

THE IMPACT OF IMPLEMENTING GOOGLE SITES AS AN INTERACTIVE MULTIMEDIA LEARNING MEDIA ON INCREASING STUDENT LEARNING ACHIEVEMENT

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Abstract

The aim of this research is to examine the impact of implementing Google Sites as an interactive multimedia learning medium on increasing student learning achievement. Interactive multimedia learning media using Google Sites provides students with the opportunity to access study material again at home. The type of research that researchers use is quasi-experimental with only one experimental class. This research is quantitative research with an instrument for measuring learning achievement in the form of 10 multiple choice questions. The results of the research state that there is an important impact from the application of Google Sites as an interactive multimedia learning medium on student learning achievement in vibration and wave material with a significance value of 0.90 which exceeds the limit value of 0.05. The average pre-test score obtained was 45.87, while the average post-test score was 87.45. The percentage increase in student learning achievement through the application of Google Sites as an interactive multimedia learning media was 91% or it could be said that the use of Google Sites as an interactive multimedia learning media was effective on increasing student learning achievement.

Keywords: Learning Media, Google Sites, Learning Achievement

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INTRODUCTION

The 21st century has now entered two decades and is known as the age of knowledge. Today, life is based on technology, which includes education, social, economic and industrial development. Indonesia must balance these developments so that life can develop according to its times, especially through education (Martini, 2018). One way to build the character needed is through learning that integrates literacy, skills, knowledge, attitudes and mastery of technology (Efriliyani, 2019).

Learning in the 21st century is student-centered learning, students are given the freedom to search for learning resources (Afni et al., 2021). The Indonesian government supports 21st century learning implemented in the Merdeka Curriculum, namely 1) critical thinking and problem solving, 2) creativity and innovation, 3) communication, and 4) collaboration, or known as 4C skills (critical thinking and problem solving, creativity and innovation, communication, collaboration) (Aslamiah et al., 2021). In the 21st century, moral education is a need that must be met (Foroushani et al., 2012), so that students will later become superior individuals not only in the cognitive and affective fields but also affectively. Learning is also packaged in an innovative way, not monotonous with rote memorization methods like education in the previous century. Direct involvement can provide meaningful experiences for students. One of them is learning that involves more discussion activities among students (Teo, 2019), the use of varied digital-based media by utilizing sophisticated technology will become one of the trendy learning strategies in the 21st century (Peña-Ayala, 2021).

Physics is part of natural science (IPA) which studies natural phenomena and explains the mechanisms by which these phenomena occur. Physics learning is related to two important things, namely process and results. In terms of the process, the aim is to develop scientific involvement in each student, in this way students obtain evidence or facts, develop theories and concepts, and foster a scientific attitude that is able to improve aspects of the results or quality of learning, especially in physics learning (Dwi Apriyani, et al., 2017).

Teachers experience difficulties in transferring knowledge, especially in teaching physics to students. The process of transferring knowledge or physics concepts from teachers to students has not run optimally, resulting in slow students' understanding of physics material. Today's educators are expected to have the skills to use advanced technology as a tool in the teaching and learning process with the aim of improving the quality of education. Media is a means of communicating information and messages or learning materials from teachers to students. Learning media are learning tools used by teachers to increase students' understanding (Nurrita, 2018). Interactive learning media is a type of digital learning media that makes the teaching and

learning process easier by displaying lesson material in the form of writing, images, audio, and also animation. The use of learning media also helps the learning process and makes the delivery of learning material or topics more interesting (Pubian & Herpratiwi, 2022). Students consider interactive multimedia learning media to be interesting and fun and can arouse their interest in learning. On the other hand, students are less interested in learning media that only focuses on textbooks (Arlen, et al. 2020). Therefore, achievement of learning objectives can be achieved if a teacher uses correct and appropriate learning media.

Learning achievement is the result that teachers use to assess students' cognitive skills. Apart from that, learning achievement also includes transformations in individual students' attitudes, abilities and behavior after experiencing the teaching and learning process (Siahaan, et al. 2022). Student learning achievement is the achievement achieved by students academically through exams and assignments, active asking and answering questions that support the achievement of these learning outcomes. In academic circles, the idea often arises that educational success is not determined by a student's grades listed on a report card or diploma, but the measure of success in the cognitive field can be determined through a student's learning outcomes. According to Syaiful Bahri Djamarah and Aswan Zain in Supardi (2015), to find out indicators of learning success can be seen from "students' absorption capacity and the behavior seen in students. The intended learning outcomes are the learning achievements achieved by students based on predetermined criteria or grades." Meanwhile, according to Nana Sudjana, the cognitive domain concerns students' intellectual learning achievements which consist of six aspects, namely knowledge or memory, understanding, application, analysis, synthesis and evaluation. This domain places more emphasis on the ability to think logically and rationally. Meanwhile, according to Suprijono in Thobroni (2016) learning achievement is patterns of actions, values, understandings, attitudes, appreciation and skills. Student learning achievements obtained through education will be able to compete in various activities of community life.

In research by Nuryati, et al. (2022) stated that currently web-based interactive learning media attracts students' attention in learning. This media is one of various interactive learning media innovations at this time. Web-based learning media that is easy to reach and access for students and teachers is considered to have the potential to influence student learning outcomes.

One of the media that supports improving the quality of learning is Google Sites. Google Sites is an application designed by Google by creating links or web links for learning purposes or other things. Google Sites allows web users to combine information and messages in one display, which includes videos, presentations, text attachments, and other media that will be shared according to the user's needs. The application of Google Sites can be accessed for free or free of charge and can be accessed by everyone as long as they have a Google account. The process of creating web-assisted learning media using Google Sites is very simple and easy for teachers. Google Sites can be used by teachers to upload more than one piece of information or learning material such as text, graphics, illustrations, links, videos, as well as audio (sound) so that learning becomes exciting for students (Utami & Putra, 2022).

Based on this explanation, researchers are interested in exploring solutions to the topic of interactive multimedia learning media by conducting research with the research title The Impact of Implementing Google Sites as an Interactive Multimedia Learning Media on Increasing Student Learning Achievement with the aim of examining whether there is an impact from implementing Google Sites as a media or facility. learning towards increasing student learning achievement

RESEARCH METHODS

This type of research is a quasi-experiment with the aim of exploring whether there is an impact of a factor applied to students. This research used only one experimental class without a control class and was given a pre-test and post-test in the research treatment process. The research design can be explained as listed in table 1 below.

Table 1. One Group Design

Sample Class	Pre Test	Treatment	Post Test
Experimental Class	X ₁	Y	X ₂

Source: (Creswell, 2002)

For your information:

X₁ = Pre Test

X₂ = Post Test

The research was carried out in the ganjil semester of the 2023/2024 academic year at Sibolga Catholic High School. The implementation time is Monday, March 4 2024. The population of this research is the total

of four classes of XI MIPA at Sibolga Catholic High School. Class XI MIPA 2 was the sample for this research. This sample was determined by applying purposive sampling technique.

The research procedure consists of the following steps: (1) Pre-research, (2) Carrying out a pre-test for the experimental class, (3) Providing treatment with interactive multimedia learning media using Google Sites, (4) Carrying out a post-test for experimental class students, (5) Investigate the students' pre-test and post-test data, and the final step is (6) provide a conclusion or summary of the research results.

The instrument that researchers used for data collection was a student learning achievement test instrument on vibration and wave material. The test instrument was given twice, namely pre-test and post-test. The test instrument is a multiple choice with four options. The test instrument covers the cognitive domain of Bloom's revised taxonomy, namely remembering, understanding, applying, analyzing, evaluating and finally creating. Before use, the test instrument is validated by a validator. The validity used is content validity which measures the extent to which the test is in accordance with specific objectives which are in line with the vibration and wave material provided in interactive multimedia learning media using Google Sites.

A hypothesis is a temporary assumption that must be tested through research. The hypothesis in this research is described as follows.

H_0 : The implementing of Google Sites as an interactive multimedia learning medium has no impact on increasing student learning achievement in vibration and wave material in Class XI MIPA 2 Sibolga Catholic High School.

H_a : The implementing of Google Sites as an interactive multimedia learning medium has an impact on increasing student learning achievement in vibration and wave material in Class XI MIPA 2 Sibolga Catholic High School.

H_0 will be accepted if the significance value is less than 0.05, while H_a will be accepted if the significance value is more than 0.05.

The data analysis technique in this research is to test the research hypothesis with a t-test to determine whether there is an impact and influence of implementing Google Sites as an Interactive Multimedia Learning Media on Increasing Student Learning Achievement. Next, an N-Gain test was carried out to determine the effectiveness of implementing Google Sites as an interactive multimedia learning medium on increasing student learning achievement.

The interpretation categories for N-Gain effectiveness in the form of percent (%) are described in table 2 below.

Table 2. N-Gain Effectiveness Interpretation Category

Percentage (%)	Category
< 40%	Ineffective
40% - 50%	Less Effective
51% - 75%	Effective Enough
> 75%	Effective

Source: (Nasir, et al., 2019).

RESEARCH RESULTS AND DISCUSSION

The research results include descriptive analysis of each research variable. There are two variables in this research, where the independent variable is the application of Google Sites as an interactive multimedia learning medium and the student learning achievement variable is the engagement variable. After that, the classical assumption test is carried out as a requirement before testing the hypothesis.

Table 3. Results of Statistical Analysis of Classical Assumption Tests

	N	Min	Max	Mean	Std. Deviation
<i>Pre test</i>	30	10	80	45,87	19,55
<i>Post test</i>	30	70	100	87,45	10,58

Based on the data in table 3, it can be seen that the average pre-test score for the experimental class was 45.87 where the total sample was 30 students who were given 10 questions. The minimum score obtained from the pre-test results is 10, while the maximum score is 80 with a standard deviation of 19.55. For the experimental class post-test score, the average was 87.45 with the same total sample of 30 students and the same number of questions, namely 10 questions. The minimum post test score is 70, while the maximum score is 100 with a standard deviation of 10.58.

The researcher then carried out hypothesis testing in a paired t-test (paired sample t-test) on the SPSS 26 application. This hypothesis testing was carried out in order to analyze whether there was a difference

between the increase in student learning achievement before and after implementing Google Sites as an interactive multimedia learning medium.

The results of the hypothesis test will be described in table 4.

Table 4. Hypothesis Test

Paired Samples Correlations				
		N	Correlations	Sig.
Pair 1	Pre Test and Post Test	30	0,032	0,90

Based on the data in table 4. Hypothesis testing shows that H_a is acceptable because the significance value is $0.90 > 0.05$. Thus, the conclusion that the researchers reached was that the implementing of Google Sites as an interactive multimedia learning medium had an impact on increasing student learning achievement in the subject of vibrations and waves at class XI MIPA 2 Sibolga Catholic High School. From the results of the tests that have been carried out, significant differences were obtained between the pre-test and post-test results. Next, an N-Gain test was carried out to determine the effectiveness of implementing Google Sites as an interactive multimedia learning medium on increasing student learning achievement. The results of the N-Gain test showed that the percentage increase in student learning achievement through the implementing of Google Sites as an interactive multimedia learning media was 91% or it could be said that the implementing of Google Sites as an interactive multimedia learning media was effective on increasing student learning achievement.

This result is also relevant to previous research which shows that Google Sites-based learning media has an influence on student learning outcomes in class X of SMK Negeri 6 Bungo with an influence of 7.14. This means that the average post-test score for the experimental type is higher than for the control type. This shows that Google Sites-based learning media has a significant impact on achieving student learning outcomes in Basic Electricity and Electronics subjects (Japrizal & Irfan, 2021).

This research shows that the implementing of Google Sites as an interactive multimedia learning media has an impact on increasing student learning achievement in vibration and wave material in Class XI MIPA 2 Sibolga Catholic High School. Interactive multimedia learning media using Google Sites also provides advantages for students because it can be reached and accessed via the website without the need to download an application so it can save internet quota. Apart from that, this media provides an opportunity for students to review learning material at home because it can be reached and accessed anytime and anywhere.

CONCLUSION AND RECOMMENDATION

A. Conclusion

The implementing of Google Sites as an interactive multimedia learning media has an impact and influence on improving student learning outcomes on vibration and wave material in Class XI MIPA 2 Sibolga Catholic High School. This is proven by the significance value of 0.90 which is greater than 0.05. The average pre-test score obtained was 45.87, while the average post-test score was 87.45. The results of the N-Gain test showed that the percentage increase in student learning achievement through the application of Google Sites as an interactive multimedia learning media was 91% or it could be said that the implementing of Google Sites as an interactive multimedia learning media was effective on increasing student learning achievement.

B. Recommendation

Recommendation for future researchers are that future researchers should not only base pre-test and post-test scores as indicators of increasing student learning achievement, but also by considering other aspects, such as students' conceptual understanding, students' learning motivation, and problem-solving skills. Also include feedback and evaluations from users (both teachers and students) regarding their experiences when accessing Google Sites as an interactive multimedia learning media for future development and improvement of this learning media.

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