

Factors that Affect Behavioral Intention to Purchase Virtual Items on Free to Play Games Users in Jabodetabek

Melyana Puji Lestari^{1*}, Mokhamad Syaefudin Andrianto¹

¹*Dept. Management, Faculty of Economics and Management, IPB University, Bogor, Indonesia 16680*

**melyana_pujilestari@apps.ipb.ac.id*

ABSTRACT

The game industry has a large growth rate and needs attention to help develop this industry further. In making games, game developers need to know their user's behavior to build engagement so they will buy game content and virtual items in the game. This study is to determine the characteristics of the respondents, identify the relationship between user behavior of free to play games based on demographics, and explain factors that affect behavioral intention to purchase virtual items on free to play games players in Jabodetabek. This study used primary data obtained through questionnaires then processed using descriptive analysis, chi square analysis and PLS-SEM analysis. The result of this study is that user characteristics of free to play games in Jabodetabek (Jakarta, Bogor, Depok, Tangerang, Bekasi) based on demographics are dominated by male users in the age range of 18-22 years. There is a relationship between income and the average virtual item purchased and gender with the game genre. Factors that take affect of behavioral intention to purchase virtual items in sequence are habit, social influence, price value, and facilitating condition.

Keywords : chi square, free to play game, PLS-SEM, virtual goods.

1. INTRODUCTION

Creative industries are business activities that focus on creation and innovation which have great potential to be developed. Today, the creative industry is amongst the most dynamic sectors in the world economy and provides new opportunities for developing countries to take advantage of the developing world economy. Therefore, the growth of creative industries is very important to be considered a significant factor to encourage a country's economy. One way that the development of the creative industry can be improved is by doing more research to understand this field, which operates in informal work [1].

The game industry is one of the sectors in the creative industry. Digital games develop higher-order thinking skills in particular problem-solving, strategic thinking, resource management, planning and implementation, and adaptation to changing work scenarios [2]. The game industry has a big growth and needs attention to help the development in this industry. Globally the market value of the gaming industry in 2018 is up at \$ 134.9 billion [3]. Mobile games have become a segment that has the highest market value. The global mobile game market value is \$ 63.2 billion, or about 47% of the total market value. While other segments such as PCs and consoles have a market value of \$ 33.4 billion and \$ 38.3 billion, or about 25% and 28%. Meanwhile, if viewed from the type of mobile games, the biggest market value is smartphone games, amounting to \$ 50 billion or 37% of the total global game market value.

Global game revenue by region experienced growth from 2018 and is predicted to continue to keep growing until 2022. In Indonesia, the game industry is also experiencing growth in line with its development globally. As reported by data from Newzoo 2017 Indonesia is the biggest gaming market in Southeast Asia and 16th in the world. The number of gamers in Indonesia is 43.7 million or around 16.7% of Indonesia's total population (261.7 million people). In 2018 revenues from the gaming industry in Indonesia will reach \$ 879.7 million or IDR 13 Trillion [4].

The mobile gaming segment is growing in line with the growth of mobile devices such as smartphones and tablets. The amount of smartphone users worldwide will reach 3 billion by 2018, with the Asia-Pacific region contributing more than half of that number, accordant with a report by market researcher Newzoo. Whereas in 2021, the quantity is predicted to exceed 3.8 billion [5].

Based on the results of the APJII survey in 2017, smartphone ownership in urban communities in Indonesia is 70.96% and as much as 59.31% of Indonesian urban communities access the internet through smartphones [6]. The internet usage of Indonesian people is 54.13% for playing games. Jabodetabek is one of the urban areas in Indonesia. According to the census conducted in January 2014, it has a population as many as 30 million people and 20% of the urban population in Indonesia is concentrated in Jabodetabek [7].

Game development companies face fierce competition and high consumer expectations because more and more development companies are entering the digital game industry [8]. One strategy used is to make games that can be downloaded for free which is also referred to as free to play

games. Free to play game offers limited features or limited game items in which there are virtual item sales. Game developers who use this strategy design virtual items in the game for players to buy. In this strategy revenue from the game can be generated from the cost of buying games, advertising or selling virtual items contained in the game. Game developers not only try to make games in the sense of art but also try as much as possible to sell the game content. The strategy to sell game content is done by designing the game by adjusting the player's behavior and introducing new content regularly [9]. In addition, game developers also need to know the characteristics of game players and their relationships to develop marketing strategies such as segmentation, targeting, and positioning so that the strategies used are right on target. To find out the interest (behavioral intention) of game players in purchasing virtual items, the writer decides to do research with the title Factors that Affect Behavioral Intention to Purchase Virtual Items on Free to Play Games Users in Jabodetabek

Based on the background above, the objectives of this study are:

1. What are the characteristics of virtual goods buyer on free to play game users in Jabodetabek?
2. Is there a relationship between free to play game user behavior in Jabodetabek and demographics?
3. What factors influence the purchase of virtual items of free to play game users in Jabodetabek?

2. METHOD

This research used primary and secondary data types. Primary data were attained through questionnaire results. Questionnaire is a tool for obtaining data using a list of questions [10]. The research questionnaire was created by improving the existing questionnaire in previous studies. The measurement scale used in the questionnaire was the Likert scale. Secondary data came from journals and books that were relevant to the topic.

Data collection time started from April to May 2019. Respondents were free to play game users in Jabodetabek who have purchased virtual items. The analytical method applied in this research are descriptive analysis, Chi-Square analysis and Structural Equation Model - Partial Least Square (SEM-PLS).

The sampling method used non-probability sampling method while using purposive sampling technique. Purposive sampling is a sampling method with certain considerations that are considered relevant or can represent the object to be studied [11]. In taking samples, researchers distributed online questionnaires through social media such as Instagram and Facebook. In addition, researchers also distributed online questionnaires to the online gaming community. The selection was made because researchers believe that members of the game community have made purchases of virtual items in the game.

The number of gamers in Indonesia is 16.7% or an equal number is 43.7 million people in 2017. Refers to this percentage, the game player population in Jabodetabek can be known by multiplying it with the total Jabodetabek

population (30 million people) so that the estimated population of game players in Jabodetabek is 5 010 000 people. The number of respondents drawn from population data based on the Slovin formula is 100 respondents. Sampling with the calculation of the Slovin formula is used as follows:

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{5\,010\,000}{1 + 5\,010\,000(0.1)^2} = 99.998 \approx 100$$

Information:

n: number of samples

N: population size

e: acceptable sampling error rate

Hypothesis Formulation

The hypothesis to be tested in this study is formulated as follows:

Hypotheses are tested using chi square analysis

H₁ : There is a relationship between income and the average purchase of virtual items

H₂ : There is a relationship between gender and game genre

H₃ : There is a relationship between purchase frequency and gender

The hypothesis was tested using SEM PLS analysis

H₄ : Performance expectancy is positively related to the user's behavioral intention to purchase virtual items in a mobile game (free to play game)

H₅ : Effort expectancy is positively related to a user's behavioral intention to purchase virtual items in a mobile game (free to play game)

H₆ : Social Influence is positively related to the user's behavioral intention to purchase virtual items in a mobile game (free to play game)

H₇ : Facilitating conditions are positively related to the user's behavioral intention to purchase virtual items in a mobile game (free to play game)

H₈ : Hedonic motivation is positively related to the user's behavioral intention to make purchases in virtual mobile game items (free to play game)

H₉ : Price Value is positively related to the user's behavioral intention to purchase virtual items in a mobile game (free to play game)

H₁₀ : Habit is positively related to the user's behavioral intention to purchase virtual items in a mobile game (free to play game).

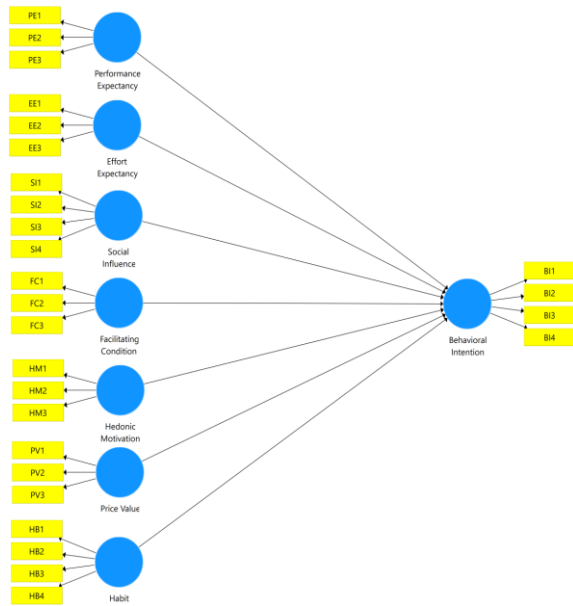


Figure 1. Research Model

3. RESULT

3.1.The Characteristics of Virtual Goods Buyer on Free to Play Game Users in Jabodetabek

In general, the characteristics of respondents in this study can be analyzed into two parts, based on demographics and behavior. Respondent characteristics based on demographics can be explained into 5 categories as gender, age, domicile, education, and income. While the characteristics of respondents based on behavior in playing games and making purchases of virtual items can be explained in 8 categories. Based on the gender of the respondents in this study dominated by men that is equal to 74% while female respondents 26%. This explains that men tend to spend more free time playing games and buying virtual items contained in the game. The age of respondents that dominates is the age range of 18-22 years, where at this age people tend to still like playing games and pursuing bachelor education. This can be seen from the highest level of education that has been or is currently underway dominated by scholars. Domicile is dominated by respondents who live in Bogor and Jakarta. The income of respondents each month is dominated by a range of IDR 1.5 million -< IDR 3 million. Based on the demographics it can be concluded that the respondents in this study were dominated by students. This can be known based on the age and highest education of the respondents. While based on behavior, 93% of respondents play games with the aim of entertainment and 13% of respondents use playing games as one of the income. This means that games can not only be used as entertainment but can also generate

income. This income can come from selling game accounts or participating in gaming competitions. The intensity of respondents playing games every day is dominated for > 2 hours. The type of game that is often played is the action game genre. Action game genre tends to be liked by men. 56% of respondents rarely purchase virtual items in games. In one year there were only 1-2 purchases. 32% of respondents bought a virtual item in a one-time transaction of around IDR 76 K – IDR 150 K with payment methods that dominate via their phone’s credit balance. 67% of respondents bought virtual items used to customize characters or decorate game interiors (e.g costumes, skins, ornaments, etc.).

3.2.Relationship Between Free to Play Game User Behavior in Jabodetabek and Demographics

To prove H1, H2, and H3, chi square analysis was performed using SPSS 20 software. The hypothesis could be accepted if the Pearson chi square Asymp.Sig (2-sided) value < 0.05. Based on the results of chi square analysis, Pearson chi square Asymp.Sig (2-sided) values were obtained at H1 and H2 < 0.05, respectively - 0.000, 0.000 so that the hypothesis is accepted. Whereas H3 has Pearson chi square value Asymp.Sig (2-sided) > 0.05 which is 0.107 so the hypothesis is rejected. Then, it can be concluded that there is a relationship between (H1) income with the average purchase of virtual items, (H2) gender with the genre of game, and there is no relationship between (H3) frequency of purchase and gender.

Judging from the income of respondents to the average purchase in one transaction as many as 15 respondents with income < IDR 1.5 million spend less money in purchasing items in one transaction. More can be seen in Table I. Respondents with little income tend to buy fewer items with a little average purchase in one transaction. So it can be concluded that income influences the average of money spent for one-time purchase transactions of virtual items.

Table 1. Average level of purchases based on income

Income (million IDR)	Average purchase					Total
	Much lower	Lower	About the same	Higher	Much higher	
< 1.5	12	15	9	4	0	40
1.5 -< 3	10	8	21	3	3	45
3 -< 4.5	1	5	1	0	1	8
6 -< 7.5	1	0	0	1	0	2
>= 7.5	0	1	1	0	3	5
Total	24	29	32	8	7	100

Judging from the gender of the genre of game that is of interest, male respondents prefer the action, sports, and RPG genres more compared to female respondents. While female respondents prefer the genre of simulation games, casual and genres other than action, sports and RPG. More complete data can be seen in Table II. The choice of game genre is

influenced by gender. So it can be concluded that gender affects the genre of the game being played.
 Table 2. Game genres by gender

Gender	Game Genres						Total
	Action	Simulation	Sports	Casual	RPG	Others	
Female	8	5	0	4	2	4	23
Male	63	1	2	1	8	2	77
Total	71	6	2	5	10	6	100

3.3. Factors Influence The Purchase of Virtual Items of Free to Play Game Users in Jabodetabek

The structural model evaluation analysis is used to foresee the linkage between latent variables. Evaluation of the inner model as a whole is seen from the r-square value of endogenous latent variables. The r-square value is an interpretation of the influence of exogenous latent variables on endogenous latent variables.

The value of r square endogenous behavioral intention variable is 0.492. This interpreted that the behavioral intention variable explained by the exogenous variables examined in this study by 0.492 or 49.2% while the rest is explained by other variables not measured in this study.

The value of the influence of the significance of exogenous latent variables on endogenous latent variables is seen based on the value of the path coefficient obtained by bootstrapping on SmartPLS. The T-statistic value is the significance of the model in seeing the effect of the hypotheses of each path of the relationship between the exogenous latent variable and the endogenous latent variable. A path is said to have a significant effect if the value of the T-statistic test is more than the value of the T-statistic table which means it should be more than 1.96 at the real level of 5%. The original sample value is the nature of the relationship between the exogenous latent variable and the endogenous latent variable (positive or negative). The results of the path coefficient can be seen in Table III.

Table 3. Value of the path coefficient

	Original sample	T statistic	P value	Hypothesis
Habit behavioral intention ->	0.363	4.246	0.000	Accepted
Social influence -> behavioral intention	0.298	2.894	0.004	Accepted
Price value -> behavioral intention	0.217	2.584	0.010	Accepted
Facilitating condition -> behavioral intention	0.256	1.990	0.047	Accepted
Effort expectancy -> behavioral intention	-0.204	1.557	0.120	Rejected
Hedonic motivation -> behavioral intention	0.049	0.513	0.608	Rejected
Performance expectancy -> behavioral intention	-0.019	0.178	0.859	Rejected

Based on the table above, the facilitating condition, habit, price value, and social influence variables have a significant effect seen from the statistical T value > 1.96 and have a positive influence on behavioral intention. The facilitating condition, habit, price value, and social influence variables will increase behavioral intention respectively by 25.6%, 36.35%, 21.7%, and 29.8%. The habit variable has the most significant influence compared to the facilitating condition, price value, and social influence variables because it has the largest T-statistic value of 4.246. The p value of each facilitating condition, habit, price value, and social influence < 0.5 so that it can be concluded if H6, H7, H9, and H10 are accepted.

Habit has a significant influence on behavioral intention. This supports previous research, where one's behavioral intention in purchasing virtual items is influenced by the habits of purchasing virtual items [12]. Purchasing virtual items in the game is a natural thing for gamers to do but gamers do not feel the need to buy virtual items. But after purchasing a virtual item for the first time, the player wants

to do it again. Therefore, game developers need to make a strategy to encourage gamers to purchase virtual items for the first time. So from the first experience in making these purchases, players can experience using virtual paid items in the game being played.

Social influence affects behavioral intention in purchasing virtual items. The results of this study reject the previous research, where in previous research social influence did not affect behavioral intention. This is possible because new indicator which stated that behavioral intention was influenced by gaming YouTubers and the game community was added to the questionnaire where in previous studies there were no such indicators. Sequentially the indicators that have the largest to the smallest value on the social influence variable are the players affected by the gaming community, friends or best-friends, gaming YouTubers, and the smallest are the players affected by relatives. Thus it can be concluded that the interaction between players in the gaming community is strong in influencing the behavioral intention of players in purchasing virtual items. So it can be concluded that gamers who have high social interaction tend to purchase virtual items.

Price value influences behavioral intention. These results support previous research. In making a purchase, gamers not only look at the price factor but also consider the quality of the virtual items they buy. Based on the indicator that has the greatest value is the player will buy even though there is no discount, then the price is not a factor that influences the player's behavioral intention to purchase virtual items. Low prices are not a factor in purchasing.

Facilitating conditions affect behavioral intention. Supporting facilities for purchasing virtual items such as payment methods, ease of accessing payment outlets affect game players in making purchases. The indicator that has the highest value on the facilitating condition variable is that merchant payments are easy to reach. In making virtual item payments, there are various methods including credit cards, debit cards, phone's credit balance, googleplay's voucher that can be purchased at minimarkets that are spread throughout Indonesia, and other merchants.

Effort expectancy does not affect behavioral intention. The ease of use of in-game purchasing systems has no effect on one's behavioral intentions in purchasing virtual items. This is because there are procedures for purchasing virtual items in the application and ease of use.

Hedonic motivation does not affect behavioral intention. These results reject previous research in which a person's behavioral intentions in purchasing virtual items are not influenced by individual internal factors such as hedonic motivation. The aim of respondents in playing games is as entertainment. Someone looking for entertainment to get pleasure. Free to play games offer limited games, where the game can meet the players' goals in playing games as entertainment without using paid virtual items. Besides that, if seen from the characteristics of the respondents in this study the respondents were dominated by students who had an income of IDR 500 K - < IDR 3 million where this amount was classified as small, so students prioritized their expenditures for consumption as well as college needs. Thus the hedonic motivation factor does not affect behavioral

intention, but individual external factors such as social influence that influence behavioral intention.

Performance expectancy does not affect behavioral intention. The benefits obtained by someone after using paid virtual items do not affect one's intention to make purchases of one's virtual items, taking into account other factors such as quality obtained at an equivalent cost. So the price value influences behavioral intention.

4. CONCLUSION

Characteristics of users of free to play games in Jabodetabek based on demographics are dominated by male users in scope of age 18-22 years and have a degree of undergraduate education. The average user revenue in a month is dominated by a range of IDR 500 K - < IDR 3 million. Based on his behavior, there are 13% of users who get income from playing games. Users play games as entertainment and on average play games for more than 2 hours a day. In one year 56% of respondents rarely make a purchase, that is 1-2 times. While the average money in one transaction is dominant in the range of IDR 76 K - IDR 150 K and makes payments via phone's credit balance. Action game genre is a genre that is often played. Virtual items that are often bought by users are items for customize characters or decorate interiors such as costumes, skins, ornaments.

There is a relationship between income with the average purchase of virtual items and gender with the genre of the game. Male users tend to like the action game genre. The greater the revenue, the greater the user spends money in one transaction.

There are 8 factors that are thought to influence behavioral intention to purchase virtual items, but only 4 factors have a significant effect. These factors are sequentially a factor of habit, social influence, price value and facilitating condition.

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