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MULTIMEDIA DEVELOPMENT OF ENGLISH VOCABULARY LEARNING IN PRIMARY SCHOOL

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Abstract: *This research study is aimed at: (1) developing multimedia of English vocabulary instruction in year-five of the elementary school, (2) revealing the quality of the developed instructional multimedia viewed from the aspects of content, instruction, appearance, and programming, (3) revealing the aspect of attraction of the developed instructional multimedia, and (4) revealing the learning mastery of the students after using the developed multimedia. This study was developmental research. The research validators included one expert in English education and one expert in instructional multimedia. The research subjects consisted of three students for the one-to-one try-out and twenty students for the large group try-out. The instruments employed in this study were a questionnaire, observation guide, and pre-test and post-test. The data were analyzed by using descriptive statistics. The findings of the study are: (1) the development of English vocabulary instructional multimedia in year-five of the elementary school proceeded in six steps, namely, analyzing, designing, producing, validating, revising, and trying-out; (2) the quality of the developed instructional multimedia viewed from the aspect of content, instructional, appearance, and programming is good. The score range of 1 to 5, the content aspect shows a mean score of 3.75, the instructional aspect shows a mean score of 3.71, the appearance aspect shows a mean score of 3.87, and the aspect of programming shows a mean score of 3.75; (3) the aspect of attractiveness shows that the developed instructional multimedia was very interesting: in the one-to-one tryout, of the three students observed, two students indicated that the product attraction was very interesting, and one student indicated that the product attraction was interesting; in the large group try-out, of the twenty students observed, twelve students indicated that the product was very interesting, and eight students indicated that the product was interesting; and (4) learning by using instructional multimedia has good impact on students' mastery learning: in the large group try-out, out of twenty students, nineteen students (95%) have accomplished mastery learning in the English vocabulary instruction.*

Key words: development, multimedia, vocabulary

1. Introduction

English learning in primary school during this time is still using conventional method. In teaching the teacher only rely on the classical lecture method. The teacher is not using the other media besides book. Learning methods like this does not fulfill the principles of effective learning and empowering the students potential. Based on the statements above, both teachers and students in primary schools are needed to innovate the instructional media. Basically the media is supporting facilities which are used in teaching so that educators can transfer the material easier. In using the media we must see what things that we are going to give to the students. The instructional media innovation is used to improve the quality of learning.

One of the products of technology that can be used as an innovation in learning is computer. As it is said by Ruseffendi (1984:420) that, learning media which is based on the computer can make the students' behavior become positive. One of the advances in information technology and communication is multimedia. Molenda said that today examples of multimedia education and training include slides with synchronize audio tapes, videotapes, cd-roms, dvd, the worldwide web, and virtual reality (Molenda, 2005:141). By using multimedia it is expected children more interested in knowing the information. The more quality applications from the media , the more children have a lot of variety in learning so that the learning activities will be no bored, especially in English. English as one of the education which is provided to children will be delivered easily to the child by using

multimedia. Introducing English from an early age children are expected can master and communicate by using the English language. Multimedia can be used to support the learning process.

2. Multimedia

According to Barker & Tucker (1990) multimedia is defined as a collection of various different media equipment used for presentations. Tan Seng Chee & Angela FL Wong (2003: 217) states that traditionally multimedia refers to the use of multiple media, whereas in today's multimedia refers to the combined use of multiple media in the presentation of learning through computers. Hackbarth (1996: 229) emphasizes that hypermedia and hypertext, including computer-based interactive multimedia. Philips (1997: 12) states that interactive multimedia has potential to create a multisensory environment that supports a particular way of learning.

Agnew, Kellerman & Meyer (1996: 8) states that the term multimedia is more focused on the interactivity between the users of the media with the media. Constantinescu (2007: 2) states that "Multimedia Refers to computer-based systems that use various types of content, such as text, audio, video, graphics, animation, and interactivity". Multimedia which is developed in this study is a multimedia in english vocabulary learning for the fifth grade of primary school. This study develops a tutorial model of learning multimedia that can be used in learning both classical and individually. The language learning on the aspects of English vocabulary learning in this study is based on one of the characteristics of elementary school student Schematic of the multimedia components can be seen from the figure below:

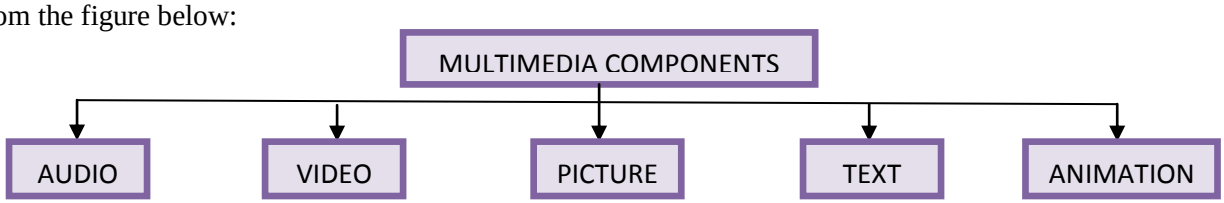

Figure 1. Schematic picture of Multimedia Components

3. Vocabulary

Abu Bakar Suleiman, A. Gani & Syafri K. (1986: 6) states that the word is derived from Sanskrit vocabulary Koca and katha. Both words are absorbed into Indonesian as a compound word. Without extensive vocabulary, a person will not be able to use the structure and function of language in communication in a comprehensive manner. Tarigan (1986: 2) states that a person's language quality depends on the quality of the language vocabulary possessed. The richer vocabulary possessed, the greater in using the language.

One of the reasons why teachers learnt vocabulary is to facilitate the students in improving reading comprehension (Pikulski & Templeton, 2004: 5). Knowledge of vocabulary is the center of expertise in the language. Therefore, learning vocabulary is something that is very important. Learning vocabulary in this case concerns the teaching and learning vocabulary. Nation (2001: 107-108) mentions three procedures of vocabulary teaching, namely: recycled words, the second-hand cloze, and the vocabulary interview.

4. The using of Multimedia in Vocabulary Mastery

English vocabulary mastery is really important in order to communicate something, if someone choose the wrong vocabulary in a sentence it will give significant effect to the sentence, as stated that “Research has shown that lexical errors tend to impede comprehension more than grammatical errors, and native speaking judges tend to rate lexical errors as more serious than grammatical errors” (Schmitt, 2000:155). Mastery of vocabulary also obtain for the native speakers’ themselves. So it can be said that someone has mastered the vocabulary if a learner can communicate with someone effectively. According to Wood (2001: 15), the use of multimedia learning has potential to improve learning vocabulary. In multimedia learning can be presented in the form of games, hyperlinks, hypertext, and animation.

5. RESEARCH METHODOLOGY

This research is a developing research. According to Borg&Gall (2003:772), the development of research is oriented research in developing and validating the product which is used in education. The same thing also expressed by Gay (1981: 10) that development research is not to create a theory or test the theory but to develop effective products to be used in school.

In this study, model which suitable is a model of research development Borg & Gall (2003: 775) and the development model of instructional design Dick, Carey & Carey (2005: 1). The development model adapted to produce a simpler model of development, which serve as a foundation in research.

This research through six phases as the following. First is the requirement analysis phase. The purpose in this stage is to collect information which is relevant with the requirement for the development of multimedia learning English vocabulary of fifth grade elementary school. The second is the instructional design development. The purpose in this stage is to develop the instructional design to produce a syllabus as a basis for developing multimedia learning. The third is the stage of production or multimedia development. The purpose in this stage is to produce the initial product, and subsequently tested or implemented in a computer to determine if the results are expected or not. Fourth is the expert validation stage. This stage is to determine the feasibility of the product which is developed. Fifth is revised. This stage is to improve the quality of products based on the suggestions from the material experts revision and media experts. Sixth is to test the product. This phase was conducted to determine the attractiveness of multimedia which is developed for students and to get the results of pre-test and post-test.

Validator of the study consisted of one person material experts and a media expert. The material expert is assessing the content aspects and learning; media experts is assessing the aspects of the display and programming. Subject of research is the students of Elementary School fifth grade in SD Bakti Mulya 400 numbered twenty-three students. In one-on-one trials involving three students consisting of two male students and one female student. While the trial involves a large group of twenty students is seven boys and thirteen girls. The age of students who take the test ranged from 10 to 12 years.

The data collection instrument which is used was a questionnaire, observation, pre-test and post-test. Questionnaire was used to obtain the data which is related to the quality of materials and quality of media feasibility. Observation is used as a guide in making observations on the attitudes of the students during the process of testing to determine the attractiveness of the product for students. The pre-test and post-test was used to determine the students' mastery learning after using the multimedia products which is developed.

The type of the data in this study is qualitative and quantitative. Data was analyzed by descriptive statistics. Qualitative data in the form of comments and suggestions for improvement of the products and materials experts and media experts described descriptively analyzed qualitatively to revise the products developed . Quantitative data is a data in the form of material expert assessment and media experts , the results of observation scores , and the results of pre - test and post - test . Quantitative data analysis is described as follows. first , quantitative data of material expert assessment scores and media experts which is analyzed descriptively with the reference from conversion table which is adapted from Sukardjo (2005 : 53-54). It is present in the table 1 as follow:

Tabel 1: Quantitative Data Conversion to Qualitative with 5 Scale

Value	Score Interval	Criteria
A	$X > 4{,}21$	Excellent
B	$3{,}40 < X \leq 4{,}21$	Good
C	$2{,}60 < X \leq 3{,}40$	Enough
D	$1{,}79 < X \leq 2{,}60$	Not enough
E	$X \leq 1{,}79$	Fair

Note:
Ideal Maximum Score= 5 *X* i = ½(5+1) = 3
Ideal Minimum Score= 1/6(5-1) = 0,67

Second , quantitative data of product appeal observation results is converted into qualitative data based on the conversion value adapted from Sukardjo (2005 : 53-54) .

Table 2: Quantitative Data Conversion to Qualitative Data for Development of The Media

Value	Score Interval	Criteria
A	X > 12,806	Very Interesting
B	9,602 < X ≤ 12,806	Interesting
C	6,398 < X ≤ 9,602	Interesting enough
D	3,194 < X ≤ 6,398	Less interesting
E	X ≤ 3,194	Very Uninteresting

Note:
Maximum Score = 1 x16 = 16 *X* i = ½ (16 + 0) = 8
Minimum Score = 0 x 16 = 0 SBi = 1/6 (16 – 0) = 2,67
X = Actual Score

Third , the data of pre-test score and post-test were analyzed by calculating the percentage of students who have obtained a score of 70 and change the percentage of mastery learning quantitative data into qualitative data.

Table 3: Learning Completeness Percentage Conversion to Qualitative Data

Percentage (%)	Criteria
90 ≤ X	Excellent
80 ≤ X < 90	Very Good
70 ≤ X < 80	Good
60 ≤ X < 70	Less
X < 60	Fair

6. RESULT AND DISCUSSION

The development of multimedia products in English vocabulary learning of fifth grade primary school begins with requirement analysis, instructional design development, product development, expert validation, product revisions, and then product trials. Based on the steps, it has been produced the research data which is become the results and discussion of the research, namely: the results of the data expert validation, observation data, and data from the pre-test and post-test. The research results will be discussed as follows.

a. Data of Expert Validation

Data of Expert validation is data obtained based on the expert material assessment and media experts through questionnaires. Material experts assess the content and the learning aspect, media experts assess the aspects of display and programming. After analysis, it is obtained that the average scores from material expert 3.75 and 3.71 for the aspect of learning. By using the score range of 1 to 5, the average assessment scores of material expert for content aspects and learning according to the conversion guidelines 5 scale is classified as a good criteria. Meanwhile, the average scores of media experts for display aspect 3.87 and programming aspects of 3.75. The average scores of media experts for display aspect and programming aspects classified as a good criteria. With the results above, it was concluded that multimedia learning English vocabulary fifth grade elementary feasible to use in learning both in content aspect and learning or aspects of the display and programming aspects for obtaining the scores average overall "B" or classified criteria "Good ". This conclusion is accordance with the values specified in the feasibility of this research that when the material experts and media experts give a minimum scores "C" or by the criteria of "enogh", the products which is developed are considered feasible to use in learning.

b. Data Observations

Based on the test results one by one, it is known that two of the three students show their interested on the multimedia which is developed in the criteria "very interesting", while a student show the attractiveness of the media on the criteria of "interesting". In a large group it is known that twelve students from twenty students were observed shows the attractiveness of the product on the criteria of "very interesting". While eight students show the attractiveness of the product in the criteria of "interesting". Attractiveness criteria is derived based on the conversion of quantitative data to qualitative data according to a scale of 5 Sukardjo (2005: 53-54).

With the results of the trial one-on-one and large group trials, we can conclude that the products which is developed "very interesting". This conclusion is gotten because more than half of the students indicated the attractiveness of products are on the criteria of "very interesting".

c. Data Results Pre-test and post-test

The purpose of pre-test and post-test is to obtain the students' data score to determine the student's mastery learning after using the product which is developed. Based on the minimum value of mastery learning standards that has been established is 70, it is known that in a large group test of 20 students, there are 19 students who complete in learning English vocabulary and only one student who did not complete learning English vocabulary. Thus, the percentage of mastery learning students is 19: 20 x 100% = 95%. Furthermore, the percentage of this completeness is converted into qualitative data to determine the criteria. By referring to the percentage conversion of learning mastery becomes qualitative data, it is known learning mastery learning is 95% the criteria is "Excellent". With these results, it can be concluded that english vocabulary learning multimedia in fifth grade elementary gives positive impact on students' mastery learning and facilitate the students to learn English vocabulary.

7. CLOSING

The result of development research can be summarized as follows. First, the development of multimedia in English vocabulary learning in fifth grade elementary school has been done through six stages, namely: conducting requirement analysis, developing instructional design, developing learning multimedia product, validating the expert, doing a revision, and conducting trials.

Secondly, if it seen from content aspect and learning aspect, the quality of multimedia which is developed the rated is "good" by the material expert. The "good" critera is known through 5 scale score conversion table. The average of assessment score of material expert in content aspect is 3,75 and The average of assessment score of material expert in learning aspect is 3,71.

Third, if it seen from the display aspect and programming aspects, the quality of learning multimedia which is developed the rated is "good" by media experts. Media experts give an assessment in display aspet with average score 3,87 and programming aspects with an average score 3,75.

Fourth, based on the observation, it was concluded that the attractiveness of the product is "very interesting", because more than half of the students stated that the product is "very exciting". The attractiveness criteria is identified through conversion guideliness table of quantitative data to media's fascination which is developed.

Fifth, the use of multimedia has a positive impact on students' mastery learning. From twenty students who had followed the trial in a large group of students there is one student who did not complete learning English vocabulary and 19 students (95%) completed the study with an average score of 16.25 or 81.25 from maximum score of 100. Mastery learning is classified as "Excellent".

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References

Agnew, P. W., Kellerman, A. S. & Meyer, M. J. (1996). *Multimedia in the classroom.* Boston: Allyn and *Bacon.*

Borg, W. R. & Gall, M. D. (2003). *Educational research: an introduction (7th ed.)*. New York: Longman, Inc.

Constantinescu, A. I. (2007). Using technology to assist in vocabulary acquisition and reading comprehension. *The Internet TESL Journal, Vol. XIII, No. 2, February 2007*

Dick, W., Carey, L. & Carey, J. O. (2005). *The systematic design of instruction.* Boston: Harper Collin College Publisher.

Gay, L R. (1981). *Educational research: Competencies for analysis & application*. *(2nd ed.).* Colombus: Charlie E. Merrill Publishing Co.

Hackbarth, S. (1996). *The educational technology handbook: A comprehensive Guide.* Englewood Cliffs: Educational Technology Publication, Inc.

Molenda, M. Smaldino, Sharon E, dkk (2005). *Instructional Technology and Media For Learning.* New Jersey: Pearson Merill Prentice Hall

Nation, I. S. P. (2001). *Learning vocabulary in another language.* Cambridge: Cambridge University Press.

Philips, R. (1997). *A practical guide for educational applications.* London: Kogan Page limited.

Pikulski, J. J. & Templeton, S. (2004). *Teaching and developing vocabulary: key to long-term reading success.*

Ruseffendi (1984). *Dasar-dasar Penelitian Pendidikan dan Bidang Non Eksakta.*

Tan Seng Chee & Angela F. L. Wong (Eds.) (2003). *Teaching and learning with technology: An asia-pacific perspective.* Singapore: Prentice Hall.

Tarigan, H. G. (1986). *Pengajaran kosakata*. Bandung: Penerbit Angkasa.