EXPLORATORY STUDY OF HOW GACHA SYSTEM IN MOBILE VIDEO GAME AFFECT PLAYER'S ENJOYMENT: A CASE STUDY OF INDONESIA

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ABSTRACT

Gacha may sound familiar to our ears, even gacha in a video game is a common thing to know for players in this generation. There are certain reasons why players can feel some kind of unique excitement when playing a video game that has a gacha element. In this research, we've analyzed the fun factors experienced by players when playing gacha-based video games using the SEM method. Based on the results that have been obtained specifically from a total of 230 respondents, Expectation of Announcement strongly influences Gacha and Satisfaction of Announcement slightly influences Gacha. Therefore, players can feel enjoyed and more excited because of how the gacha system is implemented in a video game that is played. In addition, even when rolling the gacha itself is one of the things that can be enjoyed by players.

INTRODUCTION

A common technology that has been widespread and widely used by people today is the smartphone (M. J. Koeder et al., 2018). The main feature used in smartphones is easy access to the internet. For modern society, the internet is crucial for carrying out daily activities or needs or filling their free time. Things that can be done with the internet include: browsing the latest information, taking online courses, watching movies, or playing video games.

Video games have become part of our daily lives. Video games are one of the most valued forms of play in society (Franceschini et al., 2022). People of all ages, from young children to adults and the elderly, still enjoy video games. The popularity of smartphone devices has greatly increased and has become widespread, so the total number of video game app downloads is affected by this popularity factor (M. J. Koeder et al., 2018). About half of all smartphone app downloads in the app store are video game apps (Hiramatsu, 2019). Every smartphone video game app is an online social game, where players can interact with each other based on the use of the internet network.

Pleasure is a state of feeling that indicates excitement or satisfaction that will not last long. Pleasure can be defined as a subjective health experience with positive emotions (Javed et al., 2019). Feeling a sense of pleasure when enjoying a video game can be felt as a positive emotion felt by the player. Playing video games not only provides pleasure, but it can also have a relaxing effect on players (Ahmed et al., 2021). The level of pleasure is much different in multiplayer online video games, where players will use their abilities in the game with friends or strangers (Fox et al., 2018).

The freemium model has gained popularity in recent years. The freemium model is a business strategy that provides a certain level of service at no cost and provides additional premium components to generate revenue (Banerjee et al., 2019). In freemium markets, companies start by providing free use of the product, with the expectation that the free use will trigger the purchase of premium features. Mobile video games are one of the most prevalent applications using the freemium model, and applications with this model are specifically referred to as 'F2P' or Free-to-Play (M. Koeder, 2018). Mobile video games are therefore the main focus of the freemium model (Moshirnia, 2018), where users download F2P video games that offer purchasable content and end up making in-app purchases. In (Chung, 2019) research, in-app purchases are a large source of revenue.

In 2020 in the mobile games market, the revenue earned from in-app purchases worldwide has reached 71.7 billion U.S Dollars. In addition, it is also noted that the total revenue results in the mobile games market in the territory of Indonesia have reached around 1,404 million U.S Dollars in 2021 and are predicted to increase to 1,737 million U.S Dollars when entering 2023.

The success of the freemium model in video games has been a factor in the growth of the mobile games market (Seo et al., 2019). A video game with a freemium model does not cost money to play, but it allows players to use their money and make in-app purchases. However, how likely players are to make in-app purchases depends largely on their attachment to the video game (Balakrishnan & Griffiths, 2018). As for the discussion mentioned by (Seo et al., 2019), probability-type items or often known as gacha, which is known to be not much different from the term in-app purchase, have been found in various video games. Gacha is a system of providing completely random virtual goods in video games (Fujihara & Shibuya, 2020) and often appears in games based on games-of-chance with in-game payment mechanisms (M. Koeder, 2018). In addition, the gacha model itself is derived from 'gashapon', a prize-vending machine originating from Japan (Chung, 2019). Gacha requires virtual currency from players to obtain random characters or items. Based on Koeder's research, one of the main drivers of business revenue in the mobile games market, especially through in-app purchases, is gacha. Because even though gacha can be done for free, speculatively passionate players will still try to spend their money to get a rare or quality virtual item (binti Ismail et al., 2021).

There are various research studies that discuss gacha in mobile video games (Balakrishnan & Griffiths, 2018)(Chung, 2019)(Fujihara & Shibuya, 2020)(Hiramatsu, 2019)(binti Ismail et al., 2021)(M. J. Koeder et al., 2018)(Seo et al., 2019). Thus, this study was conducted to add a contribution to Hiramatsu's research theory, by providing validation on how the gacha system in a video game can affect the enjoyment of players, especially among students in the city of Batam. We chose university students as the target population and Batam City as the research location because most of the players in gacha-based mobile video games are none other than university students, and we hope to open new research paths by selecting Batam City.

Research by (Hiramatsu, 2019), focused on the gacha system of social games in smartphone applications. The research was conducted to find out why players spend money in gacha-based video games and what goals players have for making in-app purchases. This research examines the effect of announcement of probability in the gacha system on player

behavior. Researchers also want to develop a model of user intention in social games with a gacha system. The study conducted a survey on user/player behavior regarding social games, especially on gacha with fees. It has distributed questionnaires especially to university students three times in three years, with a total of 557 sample data. The questions in the questionnaire consisted of the nature of the participant, social game experience, propensity to spend money, motive to gacha, and knowledge of information about the probability. Correlation analysis was performed on the sample data in tables 3 to 5 and the results showed that there were low correlation values in q39 and high correlation values in q40 and q41. Afterwards, hypothesis testing of the research model was conducted using the Structural Equation Modeling (SEM) method and it can be concluded that there is a type of player who focuses on the game because of the gacha and a type of player who wants to get items or characters and focuses only on the gacha.

From research conducted by (M. Koeder, 2018), discussing the gacha system in F2P mobile video games, which can generate large revenues, especially in the mobile app market. This research aims to find out how game-of-chance elements in virtual environments affect players. The main question in this study is why some players are willing to spend their money to get items and others are not? To answer this question, the researcher created a description of the characteristics of the gacha system based on market information and measurement of consumer protection regulations in Japanese mobile games. This was followed by an analytic approach, where we explored the insights of players and professionals. For that, we applied a qualitative approach by conducting semi-structured interviews with 10 players, and 7 developers/experts of gacha mobile games through F2F(16) and online meeting apps(1). The results of the analysis of qualitative data found that there is an emotional attachment from some players that makes them pay for gacha.

Research that has been conducted by (Pramanta, 2019), explains the factors that shape the values and norms of the otaku subculture and the actors behind the gacha system in Mobage (Mobile Video Games). analyzes how the factors of values and norms are created using the concept of Lacanian Psychoanalysis of the Three Symbolic Order. Results suggest that the gacha system in Mobage (Mobile Games) can be used for money laundering due to the nature and behavior of players and the surrounding community.

The study (Shibuya et al., 2019) was conducted to investigate the long-term effects of financial and event features of game mechanics among adolescents and young adults in the Japanese region. Two surveys were conducted in November 2013 and May 2014 with a total of 948 adolescents and young adults participating. The study measured gaming pathology, weekly play exposure, monthly expenditure and preference for gambling. The level of exposure to each mechanism was measured by combining content analysis with a longitudinal study. Afterwards, correlation analysis and regression analysis tests on the sample data were conducted. Players exposed to high amounts of limited-time gacha were more likely to spend money after six months. However, players exposed to normal gacha tended to spend more money later among players who preferred gambling.

In his research, (Chung, 2019) has tried to examine the factors that influence player behavior to make in-app purchases in the context of gacha games. researchers also try to design

a basic framework that explains the psychological draws of the gacha model. The research method used a case study and a snowballing online survey of 249 gacha players. This was followed by a reliability analysis test using Cronbach's Alpha on the sample data. Results show that hedonic utility is more influential than perceived value than functional utility.

Table 1. Literature Review Summary

Author	Summary
(Hiramatsu, 2019)	Examined the influence of the announcement of probability of the gacha system on player behavior, by collecting data through surveys and distributing online questionnaires to university students, then correlation analysis on sample data and hypothesis testing of research models using Structural Equation Modeling (SEM).
(M. J. Koeder et al., 2018)	Developed an overview of the characteristics of the gacha system using a qualitative approach with semi-structured interviews with players and developers.
(Pramanta, 2019)	Analyze the factors that shape the values and norms of the gacha system in Mobage (Mobile Games) in Japan and Indonesia.
(Shibuya et al., 2019)	Measuring pathological gaming factors, weekly exposure, monthly expenditure, and preference for gambling among adolescents and young adults (university students) who play gacha mobile video games.
(Chung, 2019)	Conduct reliability analysis using Cronbach's alpha and correlation analysis using Pearson correlation to examine the factors that influence players to make in-app purchases in gacha games.

Based on the research listed above, we will investigate similar conditions regarding how the gacha system in video games can affect player enjoyment in the Indonesian region (Pramanta, 2019) using a qualitative approach method with semi-structured interviews (M. J. Koeder et al., 2018) and online questionnaire distribution to university students (Hiramatsu, 2019)(Shibuya et al., 2019) who play or have played gacha video games. Then conduct analytical tests on the sample data that has been obtained from the previous data collection methods through validity tests using Pearson Correlation and reliability tests using Cronbach's Alpha (Chung, 2019). After that, proceed with testing the hypothesis of the research model using the Structural Equation Modeling (SEM) method (Hiramatsu, 2019).

METHOD

In this study, wes used research by (Hiramatsu, 2019) as the main reference for the research model. The model in Hiramatsu's research, some number of variables have been taken and used as a research model, because there is a match between these variables and the topic of this research. Some of the variables taken are: Expectation for Announcement, Satisfaction for Announcement as independent, and Gacha as dependent (See Figure 1).
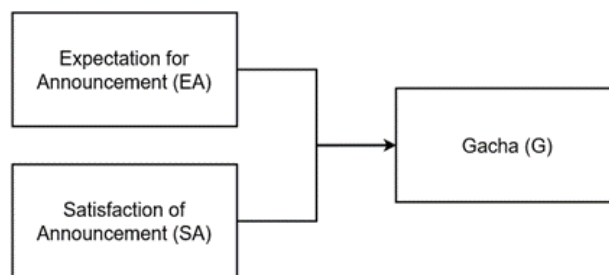
Figure 1. Research Model

In (Hiramatsu, 2019), online questionnaires were distributed three times with a three-year survey (2016-2019). A Structural Equation Modeling (SEM) analysis of the results of the questionnaire data was conducted and it was concluded that there is a type of player who focuses on the game because of the gacha and a type of player who wants to get items or characters and focuses only on the gacha. Thus, the purpose of conducting this research is to validate the theory of the research previously conducted by (Hiramatsu, 2019) in Japan by investigating similar conditions in Batam, Indonesia.

Based on the research model above, there are several hypotheses that can be arranged as follows:

$H1_0$: Expectation for Announcement (EA) has no effect on Gacha (G)

$H1_a$: Expectation for Announcement (EA) affects Gacha (G)

$H2_0$: Satisfaction of Announcement (SA) has no effect on Gacha (G)

$H2_a$: Satisfaction of Announcement (SA) affects Gacha (G)

There is an operational definition of variables from research (Hiramatsu, 2019) which will be the basis for the preparation of research instruments. The following is a table of operational definitions of these variables:

Table 2. Table of Definition Operational Variables

Variables	Indicators
EA	Probability Percentage of getting characters or items in Gacha should be notified
	I feel better if I know the Probability Percentage of getting a character or item in Gacha (even if the percentage is very small)
	I will be more likely to do Gacha if I know the Probability Percentage of getting a character or item in Gacha
SA	I feel that the Probability Percentage to get characters or items in the Gacha that is told is quite correct
	I am satisfied with the Probability Percentage of getting a character or item in Gacha
G	I feel like one day I will definitely get a certain character or item from Gacha
	Even though the Probability Percentage of getting a certain character or item in Gacha is very small, I'm confident that I can get it

Source :(Hiramatsu, 2019)

To obtain quality research material sample data that can be tested, data collection methods need to be known in advance to provide clear navigation or views for us. This research

uses qualitative and quantitative data collection methods.We've conducted interviews with 30 or so university students who are actively playing or have played gacha video games. The qualitative data collection will be conducted online using Zoom, Google meets, or Microsoft teams, and offline or F2F (Face-to-Face). Semi-structured interviews will be used in the qualitative data collection process, so that the information and understanding obtained from this method can be clearer and deeper.We also distributed online questionnaires using Google Form as a quantitative data collection method. The total sample data from the population is 375 students from universities in Batam city. This research uses cluster, proportional, random sampling with the Slovin formula to determine the target population and the amount of sample data.

After obtaining sample data from the previous data collection method, sample data analysis will be carried out and the results of the sample data analysis are then made into a conclusion.Qualitative data analysis is carried out using quantification methods on sample data that has been obtained through previous interviews. From the sample data that has been obtained qualitatively in the form of semi-structured interviews, it will be quantified into a scale with numbers 1-3 (strongly disagree, disagree, less agree) and 4-6 (slightly agree, agree, strongly agree).Furthermore, quantitative data analysis of the results of sample data obtained through quantitative methods in the form of questionnaires, will be carried out with the IBM SPSS application to determine the validity and reliability of the data. The validity test on sample data can be said to be valid if the Pearson Correlation value is positive, where the significance value does not exceed 0.05. Then the reliability test is carried out using Cronbach's Alpha on the sample data, with the hope that the resulting number value is more than 0.70 so that it can be said to be reliable. After that, it will be continued with hypothesis testing using Structural Equation Modeling (SEM) through the AMOS application on data that has been identified as quantitative data.Shortly after the sample data that has been obtained and tested, the comparison of data between qualitative and quantitative will be carried out systematically based on the differences in the results obtained.

RESULTS AND DISCUSSION

We have conducted interviews with selected informants who are generally students who have played or still playing gacha-based video games and understand the gacha system itself. Qualitative data collection was carried out, where the average data collection location was on the Universitas Internasional Batam campus. The total number of sources that have been interviewed by us were 30 people. The questions given to the interviewees produced answers based on their respective opinions which were then codified into a scale of 1 (disagree) - 6 (agree) so that readers could more easily scrutinize the information. Details of the codification results from qualitative approach that has been carried out with the relevant sources can be seen in the tables below:

Table 3. Qualitative results of Expectation for Announcement

	1	2	3	4	5	6
EA01	0.0%	0.0%	0.0%	3.3%	40%	**56.7%**
EA02	0.0%	0.0%	0.0%	10%	40%	**50%**
EA03	0.0%	0.0%	10%	13.3%	23.3%	**53.3%**

Note: 1(disagree) - 6(agree)

Table 4. Qualitative results of Satisfaction for Announcement

	1	2	3	4	5	6
SA01	0.0%	6.7%	16.7%	**33.3%**	23.3%	20%
SA02	3.3%	0.0%	20%	20%	**30%**	26.7%

Note: 1(disagree) - 6(agree)

Table 5. Qualitative result of Gacha

	1	2	3	4	5	6
G01	0.0%	0.0%	0.0%	6.7%	20%	**73.3%**
G02	10%	0.0%	0.0%	10%	23.3&	**66.7%**

Note: 1(disagree) - 6(agree)

The data contained in this quantitative approach was conducted through the distribution of online questionnaires using Google Form survey media. The total quantitative data obtained reached around 200 respondents where the majority of around 74.5% of respondents referenced Genshin Impact as the basis of their knowledge in the gacha system. The detailed results of the quantitative approach can be seen in the tables below:

Table 6. Quantitative results of Expectation for Announcement

	1	2	3	4	5	6
EA01	2%	5%	7%	13%	26%	**47%**
EA02	1%	2.5%	5.5%	15.5%	26%	**49.5%**
EA03	2%	3%	8%	15.5%	25%	**46.5%**

Note: 1(disagree) - 6(agree)

Table 7. Quantitative results of Satisfaction for Announcement

	1	2	3	4	5	6
SA01	5.5%	8%	10%	16.5%	25%	**35%**
SA02	5%	6%	10.5%	15.5%	26%	**37%**

Note: 1(disagree) - 6(agree)

Table 8. Quantitative results of Gacha

|	1	2	3	4	5	6
G01	2.5%	3%	6%	14%	25%	**49.5%**
G02	3.5%	5%	9%	16%	22.5%	**44%**

Note: 1(disagree) - 6(agree)

About 200 quantitative data are tested in an outlier test, about 12 data have been detected. Therefore, the remaining 188 total qualitative data will be used in the next analysis test. From the results of the previous analysis, we can see the difference between qualitative data and quantitative data. The first most significant difference is in the total amount of both types of data, where qualitative data is obtained from 30 sources with 200 respondents for quantitative data. This is followed by a comparison between several variables that can be measured in terms of percentages consisting of a scale of 1-3 (disagree) and 4-6 (agree).

Starting with the qualitative data, out of 30 interviewees about 92% measured as approving of the EA variable. When compared to quantitative data on the same variable, out of 200 respondents around 11% were measured as disapproving. Then on the SA variable from qualitative data, there are 78% who agree and think that the percentage of the probability of getting a character or item in the gacha is as told. But on the other hand, 22% disagreed and thought otherwise that the percentage of possibilities told in a particular gacha was not quite right. Going back to the next variable, it is measured that almost 95% of the players strongly agree with the statements in variable G. However, when compared to the quantitative data, there are 14% of the players who disagree with the variable.

Followed by the results of SEM testing using AMOS has resulted in a selected hypothesis consisting of $H1_a$ and $H2_0$, stating that Expectation of Announcement greatly influences Gacha and Satisfaction for Announcement slightly influences Gacha. In other words, expectations and satisfaction with the percentage of possibilities in gacha can make players more initiative to roll the gacha with the aim of obtaining certain characters or items where when players succeed in getting these characters or items, players can enjoy more gameplay in the content of the video game itself.
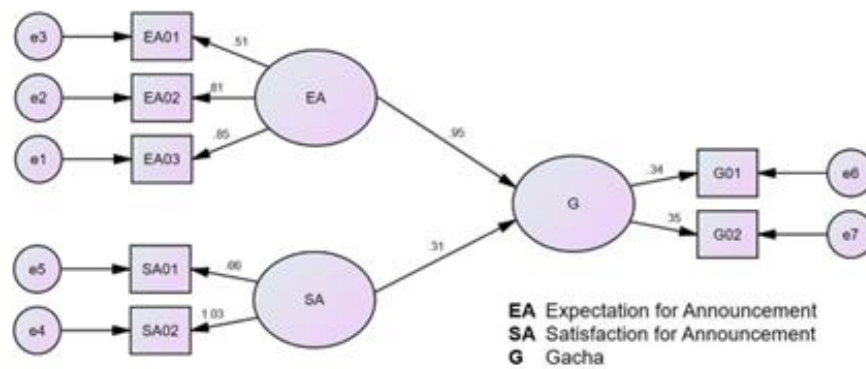
Figure 2. SEM Results

Each of these variables has been measured and can be differentiated in terms of percentages where their personal opinions have also been taken into consideration during the codification process, especially by the interviewees who were willing to give their time to contribute to this research. Most of the players had some similarities and agreed in terms of "I feel that one day I will definitely get a certain character or item from Gacha" when playing gacha-based video games. Likewise, "Even though the Percentage Chance of getting a certain character or item in the Gacha is very small, I am confident that I can get it" was overall influenced by factors such as "The Percentage Chance of getting a character or item in the Gacha should be told" and "I feel better if I know the Percentage Chance of getting a character or item in the Gacha (even though the percentage is very small)".

If we relate it to the results of the previous analysis, players prefer to play gacha-based video games because there is a desire to roll on the gacha to get certain characters or items where the gacha system makes them hope on the percentage of probability when they want to get the characters or items available in the gacha. Although the percentage of probability to get a character or item with high rarity is very small, it is not a problem for the players and they even feel more initiative to grind with the aim of getting in-game currency (used to roll on the gacha) and enjoying the gameplay of the video game itself.

Furthermore, the feeling of excitement when playing gacha-based video games can also increase the chance for the player to become temporarily addicted to roll at the gacha or in other words, gambling. However, each player has their own perception of playing gacha-based video games, so the way they enjoy the video game content also varies.

CONCLUSION

The gacha system is well known to many people, especially in video games. The main content that players usually look for in a video game is generally gameplay. But apparently this does not apply to video games that have gacha elements where in addition to gameplay, even when doing gacha itself has become one of the fun factors for players. In addition, many video game developers have also begun to utilize the gacha system with the aim of increasing revenue for a video game company. However, the gacha system still has to be properly implemented effectively because not all types of video games can be compatible with the system.

We hope that readers who are interested in the field of gacha systems can contribute to this research so that others could understand better regarding how the gacha system can affect player pleasure and how gacha-based video games can be superior to others.

Then for future research, we are interested in conducting research related to other factors that are relevant to player's enjoyment when playing gacha-based video games, such as: Emotions of Hedonism, Details of the Gacha Mechanism, Attractiveness of In-game Currency, and Visual Impact when rolling the Gacha.

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