



The effect of using animation media on learning outcomes of budget plans at harapan mekar vocational high school Medan

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ABSTRACT

The purpose of this study is to determine the effect the use of animated media in student learning outcomes in planned subjects determines budget growth (RAB) and student learning outcomes in Class XI Engineering Drawing Technology at SMK Harapan Mekar Medan. Based on research, the average peer group learning outcomes before the test was 46.54 and the average score after the test was 64.04; in the experimental class, the average before the test was 48.39 and the average after the test was 74.82. The learning outcomes of the comparison class increased by 17.50 and that of the test class by 26.43. The analysis uses all posttest results and is tested by t-test, obtained $t_{count} > t_{table}$ ($4.775 > 2.021$) which shows that H_0 is rejected and H_a is accepted. From these results it can be concluded that student learning outcomes using animation media are better than student learning outcomes using traditional methods (blackboard).

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Introduction

The development of science and technology has had a major impact on all aspects of human life, of course it will lead us to intense competition in this global era. So that we can balance and play a role in global competition. As a nation, we need to improve and develop human resources. Therefore, the growth of human resources is a necessity and a fact that must be fulfilled in a planned, controlled, intensive, efficient and effective way in the development process. so that this nation can give its best contribution to the intense competition in this global era. We are talking about updating and developing human resources. Friends, education plays a very important role when it comes to the quality of human resources. Improving the quality of education is an integrated process to improve the quality of human resources. Based on the national development goals in Law no. 20/2003 concerning the National Education System which seeks to develop national education Opportunities for students to become people of faith and commitment to God Almighty, Noble, Healthy, Knowing, Capable, Creative, independent and become citizens of a democratic and responsible Answer.

Therefore, efforts to improve education must continue to be carried out based on several aspects. Quoting from the opinions of learning experts: (Degeng, 2002) and Conny Semiawan and (Soedijarto, 1991), (Miyarso, 2005) that the core activity or process of education in schools is the learning process, so solving the problem of low quality education must be focused on improving quality learning. In other words, if the government wants to improve the quality of education, what

needs to be improved is primarily the quality of learning. For this reason, all components such as: students, teachers, materials, methods, learning resources, and infrastructure, as well as costs, involved in learning need to optimize their respective roles in order to achieve the goals set. The quality of learning can be realized when the learning process is planned and designed carefully and carefully, step by step, and process by process (Reigeluth, 1999). Besides that, in improving the quality of learning, the teacher's role is most strategic.

Therefore, it is important for teachers to refer these efforts to the learning paradigm as stated by Bloom quoted by Keefe (Willis, 1989) that in learning there are three (3) important variables involved, namely student characteristics (learning characteristics), learning/teaching (instruction) and learning outcomes. In the relationship between the three variables, it is clear that students as learning input components will be able to achieve or master the tasks as expected and obtain complete and optimal learning outcomes (Learning outcomes: 1. Level and type of achievement, 2. Rate of learning, and 3. Affective outcome) if it is supported by high-quality learning and good initial abilities (cognitive entry behavior) and learning motivation (affective entry behavior). However, in reality it is usually the teachers who learn not to use a clear learning paradigm, they tend to use the information transfer paradigm, nothing more than just tell about the contents of the book. Such learning is clearly incomplete considering the characteristics of students as the basis for implementing quality learning. As a result, learning is reduced qualitatively and is less motivating or less attractive to students which then has an impact on the poor quality of their learning process and results, for that we need learning news to have a good influence on students, one of which is the teaching method that teachers apply, namely by method also makes a good impression.

Under the supervision of Harapan Mekar Medan Vocational School, with a specialization in technical drawing Class X TGB1, learning the subject of Budget Planning (RAB) often comes before an abstract approach other than students' experiences and opinions which of course has the effect of being bored and sleepy, moreover the teacher's lecture style is less active when explaining the job description makes the impression of monotonous and one-sided making the material less clear and difficult for students to understand when the actual material is different. Theoretical acquisition also requires visualization that can explain. Computed views of objects and jobs. Except for this level, the learning absorption capacity of each student is different. On the other hand, it depends on the ability of each student to store and understand information. The effect of not understanding the material provided by the teacher clearly has a significant influence on student learning outcomes, the problem of learning quality must of course be resolved immediately. Given that these substances are included in productive substances, compulsory subjects with higher graduation requirements compared to normative learning or adaptive, so if the results of student learning do not meet the requirements to pass the course it is dangerous for students and the school itself, not only the school environment itself, but also affect the workplace because considering the mission of SMK is to produce a workforce that is ready to go directly and competitively in work life.

To overcome the low quality of learning, one of the efforts made by the teacher is the use of animated educational media in learning. Through animated educational media, learning activities are in the form of tools that can provide visual experiences to students in order to encourage learning motivation, clarify, and make complex and abstract concepts simpler, more concrete, and easier to understand. A computer research and research institute, namely Computer Technology Research (CTR), states that people are able to remember 20% of what is seen and 30% of what is heard, 50% of what is seen and heard. But people are able to remember 80% of what was seen, heard and done at once. In this case what can include sight, hearing and at the same time doing is learning through animated multimedia media. The most important of this animation media is bringing something big into small (simple). In the process of learning a budget plan (RAB) does require visualization of each part of the work, not just an abstract concept. Thus students can find out how the forms of building objects and other things that will be calculated. In this regard, it is necessary to conduct research on efforts to apply animated media in learning the Budget Plan (RAB), with this research it is hoped that students can understand the material and can improve learning outcomes from the lesson.

Method

The research used in this research is quasi-experimental research, which aims to find out whether there is an effect of using animated media on student learning outcomes in the subject of budget planning (RAB). In this study, it was divided into two groups, the control class (XI TGB1) and the experimental class (XI TGB2). From the results of the research conducted, a description of the data (Appendix) that has been obtained from the initial test (pretest) will be presented which is a description of the students' initial conditions before the experiment is carried out and the final test (posttest) is the result after being given treatment.

The lessons given to the two groups use different treatments, learning with animation media in the experimental class and for the control class using conventional learning or with lectures and blackboards in the lesson plan budgeting (RAB), this treatment is used as a way to find out the difference in influence media used. Based on the data obtained then analyzed and interpreted by researchers to answer research problems.

Results and Discussions

In carrying out this research, researchers conducted tests using instruments that had been prepared beforehand. The use of this instrument which will be used for data collection. The instrument test was carried out in class XI TGB 1 as the control class. After the instrument test, the results were analyzed by validation test or item validity, after being declared valid, the instrument was ready to be used for data collection in the next group. In the next stage, implementing learning in the control class, the researcher explained the subject matter for the budget plan (RAB) starting with identifying the components involved in the project, the types of work to making the RAB. In this study, the researcher used conventional media (blackboard) learning, which used the lecture and blackboard method as the learning center. The researcher explained the lesson and the students paid attention to the researcher's explanation, then the students recorded it in their notebooks. In these implementation conditions the learning atmosphere was less conducive, many students paid less attention when the researcher explained the subject matter, besides that the many students chatting and disturbing other students who were paying attention added to the boisterous and unconducive atmosphere. At the stage of explaining the steps for calculating one of the examples of building parts, the researcher invited students to interact by counting together, but because the conditions were not conducive so there was no response. The lack of student activation in the implementation of learning can be caused by previous student habits, namely students listen more and record information conveyed by the teacher and often wait for the teacher's explanation.

At the next meeting, namely in the experimental class, class XI TGB2, the researcher explained the subject matter on the budget plan (RAB), which was not much different in content from the control class, except that here the researcher used animation media as the learning center. Interesting and creative media design keeps students focused and curious about the pages that will be displayed next, with this condition students are more responsible for maintaining a conducive and calm classroom atmosphere, this is evidenced by when one student speaks a little too loud then the other students immediately reprimanded him, besides that the students were very enthusiastic and enthusiastic in conveying things they wanted to know about the material, because the researchers provided a lot of visualizations and animations about the scope of projects and buildings which so far they knew only from theory and explanations. The level of enthusiasm of the students did not end here, when the researcher asked them to calculate one example of a building part, the students were very interactive and showed their creativity in the logic of the shapes of the building parts to be counted. With this animated media, there are many influences in the implementation of learning, such as conducive classroom conditions and student activation and enthusiasm in participating in learning. Based on the results of the pretest, it can be concluded that there is no significant difference between the control class and the experimental class. This is evident from the results of the initial t-test calculations with the help of the SPSS 17.0 program. The results of the hypothesis test showed that there was a significant difference between the learning outcomes of the experimental class students and the control class student learning outcomes. The group's pretest results were used as data analysis to

determine the level of difference between the two groups. The average pretest result for the control class was 46.54 and the average pretest result for the experimental class was 48.39. The technique used in data analysis uses the normality test as a prerequisite test to determine the level of normality of the data, and the t-test is used as a hypothesis test. From the results of the research data analysis, it can be concluded that there are differences in learning achievement in the subject of budget planning (RAB) using animation media.

This is evidenced by the price of $t_{count} > t_{table}$, then H_0 is rejected and H_a is accepted with a significance level of 0.05. In this study, there was also a comparison of the pretest and posttest results from the control class and the experimental class. From these results, the pretest results for the control class obtained an average value of 46.54, while the pretest results for the experimental class obtained an average value of 48.39. Then from the results of the posttest control class obtained an average value of 64.04 while for the experimental class obtained an average value of 74.82. From the acquisition of these values, after the experiment was carried out there was an increase of 17.50 for the control class, and 26.43 for the experimental class. This difference is due to the experimental group learning activities using animation media. This animation can provide a visual experience to students in order to encourage learning motivation, clarify, and make abstract concepts simpler, more concrete, and easier to understand. Bearing in mind that the lesson plan budget (RAB) has a higher level of understanding because the calculations are based on the forms of building materials so that it requires visualization in its explanation.

More importantly, with the ease of explanation and the attractiveness of learning with animation media, as well as from the results of the research and theory stated above, it can be concluded that the provision of animation media for learning budget planning (RAB) subjects can improve student learning outcomes. In practice, classes that use animation media are more focused and conducive to the subject matter presented, then the level of student interaction increases in conveying their ideas and ideas, this can be seen from the enthusiasm of students in following the lesson plan budgeting (RAB) by using animation. With learning activities not just recording information from the teacher, but learning by using interesting and interactive animations, learning activities are fun and help students be more motivated in the learning process. Based on the statement above, a teacher is required to have the ability to choose, determine, develop a variety of learning methods and media to achieve the expected learning objectives. This includes choosing the right method and approach for a concept to be conveyed.

Normality Test

To find out the data from the pretest and posttest studies above are normally distributed or not, then these data need to be processed with a data normality test. If it is normally distributed, parametric statistical techniques can be used. The normality test analysis technique uses Chi-square values. With the provisions of the calculated Chi-squared price compared to the table's Chi-squared price, at a significant level of 5%. If the calculated Chi-squared price (χ^2) < table Chi-squared price (χ^2), then the data is normally distributed (Sugiyono, 2011). The results of the pretest and posttest normality tests for the two groups can be seen in the following table, while the complete calculations can be seen in the appendix. Analysis results of the Pretest Normality Test

Table 1. Of results of pretest normality test analysis

Class	χ^2_{Count}	χ^2_{Table}	Information
Experiment	9.69	11.07	normally distributed
Control	5.85	11.07	normally distributed

From the table above it can be seen that testing the initial test scores of the two groups, namely the experimental group and the control group, showed a calculated value of $\chi^2 < \chi^2_{table}$, this means that the initial test scores of the two groups were normally distributed. Hasil analisis Uji Normalitas posttest

Table 2. Of results of posttest normality test analysis

Class	χ^2_{Count}	χ^2_{Table}	Information
Experiment	6.45	11.07	normally distributed
Control	8.70	11.07	normally distributed

From the table above it can be seen that the two groups, namely the experimental group which was given learning treatment with animation media and the control group with conventional learning (blackboard) showed a value of $x2_{\text{count}} < x2_{\text{table}}$, this means that the initial test scores of the two groups were normally distributed.

Homogeneity Test, after the values of the two research groups were declared to be normally distributed, then the homogeneity value was sought. Homogeneity test using pretest data of experimental class and control class learning outcomes. The test criteria for the two sample groups are said to be homogeneous if $F_{\text{count}} < F_{\text{table}}$, at $\alpha = 0.05$. According to (Sudjana, 2002), if $F_{\text{count}} < F_{\text{table}}$ means that the sample class data has a homogeneous variance, otherwise if $F_{\text{count}} > F_{\text{table}}$ means that the sample class data is not homogeneous. The homogeneity test results can be seen in the table below:

Table 3. Of results of homogeneity test analysis

Data	F_h	F_t	Information
Pretest	1.61	1.83	homogeneous variant

From the test above, it was found that the F_{count} value was smaller than the F_{table} price for an error level of 5%, so it could be concluded that the variance of the pretest data was homogeneous. For complete calculations, see the attachment to the pretest homogeneity test.

Hypothesis Test

Pengujian hipotesis dilakukan dengan menggunakan uji-t, yaitu berdasarkan perbandingan t_{hitung} with t_{table} , as the basis for making decisions (Sugiyono, 2011): a) If arithmetic statistics (t_{count}) > table statistics (t_{table}), then H_0 is rejected and H_a is accepted, b) If the arithmetic statistics (t_{count}) < t_{table} statistics (t_{table}), then H_0 is accepted and H_a is rejected.

Before testing the hypothesis, the average similarity of the two groups was first tested to determine the initial ability of the control group and the experimental group. Statistical hypothesis, H_0 : there is no significant difference between the pretest results of students in the control class and the experimental class. H_a : there is a significant difference between the pretest results of students in the control class and the experimental class. The following is the data from the t-test results with the help of SPSS 17.0.

Table 4. Of results of the initial ability t-test pretest

		Indeopendent Samples Test								
		Levene's Test for Equality of Variances			t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Nilai	Equal variances assumed	_.947	_.335	_.417	52	_.678	1.8544	4.4434	10.7707	7.0619
	Equal variances not assumed			_.415	48.903	_.680	1.8544	4.4733	10.8442	7.1354

Based on the table above, the results of the analysis show that the Pvalue Sig. = 0.678 > 0.05 then H_0 is accepted and H_a is rejected. Then if we compare t_{count} and t_{table} ($0.417 < 2.021$) with df (degrees of freedom) = $n1 + n2 = 54$, it shows that H_0 is accepted and H_a is rejected. So it can be concluded that there is no significant difference between the pretest results of students in the control class and the experimental class. After doing the average similarity test, then proceed with the hypothesis test. The following are the results of hypothesis testing with the help of SPSS 17.0

Table 5. Of results of hypothesis testing with the Independent Sample Test

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Interval of the Difference	Confidence of the
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Nilai	Equal variances assumed	1.61	.252	4.775	52	.0001	-10.7830	2.2582	-15.3145	-6.2515
	Equal variances not assumed			4.722	45.829	.001	-10.7830	2.2835	-15.3799	-6.1860

We will see in the F test column, if the significance is > 0.05 then the assumption is that the variance is the same otherwise if $\text{Sig.} < 0.05$ then the variance is not the same. From the results of the hypothesis test for the Levene Sig test. $0.252 > 0.05$ this shows that the variance is homogeneous. With $\alpha = 0.05$. From the column t test shows that the value of $P = 0.0001$ for the 2-tailed test. Value $\text{Sig.} = 0.0001 < 0.05$ then H_0 is rejected and H_a is accepted. And when compared between tcount and ttable ($4.775 > 2.021$) with df (degree of freedom) $= n_1 + n_2 - 2 = 52$, it shows that H_0 is rejected and H_a is accepted, meaning that the value of student learning outcomes using animated media is greater from the learning outcomes of students who use conventional media. So from the statements and calculations above it can be concluded that animation media has a positive influence on its use.

Conclusions

Based on the results of the research and discussion described here, the following conclusions can be drawn: The value of student learning outcomes using animation sources is greater than student learning outcomes using traditional media (blackboards) for class XI budget planning (RAB) at SMK N 3 Yogyakarta. Differences in learning outcomes can be identified by analyzing test results. Students are tested using the Formula T-Test (Independent Sample Test). Win Parvo (sign.) $0.0001 < 0.05$. From the devices tested, students can be seen to have better learning outcomes for class leadership and classroom budgeting experiments (RAB).

The increase in the average pretest for the control class was 46.54 and the average posttest score was 64.04 while the pretest average was 48.39 for the experimental class and the average score after the test was 74.82. About the research results. This shows the impact of different means on learning outcomes between the control class and the experimental class, with the control class using a conventional environment (board) with an average of 17.50 and the experimental class using animation media with moderate magnification 26.43.

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