DEVELOPING ANDROID APPLICATION BASED ON AUGMENTED REALITY TECHNOLOGY FOR TEACHING DESCRIPTIVE TEXTS IN GRADE VII OF MTSN 6 SLEMAN

PENGEMBANGAN ANDROID APLIKASI BERBASISAUGMENTEDREALITYUNTUK PENGAJARAN DESCRIPTIVE TEKSDI MTSN 6SLEMAN

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Abstract

This study is aimed at 1) describing the target needs and learning needs of grade VII students of the Junior High School in terms of teaching descriptive texts; and 2) developing suitable augmented reality for teaching descriptive texts to grade VII students of the Junior High School. The study is research and development (R&D) using the 4-D model by Thiagarajan. In the first phase, defining, initial needs are defined. Second, in developing, a prototype of the augmented reality application is developed together with the teacher's book. Third, in validation, the developed product is subjected to reviews by experts and feedback is obtained. Finally, in dissemination, result of the study is published in the website. The research subjects were grade VII students of MTsN 6 Sleman, Class VII A consisting of 33 students. Data were analyzed quantitatively by using descriptive statistics in the forms of numbers and percentages. Findings show that the developed product is rated as very good and is considered appropriate to be used in class.

Keywords: augmented reality, descriptive texts

Abstrak

Penelitian ini bertujuan untuk 1)mengetahui kebutuhan tujuan dan kebutuhan pembelajaran siswa, dan 2) mengembangakan android aplikasi berbasis augmented reality yang sesuai dalam pembelajaran Bahasa deskriptif teks untuk siswa kelas VII di Sekolah Menengah Pertama. Penelitian Research and Developement *ini menggunakan model 4DolehThiagarajan. Pertama,* define *adalah tahap perumusan dan analisis kebutuhan awal siswa.* Design *untuk tahapan pembuatan rancangan awal dan pengembangan dari multimedia pembelajaran.* Develop *merupakan tahapan memodifikasi dan mengembangkan produk akhir. Dalam tahapan ini, masukan diterima melalui penilaian ahli. Terakhir,* disseminate *adalah tahapan untuk mempublikasikan aplikasi pada website. Subjek penelitian ini terdiri dari 33 siswa dari kelas VII A di MTs N 6 Sleman.*

Instrumen untuk mengambil data terdiri dari kuesioner analisa kebutuhan siswa. Data yang diperoleh merupakan data statistik. Data tersebut kemudian dianalisa dengan menggunakan angka dan persentase. Berdasarkan proses penilaian ahli, produk yang telah dikembangkan dinilai sangat baik dan layak untuk digunakan pada pembelajaran dikelas.

Kata Kunci:augmented reality, deskriptif teks

BACKGROUND OFTHE STUDY

The textbook is one of the common resources in most language education programs. The Indonesian government provides textbooks for students in the Junior High School to learn English. It helps to standardize the syllabus of the program which has been systematically planned and developed. English teachers whose first language is not English use the textbooks as an effective language model and input. Nevertheless, most of the English teachers over-rely on the textbooks and do not consider other aids or other instructional media in the classroom.

Point in fact, the English textbook provide very limited resources because it only has pictures and written texts. These are not sufficient for teaching descriptive texts because students need to use all senses to describe accurately. The multisensory learning theory states that the brain learns more easily when several senses are

stimulated in parallel (Max, 2015). Moreover, Wilhelm in Carter (2015: 37) states that once students see objects in their mind, they find it much easier to carry out tasks about them. The more senses are used when they describe things, the richer the language they produce.

One of the instructional media that can help students to describe objects or things is an augmented reality technique. It is a technique that allows users to combine real-life sensory experiences with digital environment perceptions (Azuma, 1997: 358). Being shown the 3-D version of an object, students can describe the object more easily and accurately because it looks like real. The augmented reality works on line or off line depending on the marker.

It is a supported fact that Indonesia has become the third largest market of smartphones. Then, the research study from ground-breaking by Kementrian Kominfo and UNICEF (2014) shows the data that the user of the Internet among teenagers are more than 30 million people and 80% of students only use their smartphone for social media. Similarly, based on the observation while conducting the Teaching Practice Program (*Praktik Pengalaman Lapangan*), the teachers and students in MTsN6 Sleman mostly use an android smartphone which can be used as learning media. In addition, the school also does not have a language laboratory. It will be difficult to develop media with computer-based, while the media with android smartphone will be very effective to use.

Based on the background above, the researcher is interested in conducting research on "Developing Android Application Based on Augmented Reality Technology for Teaching Descriptive Texts for Grade VII in MTs N 6 Sleman". The development of this application is expected to bring new learning opportunities by using technology.

RESEARCH METHOD

Type of Research

This study is research and development (RnD) adapting the 4-D (Define, Design, Develop, and Disseminate) model by Thiagarajan, *et al* (1974: 5).

Research Setting

The study was conducted in June, 10th, 2017. The needs analysis was held at MTs N 6 Sleman. It is located in Jl. Magelang km 4,4 Mlati, Sleman.

Research Subject

The subjects of the study were the grade VII students of MTsN6 Sleman. They belonged to one class. There were thirty-three students in the class as the population sample. The male participants were 14 in number and the female participants were 19. All of the students in the class have a variety of background knowledge.

Research Procedure

In this study, the researcher developed and validated an instructional media used in the field by following the methodological steps in the in the RnD with some modifications.

1. Define: front-end analysis, learner analysis, and specifying instructional objectives
2. Design: media selection and initial design
3. Develop: expert judgment (appraisal)
4. Disseminate: final packaging and diffusion

Firstly, the researcher defined initial and learner needs by analysing the curriculum and conducting the needs analysis of the students. Secondly, in the design step, the researcher selected augmented reality techniques as the media that the students need and developed the application. Third, the researcher did the development step by modifying the prototype of the instructional media by expert judgment. Based on the feedback, the media was modified to make it more appropriate, effective, usable, and of high technical quality as a final product. Lastly, the final product was disseminated by registering the media into a website that is accessible for

teachers and students to use as the media for teaching and learning descriptive texts for grade VII students in the junior high school.

Research Instrument, and Data Collection Techniques

The study used questionnaires as instruments to gather data. The researcher distributed two types of questionnaires. The first questionnaire was used to conduct the need analysis. It obtained information about the students' needs and learning needs. The second questionnaire was used to validate the media. It obtained feedbacks and suggestions from the experts.

The researcher asked twenty questions as a needs analysis for the students' questionnaire. They were asked to give some responses for each question and choose one or more of the answers. Then, for the expert's questionnaire, the researcher used the Likert-scale for the responses that consisted of four scales namely SA (Strongly Agree), A (Agree), D (Disagree), and SD (Strongly Disagree). The results of the questionnaires were used to revise the product.

Data Analysis Techniques

According to the instruments, the researcher analysed the data by using quantitative and qualitative modes. The data from the needs analysis was analysed by using frequencies and percentages. The highest percentage was considered representing the students' condition. The number of the data was presented in the form of percentages. Meanwhile, the second questionnaire was analysed by descriptive statistics. The suggestions from the experts were used to revise the first draft to become the final product of the media. Then, it was converted into descriptive analyses as proposed by Suharto (2006: 52-53).

RESEARCH FINDINGS

The results of the study show the appropriate android application based on augmented reality techniques for teaching descriptive texts for grade VII students of the junior high school. In order to develop an appropriate product fort hem, a needs analysis wasconducted to examine the needs of the students and their preferences concerning the learning multimedia for learning descriptive texts.

There are several statements in the needs analysis questionnaire, which covers some aspects such as the students' goals, lacks, wants, input, multimedia design, learning procedure, teacher's role, learners' role, and setting. According to the suitable augmented reality technique for teaching descriptive texts for grade VII of junior high school, there are seven elements that must be taken into the application. They are seven input texts, audio, 3Danimations, anatomy, part of speech, generic structure, and completed with teachers' book as the guidance for the teacher in using the application.

Figure 1. The Descriptive Texts in the Apps

Based on the students' needs, related to the text, the design of the multimedia is used the proper fonts in terms of its size and style so that the text is easy to be read. It consists of around fifty words. The colour composition of the text and the background were appropriate. The audio of the text in the application provides very clear sound and uses interesting backsound. It provides the on and mute buttons to control the sound. Related to the 3Danimations, the animation is designed and placed effectively and the marker also is easy to scan. The 3Danimations also can move and zoom in or out. After the 3D animation is tapped, it will show the animation of the sea creature and the anatomy. Meanwhile, the user also can tap the words of the text to hear the

part of speech and see the different colour (blue and black) for the generic structure. Then, the mean score for the material and media aspect from the expert judgment were 3.35 and 3.70, which were considered very good. Here is the table of the results of the application evaluation.

Table1. The Results of the Application Evaluation

No	Evaluation Aspects	Total Score	Mean	Criteria
1.	Content Appropriateness	47	**3.35**	**Very Good**
2.	Media Appropriateness	63	**3.70**	**Very Good**

Regarding the teacher's book, it is made to guide the teacher in using the application completed with the suggested activities and some sample worksheets. It was designed based on the core competences and the basic competences of the descriptive texts for grade VII in curriculum 2013. Then, the course grid was conducted for guiding the teacher's book. The teacher's book consists of the introduction of the application, how to install and use the application, the suggested activities, and the references. The suggested activities have several components namely level, age, aims, time alocation, materials, main activities, and reference. At the end, according to the expert judgment, the teacher's book mean score met a very good criteria with the total score 3.56.

Table2. The Appropriateness of Teacher's Book

No	Evaluation Aspects	Total Score	Mean	Criteria
1.	Content Appropriateness	34	3.40	Very Good
2.	Language Appropriateness	14	3.50	Very Good
3.	Presentation Appropriateness	22	3.66	Very Good
4.	Graphic Appropriateness	26	3.71	Very Good
Total			**3.56**	**Very Good**

Regarding the results of the expert judgment, the first draft of the product was Revised by using the feedback and suggestions collected from the expert. The aspects which had been revised were about the grammatical mistakes, incorrect capitalization, article, spelling, and some wrong word use. The revised learning multimedia was called the second draft and it became the final product.

Lastly, it shows that the content and the media aspects of this augmented reality application were considered appropriate as the instructional media in the teaching and learning processes of descriptive texts for grade VII students of the junior high school. Moreover, the results of teacher's book for using the application in the classroom also was considered appropriate for teachers' use and for giving them several suggested activities in teaching descriptive texts.

CONCLUSION AND SUGGESTIONS

Conclusion

Students' needs were analysed in terms of The needs for learning materials and for learning multimedia. The results showed that students recognize that they need to learn English to pass the examination. Moreover, in learning descriptive texts, the limitation of the time was one of their lacks in mastering the text. They had difficulty in developing a good sentence and using an accurate grammatical form.

Hence, the learning media that students preferred was interactive learning multimedia. They wanted to use 3D animation which can move and interact with them. Students' thought that 3D animation objects provide detail information to develop the vocabulary and produce an interesting audio. They also preferred to read descriptive texts around 50 words with an effective duration of listening input around a minute. The sea creature topic of descriptive texts was chosen because they stated that they rarely get information about it.

Regarding the suitable augmented reality technique for teaching descriptive texts for grade VII of the junior high school, there are seven elements that must be taken into the application. They are texts, audio, 3Danimations,

anatomy, part of speech, generic structure, and completed with teachers' book as the guidance for the teacher in using the application.

Related to the texts, the design of the media used the proper fonts in terms of its size and Arial style so that the texts are easy to be read. The colour composition of the texts and the background were appropriate. The spoken texts of the application provides very clear sound and uses interesting backsound. It consists of on and mute buttons to control the sound. Related to the 3Danimations, the animations were designed and placed effectively and the marker also is easy to scan. The 3D animations also can move and zoom in or out. After the 3D animation is tapped, it will show the animation of the sea creature and the anatomy. The user also can tap the words of the texts to hear the part of speech and see the different colour (blue and black) for the generic structure. Lastly, the teacher's book is made to guide the teacher in using the application completed with the suggested activities and some sample worksheets.

The teacher's book is provided to guide the teacher in using the application completed with the suggested activities and some sample worksheets. It was designed based on the core competences and the basic competences of the descriptive texts for grade VII in curriculum 2013. Then, the course grid was conducted for guiding the teacher's book. The teacher's book consists of the introduction of the application, how to install and use the application, the suggested activities, and the references. The suggested activities have several components; those are level, age, aims, time allocations, materials, main activities, and reference.

The result of the evaluation carried out by the expert was used to revise the first draft of the learning multimedia. The findings show that the learning media for teaching descriptive texts has met the "very good" characteristics. It is indicated by the mean score of the expert judgments for the material and media aspects. The mean score for the material and media aspect were 3.35 and 3.70, which were considered as very good. Meanwhile, the teacher's book mean score is 3.56, which is in the very good category. There were some suggestions to make the learning multimedia in the second draft better than the first draft. Some aspects that had been revised were grammatical accuracy and choice of words.

From the explanation above, it could be concluded that the developed augmented reality technique and teacher's book were appropriate to be implemented for teaching descriptive texts for grade seven for junior high school. This learning multimedia was registered on the website (www.meerapedia.xyz) and can be downloaded free of charge.

Suggestions

Further developers may design and develop augmented reality application for English language teaching as there are few researchers that develop this multimedia. The developer needs to create the augmented reality in other contexts but the design and features can be adapted from the present study.

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