

The Utilization of Games in Learning Calculation Ability (Accounting) Based on Android

Meiryani,¹ Yogi Udjaja, Jevon Jeviro, Sasya Sabrina

Abstract: *The purpose of this research is to find out what kind of game which is interesting and could help kids' motoric skills growth. The advantage of this research is to produce a game that could become mathematics learning media for 4 to 6 years old kids. The method that used to make this research is Game Development Life Cycle (GDLC), where the research includes the idea of game concept, asset making, programming, testing, and evaluation. The conclusion of this research is able to produce a game titled "Asyiknya Bermain Sambil Berhitung", this game's genre is endless run that has a mathematics element of adding-subtracting from 1 to 20 in it. The result of this research is from 10 maths question had been given, 19 from 45 kids are able to answer 9 to 10 questions correctly.*

Keywords: *Mathematics, Game, Endless Running, Asyiknya Berhitung Sambil Bermain.*

I. PPRELIMINARY

In the development of technology today there is still a lot of hunger and poverty in every country, so the United Nations (UN) sparked a number of focus goals to deal with the problem, one of which is human development. Human development pays attention to how to improve the quality of life of disadvantaged people, including education (Yunanto et al., 2016). One education that was trained in childhood is mathematics. According to Rosa et al. (2015, p. 42), material given to children aged 4-5 years is about introducing numbers 1 to 10. Entering semester 2, children begin to be introduced to simple mathematical operations, ranging from addition and subtraction of numbers 1 to 10. For children aged 5-6 years, number recognition and addition and subtraction operations begin to be multiplied to the number 20.

The results of research conducted by Kurniawati (2013, p. 2) showed that out of 20 kindergarten children, only 6 children were able to count numbers from 1 to 20 without teacher assistance, while 14 children still needed teacher assistance. It can be concluded that the target of this study is the majority of kindergarten children who have problems with the ability to count numbers 1 to 20. Therefore it was decided to make a game that includes math addition and subtraction of numbers 1 to 20 with the aim that it can become an effective learning tool in understanding children's numeracy.

II. RESEARCH METHODOLOGY

¹ Accounting Department, Faculty of Economics and Communication, Bina Nusantara University, Jakarta, Indonesia 11480
meiryani@binus.edu

Computer Science Department, School of Computer Science, Bina Nusantara University, Jakarta, Indonesia 11480

yogi.udjaja@binus.ac.id

Computer Science Department, School of Computer Science, Bina Nusantara University, Jakarta, Indonesia 11480

j_jeviro@binus.ac.id

Accounting Department, Faculty of Economics and Communication, Bina Nusantara University, Jakarta, Indonesia 11480

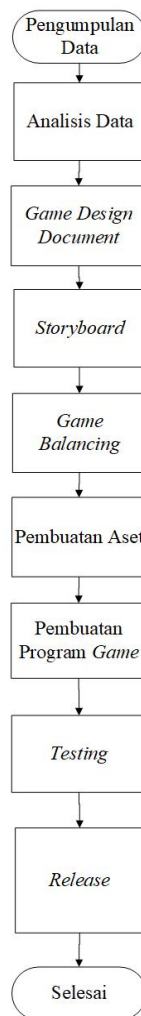


Figure 1 Flowchart of Theoretical Framework

The first step is to collect data by giving questionnaires to several respondents, then analyzing the data that has been collected. After analyzing the game documentation is made. After completing the documentation, the storyboard design is done as an illustration of the game as to what will be made. After that, a game of balancing is done so that the game becomes balanced and fair for players. Then create an image asset that is used in the game. When the creation of the asset is complete then make the game program, then testing is done to check for program errors. If there are no bugs, the game can be launched to the general public.

III. RESULT AND DISCUSSION

The results of this study are the creation of a game called Fun While Counting While Playing which can improve children's mathematical abilities. Where can be seen in the following evaluation:

- User Evaluation

After conducting a survey of 45 respondents, 77.8 percent thought that this game was interesting to play, then as much as 75.6 percent said this game was easy to play, 57.8 percent said obstacles in this game were difficult, 86.7 percent of respondents answered this game has an interesting picture, 53.3 percent prefer running and jumping. 71.1 percent of respondents increasingly understand mathematics, and 71.1 percent like this game.

- User Interface Evaluation

1. Consistent, all buttons except for breaks are in the middle of the screen.
2. Provide Good Feedback, the name and function keys are appropriate.
3. Players hold Full Control, press menus, jump, or answer questions specified by the player.

4. Limiting the steps needed to act, players only need two steps, namely selecting the main menu and the difficulty level to start playing the game.
5. Allow Easy Repeat Action, can repeat the game from the beginning when in the middle of the game.
6. Minimizing Physical Pressure, there is a break button to stop the game.
7. Don't Press Short-term Memory Players, do not have a lot of menus in the game
8. Group related screen-based controls and feedback mechanisms on the screen, the button changes color to darker when the player presses all the buttons available therein.
9. Gives Short Paths to Experienced Players, players can choose all levels of difficulty without meeting the needs of the game.

• Multimedia Evaluation

In this game, multimedia has 4 elements, including:

1. Text, contained in the game title, menu, value, highest value, found in the menus available therein and adapted to the available button functions and provide game information such as game title, Score, Highest Value, Rest, math problems, and when the game is over.
2. Sound, heard during the game when the character jumps.
3. Pictures, this game has several images such as player characters, tables, bins, banana peels, paper and the Rest button.
4. Animation, when running and jumping characters will display the appropriate animation.

IV. CONCLUSION AND SUGGESTION

Conclusion

Based on the results of research conducted through the process of collecting, processing, and analyzing data that has been described in the previous chapter related to the research entitled Game Casual Action to Sharpen the Ability to Think Quickly, the following conclusions are drawn:

- The Fun Game of Counting While Playing makes it easier for 75.6 percent of users to play
- This game is basically an endless run but is given variations in the form of math problems for children aged 4 to 6 years.
- Based on the results of the questionnaire, the majority of children like this game and are increasingly able to understand basic mathematics and be able to solve math problems faster.

V. SUGGESTION

Based on the results of the preparation of the thesis that has been carried out, there are some suggestions from respondents to help the development and improvement of the game application Fun Counting While Playing. Suggestions given include:

- Add sound effects.
- Added female character.
- Add more variety of math problems

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