

The Development of Android-Based *Vocabulary Game Education* Application to Improve English Vocabulary for Deaf Children

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Abstract— This study aims to describe: (1) feasibility, (2) effectiveness, (3) practicality of the product of Android-based Vocabulary Game Education for improving English vocabulary in deaf children. This development research uses a design phase of media development research according to Luther with the development of media applications based on 6 stages, namely, concept, design, collecting material, assembly, formative testing/evaluation, and distribution. Data are collected by observation, questionnaire and test methods. The results of this development product are Android-based Vocabulary Game Education application for deaf children with seven vocabulary games namely profession, fruit, animal, transportation, home appliances, school tool, and color. It can be concluded that the use of Android-based Vocabulary Game Education applications is feasible, effective and practical to be used in learning activities to improve English language vocabulary for deaf children in this case is the nouns.

Keywords—*Development; Vocabulary Game Education; English Vocabulary; Deaf Children.*

I. INTRODUCTION

Education is an effort made by humans to achieve goals, in Education, there are teaching and learning activities in which communication occurs between teachers as educators and students as learners. Moreover, with the need for communication between teachers and students in the teaching and learning process, language skills play an important role. Communication is always associated with the language process and is often considered that language is communication. In which, it is effective, efficient and dynamic tool for communicating. Deaf children in communicating with the community experience difficulties due to loss or lack of hearing ability both in part and in all hearing devices so that they experience obstacles in the development of their language.

Vocabulary learning in schools does not get a special time allocation, because vocabulary learning is a supporting competence, namely linguistic competence in English learning in addition to grammar, sound, and writing (BSNP (Indonesia's National Educational Standart Bureau, 2006).

English Learning for deaf children in school are taught verbally so that children are lack of understanding and less

interest. This is caused by several factors, including: partial and overall hearing impairment, in the academic field, deaf people are more focused on the development of speech for daily communication days, so that foreign languages are excluded and limited English language learning media. Important factors that make children with hearing impairment difficult to understand English language lessons is because the learning patterns are still conventional and limited media learning English, so that learning English in schools is less optimal. Innovative learning media are needed in accordance with the characteristics of children in learning English.

Vocabulary has an important role in language learning. Although vocabulary is not always a priority in language learning, attention to vocabulary in language learning has increased rapidly lately and experts now emphasize the need for a systematic approach to vocabulary learning. One of the driving factors of increasing vocabulary level in language learning is the development of communicative approaches and methods [1]that emphasize understanding.

In learning vocabulary language plays an important role, this is also illustrated by Wilkins ,which states [2]that "without grammar, little can be conveyed; without vocabulary, nothing can be conveyed ". He further stated that: Learning a person's vocabulary will improve language skills quickly. Harmer also stated similar things [3]that "if language structures make up the skeleton of language, then it is a vocabulary that provides vital organs and the flesh." From this statement, it can be concluded that for the purposes of vocabulary communication is more important than grammar.

Vocabulary in learning language as a communication and learning tool is one of the linguistic elements that does not get a special allocation of time in school, so the teacher needs to pay attention to how to explain the new vocabulary to be mastered by students and students need to strive to take ways to enrich and master deep vocabulary language improvement efforts.

Many exercises can be used to help students master vocabulary. Some types of vocabulary exercises with emphasis on meaning, form, and use. This type of training is based on the thought that vocabulary plays a role in understanding and

expressing meaning, vocabulary has both oral and written forms, and vocabulary is used to communicate.

Exercises mean words and meaning matching, labeling, sentence completion, crossword puzzles, semantic analysis, and completing lexical sets. Forms for training include following spelling rules, recognition of word parts, and building word family tables. Exercises for use include sentence completion, collocation matching, collocation tables, and interpreting dictionary entries.

Improving the ability of English vocabulary mastery can be done in various ways, one of which is the use of Educational games. Games are an alternative way that can be used to see some positive aspects that will be obtained in the elements of games activities. One way [4] that can be applied is learning while playing in improving the language skills of deaf children, especially vocabulary.

The development of education-based android vocabulary game application is a type of interactive multimedia game based on Android to improve English vocabulary in deaf children. This was also revealed by Smaldino [5] describes effective interactive multimedia for special learning, namely students who are at risk, students with diverse cultural backgrounds and students with disabilities.

In Vocabulary Game Education research English vocabulary is made with games that educate in android -based applications. English-language object vocabulary is displayed in attractive drawing shapes. Learning through the Vocabulary Game Education application is adjusted to the characteristics of deaf children who are more utilizing their visual organs in the learning process. Vocabulary Game Education can be used as a learning media for deaf children in improving English vocabulary mastery. The development of learning is interesting because it allows children to learn by playing. In this study is increasing mastery of English vocabulary in deaf children.

According Handriyantini [6] defines the educational game are designed or produced for stimulating thinking ability including increasing concentration and solving problems, providing teaching, increasing user knowledge through a unique and interesting media is the goal of educational games. This type is usually intended for children, so color play is very important in this area, not the level of difficulty that is concerned. From the statement above it can be concluded that educational games are a form of game that can be useful to support the teaching-learning process in a more energetic and more creative way, and used to provide teaching or increase knowledge.

Educational games are widely used in the world of education. Games in educational games are widely used to strengthen learning and enhance certain learning. Puzzle games are usually used for games in breaking crossword puzzles or matching images and words. Initially, the puzzle game is used in the game, so the child can play correctly in guessing everything with words or images. In this game, the child will be stimulated by his thinking power to be able to solve the problem by learning while playing correctly and challenged. In the puzzle game, children will be challenged to be able and able to play better so they can produce maximum value and

play well. Adding value to the child keeps the child going and keeps trying to be able to play better.

Phenomenon that occurred in the Public Junior High School in Pasuruan City, English language teachers had difficulty in conveying learning material to students because of the way to deliver material that was done verbally, the delivery of monotonous material and conventional learning media so that they felt bored and difficult to concentrate on certain material. In the learning process, the material about vocabulary in students has difficulty in listening to simple vocabulary because of the limitations of deaf children in listening to English language learning, to overcome this the development of media in the form of Android-based Vocabulary Game Education to improve vocabulary in deaf children is needed

II. METHOD

The model which is developed in the development of the Vocabulary Game Education application used media development from Luther [7]. Development of the original media application followed 6 stages, namely: concept, designing, collecting material, making, evaluating and distributing. Furthermore, development of Education Vocabulary Game application has been modified into 5 stages by eliminating the final stage, the distribution stage. The application of the development of Vocabulary Game Education in this research development was carried out until a large group test without product distribution stage due to time, cost and labor limitations. Moreover, the development procedure in this development research adaptation of Luther [8] is explained in detail as follows:

A. Concept

Deaf students have a visual type of learning style so to overcome this need, it is necessary to develop learning media that is appropriate to the characteristics of students and modified according to their needs. Then it can be packaged in learning media in the form of Education games that emphasize more in visual form in accordance with the characteristics of deaf children who are packaged in the form of Android-based games that are more practical and effective.

B. Design

Design development of Vocabulary Game Education for deaf children producing products in the form of:

- Development of Android-based Vocabulary Game Education Application consists of Main Menu Display, namely English vocabulary Profession games, Fruit games, Animal games, Transportation games, Home Appliances games, School Tools games, and Color games. Moreover, vocabulary developed in this Educational game consists of 7 vocabulary games namely :
 - Vocabulary Game Education Profession (Astronauts, Soccer Player, Police Doctor, Chief)
 - Vocabulary Game Education Animal

(Chicken, Goat, Rabbit, Cow, Bird)

- Vocabulary Game Education Fruit
Apple, Mangosteen, Durian, Melon, Banana, Orange, Papaya, Strawberry, Watermelon, Mango, Wine, Avocado)
- Vocabulary Game Education transportation
(Ambulance, Ship)
- Vocabulary Game Education home Appliances (Sofa, fan, Bed, Radio, Television, Seat, Table, Trash)
- Vocabulary Game Education School tools
(Book, Eraser, Ruler)
- Vocabulary Game Education Color
(Orange, Blue, Red, Light green, Black, White, Light blue, green, Purple, Yellow, pink, Grey).
- There are pictures and names with English to be selected and matched correctly between the picture and the name in English.
- There is a navigation button that is intended to go to the next English vocabulary game.
- The navigation button will not appear if the image and name in English are not suitable and cannot play in the next vocabulary game.
- If you determine the correct answer, you will get the smiling smile and emo smile value and there is a confirmation with the audio 'righhttttt' and if it is wrong then there will be a reduction in the sad emo smile value and the display 'wronggggggg' audio conformation.

C. Material Collecting

Collecting material is the stage of material collection. The material collected is an image or image, audio, digital photos, background, and other supporting images. In practice, this stage can be done in parallel with the assembly stage. For the game material, the vocabulary of English objects is used to compile the contents of the game. As well as making the application made with Flash Player, while for the design and icons, and the background is used Corel Draw and Photoshop.

D. Assembly

Assembly stage is the stage of making all objects or media game materials, making applications based on flowcharts, and navigation structures that come from the design stage.

E. Test / evaluation

Testing phase is done after completing the assembly phase by running the application/program and see whether there is an error or not and also to ensure that the product made is as desired. The test consisted of expert review, mall group test, and field test.

Data analysis is used to determine the level of validity, effectiveness, and practicality of Educational games that have been developed by researchers. Data analysis techniques in this study were data analysis techniques, validity test results, effectiveness testing, and practicality.

III. RESULT AND DISCUSSION

A. Product display implementation

The display implementation described in Vocabulary Game Education is that the game uses at least a mobile device or smartphone with the specifications of Android OS v4.4.4 (KitKat). Interfaces include: Display of Main menu, Profession, Fruit, Animal, Transportation, Home Appliances, School Tools, Color which consists of object vocabulary in English, namely: Profession (Astronauts, Soccer Player, Police, Doctor, Chief), Animal (Chicken, Goat, Rabbit, Cow, Bird), Fruit (Apple, Mangosteen, Durian, Melon, Banana, Orange, Papaya, Strawberry, Watermelon, Mango, Wine, Avocado) Transportation (Ambulance, Ship), Home Appliances (Sofa, Fan , Bed, Radio, Television, Seat, Table, Trash), School Tools (Book, Eraser, Ruler) and Color (Orange, Blue, Red, Light green, Black, White, Light Blue, Green, Purple, Yellow, Pink, Gray) .

This application consists of eight buttons namely the Profession button as access to the Game Profession view (professional game), the Fruit button as access to the Game Fruit display, the Animal Example button as access to the Animal game display (animal puzzle game), the Transportation button as access to the display Game Transportation (transportation tool puzzle game), Home Appliances button as access to the Home Appliances Game view (the game guesses the names of the tools at home), the School Tools button as access to the School Tools Game view (school game puzzle games) , the Color button as access to the Game Color display (the game guesses the color), and the Exit button as access to exit the application.

B. Results of research on the feasibility test of Android-based Vocabulary Game Education products.

Research results on the development of Android-based Game Education Vocabulary applications to improve English vocabulary for deaf children are said to be feasible by media and material experts after going through several revision stages. In this study, things that were validated on this Android-based Vocabulary Game Education product consisted of material/content aspects and media aspects. The results of the analysis are based on the assessment of the two validators that the Vocabulary Game Education product is good or worthy of use. This is in accordance with Asyhar [9]that the learning media prototype should be validated by material experts and review aspects of material presentation and aspects of learning.

C. Test results of the effectiveness of Android-based game Vocabulary Game Education products.

The results of testing the effectiveness of Android-based Vocabulary Game Education products are that this product is effectively used to improve the English vocabulary of deaf children. The results of the assessment of the effectiveness of vocabulary game Education products based on the results of the effectiveness analysis of pretest and posttest in learning English vocabulary proved to be able to improve the learning outcomes of English vocabulary, after learning using vocabulary game Education. Data from pretest and posttest can be concluded that the results after using Vocabulary Game Education are higher than the results before using Vocabulary Game Education Vocabulary. In other words, it can be concluded that the Educational game that was developed proved to be effective and interesting so that it can improve learning outcomes.

According to Sadiman, et al said that one of the advantages of games as an Educational media is that games are fun and entertaining and allow active participation of students to learn. Then Vocabulary Game Education to improve the English vocabulary of deaf children is effectively used as a learning medium.

As stated by Seel and Richey [10] that development is the process of translating design specifications into a product, either in the form of media, learning materials, learning environments or learning systems that aim to facilitate learning and improve learning implementation using certain approaches.

The effectiveness test results are also in line with Ellenita R. Red's research entitled "Design and Development of a Mobile Game-Based Learning Application in Synonyms, Antonyms, and Homonyms" making effective Android-based applications can improve language learning because it is easier and can study anywhere. This is in accordance with the opinion of Smaldino describes effective interactive multimedia[5] for special learning namely students who are at risk, students with diverse cultural backgrounds and students with disabilities.

Supported by existing theories and relevant research results, the use of Vocabulary Game Education application media has proven effective in improving English vocabulary in deaf children.

D. Practical test results for Android-based Vocabulary Game Education products.

The results of the practicality test of the developed vocabulary game Education product that this practical application was used to improve the English vocabulary of deaf children. The analysis was carried out by observing the activities of educators and deaf students in using the media vocabulary game Education. Observation activities were carried out using observation sheets of educator activities and observation sheets of students' activities.

The development of the Android-based Educational vocabulary game application is practical and can learn anywhere, because learning is done while playing. This was also found in the questionnaire given to educators and students that the Educational game vocabulary application was proven to be practically used from the analytical results of the data produced.

IV. CONCLUSION

Based on the results of product development that has been carried out, it can be concluded that Vocabulary Game Education application products are Android-based, so conclusions can be drawn as follows:

1. A decent Android-based Vocabulary Game Education product which is implemented in the English language learning activities to improve vocabulary, because all devices have fulfilled the validity requirements with very good valid criteria. The effectiveness of products based on the results of the analysis
2. The Android-based Vocabulary Game Education product is effective in increasing English vocabulary.
3. Practical Android-based Game Education Vocabulary Application products to increase English vocabulary

V. RECOMMENDATION

Research on the Development of Vocabulary Game Education Application is suggested to add an English vocabulary pronunciation in these seven games because it will make it easier for deaf children to understand English vocabulary by seeing the articulation spoken, and pronunciation of the English vocabulary.[5]

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