily login systems*, where we consider participants' preferences for the daily login system and reasons why they like or dislike it. Fifth, *preference of mission systems*, where we consider participants' preferences for the daily mission systems and reasons why they like or dislike it.

4.1 Frequency of playing games in E-Commerce applications

We first focus on participants' experiences playing games on e-commerce applications. Of the 16 participants, 13 had played games on e-commerce applications, and three never had. To further understand when or how often they play games, we next look at what was said during interview sessions.

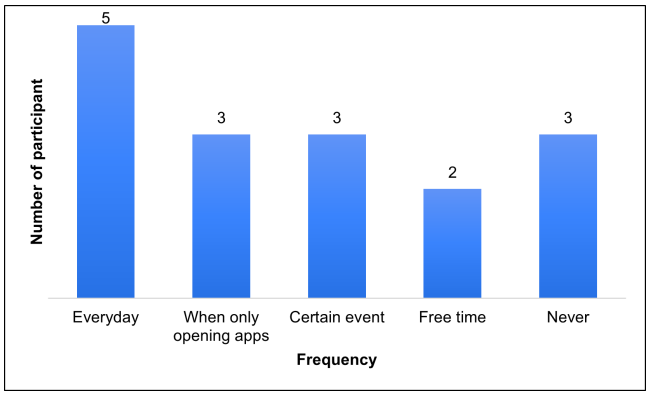

Figure 1: Frequency of playing games in E-commerce applications

Participants have different frequencies when playing games (as shown in Figure 1). Participants who play games on the e-commerce applications are divided into four different frequencies, with everyday being the highest (n=5), followed by only opening apps (n=3), certain event (n=3), and free time (n=2).

Three participants play every day because they should maintain and level up their pets (by giving them food) or plants (by watering) to stay alive, as P09 said.

> *"If the game has a sequel or a level like that, I play it everyday... Like taking care of pets (giving food) or plants (watering), I play with everyday."* (P09)

However, even though participants play everyday, they do not play for a long time because they get bored quickly and only log in daily and then close the application immediately.

"I play everyday... but only once a day because I feel bored quickly." (P13)
"Every day but only for a short time to be daily login, then immediately close the application" (P04)

Moreover, three participants who never play games in e-commerce applications because they only use e-commerce applications for online shopping and are indolent about playing games, rarely play games in e-commerce applications.

"I have never played games on e-commerce applications... I only use the application to buy products." (P13)
"I have not tried playing the game on e-commerce applications because I rarely play games." (P16)

4.2 Played gamification models

From 13 participants who had played games on e-commerce applications, eight participants played one game, four participants played two different games, and one participant played three different games.

"All Shopee games I play, like Shopee tanam, Shopee capit, Shopee candy, Shopee lempar (P3)
"I play Shopee tanam and Tokopedia mission box." (P5)

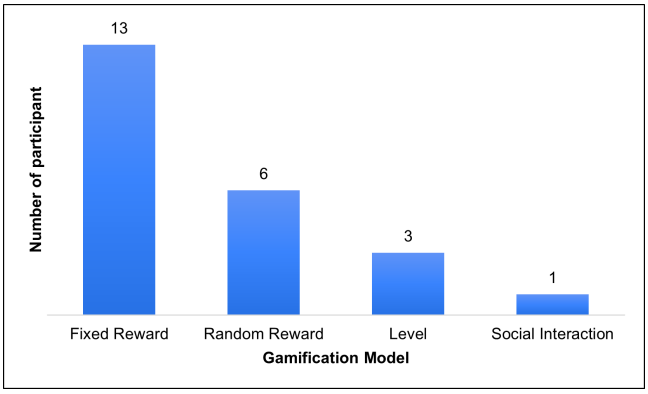

Figure 2: Participants by gamification model

We describe participant numbers by gamification model (refer to Figure 2). Fixed reward model (n=13), random reward model (n=6), level model (n=3), and social interaction model (n=1).

All participants played a fixed reward gamification model, however, five participants did not play that gamification model for a long time and did not consistently play (P1, P6, P10, P13, P15).

"I have played a lot of games... but never got to the end" (P10)
"It did not take too long to play... because I was confused about how to redeem (voucher) it and how it worked." (P13)
"I have played it before, but it is not consistent. It is really hard to maintain the plants to grow" (P15)

4.3 Reward systems

We also looked into the reward systems that participants receive and how they are used (as can be seen in Figure 3). In this section, we focused on participants who had ever played games on e-commerce applications (n = 13). All participants got coins after they played games on e-commerce applications. The number of coins they get is varied and random. Participants collected coins to redeem for rewards.

Figure 3: Reward systems

Eight participants redeemed the coins for special discount voucher, four participants with free shipping voucher, and one participant with the merchandise. Special discount vouchers are what most participants want because the aim is to cut the total shopping price.

"Get coins that can be redeemed for discount vouchers for certain brands or products. The voucher was exchanged to cut the price." (P01)
"Coins, which can cut later the price of the product we buy when we order the goods." (P08)
"Earning coins, and then using coins to get a discount (price) shopping." (P15)

4.4 Preference of daily login systems

Participants were also asked what they liked best about e-commerce apps with daily login gamification systems. Of the 16 participants, nine participants like daily login gamification systems on e-commerce applications, four dislike, and three participants answered that they did not know.

Participants who like daily login systems on e-commerce applications because they will be rewarded in a variety of ways.

"Likes to play daily check-in. Every day I get 10 coins, then the next day, I can get doubled." (P02)
"I like to play daily login too. Like the mystery box, I immediately get a discount voucher for how many thousands of rupiah for shopping discounts." (P04)
"Like (daily login) because I can get some rewards too (such as free shipping and cashback)." (P13)

However, four participants do not like daily login because they just get a few coins and are less consistent in collecting coins.

"I do not like the daily login systems... I don't like it because it takes a long time to collect coins and also only gets a small amount." (P09)
"Rarely do daily logins and do not like that system too... because I am less consistent in collecting coins." (P15)

Participants who answer do not know because they had never tried the daily login model of the gamification system on e-commerce applications.

> *"I have never tried the daily login on e-commerce and do not know either."* (P10)
> *"Never tried it, and never heard of daily login"* (P16)

4.5 Preference of mission systems

We next consider the preference for mission systems of participants on e-commerce applications. From the 16 participants, nine participants like mission systems for gamification on e-commerce applications, one dislike, and six participants answered that they did not know.

Participants who like mission systems for gamification on e-commerce applications because they immediately get rewards after completing the mission.

> *"Because the reward is immediately visible (written) there... so I can immediately get the desired reward after completing the mission."* (P05)
> *"Get cashback immediately after completing the mission..."* (P09)

Participants have preferences about the missions they like, like doing as little work as possible and finishing right away (n=5), or sharing in social media (n=4).

> *"Just share (games) on social media, so we can get vouchers or coins. The more (games) we share on social media, the more rewards we get."* (P01)
> *"I like the mission system, but sometimes the missions are a bit heavy, I have to do the same thing three times."* (P04)
> *"I like missions with a package system (not per day), so if I can finish everything at once."* (P06)

Participants who answer do not know because they had never tried the mission systems, selectively chose the mission they wanted to play, and rarely played the mission game.

> *"I do not care about selecting games like that (missions), the important thing is to complete the game."* (P01)
> *"I have never played a mission-style game like that."* (P02)
> *"Playing the mission game is only based on my preferred events."* (P08)

5 DISCUSSION

In this qualitative study, we figure out how to use gamification in the e-commerce industry to serve as a tool for evaluating the future and helping organizations. Moreover, with interview sessions, we investigated with university students what motivated different game-playing behaviors, as millennial and Z generation customers, on e-commerce applications. The participants of this research were millennials and Z generations in Indonesia because the strong determinant of online shopping behavior and the majority of online purchases are made by this age group, who have grown up with Internet-based technologies [3, 7]. Moreover, they are familiar with game elements due to their direct and frequent engagement with video and online games.

The findings of this study show that although participants play a fixed-reward gamification model every day, as the common frequency of playing games on the e-commerce application to maintain and level up their game, they quickly get bored and then close the application immediately. As a reward system, participants prefer special discount vouchers because they can cut the total shopping price. Participants also like the daily login and mission systems of gamification in e-commerce applications because they are rewarded in various ways and get rewards immediately. Gamification and motivating affordances studies [13, 17] show that service context and user characteristics are important to engaging and successful gamification. In gamification, there are two primary motivational triggers. The extrinsic motivation to accomplish something for a reward versus the intrinsic urge to complete a task because it is rewarding. Extrinsic incentives only apply to extrinsic motivation in activities that are intrinsically driven. However, it is important to recognize that extrinsic rewards have the ability to weaken an existing intrinsic desire, a phenomenon known as the "over-justification effect" [6].

Studies by [9, 19, 20] demonstrate that gamification has little effect on users' intrinsic motivation. They reasoned that because points, levels, and leaderboards were not related to other potentially demanding external motivations, such as monetary rewards for the greatest performance, they had no detrimental effect on intrinsic motivation [19]. When users interact with achievement-related things like tasks, virtual currency or coins, points, and levels, they can usually choose, accept, or reject different tasks, trade virtual currency or coins for what they want, and earn points or move up levels in different ways. As a result, by interacting with these achievement-related aspects, users might attain better autonomy and need fulfillment when they visit or utilize these types of gamified services [27].

Consumers are at ease with the aesthetic aspect (game environment), which has bright colors that match the e-commerce brand's hues, generating brand recall, enthusiasm, and a pleasant experience when playing advergames. Consumers' emotional and cognitive attachment to brands prior to playing advergames affects gameful experience and game design on consumer behavior [2]. This study inline with [11], gamification elements like freedom of choice on what to plant or adopt, social interaction, points, leaderboards, and virtual gifts as rewards make users want to play and keep playing e-commerce games because they do not have to put much effort into it and get the reward they can use to buy something at the marketplace. Gamification in e-commerce usually uses rewards because they may psychologically persuade consumers to make repeat purchases and indicate their loyalty. Free vouchers and special discounts given to customers can also change and influence their shopping behavior on online shopping websites [4, 23]. Rewards are essential in the gamification of e-commerce, either tangible (points, vouchers) or intangible (badges, levels).

5.1 Limitation and Future Work

Our research has several limitations as well. First and foremost, our sample size was limited to 16 participants. The test sample consisted of responses from a small number of Indonesian consumers about the gamification of Shopee and Tokopedia, which are

the two biggest e-commerce application platforms. Because of the variety of gamification forms available on e-commerce platforms and the variances among platform users, different groups of people may have produced different results. In order to validate the results, future studies should employ the same approach to evaluate other e-commerce application platforms. Second, the result's generalizability is most probably limited. Because the majority of respondents are university students, who are millennials and well-educated, the findings may not be applicable to other groups, such as middle-aged or less-educated people who also play games on e-commerce application platforms. More replications would help increase the generalizability of the study's findings. Third, we used a qualitative study and interview method to obtain data on the gamification of e-commerce application platforms. To learn more about the gamification trend as a whole, a future study could use different methods, such as a mixed-methods research design.

6 CONCLUSION

This study extends our understanding of how university students play games on e-commerce applications in Indonesia. The results of interviews show that gamification leads to changes in behaviors on e-commerce applications, such as engagement and shopping behavior. However, even though our samples play a fixed-reward gamification model every day, they quickly get bored and immediately close the application. Special discount vouchers became the participants' favorites as a reward after they collected coins and redeemed them because they could cut the total shopping price. The daily login and task/mission systems are also popular with our users because they get rewards quickly and in different ways.

This study contributes to evaluate the future gamification model and help organizations, especially those in the e-commerce industry. This research on the gamification models also has implications for designers in terms of knowing what could happen with a particular game feature in a specific situation and for whom they are designing. This paper also contributes to the research that has already been done on how important it is to design a gamification model into e-commerce apps for millennials and the Z generation, who make up most e-commerce users.

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