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Designing English Rush Game as an Android-Based English Learning Media for Primary School Students

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Abstract:

The educational process provided to children does not have to be delivered formally, as it may be delivered in the form of games. One of the forms of games which can be delivered is the multimedia games. In this research, there was an application developed to be able to use in learning English vocabulary. This game is very suitable for the 7-12 years old Primary school students.

The application was developed for android-based running in *smartphone*. The making of this English educational medium used several tools, they were; Unity 3D as the main developing tool and MonoDevelop as the IDE and C# programming language.

This application is named English Rush, as this application contains student exercises regarding vegetables, animals, and fruits. The English Rush application is expected to ease the English learning for the Primary School students as well as getting their interests. The result showed that this game provides knowledge and is easy to use.

Keywords — **Education, English, Students, Primary School**

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I. INTRODUCTION

In the globalization era, where information and communication technology is growing rapidly, the use of computer technology becomes very important in all fields of human life. Computers are useful to facilitate human activities. Computers, that were initially limited to administrative and computing activities, have now been widely used as a learning media in education. As a learning media, computers can be used in the learning process. One of the media that can be used is a game application that contains learning materials.

Similarly, English for primary school students. English for the 7-12 years old primary school students is usually delivered using books, dictionaries, or by memorizing the vocabulary, so that it is less interesting for children. In order to make the learning process interesting and include the elements of game, the learning process can be combined with a game. The combination between the learning materials and game is one of the efforts to attract students to learn a material.

[1] has developed an application named HiStorya in his research. The results of this application development showed that this game can motivate students to learn the materials and help the teachers in evaluating their proficiency. The HiStorya Game was developed for smatrphone-based and developed with android programming.

[2], developed an application named Edugame, this game was developed with the aim at making the students able to have independent learning. In order to make the students learning independently, the application was developed by providing ease in running the game. In this game, in addition to have different levels, it also has different difficulties that will improve students' comprehension.

[3], developed an application for learning mathematics for early childhood age. This mathematical educational game is expected to improve the ability of children in counting in

terms of the learning process of mathematics, and eliminate boredom and fear for children in learning mathematics. This educational game is very useful for education, especially for mathematics. It is more suitable for children aged 6-9 years old as the users of this educational game, because it will be more effective for starting learning mathematics from the early childhood age since children can easily remember in counting at that age.

From the description above, learning media in the form of educational game can be a learning medium that can attract students' interest and motivation, as well as providing challenges and fun for students. In addition, this learning media is as one of the sources of independent learning. The sources of independent learning resources cannot only be used as learning aids, but also be used with or without teachers. In this study, there would be a development of educational game as an independent learning media. By using learning media in the form of games, it was expected to make students having more interest in learning the basics of English. A learning media must have several functions that are supporting the achievement of learning objectives. The functions of instructional media[4], are as follows:

1. Capturing specific objects or events.
2. Manipulating certain circumstances, events, and objects.
3. Improving students' passion and motivation in learning.

English Rush is developed by using Android app and packed in the form of game. Educational Game is one of the game genres used for providing learning/improving the knowledge of its users through a unique and interesting medium. This genre is usually referred to children, as then it is strongly required here (it is not the matter of difficulty level). Game can be a fun learning tool and is believed to be more effective for learning. This is because the player simultaneously and both consciously and unconciously experiences a learning phase prepared in the plot of the game[5]

II . METHODOLOGY

In the development of the English Rush application, the method used was the waterfull method. Figure 1 shows the stages of the waterful method in system development [6]
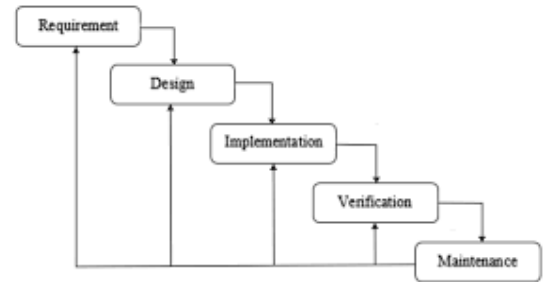

Figure 1The illustration of the methodology of system development

The stages in waterfull model are as follows:
  a) Definition of the Problems and Needs Analysis. This stage included the determination of the points of problems occurred and the needs in designing the determination of system feasibility.
  b) Designing System and Software
     This stage included the design of information system
  c) Implementation and Unit Testing
     This stage included the implementation and test of the design.
  d) System Integration and Testing
     This stage included the comprehensive system integration and testing.
  e) Operation and Maintenance
     This stage included the system operation and maintenance

Game Flowchart

The *Game Flowchart* was used for illustrating every step in the game, so that it could ease the making process. Figure 2 shows the design of *flowchart* for level one.
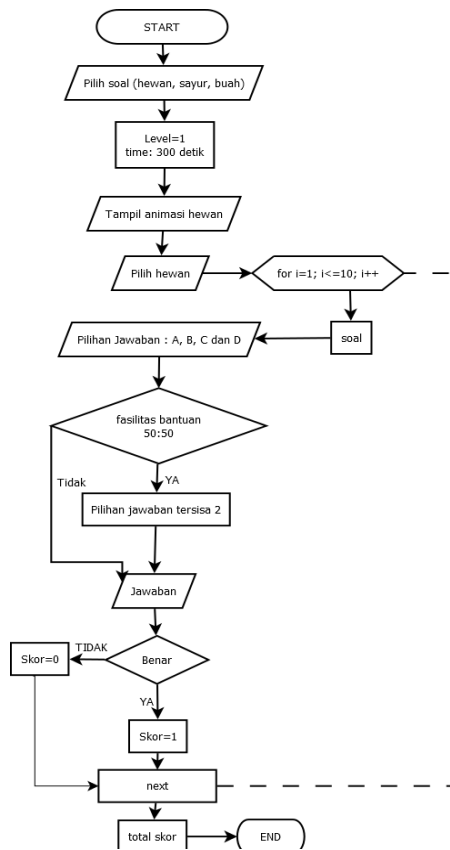
Figure.1Game Flowchart for level one

III . DISCUSSION

The result of the research is an android application entitled English Rush. This application contains English learning materials in the form of questions regarding fruits, vegetables, and animals. The EnglishRush application was created in the form of APK extension file that can run on Android-based mobile devices. The EnglishRush application has three levels on each type of questions. The EnglishRush application has a total of 90 questions. There are 30 questions regarding fruits which are composed by 10 questions on level one, 10 questions on level two, and 10 questions at level three; 30 questions regarding vegetables which are composed by 10 questions on level one, 10 questions on level two, and 10 questions at level three; and also 30 questions regarding animals which are composed by 10 questions on level one, 10 questions on level two, and 10 questions at level three.

The main actor of EnglishRush is run with three buttons; right, left, and jump buttons. The main actor has to answer any questions contained in the objects, for example, when the main actor finds an apple, the question will automatically appear along with the multiple choices for the answer, then the actor can choose an answer and can use the 50:50 feature for help as provided three times at each level. If the actor answers correctly, then the score will increase by one, and if the wrong score will remain. After answering 10 questions, the game will end at the running level and the scores collected will be displayed. Then, the actor can continue to the next level with if there are 7 out of 10 questions answered acorrectly in each level.

Splash Screen Display

Figure 3 shows a splash screen display. In this display, there are five buttons contained; exit, setting, Fruits, Vegetables, and Animals. If the player chooses fruits, he/she will play on the game regarding fruits. If he/she chooses vegetables, then the questions are regarding vegetables and so with animals, the questions will be regarding animals.

Figure 3. Splash Screen Display

Game Display During Game Start

Figure 4 shows the game display during the game start. In order to play this game, the player can use several buttons like left, right, and up arrows and pause button in the game. To go right or forward, the player can use the right arrow; to walk backwards, the player can use the left arrow; and to jump, the player can use the up arrow. Every time the player finds either fruit, animal, or vegetable icon, there will be a question

regarding the icon. If the player wants to pause, he/she can tap the pause button.
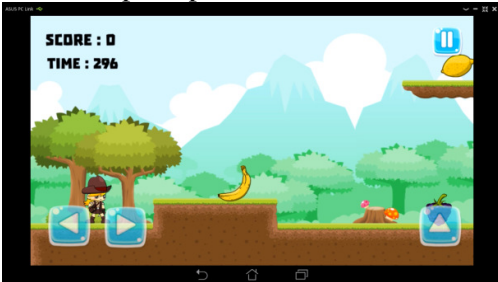

Figure 4 Game Display During Game Start
Question Display in the Game

Figure 5 shows the display of question in the game when the actor finds a particular icon. The question will be displayed in the form of text. Each question has four choice of answer buttons that can be in the form of either text or image. In order to select the correct answer, the player can select one of the answer buttons provided. If the player wants to use the help feature, he/she can use the 50:50 button provided.
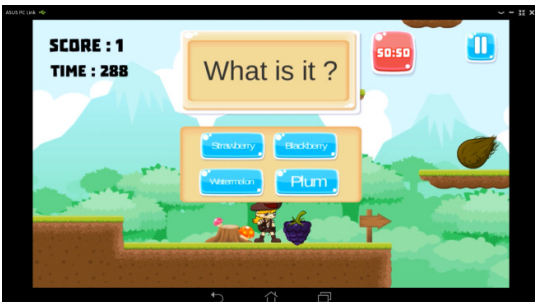

Figure 5 Question and Answer Display in the Game

Question Display in the Game

Figure 6 shows the display of the question and the two remaining choices of answer in the game when using the 50:50 feature. When the player chooses 50:50, then there will be automatically displayed for two remaining choices of answer, and then the player can choose the correct answer.
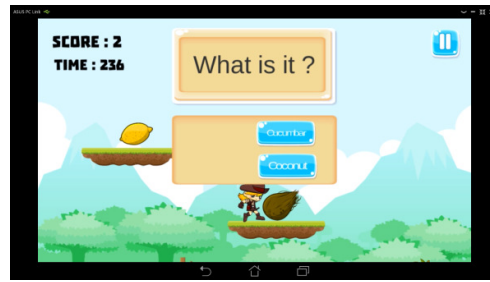

Figure 6 The Display of Choices of Answer After Using the 50:50 Feature

Questionnaire Results

In order to find out the response of users of English Rush application, there was a survey conducted by using the questionnaire distributed to the respondents who are the fourth grade students of primary school. The results obtained from the questionnaire distributed to 36 samples of primary students are shown in Table 1

Table 1 Questionnaire Results

1	Are the questions in the game suited with the materials at school/in book?	Yes =8 Students (22,22%)	No = 28 Students (77,78%)
2	Is it possible for this game to be an educational learning media?	Yes =36 Students (100 %)	No = 0 Students (0 %)
3	In your opinion, is this game difficult?	Yes = 1 Student (2,78 %)	No =35 Students (97,22 %)
4	Are the questions in the game difficult for you?	Yes = 16 Students (45,45 %)	No = 20 Students (55,55%)
5	Is it possible for the learning method using game to attract the students' interest?	Yes = 0 Students (0%)	No = 36 Students (100%)
6	Is the display of this game interesting?	Yes = 36 Students (100%)	No = 0 Students (0%)
7	Is this game able to improve your knowledge in English?	Yes =35 Students (97,22 %)	No = 1 Students (2,78%)
8	Is it easier for you in memorizing the vocabulary using this game?	Yes = 36 Students (100%)	No = 0 Students (0%)

Based on the results of the questionnaire, it can be concluded that the game can attract the interest of the primary school students, improve knowledge in English subject, provide educational media in learning English, and provide ease in learning English.

IV . CONCLUSION

In this research, there had been developed for an application for English learning which is intended for primary school students. The application was made attractive and interactive and the students who use this application can play the game and find a lesson, especially for English vocabulary.

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