Fps Moba Video Game Popularity Analysis Using Quantitative Approach: A Case Study Of Apex Legends

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Abstract:
One of the technology products in the field of entertainment that is most popular among teenagers today is games. One of the most popular games now is Apex Legends, the goal of this research is to answer what makes this game become so popular compared to other games. The quantitative approach was used to gather information about the population's condition. By using UTAUT2 Model, it was found that the factors that influence Apex Legends popularity are Effort Expectation, Facilitation Condition, and Habit with Effort Expectation having a significance value of 0,043, and both Facility Condition and Habit having a significance value of 0,000. In conclusion, these findings show that Apex Legends is still very much influenced by social factors rather than the mechanic aspects of video games.

Keywords: technology, games, apex legends, popularity

Introduction
The development of science and technology in the world will always produce countless technological products, the technological products that have been produced certainly aim to help humans in meeting daily needs, the intended needs are in the fields of education, health, science, and also entertainment. One of the technology products in the field of entertainment that is most loved by teenagers nowadays is games. Games are one of the fastest-growing entertainment segments and are popular in the world with global sales increasing 10% every year. Compared to other entertainment segments such as movies (Reuters.com, 2018), for example, Avengers: Endgame movie released by Marvel has grossed USD$858,373,000 while Action Role Playing Game (RPG) Grand Theft Auto V which was released in 2013 was 1 million USD in just 3 days, this makes computer games the most major entertainment segment in the world (Shawn, 2021).

The most popular game genre now is action games. Action games are video game genres that emphasize physical challenges to players, such as hand and eye coordination, and reaction time. Action games can be divided into several sub-genres and one of them is a first-person shooter (FPS). First-person shooter is a game that focuses on fighting between players with a first-person perspective while using weapons. With the addition of battle royale elements, first-person shooter games become a game that needs the player to survive and hunt with other players, and players who can survive to the end will be the winner. Therefore, first-person shooter battle royale games require the player's instinct to determine the strategy to fight fellow players to the last (Gautam, Jain, Senger, & Dhand, 2021).

Apex Legends is a battle royale first-person shooter action game released in 2019 by Electronic Arts. Apex Legends is a game that is currently popular with 5th place in all game genres and 2nd for its genre in November 2021 (Newzoo.com, 2021). In October 2021, the average number of players was 128 thousand people and the maximum number of players reached 273 people worldwide. There is an average player growth of 71% from the month of release on Steam (Digital game distribution service by Valve) (Steam, 2021), Apex Legends is one of the games listed in 30 nomination categories at The Game Awards 2021, namely the nominations for "Best Ongoing Game" and "Best Community Support". (CNNIndonesia.com, 2021)

Based on the background research on the popularity of Apex Legends, the following problems can be formulated,
1. What are the factors that influence the popularity of Apex Legends in Indonesia?
2. What are the factors that make players in Indonesia still play Apex Legends?
3. How to use quantitative approaches to evaluate the popularity factor of Apex Legends.

Based on the scope above, the objectives that can be achieved in this study are as follows,
1. To Identify the factors influencing the popularity of the online game FPS, battle royale Apex Legends using quantitative methods.
2. As a requirement for the graduation of computer science bachelor's degree at Universitas Internasional Batam.

Based on the above objectives, the benefits of this study are as follows.
1. For game developers,
   a. Receive information about the factors supporting the popularity of FPS online games, and battle royale.
   b. As information that was considered when making an FPS online game, battle royale.
2. For Researchers
   a. As a form of service for final year students and testing the quality of writers in the field of information systems.
   b. As a requirement for computer science bachelor's degree graduation at Universitas Internasional Batam.
3. For Academics
   a. Can provide knowledge and contribution to game popularity research and also as a reference for future research

Literature Review

The main foundation for this research was based on research conducted by Tony Wibowo, (2020). The research focused on the popularity factor of MOBA games by using quantitative methods with a Closed Questionnaire data collection method on active MOBA players with an age range of 15-35 years. MOBA stands for Multiplayer Online Battle Arena, which refers to games with the simple goal to defeat opponents in a battle. This study uses the IS Success model by DeLone and McLean and also UTAUT2. The study stated that the dominant IS Success Variables indicate that the factors that affect the popularity of a game are Information Quality (mechanics and interfaces), and Service Quality (developer and service provider), and in the UTAUT2 model are Habit, Hedonic Motivation, and Social Influence. The most used platforms to play MOBA games are mobile or smartphone (Wibowo, 2021).

The next research is a quantitative study conducted by Patricio Ramírez-Correa, Francisco Javier Rondán-Cataluña, Jorge Arenas-Gaitán, and Félix Martín-Velicia, (2019) with a focus on analyzing the level of acceptance of online games on mobile platforms with UTAUT2 model. The results concluded, that in the UTAUT2 model the variables Performance Expectancy, Effort Expectancy, Facilitating Condition, and Price Value did not have a significant effect on games, so the study used a modified UTAUT2 model and only used Social Influence, Hedonic Motivation, and Habit (Ramírez-Correa, Rondán-Cataluña, Arenas-Gaitán, & Martín-Velicia, 2019). Just like the research that has been done by Tony Wibowo, (2020), the results of this study also state that Social Influence, Hedonic Motivation, and Habit are factors that affect a game.
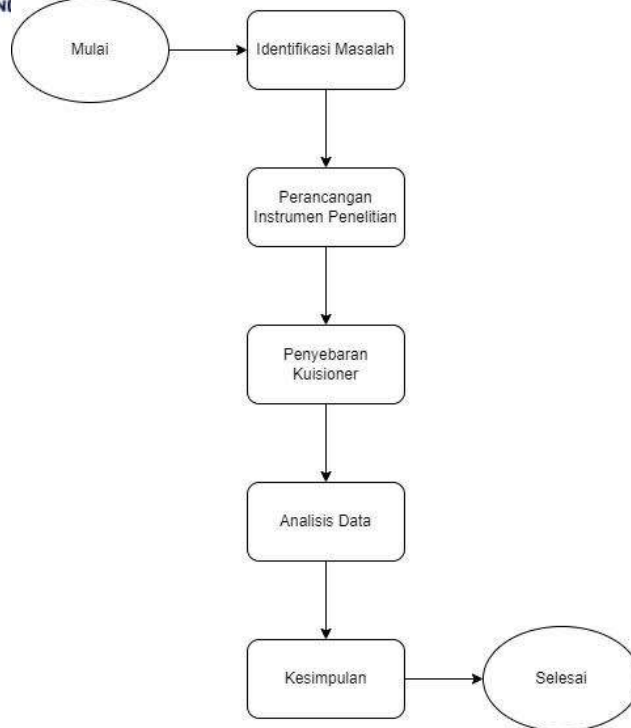
The next research is quantitative research conducted by Agung Riyadi and Riwinoto, (2021) with a focus on analyzing the factors that influence players to buy In-Game Content based on game characteristics and Indonesian player behavior. The conclusion of this study states that the game market in Indonesia is dominated by the category of regular players who play action games (Riyadi & Riwinoto, 2021).

Further research was conducted by Deddy Stevano H. Tobing, (2020). The research discussed the popularity of the MMORPG (Massively Multiplayer Online Role-Playing Game) game World of Warcraft on the Faerlina US server (one of the servers of the World of Warcraft game) using several qualitative methods, namely participation observation, in-depth interviews, and previous research studies. The results of the study stated that the popularity on the Faerlina US server tends to be due to the popularity of Twitch.tv(platforms people use to stream) who play on the server. In addition, the study also stated that the server is very interesting to carry out economic activities such as selling virtual items and making gold transactions that can be disbursed into real money (H. Tobing, 2020). This research was only conducted on the MMORPG game World of Warcraft.

The four studies above made the author very interested in researching the popularity factor of the game using the IS Success and UTAUT2 models, but in the battle royale FPS game Apex Legends which is on a different platform, the author will try to answer what factor affects the popularity of the battle royale FPS game Apex Legends in Indonesia because no one has done any research on the popularity factor of the Apex Legends battle royale FPS game.

Research Method

The research conducted by the author has various stages, the flow of research carried out by the author is shown in Figure 1.

Figure 1. Research Flow

The research method that will be used in this research is quantitative which uses 100 data of Indonesian Apex Legends players by distributing questionnaire using Google Forms, the authors will use UTAUT2 (Refer to Figure. 2).

Figure 2. Model UTAUT2

Based on the research model, table 1 shows the Questions that will be used to be questionnaire questions for data collection.

Table 1. Questionnaire question

Performance Expectation (PE)	
PE1	I Find playing Apex Legends useful to me
PE2	I feel that playing Apex Legends increases my chances of achieving what I want
PE3	When playing Apex Legends, I am motivated to get my work done faster
PE4	Playing Apex Legends made my productivity increase
Effort Expectation (EE)	
EE1	Learning how to play Apex Legends is easy for me
EE2	The user interface of Apex Legends is clear and easy to understand
EE3	I feel Apex Legends can be played easily
EE4	I was able to quickly become an expert in the Apex Legends game
Social Influence (SI)	
SI1	My friends feel I need to play Apex Legends
SI2	My family supports me in playing Apex Legends
SI3	My partner supports me in playing Apex Legends
SI4	Many of my friends also play Apex Legends
SI5	My close friends often play Apex Legends with me
Facilitation Condition (FC)	
FC1	I have a powerful enough computer to play Apex Legends smoothly
FC2	I have a strong enough internet network connection to play Apex Legends smoothly
FC3	I have strong enough financial strength to play Apex Legends smoothly
FC4	I have a place to discuss when I'm having trouble playing Apex Legends
Hedonic Motivation (HE)	
HE1	Playing Apex Legends made me happy
HE2	Playing Apex Legends is fun
HE3	Playing Apex Legends is entertaining
Price	
PR1	The price to pay to play Apex Legends is quite decent
PR2	The value I get is worth the money I spend on Apex Legends
PR3	I can afford to spend money to play Apex Legends
Habit (HA)	
HA1	Playing Apex Legends became a habit for me
HA2	I have a schedule to play Apex Legends
HA3	Playing Apex Legends has become my routine
Use Behavior	
USE1	I often play Apex Legends
USE2	I spent quite a bit of time playing Apex Legends
USE3	I will play Apex Legends in the future

Regression tests for both models will be processed using the SPSS version 25 application.

Results and Discussion

100 collected data have been used in this study. 95% or 95 respondents were male, and 5% or 5 respondents were female. The majority of respondents were aged 20-24 years with a percentage of 70% or 70 respondents, aged 25-29 years at 16% or 60 respondents, 15-19 years old at 13% or 13 respondents, and 1 respondent 30-34 years. 43% of respondents are students and 38% of respondents work as employees, 14% of respondents are self-employed, 4% are not working and 1% are working as civil servants.

Before analyzing the data, the data obtained were tested for validity using the *Pearson Product* correlation test for each indicator of the research instrument. The results of the validity test showed that each indicator has a significant value at the Pearson correlation coefficient below 0.005 so it can be concluded that all indicators on the instrument are valid. Then a reliability test of *Cronbach's Alpha* was carried out. An instrument is said to be reliable if the reliability coefficient of *Cronbach's Alpha* is more than 0,70 and less than 0,90. The results of the reliability test showed that the entire research construct is valid. (Streiner, 2003). Refer to tables 2 and 3

Table 2. R-value test results

Question	r Value Calculate	Table r Values	Validity
PE1	0,62	0,195	Valid
PE2	0,537	0,195	Valid
PE3	0,457	0,195	Valid
PE4	0,455	0,195	Valid
EE1	0,577	0,195	Valid
EE2	0,551	0,195	Valid
EE3	0,539	0,195	Valid
EE4	0,656	0,195	Valid
SI1	0,636	0,195	Valid
SI2	0,379	0,195	Valid
SI3	0,43	0,195	Valid
SI4	0,377	0,195	Valid
SI5	0,581	0,195	Valid
FC1	0,424	0,195	Valid
FC2	0,356	0,195	Valid
FC3	0,55	0,195	Valid
FC4	0,523	0,195	Valid
HE1	0,555	0,195	Valid
HE2	0,581	0,195	Valid
HE3	0,544	0,195	Valid

PR1	0,42	0,195	Valid
PR2	0,482	0,195	Valid
PR3	0,466	0,195	Valid
HA1	0,72	0,195	Valid
HA2	0,479	0,195	Valid
HA3	0,577	0,195	Valid
USE1	0,692	0,195	Valid
USE2	0,6	0,195	Valid
USE3	0,612	0,195	Valid
USE4	0,578	0,195	Valid

Table 3. Reliability test results

Indicator	Test Value	Cronbach Limit	Reliability
PE	0,83		Valid
EE	0,82		Valid
SI	0,78		Valid
FC	0,79	0,7 – 0,9	Valid
HE	0,86		Valid
PR	0,83		Valid
HA	0,86		Valid
USE	0,8		Valid

UTAUT2 regression test showed 3 dominant influential constructs in *Apex Legends'* popularity, 3 constructs are Effort Expectation, Facility Condition, and Habit, with Effort Expectation having a significance value of 0,043, and both *Facility Condition and Habit* having a significance value of 0,000. This regression test has an F Test value of 31,012 with a significance value of 0.000, with Durbin-Watson value of 1,953, and *an adjusted* R^2 of 70,2% indicating that this model has a statistically significant relationship, and no *autocorrelation* symptoms can be seen in (1)

$$(dU)\ 1,8262 < 1,953 < (4\text{-}dU)2,1738 \tag{1}$$

Independent variables partially affect dependent variables. Proven using the t-test with a ttable value of 1.987 and Effort Expectancy positively influential with a calculated value of 2,049 followed by Facility Condition (FC) positively influential with a calculated value of 3,611 and Habit (HA) positively influential with a calculated value of 4,385, and other constructs that had no effect with the calculated value being between -1,986 – 1,986. The regression equations of the UTAUT2 model can be seen in (2)

$$Y= -0,122 + 0,019PE + 0,144EE + 0,08SI + 0,381FC + 0,015HE - 0,028PR + 0,579HA \tag{2}$$

The regression result of the UTAUT2 Model shows very interesting things, Habit construct is higher than Effort Expectancy, which shows that habit will encourage Apex Legends players to play more instead of the feeling of wanting to get better and compete with others.

Another factor that supports the popularity of Apex Legends is Facility Condition (FC), the more developed technology and electronic goods are easier for us to get at relatively low prices. Players only require a minimum of sufficient computer specifications to play Apex Legends. Compare to the last ten years the price for computer parts has significantly reduced, with more flexibility for owners to modify and upgrade their hardware. Another reason why facility condition supports the popularity of Apex Legends is the fact that computer has been used all over the world now, even office computer can run Apex Legends with minimum graphic settings. Another option for players to play Apex Legends in an Internet café. Over time, Internet café will always offer higher computer specifications to be able to compete, this is very beneficial for online game players to play games such as Apex Legends.

Factors that also support are Habit (HA) in playing games, the habit of playing games has existed since the days of Counter Strike Source and Point Blank where teenagers gather and played together in internet cafes, and this habit continues until now. From the regression result we can find that habit is the major factor of Apex Legends popularity, combines with Effort Expectancy, we can define that Apex Legends Indonesian player has the habit of playing and always want to get better to play Apex.

In the regression results of UTAUT2 models, a construct has a negative effect. This shows that Apex Legends players started playing this game with negative feelings towards this game. Although the price of computer components has begun to be cheap, not everyone can afford to spend money to play computer games, in general, MOBA FPS games are only considered teenage games by parents due to largely research on the topic of parents and their children playing games. With the majority of players being teenagers in Indonesia, this explains why Apex Legends players start with negative feelings.

With these results, we can conclude that social factors greatly influence the popularity factor of Apex Legends rather than the mechanic aspect of the game.

Conclusions

This research focuses on answering the popularity factor of the MOBA FPS game Apex legends in Indonesia using the UTAUT2 model. The results obtained through regression tests on 100 quantitative data that have been collected show 3 constructs that greatly affect the popularity factor of FPS MOBA Apex Legends, namely Effort Expectancy, Facility Condition, and Habit. The results of this study are slightly different from the research that has been carried out by Tony Wibowo and Patricio Ramírez-Correa et.al. in MOBA games on mobile platforms where Hedonic Motivation and Social Influence on the UTAUT2 model are very influential on the popularity factor of MOBA games.

This finding is the result of this goal regarding the popularity factor of the MOBA FPS game Apex legends Empirically. The results of this research are expected to be input to game developers from the perspective of Apex Legends Indonesian players.

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