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

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

![Flowchart of System Development](image)

The stages in waterfull model are as follows:

1. **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.

2. **Designing System and Software**
   - This stage included the design of information system

3. **Implementation and Unit Testing**
   - This stage included the implementation and test of the design.

4. **System Integration and Testing**
   - This stage included the comprehensive system integration and testing.

5. **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.
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 correctly 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.

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.

![Game Display During Game Start](image1)

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.

![Question Display in the Game](image2)

Figure 5 Question 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.

![The Display of Choices of Answer After Using the 50:50 Feature](image3)

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>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Are the questions in the game suited with the materials at school/in</td>
<td>8</td>
<td>28</td>
</tr>
<tr>
<td>book?</td>
<td>Students (22.22%)</td>
<td>Students (77.78%)</td>
</tr>
<tr>
<td>2 Is it possible for this game to be an educational learning media?</td>
<td>36</td>
<td>0</td>
</tr>
<tr>
<td>Students (100 %)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Is your opinion, is this game  difficult?</td>
<td>1</td>
<td>35</td>
</tr>
<tr>
<td>Students (2.78 %)</td>
<td>Students (97.22 %)</td>
<td></td>
</tr>
<tr>
<td>4 Are the questions in the game difficult for you?</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>Students (45.45 %)</td>
<td>Students (54.55%)</td>
<td></td>
</tr>
<tr>
<td>5 Is it possible for the learning method using game to attract the</td>
<td>0</td>
<td>36</td>
</tr>
<tr>
<td>students’ interest?</td>
<td>Students (0%)</td>
<td>Students (100%)</td>
</tr>
<tr>
<td>6 Is the display of this game interesting?</td>
<td>36</td>
<td>0</td>
</tr>
<tr>
<td>Students (100 %)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Is this game able to improve your knowledge in English?</td>
<td>35</td>
<td>1</td>
</tr>
<tr>
<td>Students (97.22 %)</td>
<td>Students (2.78 %)</td>
<td></td>
</tr>
<tr>
<td>8 Is it easier for you in memorizing the vocabulary using this game?</td>
<td>36</td>
<td>0</td>
</tr>
<tr>
<td>Students (100 %)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

REFERENCES


