



Player Experience Measurements Using Immerse Experience Questionnaire on Pewayangan Game

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ABSTRACT

Wayang is an Indonesian heritage that becomes the world's heritage based on the recognition of UNESCO on 7 November 2003. However, the establishment of the wayang as a world cultural heritage does not make it is recognized by the young generation in Indonesia. They considered that wayang is only as a conventional culture, the duration is too long, and it tends to be boring. Creative and interactive media are needed to attract the younger generation to wayang, one of them is using the game. A Game is an interactive media that is much liked by all ages because they are entertaining, challenging, and fun. In the development of a game, it needs to emphasize a good user experience. The measurement of user experience in the game called the gameplay experience. This paper discussed the measurement gameplay experience (GX) using Immerse Experience Questionnaire (IEQ) on Wayang Game. The results of GX measurements become a benchmark for the quality of the game 'pewayangan' in attracting the young generation.

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1. Introduction

The word 'culture' comes from the plural form of two words, they are the mind and ability. Therefore, culture can be interpreted as the ability produced by the human mind or work as the result of love, intention, and human feelings.

Indonesia is a country that has a rich culture of diversity. One of them is the "wayang" or puppet show. Wayang is the cultural heritage of the archipelago and it has determined as a world cultural heritage based on UNESCO's recognition on 7 November 2003 [1]. But the definition of wayang as the world cultural heritage does not necessarily make wayangs become familiar to the young generation in Indonesia. For the young generation, wayang is still regarded as a conventional performance that tends to be boring because of the long duration. The language used in wayang is also too complicated to be understood with an unfamiliar story [1]. These reasons make them prefer to seek other entertainment shows that are more interactive than wayang.

To overcome these problems, creative and interactive ways are needed to attract the young people to wayangs, such as super wayang, next-door wayang, OHP wayang, and wayang cinemas [1] [2]. In addition, some interactive media can be used to introduce wayang stories, and one of them could be done by designing the game.

Game is an interactive media that is much liked by children and adults because it contains entertainment, challenge, and fun. For these reasons, wayang could be played through the games. Wayang characters and stories are introduced into a game so it can be an alternative to bring the younger generation getting closer to the wayang culture. Game [3] is also an activity carried out by the player in the context of being in the real world in order to get at least one goal that is not easy based on the rules designed. In designing game, there are several things need to be considered, such as the themes, genre, storytelling, and gameplay. In this study, the researchers would focus on the gameplay that is designed for wayang games.

Gameplay [3] is a given or offered challenges for players to respond and overcome those challenges. They could do other things that are fun as rewards in the gaming world. In this paper, the measurements are taken based on the gameplay experience (GX) [4] in the Pandawa Lima or "five characters" of wayang games. The results of GX measurements become a benchmark for quality of the Pandawa Lima wayang game for attracting the young generation's attention.

2. Discussion

2.1. Wayang Game



Figure 1. Wayang Game

Wayang game tells Yudhistira's journey against Kurawa to save Drupadi from the Giant. The settings are taken before the famous Mahabharata War. This game introduces the forerunner war between Pandawa against Kurawa. Figure 1 describes the situation between Pandawa and Kurawa. This game is divided into 5 levels as outlined in Table 1 below.

Table 1 Level Design

Level	Description	Goal	Obstacle	Reward / Punishment
1	After the death of King Pandu, it forced Yudhistira to travel as fast as possible into Hastina Palace in order to take a reign before Kurawa taking it.	Reach Hastina palace as fast as possible, and collect coin to open the next level	Yudhistira must pass through obstacles and the Kurawas	Reward: Coin to unlock the next level Punishment: Game Over
2	Because of its jealousy, Kurawa poisoned Bima's food. Unconsciously, Bima ate the food that had been poisoned by Kurawa. Then, he was dumped by Kurawa into the Jalatunda well that contained a poisonous snake. Knowing his brother was in danger, Yudistira must save Bima from Jalatunda well.	Save Bima from Jalatunda's Well	Yudhistira must save Bima from Poisonous Snake in Jalatundas Well	Reward: Coin to unlock the next level Punishment: Game Over
3	Because the attempt to get rid of the Panadawa failed, Kurawa burned down the Sigala Gala Bale (the resting place of the Pandawa). Seeing the incident, Batara Naradha and Sang Hyang Antaboga helped the Pandawa from the fire. Pandawa was given the instructions to go to the forest in the opposite direction. But they must defeat the giant to arrive at the forest.	Defeat the Giant and take over the forest	Defeat the beast and Giant in the forest	Reward: Coin to unlock the next level Punishment: Game Over
4	Pandawa got the news that there was a kingdom in Pancala to compete for the royal princess. Yudistira and his brothers were eager to join the contest. Then, they rushed to the Pancala palace. Arriving at the palace, Drupada King challenged the Pandawa to defeat Drestadyumna (Drupadi's brother) as a requirement to get Drupadi's daughter. Yudistira agreed to the challenge.	Defeat Drestayumna and married to Princess Drupadi	The army of Pancala Kingdom and Drestadyumna	Reward: Coin to unlock the next level Punishment: Game Over
5	To prevent the conflict between Pandawa and Kurawa, the royal advisers of Hastina Pura asked the King to give the Wanamarta forest to the Pandawa. The King agreed. It didn't take long for the Pandawa to succeed in transforming the Wanamarta forest into the magnificent kingdom of Amarta and Indraprasta as its capital city. Kurawa were invited to the Amarta kingdom as a gratitude for the establishment of Amarta, but Kurawa assumed that the Pandawa boasted, thus Kurawa made confusion in Amarta which led to a fight between the Kurawa and Pandawa.	Defeat Kurawa	The Kurawa and dungeon in Hastina Palace	Reward: Coin and the epilog of the Mahabharata War Punishment: Game Over

2.2. Game Experience

Gameplay experience speaks about the characteristics in playing a game (including game rules, storyline, and game mission) and how to conquer the game so that users have memorable experiences. There are three categories of methods in measuring experience in a game [5] [6], as follows.

1. Quality of a product (game system experience)

To conduct a quality assessment of a game system, it's the same as testing a game product in general, such as stress testing, unit testing, beta testing

2. Quality of interaction between humans and products (individual player experience)

Assessing the quality of knowledge from an individual can be done by using several sensors to see the player's behavior, including eye tracking, psychophysiological player testing, game metrics behavior assessment, qualitative interviews, and questionnaires.

3. The quality of social interaction, temporal, spatial and other contexts.

All three categories above will determine the layers of GX from time to time. Figure 2 describes the three category methods for measuring game experience.

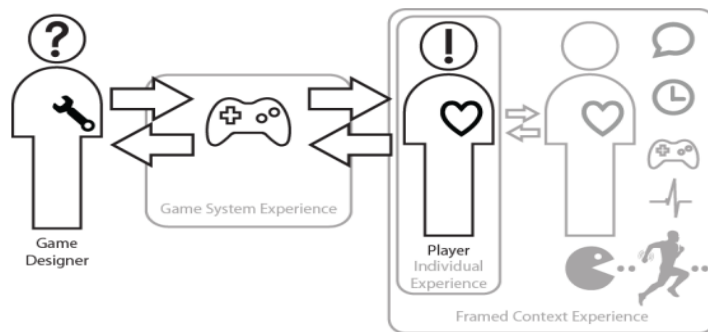


Figure 2 Three Categories of Methods in The Gameplay Experience [7]

2.3. Assessing Game Experience

The measurements of gameplay experience quality were divided into three categories, namely [5] [6]:

1. Quality of product (game system experience)
2. Quality of human-product interaction (individual player experience)
3. The quality of social interaction, temporal, spatial and other contexts.

This research focused on measuring the quality of human and product interactions. Measuring the quality of human interaction and game or player experience can be done with various techniques [4], such as the use of multiple sensors to record the behavior of the player, and a log of every action. The player chooses command or event during the play, or the questionnaire to get feedback from players. Among these techniques, questionnaire technique is one way to get opinions from players. Also, many surveys were chosen because they were easy to distribute and standardized [7]. There are various types of questionnaires to assess individual player experience. This research used the Immerse Experience Questionnaire (IEQ).

The process of retrieving data was done through several stages (as described in Figure 3), namely:



Figure 3 The Process of Retrieving Data

IEQ used to determine the level of player involvement in the game [6] [8] [9]. IEQ using a Likert scale that determines the level of the participation of players ranging from a scale of one to five from strongly disagree to strongly agree with the questions that posed. There are thirty-one close questions and one open question (for developer) on IEQ (All questions describe in Table 2) which is a calculation item in the immersion factor. The five elements are:

1. Challenge,
2. Control,
3. Real world dissociation,
4. Emotion involve,
5. Cognitive involve

The Challenge and Control factor describe challenge-based immersion or the tactical, it is the moment by moment player play the game. The cognitive factor describes when the player thinks effortful about the strategy to conquer the game. While the Emotional involvement describes the imaginary immersion or narrative in the game. The other factors lead to Real World Dissociation when the player truly emerge immersive experience [10] [11].

Table 2 Immerse Experience Questionnaire

No	Questions
1	To what extent did the game hold your attention?
2	To what extent did you feel you were focused on the game?
3	How much effort did you put into playing the game?
4	Did you feel that you were trying your best?
5	To what extent did you lose track of time, e.g. did the game absorb your attention so that you were not bored?
6	To what extent did you feel consciously aware of being in the real world whilst playing?
7	To what extent did you forget about your everyday concerns?
8	To what extent were you aware of yourself in your surroundings?
9	To what extent did you notice events taking place around you?
10	Did you feel the urge at any point to stop playing and see what was happening around you?
11	To what extent did you feel that you were interacting with the game environment?
12	To what extent did you feel as though you were separated from your real-world environment?
13	To what extent did you feel that the game was something fun you were experiencing, rather than a task you were just doing?
14	To what extent was your sense of being in the game environment stronger than your sense of being in the real world?
15	At any point did you find yourself become so involved that you were unaware you were even using controls, e.g. it was effortless?
16	To what extent did you feel as though you were moving through the game according to your own will?
17	To what extent did you find the game challenging?
18	Were there any times during the game in which you just wanted to give up?
19	To what extent did you feel motivated while playing?
20	To what extent did you find the game easy?

No	Questions
21	To what extent did you feel like you were making progress towards the end of the game?
22	How well do you think you performed in the game?
23	To what extent did you feel emotionally attached to the game?
24	To what extent were you interested in seeing how the game’s events would progress?
25	How much did you want to “win” the game?
26	Were you in suspense about whether or not you would do well in the game?
27	At any point did you find yourself become so involved that you wanted to speak to the game directly?
28	To what extent did you enjoy the graphics and the imagery?
29	How much would you say you enjoyed playing the game?
30	When it ended, were you disappointed that the game was over?
31	Would you like to play the game again?
32	How immersed did you feel?

3. Results

The testing of gameplay experience begins by giving Immerse Experience Questionnaire (IEQ) to 20 respondents with a level of primary, middle and high school education. The twenty respondents were asked to answer the questionnaire questions after trying the Pandawa Game. Twenty respondents were given assistance to help them interpret the problems in the questionnaire

IEQ consists of thirty-one questions with a Likert scale and one open question to be input for developers. Thirty-one question items have a range according to the index Table 3 as follows

Table 3 Immersion Index

Range	Explanation
0% - 19.99%	Strongly Disagree
20% - 39.99%	Disagree
40% - 59.99%	Neutral
60% - 79.99%	Agree
80% - 100%	Strongly Agree

According to Table 3 above, the calculation of the index of the twenty respondents with the following rules such as immersion score. Calculation of questionnaire (31 questions) with the rules of the questionnaire 6, 8, 9, 10, 18 and 20 has a reversed order of weight (Examples 1 to 5, 2 to 4). The results of Immersion Index Chart show in the following graph (Figure 4)

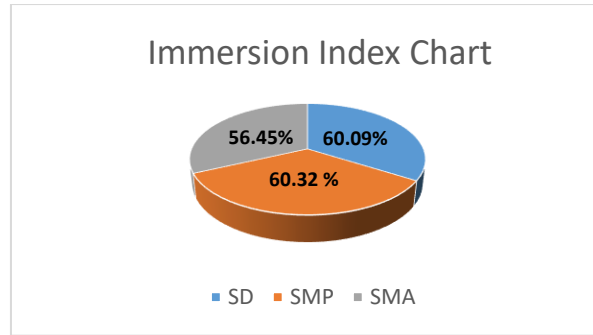


Figure 4 Immersion Score of 20 respondents

From the graph in Figure 4, there are some results obtained:

1. At the elementary school age, it provides information that the average yield index of 60.09%. It indicates that gamers feel involved in playing the game.
2. At the junior high school age, it provides information that the average yield index of 60.32%. It indicates that gamers feel involved in playing the game
3. At the high-school age, it provides information that the average yield index of 56.45%. It indicates that the involvement of gamers in the normal game

From the results of the index calculation above, it can be said that the games have sufficient involvement. The immersion factor of the game created for all three levels of school age. The results of the five factors for the three levels of school age show in the following chart in Figure 5 below

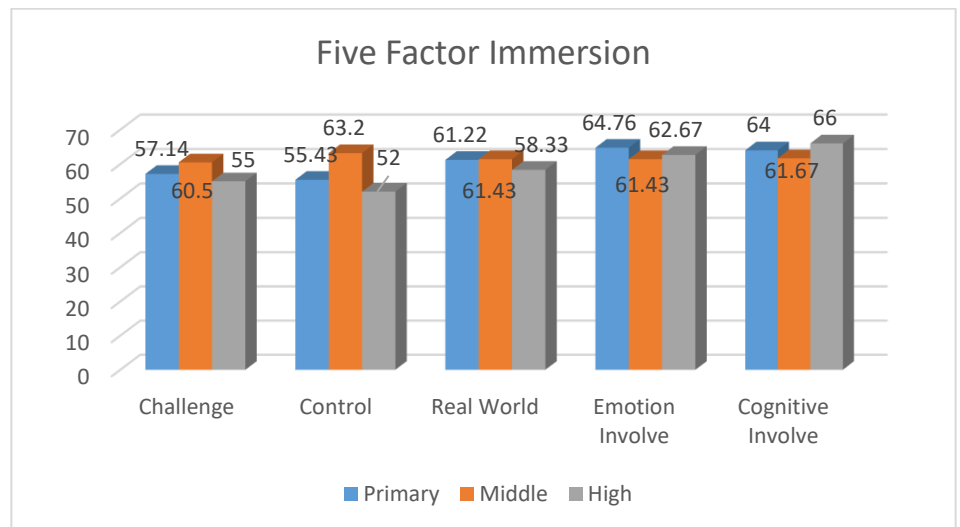


Figure 5. Breakdown of Five-Factor Immersion based on Age

From the chart in the picture above (Figure 5), Player from primary school feels that the game lack challenge, it based on the value of control and cognitive factors that have an index value below 60% but have a high strategically involvement. The middle school players feel all factors influence them in playing the game. The average score is the highest from the other two.

The high school feels that the control and challenge factor did not fulfill the expectation, but they were emotionally involvement by the game. Thus lead to a lack of real-world factor.

Gameplay Experience Testing in Wayang Games using the Immerse Experience Questionnaire produces an average index in the range for neutral and agree (see Table 2 for details). Overall the player has a good involvement with the game. Also, the test results also show that the player feels that the game is exciting and has an emotional attachment to the game. However, there needs to be some improvement in several factors to increase the player's devotion to the game.

4. Conclusions

The Wayang Game can comply with a player's request, in the case shown by:

1. The games slightly adequate of the challenge and tactical involvement, it can be showed from the value of Control and Challenge factor is slightly closed the average.
2. Overall strategic and cognitive involvement meets the expectation of the player. It showed from the value of some Challenge factor and cognitive factor.
3. The emotional involvement and imaginary narratives meet the expectation of the player. It showed from the average value of the Emotional Involvement factor and Real World Dissociation.

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