

Comparative Analysis of Gameplay and Players Emotion in The Most Popular Games From Play Store

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Abstract. The development of the android mobile operating system and the presence of Play Store services poses challenges for developers to produce exciting mobile games. Although publishing games in Play Store is not difficult, in fact developers have to face tough competition to make homemade games can become popular. This study analyzes the gameplay of three popular paid-free games in Play Store that can survive for a period of one year from the top 10 positions in October 2015- November 2016. Analysis performed on 8 elements of the game based on the definition of Fullerton and emotional expression analysis of respondents who appeared while playing the three chosen games. The analysis shows that scarce resources are the main attraction of all three games because they create conflicts, giving constraints and challenges to players. The multiplayer game has a pattern of results and the result makes the opponent become more negative than the player to win. While the single player game is analyzed has a pattern to make the player get positive to win. There are 3 basic emotions that most often appear that is joy, disgust and surprise. Multiplayer games tend to emphasize the emotions of joy players, while single player games tend to bring disgust emotions.

Keywords: Mobile Game, gameplay, Game Element, Play Store, Players Emotion

1. Introduction

The rise of the Android system is affecting the development of mobile games. Android was first publicly recognized in 2005, after Google acquired a Start-up company called Android Inc. According to [1], Google's speculation step shows Google's interest to enter in mobile devices field because of the advantage of mobile game [2]. Android became one of the operating systems that are very supportive of gaming applications on mobile devices. Even with Play Store, Android system users can easily find games based on the best categories, including Top Free, Top Paid, Top Grossing, Top New Paid, Top New Free and Trending.

Android system also stimulate the increasing number of game developers, including in Indonesia. Game Association of Indonesia [3] noted the number of local game developers continue to rise significantly. In its prediction in 2016 the number of local game developers will rise 50 percent compared to 2015. Based on the survey Newzoo [4] Indonesia is referred to as a promising market for the online game industry and mobile. With a population of 255.7 million, Indonesia has an online population of 66 million and gamers of 42.8 million. The amount of market potential is open to both

local and foreign game developers. As well as Swedish game developers who have captured the opportunity with the release of mobile games called *Duel Otak*. The game successfully attracted tens of millions of players and became a popular game in Play Store.

According to [5], popular games on mobile devices have gameplay features with player touches like, tapping, shifting or drawing. In addition popular games at least have the features: easy rules, social interaction, or get rid of the enemy. The game designer's understanding of market tastes is the main thing needed to be able to design a game that can occupy a top free position in Play Store.

Therefore, in this study, authors wanted to know the gameplay that affects an incoming game in Play Store's top ranking list and creates an initial reference for game design to be marketed through Play Store. To find a good gameplay, authors performs an analysis based on 8 game elements defined by [6]. In addition, authors also want to know how the emotional characteristics that occur in game players when playing these popular games. According to [7], emotion expression can be used to improve the gameplay ability in responding to players' emotions.

2. Theories

2.1. Gameplay

Ref [8] says gameplay is the most important pillar of game design activity. A good number of good mechanics make it simple but not rich if they do not involve gameplay, able to give players the challenges, skills and rewards they seek, without unnecessary trouble, so as to maintain and enhance their motivation. [9] describes Gameplay consists of two things: challenge and action. Challenge that must be passed by the player to arrive at the destination while playing the game. Action that players can take to take and overcome the challenges provided. Ref [10] describes gameplay experience have immersion which compound sensory, challenge-based and imaginative immersion. Ref [11] says that not all games with good graphics and advanced features are fun but game that deliver think and feel the value o game will be popular game. Meanwhile, according to Csikszentmihalyi (1990) cited by [12], the success of digital games has been linked to the ability of game designers to design games that meet the player's enjoyment experience while playing. This experience is important to be placed in the mental state of players called "flow" as people who care less about their condition when they are in a state of pleasure.

2.2. Game Elements

According to [13], there are three basic elements that are used as a framework by game developers to form a game, which is mechanics, dynamics and aesthetics abbreviated as MDA. Ref [14] was the first book that describe that the proper way to understand games is from an aesthetic perspective. Ref [15] give another perspective about game design that consist of mechanics,aesthetic, story and technology. The fun that players can get when playing games are narrative, challenges, fellowship, discovery, expression, sensation, fantasy and submission. Meanwhile, according to [6] there are 8 formal elements in the design of a game, i.e: player, goal, procedure, rule, resources, conflict, limitation, results and consequences.

2.3. Emotion

Based on [7], there are 7 types of emotions that are recognized based on the combination of facial movement. The types of emotions are Anger, Disgust, Fear, Joy, Sadness, Surprise and Contempt. The application used to recognize emotions is AFFDEX SDK that available in Play Store and <http://www.affectiva.com/sdk>

3. Comparative Analysis of Gameplay and Players Emotion

3.1. Three Popular Games Election

From observations during the period of October 1, 2015 to September 1, 2016 using the site www.appannie.com, there are 43 games that appear in the top 10 free positions that are recorded every 1st of each month. Table 1 shows the rank of the game with its occurrence frequency. Game that is in position after 6 has frequency less than 6 frequency of occurrence. Of all the games there are 3 most prominent games with the frequency of occurrence most often is Clash of Clans, Pou and Subway surfers. This game has a different genre, but is a popular game with the number of downloads of more than 100 million people.

Table 1 Frequency of Popular Games Occurrences

No	Name of Games	Frequency
1	Clash of Clans	12
2	Pou	12
3	Subway Surfers	11
4	Tebak Gambar	9
5	Piano Tiles 2 (Don't Tap)	9
6	My Talking Tom	6

3.2. Game Elements Analysis

a. Player

Of the three games analyzed, only Clash Of Clans can be played multiplayer online to attack/be attacked. While Pou and Subway Surfers is a single player game. The similarity of the three games is that players can share their achievements in the game directly to social media.

b. Goals

The three games analyzed have different game objectives, this is influenced by different genres of each game. Clash Of Clans with strategy genre, Pou with casual genre and Subway Surfers with arcade genre. But the goal of the three games has the same equation that is unlimited and sustainable. When the player has reached the peak, developers usually always update for the next mission / level. The entire game also has 8 elements of fun from the aesthetic concept based on the MDA game design model.

c. Procedure

Each game has different ways of playing procedures to move characters or games. Clash Of Clans game has 5 basic movements and has no combination movements. While Pou has 2 basic movements and 2 movement combinations, so have a total movement of 4 movements. While Subway Surfers has 2 basic movements, and 4 movement combinations, so the total movement amounted to 6 movements. All three games have an easy way to play procedures, where players simply click, tap or drag.

d. Rules

From the rule side, Clash Of Clans and Pou have similarity to the level system when played. While Subway Surfers do not use it. Also the rules in Clash Of Clans and Pou also make the player will never be in a game over state, in contrast to Subway Surfers that allows players to experience game over when failing to overcome obstacles in a game challenge. From the results of analysis, Subway Surfers has relations between the rules and the most movement compared to the other two games, i.e as many as 13 movements. While Clash Of Clans only has 12 movement relation and Pou with relation 8 movement.

e. Resources

In all three games every major resource is instrumental in generating support resources. While some categories of support resources may also have a role to maintain the availability of key resources. In Clash of Clans and Pou games that have a level system, it requires players to be at a certain level to have the item locked. While in Subway Surfers, players simply have the coins and keys to get the items.

f. Conflict

In-game conflict becomes a challenge that makes players more interested in playing the game. Of the three games analyzed, Pou has a conflict that tends to be flat. But Pou has a mini games feature in which there is a conflict each to help players not get bored quickly when playing. As for the game Clash Of Clans and Subway Surfers have an increasingly difficult conflict along with the longer playing players.

g. Limitation

The most complicated limits of these three games are in the Clash Of Clans game. For players are limited by time when upgrading. So players can only wait if they do not have support resources to speed up the upgrade process. While in Pou, players can still play when Pou is not prime and looking for Coins through mini games. Similarly with Subway Surfers, although players do not find other characters, players can still play with the characters that have been provided since the beginning. The similarity of these three games is that each game provides an app in purchase feature that can make it easier for players to skip game limits.

h. Results and Consequences

In Clash of Clans, the ability to build and defend the kingdom will make players rank. While in Pou, the player's ability to take care of the pou will make the player has an excellent status indicator and an increased level. While in Subway surfers, the more players can run, the higher the high score will be obtained. From the results of comparative analysis, Pou and Subway Surfers have the same positive pattern > on result and result. Both of these single player games have increasing results and consequence parameters, such as Subway Surfers with high score and Pou game with level. Whereas in Clash Of Clans has a negative opponent pattern > on result and consequences. Because while fighting, the winner in the Clash Of Clans is determined by the player's success in making the opposite negative > compared to the player's negative.

Game elements can have an effect on game player emotions. Positive emotions happen if the game allows players to present their achievements to social media, providing challenging goals, easy play procedures, player actions for existing rules, payment facilities. Negative emotions happens if games provide conflicting resource management. While the pattern of positive results or negative enemies gives effect of increasing the level of emotion that exists.

3.3. Players Emotion

Testing is done to determine the emotions of players while playing the three popular games are analyzed. Testing is done through surveys of the correspondent ever and have experience playing the three games. Surveys conducted in the form of observation of player expression through the application of emotion recognition, Affdexme [16].

The number of respondents obtained is 7 people, as explained by [17] that the number of samples used in qualitative research is range from 4-10 informants by seeing if the data has been saturated, if sample less than 10 has reached saturation point then the researcher can stop sample search.

In the Clash Of Clans, the emotions of players that most often appear is disgust as much as 34 times. While under it is surprise with 28 times and joy as much as 14 times. While 3 other emotions, namely sadness, anger and fear only appear less than 10 times. Although disgust is the most common emotion when summed from 7 respondents, the comparative test between the average emotional emergence and the standard deviation shows the joy emotions having a better homogeneity level of opinion.

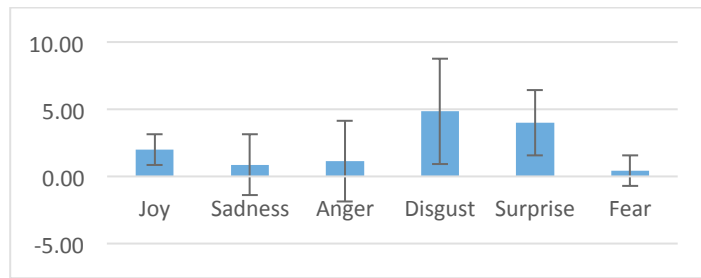


Figure 1. Comparative of occurrences number average with standard deviation of respondent's emotional expressions on Game COC (Clash of Clans)

In the game Pou emotions players most often appear is surprise as much as 36 times. While the thin difference below it is disgust with 35 occurrences and joy 28 times. While the emotions of sadness and anger both appear 13 times. The least emotion appears is the fear that as much as 5 times. When summed from 7 respondents, the comparative test between the average emotional emergence and the standard deviation shows the disgust emotion also has a better homogeneity level of opinion.

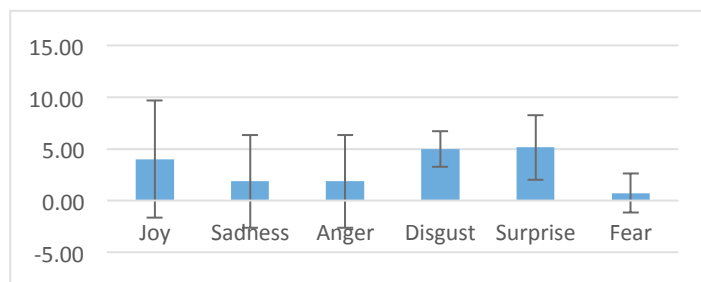


Figure 2. Comparative of occurrences number average with standard deviation of respondent's emotional expressions on Game Pou

In the Subway Surfers, the emotions of players that most often appear is disgust as much as 48 times. While under it is a surprise with 46 times and joy as much as 39 times. While the emotions of sadness and anger both appear 15 times. The least emotion arises is fear that is as much as 10 times. When summed from 7 respondents, the comparative test between the average emotional emergence and the standard deviation shows the disgust emotion also has a better homogeneity level of opinion.

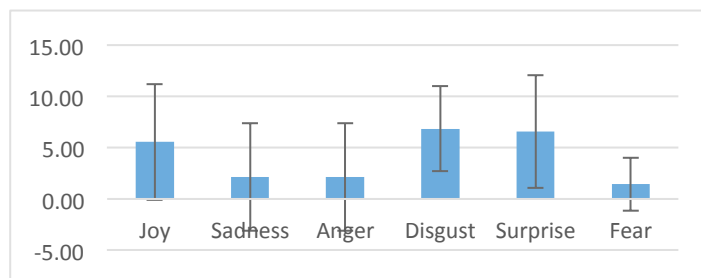


Figure 3. Comparative of occurrences number average with standard deviation of respondent's emotional expressions on Game Subway Surfers

4. Conclusion

This study has produced early indications of the form of gameplay and emotion that a game needs to become popular in the Play Store. From gameplay analysis, every popular game on the Play Store is not limited to a single player mode. Game with single player or multiplayer can both be a game that is popular within Android users. In the design of gameplay, resources that are scarce and become the needs of the players become the attraction of all three games. The multiplayer game has a pattern of results and the result makes the opponent become more negative to the player to win. While the single player game on popular games that are analyzed have a pattern of making players get positive to win. Based on the results of emotional observation, there are 3 basic emotions that most often arise are joy, disgust and surprise.

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