DEVELOPING INTERACTIVE MULTIMEDIA FOR LEARNING READING FOR ELEVENTH GRADE STUDENTS OF THE COMPUTER ENGINEERING AND NETWORKING PROGRAM AT SMKN 2 YOGYAKARTA

PENGEMBANGAN MULTIMEDIA INTERAKTIF UNTUK PEMBELAJARAN MEMBACA UNTUK SISWA KELAS SEBELAS JURUSAN TEKNIK KOMPUTER DAN JARINGAN DI SMK N 2 YOGYAKARTA

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Abstract

The objectives of this research were: 1) to describe the needs of grade XI students of the Computer Engineering and Networking Program at SMKN 2 Yogyakarta in learning reading through interactive multimedia, and 2) to develop an appropriate interactive learning media for learning reading for Grade XI students of the Computer Engineering and Networking Program at SMKN 2 Yogyakarta. This was a research and development (R&D) study. The subjects of this research were 32 students of Grade XI of the Computer Engineering and Networking program of SMK N 2 Yogyakarta. The research procedure was adapted from Lee and Owen (2004) with adjustments. The steps were: 1) conducting needs analysis, 2) designing course grid, flowcharts, and storyboard, 3) developing the first draft of the interactive multimedia, 4) evaluating the first draft, and 5) developing the final draft based on the evaluation. The instruments to collect the data were a needs analysis questionnaire and expert judgment questionnaires. The needs analysis data were analyzed quantitatively using frequency and percentage, and the expert judgment data were analyzed through descriptive analysis. This research developed four units of the interactive multimedia with topics related to computer engineering and networking. Each unit consisted of 12 tasks. The result of the evaluation indicated that the interactive multimedia was appropriate. The mean score of all aspects of the four units was 3.84, which was in the range of $3.25 \leq x \leq 4.00$. Therefore, it was categorized "very good".

Keywords: reading, interactive, multimedia, vocational high school

Abstrak

Penelitian ini bertujuan untuk: 1) mencari tahu kebutuhan siswa kelas XI jurusan Teknik Komputer dan Jaringan di SMK N 2 Yogyakarta dalam pembelajaran membaca menggunakan multimedia interaktif, dan 2) mengembangkan multimedia interaktif yang sesuai untuk pembelajaran membaca untuk siswa kelas XI jurusan Teknik Komputer dan Jaringan di SMK N 2 Yogyakarta. Penelitian ini merupakan Penelitian dan Pengembangan (R&D). Subjek penelitian merupakan 32 siswa kelas XI Jurusan Teknik Komputer dan Jaringan SMK N 2 Yogyakarta. Penelitian ini mengadaptasi model penelitian dari Lee dan Owens dengan beberapa penyesuaian. Langkah-langkah penelitian adalah: 1) menganalisa kebutuhan siswa, 2) mendesain silabus, bagan, dan sketsa gambar, 3) mengembangkan konsep pertama dari multimedia interaktif, 4)

melakukan evaluasi melalui penilaian dari ahli, dan 5) memperbaiki konsep pertama menjadi hasil akhir dari multimedia interaktif. Instrumen yang digunakan untuk mengumpulkan data adalah kuesioner analisis kebutuhan dan kuesioner penilaian ahli. Data dari analisis kebutuhan dianalisis secara kuantitatif menggunakan persentasi dan frekuensi, dan data dari penilaian ahli dianalisis melalui analisis deskriptif. Penelitian ini mengembangkan empat unit yang sesuai dengan jurusan Teknik Komputer dan Jaringan. Tiap unit terdiri dari 12 tugas. Hasil evaluasi menunjukan bahwa multimedia interaktif yang dikembangkan telah sesuai. Nilai rata-rata dari semua aspek untuk keempat unit adalah 3.84. Nilai tersebut berada pada kisaran 3.25≤ x ≤ 4.00 yang tergolong dalam kategori "sangat baik".

Kata kunci: membaca, interaktif, multimedia, SMK

INTRODUCTION

English has become an international language which plays a vital role in people's life, especially in education and professional work. In education, English is one of the subjects that is taught from elementary to college levels. English also becomes the subject which is examined in the national examination.

Based on *UU Sistem Pendidikan Nasional* article 18, the senior high school level in Indonesia is divided into two types, namely the general high school (SMA) and the vocational high school (SMK). Both have different aims and needs in learning. Computer Engineering and Networking is one of the programs which is offered in many vocational high schools in Indonesia.

It is important for students of vocational high schools to learn English because it will help them to apply for a job and become beneficial for their future career. In the English teaching and learning context, the vocational high school students learn four language skills in English, namely listening, speaking, reading, and writing. From those four skills, reading serves as the gate of information for students. Reading helps the students to comprehend information and to improve their knowledge by taking some information from many sources. However, the students will not get any advantages of reading if they cannot comprehend what they read. Furthermore, later in National Examination (UN), reading takes an important role as it is needed to

understand and to answer the exam correctly.

However, based on the researcher's observation and interview with an English teacher who taught Computer Engineering and Networking program at SMKN 2 Yogyakarta, there were some problems that the researcher found related to the English language teaching and learning. The first problem was related to students' learning materials. The materials presented in the textbook were not suitable for Computer Engineering and Networking program because the materials were similar to senior high school students. The second problem was students' low motivation. Learning reading which was presented only through textbooks or handouts may cause students' boredom and lower their motivation. The third problem was the limited time allocation. The vocational high school students, especially grade eleventh students of Computer and Networking program were quite busy with exams, practicums, and preparation for appreticenship program. Because of that, the students did not have enough time to learn English in the classroom.

Consequently, based on the results of the observation, this study attempted to develop the interactive multimedia which will accommodate the needs of the eleventh-grade students of computer engineering and networking program at SMK N 2 Yogyakarta in learning reading.

RESEARCH METHODS

Type of Research

This research is categorized as research and development (R&D) study. According to Borg and Gall (2003: 569) research and development is a research process used to develop and validate educational products.

Research Setting

The research was conducted at SMKN 2 Yogyakarta on August 2017. The school is located at Jl. AM. Sangaji 47 Cokrodiningratan, Jetis, Yogyakarta.

Subjects of the Research

The subjects of this research were 32 students of XI TKJ 2 and an

English teacher at SMKN 2 Yogyakarta.

Research Procedure

This research adapted a model of multimedia instructional design process by Lee and Owens (2004) with some modifications. The procedures are analyze, design, develop, and evaluation.

Data Collection Techniques and Research Instruments

This study used two forms of data, they were quantitative and qualitative data. The quantitative data were collected by using the needs analysis questionnaire and the expert judgment questionnaire. The qualitative data was collected by conducting an interview with the English teacher who taught XI TKJ 2.

Data Analysis Techniques

In analyzing the quantitative data, the researcher used percentage for the needs analysis questionnaire and the mean score for the expert judgment questionnaire. In analyzing the qualitative data, the researcher used qualitative data analysis model proposed by Miles and Huberman (1994).

RESEARCH FINDINGS AND DISCUSSIONS

The product of this research is the interactive multimedia for learning reading for computer engineering and networking students which consists of four units. Each unit has the same unit development which has seven sections, they are: *"Getting Ready", "Let's Read", "Let's Study", "Let's Do More", "Reflection", "Glossary",* and *"Evaluation"*. The first unit entitled "The Internet Makes Our Life Easier" focuses on analytical exposition texts. The second unit entitled "The Internet Makes Our Life Easier" focuses on analytical exposition texts. The third unit entitled "The Internet Makes Our Life Easier" focuses on explanation texts. The fourth unit entitled "The Internet Makes Our Life Easier" focuses on explanation texts. The number of activities for the four units are 12 tasks.

After developing the first draft of the interactive multimedia, the evaluation of the program was

conducted. The evaluation of the first draft was done by distributing an expert judgment questionnaire to an expert. The questionnaire was divided into two parts. The first part of the questionnaire consisted of materials and media aspects. The materials aspect was adapted from BNSP (2014) and Stemler (1997:340-343).

Table 1: Results of All Units in the Developed Materials

No	Components	Mean	Description
1.	Materials Aspect		
	Unit 1	3.76	Very Good
	Unit 2	3.76	Very Good
	Unit 3	3.90	Very Good
	Unit 4	3.80	Very Good
2.	Media aspect		
	Unit 1	3.9	Very Good
	Unit 2	3.87	Very Good
	Unit 3	3.93	Very Good
	Unit 4	3.87	Very Good
Mean (x)		**3.84**	**Very Good**

The results of the evaluation showed that the multimedia is appropriate. The evaluation results indicate that the mean of the materials aspect is 3.76, and for the media aspect is 3.9. Thus, the mean of Unit 1 is 3.83 which falls into "Very Good" category. For Unit 2, the mean of the materials aspect is 3.76, and the media aspect is 3.87. Thus, the mean of Unit 2 is 3.81 which falls into "Very Good" category. For Unit 3, the mean of the materials aspect is 3.90, and the media aspect is 3.93. Thus, the mean of Unit 3 is 3.91 which falls into "Very Good" category. For Unit 4, the mean of the materials aspect is 3.80, and for the media aspect is 3.87. Thus, the mean of Unit 4 is 3.83 which falls into "Very Good" category. In conclusion, the total mean of the four units is 3.84 which is considered as "Very Good".

CONCLUSIONS AND SUGGESTIONS

Conclusions

The results of the needs analysis reveal that most of the students learned English in general because they wanted to be able to communicate in English effectively and fluently. As for reading skills, the students wanted to improve their skills in vocabulary mastery and

finding and understanding specific information in a text accurately. In terms of the materials, the results of the needs analysis show that most of students preferred the texts with 150-300 words. They wanted to read a text and answer multiple choice questions as the activities in reading. In addition, they chose less than 10 tasks as the number the tasks. In relation to multimedia design, the students preferred to use pictures, photos, or illustration. The students preferred to use backgrounds which are suitable with the topic, instrumental music as the background, easy to use and simple buttons, and direct feedbacks for the answer keys.

The interactive multimedia was developed based on the students' target and learning needs, Core and Basic Competences. It is considered appropriate. In addition, the developed materials in the interactive multimedia are in accordance with the steps of Task-Based approach. Finally, after conducting the evaluation, the developed interactive multimedia is categorized as "very good" or appropriate.

Suggestions

There are some suggestions for English teachers, students and other researchers. For English teachers especially in vocational high schools, they are suggested to use learning materials which fulfill the needs of the students. They are also suggested to use alternative learning resources such as an interactive multimedia in order to give a variation in the teaching and learning process. For the students, are expected to be able to operate this interactive multimedia independently or with guidance from their teacher. In addition, the students are encouraged to find texts which are relevant to their own needs. They should not only depend on the existed learning materials. Lastly, for other researchers who want to conduct similar research, they may try this developed multimedia out to vocational high school students in order to seek confirmation of this research's findings.

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