

Effect of VBA Learning Media to Improve Students Decision Making Skill of Elementary School

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Abstract—The background of the problem is the low decision-making skills of students, especially in social studies learning in elementary schools. This is the lack of learning during the learning process, the absence of learning media related to decision-making skills during learning, students are not accustomed to implementing student center-based learning, and aspects of basic students also affect student decision-making skills. The formulation of the problem in students is learning and learning using VBA media in microsoft excel with students using learning conventional learning? The population in this study was fifth-grade students of SDN Baros Mandiri 2 and SDN Baros Mandiri 5 numbering 160 students and a total of five classes. The sample of this study was grade fifth-grade students of SDN Baros Mandiri 2 and Class Va SDN Baros Mandiri 5. The contents were according to indicators of decision-making skills. The data obtained were analyzed and processed using SPSS 20 application assistance. The students who are learning to use VBA media. Experienced an increase in decision-making skills is more significant compared to students who learn to use conventional learning.

Keywords—VBA learning media, decision making skill

I. INTRODUCTION

Decision making is one of the most important social training and must be shared with students starting from the beginning. This is because humans will always make decisions anytime. Decision making in everyday life that occurs in the family environment such as the decision to determine the type of homework, the decision to determine the place of vacation, the decision to determine the clothes to wear, etc. in environmental schools such as the decision to choose friends, the decision to choose snacks, the decision to choose a seat, the decision to determine the place of vacation, the decision to choose a class leader, the decision to determine the money to be saved, etc., in the community such as the decision to choose playmates, the decision to choose a place to play, the decision to choose snacks and etc.

Accustomed to making decisions without appropriate steps it will lead to various problems. The long-term problem that might occur when adult students are caused by not usually making good decisions, namely the World Justice Project [1] states that corruption is a big problem in Indonesia, it seems that Indonesia ranks 14th out of 15 countries in Asia and 80th from 99 countries around the world. These problems occur

because current officials have a fairly good cognitive but not supported by good social attitudes and skills.

The next problem as stated by the Badan Pusat Statistik (BPS) [2], namely the number of open unemployment rates (TPT) in February 2019 is 5.01 percent. This problem occurs in addition to the lack of employment in Indonesia citizens prefer unemployment rather than trying to create their own fields and problems regarding suicide as stated by the Ministry of Health Republic Indonesia [3] that Indonesian suicide data at WHO in 2010 reached 1, 6 to 1.8 per 100,000 people and WHO estimates that if this is allowed, the number of suicides in Indonesia in 2020 will reach 2.4 per 100,000 lives. These problems occur because Indonesians are not trained in social skills from an early age.

The problems above can be corrected through learning in elementary school. This is based on the character of elementary school students who are still easily formed and are at the golden age stage, so it will be easy to shape the character and provide understanding so that the above problems do not occur again in the years to come. Learning deemed capable of and by the characteristics of elementary school students, today are learning to use technology-based media, visual basic for the Application (VBA) ms. excel. The VBA learning media referred to in this study are media that are made using the VBA application in the form of games that are expected to be able to provide training in decision making to students so that students' decision-making skills can be better

Based on the statements above, the formulation of the problem in this study is 1) whether there is an influence of learning using VBA media ms. excel on the decision making skills of 5th grade students of SDN Baros Mandiri 2 ?; 2) is there any influence of conventional learning on the decision-making skills of 5th grade students at SDN Baros Mandiri 5 ?; 3) whether there are differences in the improvement of students' decision-making skills between students who learn using VBA media ms. excel with students who use conventional learning?

Conventional learning referred to in this study is learning that is often used daily by teachers in the classroom. The learning consists of lecture, discussion, and question and answer methods using learning media that are not IT based. Based on the questions and statements carried out the research

titled Effect of VBA media learning to improve students decision-making skills of elementary school.

II. LITERATURE REVIEW

A. Decision Making Skills

Decision making is one of the social skills. Decision-making by Grrenbank [4] Decision-making involves the act of making a choice between different alternatives, Walker [5] The decision making process is a tool that can help you members reach goals and help you be more satisfied with the quality of your life, Wang dan Ruhe [6] Decision making is a course of actions is chosen from among a set of alternatives based on certain criteria. From some of the statements above, it can be interpreted that decision making is a skill in choosing an alternative from various alternatives in solving problems to achieve a better life. Decision-making skills are currently underestimated, if these skills are ignored and students do not have good decision-making, negative things will happen, such as the number of occurrences of elementary school students who do not continue to junior high school, many of whom commit suicide due to not pass the national examination and the long term will be many corruption cases as described above.

In developing decision-making skills there are several indicators that must be developed. Indicators of decision making according to Woolever dan Scoot [7] are as follows.

TABLE I. DECISION MAKING SKILLS INDICATOR

Variable	Sub Variable	Indicator
Decision Making	1. Problem Awarnes 2. Problem definition	1. Analyze the causes of problems from various factors 2. Identify the impact of the problem
	3. Developing alternative	3. Identify alternative decisions to solve problems
	4. Evaluating alternatives	4. Make a decision to solve the problem 5. Give reasons for choosing decision making
	5. Social or personal action	6. Predict the impact of decision-making actions in the real context
	6. Evaluating result	7. Give an assessment of the strengths and weaknesses of the decisions that are made.

B. Media VBA Microsoft Excel

VBA application. Ms. excel Chotimah, et. al [8] is a programming language that provides commands needed in Microsoft Excel to speed up operations automatically. In this study, the VBA application was utilized in making learning media. VBA learning media in this study aims to train students' decision-making skills in social studies learning in elementary schools.

III. METHOD

The method used in this study is a quasi-experimental method with a nonrandomized pretest-post test control group design research design. The design of nonrandomized pretest-

posttest control group design according to (Levy & J. Ellis [9] can be described as follows.

TABLE II. NONRANDOMIZED PRETEST-POSTTES CONTROL GROUP DESIGN

Class	Pretest	Treatment	Posttest
Experiment	O	X ₁	O
Control	O	X ₂	O

Legend:

- 0 = Pretest-posttest decision making skills
- X1 = Learning in the experimental class using VBA Ms. media Excel
- X2 = Learning in the control class using conventional learning

The research procedure in this study consisted of four stages, namely the planning, implementation, end, and publication of research results. In the presentation phase, it consisted of analyzing the results of previous research on decision-making skills, analyzing the development of teaching materials in elementary schools, compiling VBA-media based Ms. Excel, composing instruments, validation, and testing instruments. At the implementation stage, the activities carried out were the implementation of the pretest, carrying out learning in the experimental class using VBA media based Ms. Excel and in the control class use conventional learning, as well as the implementation of the posttest. In the final stage of the research activities carried out are collecting data on research results, processing and analyzing the results of research, and preparing research reports. In the publication stage, research activities are carried out, namely publishing research results.

This research was conducted at SDN Baros Mandiri 2 with the number of students in class 5th namely 64 students and SDN Baros Mandiri 5 with a total of 96 students. Students in both schools are heterogeneous in terms of religion, regional origin, and culture. This is because the SDN Baros Mandiri 2 and SDN Baros Mandiri 5 are in the TNI AD area. The population in this study were all 5th students of SDN Baros Mandiri 2 and SDN Baros Mandiri 5 numbering 160 students and a total of five classes. The sample of this study was Va students of SDN Baros Mandiri 2 and Class Va SDN Baros Mandiri 5 which had a homogeneous index in terms of the average Social Studies learning value, the average results of observation of decision-making skills, and in terms of the number of students.

The instrument used in this study is a written test instrument following the indicators for decision-making skills. The instruments are arranged and validated to experts and validation into the field (6th elementary school students) so that the instrument is truly valid. Then the instrument is used at the pretest and posttest stages which are then processed and analyzed using the help of SPPs 20. The data processing stages are as follows:

1. Test for normality
2. Test homogeneity
3. Average difference test
4. N-gain test

IV. RESULT AND DISCUSSION

Result in the early stages of the study carried out initial observation activities related to the initial ability of students' decision-making skills. At this stage, the pretest was carried out in the experimental class and the control class. The results

of the pretest activities in the experimental class and the control class are as follows.

TABLE III. DESCRIPTION OF THE PRETEST OF THE EXPERIMENTAL CLASS AND THE CONTROL CLASS

Average Class Score Experiment	Average Class Score Control
72	70

From the results of pretest data processing in the experimental class and control as seen in the table above the average value of students' decision-making skills is higher than the experimental class. To see the significance of whether there is a difference in the average value of the pretest in the experimental class and the control class, a statistical test is carried out as follows

TABLE IV. NORMALITY TEST OF PRETEST EXPERIMENT CLASS AND CONTROL CLASS

Value	Class	Kolmogorov-Smirnov		
		Statistic	Df	Sig
Value	Experiment	.123	35	.200
	Control	.142	33	.089

TABLE V. TABLE TYPE STYLES

	Levene's Test for Equality of Variances		T-test for Equality of Means		
	F	Sig	T	Df	Sig. (2-tailed)
Equal variances assumed	2.109	.151	.307	.71	.760
				.69	.760

From the t-test, the value of Sig. (2-tailed) $0.760 > 0.05$ so it can be concluded that the average value of the pretest decision-making skills of the experimental class and the control class does not have an average difference.

After carrying out the pretest learning was carried out in each class. The experimental class uses VBA media and the control class uses conventional learning. The learning time in each class is held for two meetings and followed by the posttest at the end of the second meeting. The posttest results of decision-making skills in each class are as follows.

TABLE VI. DESCRIPTION OF THE EXPERIMENT CLASS AND CONTROL CLASS POSTTEST

Average Class Score Experiment	Average Class Score Control
85	75

From the results of the posttest in both classes, the average score of skills in the executive class was 85 and the control class 75. This shows that the average value of decision-making skills in the experimental class is higher than the control class. To see the significance of the difference in the average posttest value of decision-making skills, statistical tests were carried out as follows.

TABLE VII. NORMALITY TEST OF POSTTEST OF EXPERIMENT CLASS AND CONTROL CLASS

Value	Class	Kolmogorov-Smirnov		
		Statistic	Df	Sig
Value	Experiment	.129	35	.000
	Control	.333	33	.151

TABLE VIII. MANN-WHITNEY U TEST POSTTEST EXPERIMENT CLASS AND CONTROL CLASS

	Value
Mann-Whitney U	382.500
Wilcoxon W	943.500
Z	-2.444
Asymp. Sig. (2-tailed)	.015

Judging from the results of the Mann-whitney U test above, the Sig. (2-tailed) which is $0.015 < 0.05$. This shows that there are differences in the average value of posttest taking skills in the experimental class and class with the control class.

In this research to see VBA media influence on decision-making skills in the experimental class then tested the average difference (Mann-whitney U test). the results are as follow.

TABLE IX. TEST OF MANN-WHITNEY U PRETEST AND POSTTEST EXPERIMENT CLASS

	Value
Mann-Whitney U	343.500
Wilcoxon W	944.500
Z	-2.611
Asymp. Sig. (2-tailed)	.009

From the results of the pretest and posttest Mann-whitney U test in the experimental class, the Sig value is obtained. (2-tailed) $0.009 < 0.05$. This can be interpreted that there are differences in average so that learning can be resolved using VBA media Ms. Excel in the experimental class can improve decision-making skills significantly.

In this study to see the effect of conventional learning on decision-making skills in the control class, the average difference test (t-test) was conducted. the results are as follows.

TABLE X. T TEST OF THE PRETEST AND POSTTEST OF THE CONTROL CLASS

	Levene's Test for Equality of Variances		T-test for Equality of Means		
	F	Sig	T	Df	Sig. (2-tailed)
Equal variances assumed	4211	.044	-6.494	.71	.000
				.69	.000

From the results of the pretest and posttest, Mann-whitney U test in the control class, Sig. (2-tailed) $0,000 < 0,05$. This can be interpreted that there are differences in the average so that learning can be solved using learning in the control class can improve decision-making skills significantly.

Each learning activity can improve students' decision-making skills both in the experimental class and in the control class, so to see which learning can improve students' decision-making skills with the most significant or to see which learning is better then the N-gain test is conducted. The results of N-gain processing and testing are as follows.

TABLE XI. DESCRIPTION OF N-GAIN EXPERIMENT CLASS AND CONTROL CLASS

Average N-gain Experiment Class	Average N-gain Control Class
0,35	0,16

From N-gain data processing, the average N-gain value in the experimental class is 0.35 and the control class is 0.16. When interpreted there is an N-gain category then the average N-gain experimental class is in the medium category and the average N-gain control class is in a low category. To see the significance of the difference in the average N-gain, statistical tests are carried out as follows.

TABLE XII. N-GAIN NORMALITY TEST OF EXPERIMENT CLASS AND CONTROL CLASS

Value	Class	Kolmogorov-Smirnov		
		Statistic	Df	Sig
Value	Experiment	.219	35	.000
	Control	.297	33	.000

TABLE XIII. MANN-WHITNEY U N-GAIN TEST

	Value
Mann-Whitney U	379.000
Wilcoxon W	940.000
Z	-2.480
Asymp. Sig. (2-tailed)	.013

Based on the Mann-Whitney U test N-gain test in both classes, Sig. (2-tailed) 0.13 < 0.05. This can be interpreted that there are differences in the increase in decision-making skills in the experimental class with the control class. From the results of these interpretations, it can be concluded that learning uses VBA media Ms. Excel is better than conventional learning. This is seen from the average value of N-gain decision-making skills that have been described in the previous table, namely the experimental class with an average N-gain of 0.42 (medium) and the control class of 0.20 (low).

Based on the results of the research described previously, learning using VBA media based on Ms. Excel and conventional learning can improve the decision-making skills of SDN Baros Mandiri 2 students and SDN Baros Mandiri 5. The most significant increase occurred in students in SDN Baros 2 who used VBA media Ms. Excel. Differences in the increase in decision skills in both schools occur because of various factors that were found when the research took place. The findings in the experimental class and control class are explained as follows.

The findings in the experimental class that influenced the improvement of students' decision-making skills, namely learning in the first meeting, students felt enthusiastic about the use of VBA Ms. Media. Excel looks from many students who ask questions and enthusiasm when going to learning. This is in line with Wena [10] and Suyanto [11] which suggests that learning uses new learning and new media makes children more motivated when learning. However, when the implementation of learning, especially when using media, some students have difficulty using VBA media and need more guidance from the teacher. This is in line with

what was stated by Fu [12], [13] that the use of IT-based media when not trained and explained earlier will make students feel difficulty in using it.

The findings were analyzed and corrected in the second meeting by the way the teacher gave a more detailed explanation with easily understood language about the use of instructional media. This is in line with what was stated by Gafoor and Kurukkan [14] that explanation and guidance from teachers is very important in the learning process so that learning can take place properly.

The findings in the control class are that students feel bored when the learning process continues. This is because conventional learning used in this study is the learning used by teachers in the school. This finding was corrected in the second meeting by the way teachers made learning media and divided students into new groups or did not use existing learning groups. This improvement has a positive impact. This is similar to what was stated by Dunlosky, et al [15] that learning is done repeatedly and lack of creativity in the learning of teachers will affect the students' motivation and Bachroni [16], Johnson & Johnson [17], and Setiyanti [18] suggests that the division of learning groups is very important carried out by the teacher in learning so students do not feel bored and students are more motivated when learning with new study groups.

V. CONCLUSION

Based on the results and findings of the study as described previously, the conclusions of this study are 1) learning using VBA media Ms.excel can improve the decision-making skills of class 5th students of SDN Baros Mandiri 2; 2) conventional learning can improve students' decision-making skills at SDN Baros Mandiri 5; 3) learning using VBA media Ms. Excel is better than conventional learning, 3) requires careful planning in learning using VBA media, because not only learning planning must be prepared but the learning media must also be well prepared so that students are motivated, according to the characteristics of students, according to their taking skills decision, and in accordance with the material taught.

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