

The Influences of Interactive Multimedia Learning towards the Science Learning Outcomes of Student in Elementary School

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Abstract—Education becomes an essential part of a country, so it is demanded to continue to grow the student. Technological advancements that are increasingly and rapidly grow today can be utilized for the development of education, especially in the learning process. This study examines the presence or absence of the influence of interactive multimedia learning of Microsoft Powerpoint-based on the science learning outcomes of fifth-grade students. The purpose of this study is to determine the effect of interactive multimedia learning of Microsoft Powerpoint-based on science learning outcomes of class V students. This study uses a quantitative approach with the type of experimental research pre-experimental design in the form of one-group pretest-posttest design. The results of this study indicate that interactive multimedia learning of Microsoft Powerpoint-based in science learning in the fifth grade affects student learning outcomes.

Keywords—influence of interactive multimedia, learning outcome

I. INTRODUCTION

Education is one of the individual needs nowadays. Education has a vital role in improving the quality of human resources. As Indonesia today, education become one focus from the government. Hence, education is required to keep on developing. Indeed, the development of technology can be used in education, to improve the learning process in elementary school mainly. One of the subjects in elementary school is a natural science that develops students' knowledge of facts and concepts about nature. This learning teaches students to think systematically to understanding natural phenomena. The subject has an important role in a student's everyday life surrounding him/her, and it needs innovation in order to the learning process become more effective.

Though its implementation in the learning process of natural sciences in the elementary school has still less effective, thus the learning outcomes that have achieved is not in maximum point. In the previous research, many factors affect the learning outcomes. The factors divide into two groups, namely: (a) Internal factor, that is a factor sourced from the inside of student which affects his/her learning ability. This internal factor consists of intelligence, interest, attention, motivation, and also physical condition and healthiness. (b) An external factor that is a factor sourced from the outside of student which affects the learning outcomes, namely a family, school, and society [1][2].

Based on those two factors, the teacher needs an instrument which can be used to create a learning process and its environment to attract the student interest. Learning media is something that can be used to excite a mind, feel, attention, and will of the student, this can encourage the learning process of the student.

The choice of an innovated media learning should be able to attract the student's attention and simplify the learning process. As for the characteristics of good media learning according to Gerlach and Ely, namely: (a) Fixative ability, means that it can catch, hold, display an object or occurrence again. By this ability, the object and occurrence can be drawn, captured, recorded, then saved. The media can be showed and perceived again like its real occurrence. Learning media is manipulative ability, means that can show the object or occurrence again with any changes (manipulation) appropriate to the needs, such as size, speed, changed color, and also it can be repeated its presentation. Other excessive of media is distributive ability, means that the media can reach a significant amount of audiences in one presentation simultaneously, such as a telecast or radio broadcast [3][4].

Multimedia learning is an alternative media that combines image and verbal material. Learning builds connections between pictorial and verbal representations [5][6]. Also, science learning material in elementary school students is quite tricky for students who need teachers in developing multimedia learning.

Multimedia learning using Microsoft PowerPoint is relatively easy to develop by elementary school teachers. The media is also compatible for use in elementary schools. Interactive multimedia learning itself conveys messages (knowledge, skills, and attitudes) and can also generate choices, feelings, attention, and willingness of students, so that the learning process is done intentionally, directed, and controlled.

Multimedia learning with powerpoint shows the integration of various media texts, images, videos, and animations [7]. Thus, the media optimizes the teacher's ability to communicate with students. However, on the other hand this media has weaknesses such as the operational budget is relatively expensive, and infrastructure for specific regions is not yet in satisfactory condition.

Based on this description, this article supports multimedia learning in improving learning outcomes in

science subjects in elementary schools. The subjects of the study were fifth-grade students of SDN 52 Karrang, Enrekang Regency, South Sulawesi Province, Indonesia.

II. RESEARCH METHOD

This research uses the experimental quantitative approach. Revealed that experimental research is the research which is intentionally conducted by a researcher with giving a specific treatment toward a subject in order to give raise an occurrence/state which will be researched of how its effect. The experimental research design used in this research is a pre-experimental of with one group pretest-posttest design. This research is conducted in SDN 52 Karrang that has previously observed by the researcher. Population on this research is taken from all the students of the fifth grade amounted to 40 students and the whole of those population are also become a sample. This research approximately occurred for two weeks by six times meeting, namely four times meeting to give treatment in learning and two times meeting to give a pretest and posttest. As for an instrument used by the researcher of this research constituted a written test in the form of multiple choice as many as 20 numbers for decreasing a subjectivity rate in giving a score.

Generally, this research was conducted to understand the influences of the interactive multimedia learning of Microsoft Powerpoint-based towards the learning process of the student. The research compared the the test of learning results before the treatment provision (pretest) after the treatment provision (posttest).

Data collection technique used is the test that is the results of the pretest and posttest and also documentation. The collected data is analyzed with a descriptive and inferential statistical analysis. The descriptive data analysis is used to describe data consisted of mean, median, modus, standard deviation, highest value, lowest value, and its variant. As for the inferential data analysis is used to test normality which is subsequently continued with a test hypothesis. To analyze the data of the researcher uses an application of Statistical Package for Social Science (SPSS) 20 version.

III. RESULT AND DISCUSSION

A. The Research Results

The research is conducted about two weeks by six times meeting, namely four times meeting to give a treatment in learning and two times meeting to give a pretest and posttest. The collected data from the given test of learning results in the sample of research before and after the treatment provided in the form of the interactive multimedia learning usage in learning are analyzed becoming the detailed statistical data that can be seen in table 1.

TABLE I. THE RESULTS OF DESCRIPTIVE DATA ANALYSIS

No	Descriptive Statistic	Pretest	Posttest
1	Sample	40	40
2	Lowest Value	46	70
3	Highest Value	80	90
4	Mean	60	75
5	Range	34	20
6	Standard Deviation	7.56	3.79
7	Median	60	80
8	Modus	60	75
9	Variant	57.128	14.359

The table 1 shows that the mean before the treatment (pretest) is 60 with a range of 34, the standard deviation of 7.56, the lowest value of 45, the highest value of 80, modus of 60 and variant of 57.128. From now on, the mean after the treatment (posttest) is 75 with a range of 20, the standard deviation of 3.79, the lowest value of 75, the highest value of 90, modus of 75 and variant of 14.359.

The frequency distribution of learning outcomes at the pretest and posttest is presented in table 2.

TABLE II. FREQUENCY DISTRIBUTION

Value	Category	Pretest		Post test	
		Freq.	%	Freq.	%
0 - 20	Very Low	0	0	0	0
21 - 40	Low	0	0	0	0
41 - 60	Medium	28	70	0	0
61 - 80	High	12	30	39	97.5
80 - 100	Very High	0	0	1	2.5

Table 2 shows that at the pretest, there were still 70% of students with moderate learning outcomes and only 30% of students achieved high learning outcomes. The experimental results showed that 97.5% of students achieved high learning outcomes.

Moreover, the data analysis was continued with inferential data analysis consisted of test normality and test hypothesis. The results of test normality can be seen in table 3.

TABLE III. THE RESULTS OF TEST NORMALITY

Data	Sig _{count}	Sig _{minimum}	Information
Pretest	0.453	0.05	Normal-Distributed
Posttest	0.636	0.05	Normal-Distributed

Table 3 indicated that Sig_{count} before the treatment (pretest) is 0.453 that means more significant than 0.05 thus the data called a normal-distributed. The same thing is also seen in Sig_{count} after the treatment (posttest) that is 0.636, higher than 0.05 thus called a normal-distributed.

After the data have been through the test normality, then it can be continued with the test hypothesis, namely a T-Test. The hypothesis of this research consists of two, namely H₀ and H_a.

H₀ : there are no influences of the interactive multimedia learning of Microsoft Powerpoint-based towards the learning process of a student on the course material of natural science subject.

H_a : there is the influence of the interactive multimedia learning of Microsoft Powerpoint-based towards the

learning process of a student on the course material of natural science subject.

A decision making of significance value that is: If the significance is $< 0,05$ then an alternative hypothesis (H_a) is accepted, and a nil hypothesis (H_0) is rejected, vice versa.

The SPSS analysis resulted that Sig (*2-tailed*) is 0.000 (Sig < 0.05) that H_0 rejected and H_a accepted. Hence, there is the influence of the interactive multimedia learning of Microsoft Powerpoint-based towards the learning process of a student on the course of natural science in the fifth grade of SDN 52 Karrang.

B. Discussion

The results of the analysis show that multimedia learning effectively improves learning outcomes in natural science subjects. These results in the optimal learning process with interesting media, The presentation of images and videos on powerpoint media produces a conducive learning atmosphere [7].

One of the influenced factors of learning outcomes is the external factor. The factors outside the student learning condition and learning facility. In the treatment activities learning facilities are sufficient to support the creation of an effective learning process. Presentation of material with LCD makes the material interesting for students.

IV. CONCLUSION

Based on the research results and the discussion then this research can be concluded that there are the influences of the interactive multimedia learning of Microsoft Powerpoint-based towards the learning process of a student on the course material of natural science in the fifth grade of SDN 52 Karrang, Enrekang Region.

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