

THE INFLUENCE OF MICROSOFT SWAY MEDIA ON LEARNING OUTCOMES IN NATURAL SCIENCE SUBJECTS IN GRADE V STUDENTS

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Abstract

Learning Natural Sciences in elementary schools is still considered a subject that is difficult to understand. This is evidenced by the scores of student learning outcomes which are still below the Minimum Completeness Criteria with a criterion score of 7.5. This study aims to analyze the influence of Sway's Microsoft learning media on student learning outcomes in Natural Sciences subjects. The research method uses quantitative research methods, a quasi-experimental model with a posttest-only control design pattern, and the type of instrument used uses a multiple choice test using 2 class samples. The experimental class uses Microsoft Sway learning media, and the control class uses conventional learning media. The results of this study indicate that the Microsoft sway learning media affects the learning outcomes of fifth-grade students in the Natural Sciences subject. This is supported by a hypothesis test with a result of $N_{sig} < N_{table}$ with a score of $0.00 < 0.05$. The results of the research obtained can be concluded that Sway's Microsoft learning media influences the learning outcomes of fifth-grade students in Natural Sciences subjects.

Keywords: Learning Outcomes; Natural Sciences; Microsoft Sway

Abstrak

Pembelajaran Ilmu Pengetahuan Alam di sekolah dasar masih dianggap sebagai mata pelajaran yang sulit untuk dipahami, hal ini dibuktikan dengan nilai hasil belajar siswa yang masih banyak dibawah Kriteria Ketuntasan Minimal dengan kriteria nilai 7,5. Penelitian ini bertujuan untuk menganalisis pengaruh media pembelajaran microsoft sway terhadap hasil belajar siswa pada mata pelajaran Ilmu Pengetahuan Alam. Metode penelitian menggunakan metode penelitian kuantitatif, model *quasi eksperimen* dengan pola *posttest only control design* dan jenis instrument yang digunakan menggunakan sebuah tes pilihan ganda dengan menggunakan 2 sampel kelas, pada kelas eksperimen menggunakan media pembelajaran microsoft sway dan kelas kontrol menggunakan media pembelajaran yang konvensional. Hasil penelitian ini menunjukkan bahwa media pembelajaran Microsoft sway berpengaruh terhadap hasil belajar siswa kelas V pada mata pelajaran Ilmu Pengetahuan Alam, hal ini didukung dengan uji hipotesis dengan hasil nilai $N_{sig} < N_{tabel}$ dengan skor $0,00 < 0,05$. Hasil penelitian yang diperoleh dapat disimpulkan terdapat pengaruh media pembelajaran microsoft sway terhadap hasil belajar siswa kelas V pada mata pelajaran Ilmu Pengetahuan Alam.

Kata Kunci: Hasil Belajar; Ilmu Pengetahuan Alam; Microsoft Sway

Received : 2022-11-09

Approved : 2023-01-22

Revised : 2023-01-19

Published : 2023-01-31



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Introduction

The development of science and technology has brought significant changes to all aspects of life, one of which is education which has changed by incorporating technology into the world of education (Endra et al., 2020). Therefore, the task of the teacher as an educator is not only to be able to create a pleasant learning atmosphere but must be able to adapt to the development of science and technology and continue to innovate in the use of technology in the teaching and learning process at school (Festiawan, 2020). Learning can be successful if learning

has achieved the expected learning objectives, one of which is good learning outcomes for students (Hakim, 2018).

The use of technology at this time is arguably a primary need for human life. In everyday life, it can be found that humans often use information technology (Siti & Nurizzati, 2018). The influence of technology is undeniable. It has penetrated every aspect of human life in any aspect, including in the aspect of education. (Trisyanti & Prasetyo, 2018). The use of technology in the learning process can make it easier for teachers to provide information and natural science material taught to students as support for student learning success (Dewi et al., 2020).

Natural Science is a subject used as an initial foundation for students to have the knowledge, skills, and scientific attitudes in the natural environment around them (Mardiana, 2018). Natural science is learning that studies the conditions or phenomena of nature and its contents (Ardhani et al., 2021). one of the supporting factors for student learning success is using technology-based learning media in the learning process (Joon Woei et al., 2021). Technology-based learning media can make it easier for teachers to convey information to students and can make it easier for students to receive the information provided (Teni Nurrita, 2018).

Learning outcomes are a tangible manifestation of changes in knowledge, behavior, and observation in students while participating in learning both at and outside school (Umar Abdul Azis, 2022). Learning outcomes can also be interpreted as the final result of student success during the education process (Festiawan, 2020). Therefore, it is necessary to pay attention to the success of student learning in participating in Natural Science subjects in the classroom because Natural Science is one of the important lessons for students (Halimah et al., 2019).

The expected learning outcomes of Natural Science are when cognitive, affective, and psychomotor changes are obtained (Harsiwi & Arini, 2020). One of the successes of student learning can be seen through a written test done by students after getting learning in the classroom (Harefa et al., 2019). But in reality, problems still occur in the success of learning science. This is based on previous studies. As conducted by Made Wesyartha pander, Aswasulasikin, and Marhamah in 2022, in their research, it is known that the results of students' daily tests get relatively low average scores. Learning is still teacher-centered, and lack of use of learning media in Natural Science subjects (Pande et al., 2022).

Based on the problems in previous studies, there are similarities in the research conducted by the author based on observations and interviews. It can be seen that many students' learning outcomes in Natural Science subjects have not yet reached the minimum completeness criteria (KKM), with a score of 75 as the standard of student success in the teaching and learning process at school. This is due to the lack of technology-based learning media in the teaching and learning process in class, thus making learning relatively monotonous and potentially making students bored in participating in learning in the classroom.

So the use of technology-based learning media should be used in Natural Science subjects in classroom learning to make it easier for teachers to convey information or material to students, and students can be motivated and focused on learning in the classroom (Aji, 2018). One technology-based learning media that can be used is Microsoft Sway learning media (Ardian et al., 2020). Microsoft sway can make the materials taught on Microsoft sway media by displaying interesting and creative slides in learning, making it easier to convey information to students (Usman, 2020).

Previous research relevant to this study, conducted by (Pande et al., 2022), got positive results on student learning outcomes and critical thinking. This study has difference from researchers doing on variable y. Researchers focus on student learning outcomes. Then the research conducted by (Junaedah & Nafiah, 2020) has positive results also on improving student

learning outcomes with a focus on improving learning outcomes in grade II elementary schools. The influence of Microsoft sway media was conducted in grade V. The previous research (Alif & Putri, 2021) showed that using Microsoft Sway is effective in distance learning. Researchers want to determine the effect of using Microsoft Sway on face-to-face learning.

Therefore, researchers are interested in conducting a learning innovation by using learning media utilizing technology to support learning success, using Microsoft Sway media to analyze the effect of Microsoft Sway learning media on the learning outcomes of fifth-grade students in Science subjects.

Research Methods

This study uses a quantitative research method with a *quasi-experiment* model using a posttest-only control design in which the determination of the experimental class and control class is not randomly selected and only gives a test at the end of learning in this study. Experimental classes get special treatment using Microsoft Sway learning media, and control classes use conventional learning media.

The difference in treatment between the experimental class and the control class to find out the effect of Microsoft Sway learning media. This research was conducted at SDN Kramat jati 19 by making class V as the population, then using class VA as the experimental class and class VB as the control class as the sample of this study.

The research instrument used is a test at the end of the learning carried out (Post- Test) as reinforcement based on facts in finding the effect of Microsoft Sway learning media on learning outcomes in this study. The test questions made have been adjusted to the instrument lattice in Natural Science subjects with material on the digestive organs of animals and humans in class V. The questions to be tested have been validated by material experts and tested in classes other than experimental and control classes by getting 38 questions tested. There are only 30 questions that are worth testing after conducting validity and reliability tests in this study.

In this study, several procedures must be carried out, the research procedure uses 3 stages of procedures from the preparation stage to the final stage. (1) The initial stage is preparation, at this stage the researcher, compiles learning tools and research instruments in the form of instrument grids and questions that have been evaluated by material experts, and conducts instrument trials on students then calculates validity tests and reliability tests using the Microsoft Excel application as a calculation tool; (2) The implementation stage, this stage provides treatment or learning in the classroom by giving special treatment to the experimental class using Microsoft Sway and the control class does not get special treatment by using Microsoft Sway media and ends by giving posttests to students; and (3) The final stage, this stage performs a calculation of the data that has been collected by conducting a normality test, homogeneity test and hypothesis testing, in this calculation using the IBM SPSS Stastic application as a tool in facilitating the calculations carried out and concluding the hypothesis and writing the results of the research hypothesis (Khofifah Indra Sukma, 2022).

A validity test is a test conducted to see a measure that shows the validity or validity of an instrument, and invalid instruments cannot be used in research (hermawan, 2018). The Validity Test was conducted at SDN Bambu Apus 04 on the number of respondents, as many as 30 students, with the number of instruments used as many as 38 questions. Based on known provisions $r_{tabel} > r_{tabel}$ dengan r_{tabel} 30 students adalah 0,361.

Table 1. Validity Test

Result in	Total	Question Number
Valid	30	4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20 22,23,24,27,29,30,31,32,33,34,35,36,38,39,4
Drop	8	1,2,3,21,25,26,28,37

Based on the table above, it can be seen that the results of the validity test obtained results as many as 30 questions can be declared valid because $r_{hitung} > r_{tabel}$ and eight questions are declared invalid because $r_{hitung} < r_{tabel}$. So it can be concluded that out of 38 questions tested on 30 student respondents, 30 are valid, and eight are invalid or cannot be used in research.

The reliability test determines the level of stability of the questions tested. The level of reliability of the instruments used in this study. The instrument can be declared reliable if $r_{hitung} > r_{tabel}$ and see from the level of provisions of the reliability category.

Table 2. Reliability Test

r_{hitung}	r_{tabel}	result	description
0,838	0,361	$r_{hitung} > r_{tabel}$	Instrument is reliable

Based on the calculations that have been carried out, it can be seen that the results obtained from this reliability test after calculation get a value of r_{hitung} 0,838 $>$ r_{tabel} 0,361 with the "very high" category of the reliability test that has been carried out. Therefore, it can be concluded that the results of this reliability test can be said to be reliable and feasible to use in research instruments with a very high classification for this reliability result.

The hypothesis test used in this study uses an independent sample t-test. A hypothesis is a quick answer or conjecture that needs to be sought from a study conducted. (Sugiyono, 2019). The hypotheses in this study are H_0 = There is no effect of using Microsoft Sway learning media on student learning outcomes and H_1 = there is an effect of using Microsoft Sway learning media on student learning outcomes.

Results and Discussion

Researchers conducted several statistical tests carried out with the help of the IBM SPSS Statistics application to obtain accurate results from the research conducted by using Microsoft Sway media on the learning outcomes of grade V students in Science subjects. Before conducting hypothesis testing, you must conduct normality and homogeneity tests.

A normality test is a test carried out to assess the distribution of data in a data group or variable and whether the data distribution is normally distributed. The Normality Test is useful for determining whether the data that has been collected is usually distributed or taken from an average population. Data can be said to be typical with the provisions of the level $sig_{hitung} > sig_{tabel}$, The results of the normality test are as follows :

Table 3. Normality Test

Class	sig_{hitung}	sig_{tabel}	result	description
Experiment	0,200	0,05	$sig_{hitung} > sig_{tabel}$	Normal
Control	0,162	0,05	$sig_{hitung} > sig_{tabel}$	Normal

Based on the table above, it can be seen that the value of sig_{hitung} The experimental class is 0.200, and the control class is 0.162, meaning that the significant value in both classes is greater than 0.05 so the data obtained in the control class is regular or normally distributed. So it can be concluded that the normality test carried out in the experimental and control classes has a normal distribution and can be continued in the homogeneity test calculation.

The homogeneity test is a test conducted to determine whether the data obtained from the experimental class and control class are homogeneously distributed, with the level of provisions $sig_{hitung} > sig_{tabel}$ To be declared homogeneous distribution data. The following are the results of the homogeneity test calculation:

Table 4. Homogeneity Test

Class	sig_h	sig_t	result	description
Experiment & Control	0,609	0,05	0,609>0,05	Homogen

The control class and experimental class data obtained from sig_{hitung} 0.609 and with a determination level of $sig_{hitung} > sig_{Tabel}$. So it can be concluded H_0 accepted and stated that the data is usually distributed because sig_{hitung} is greater than sig_{Tabel} So it can be concluded that the data results obtained are homogeneously distributed.

In the hypothesis test using the independent sample t-test formula as a conclusion drawer from the research that has been done on whether there is an influence from Microsoft Sway media, in this test, it has criteria provisions with count < table.

Table 5. Independent sample t-test

t_{hitung}	t_{tabel}	criteria	Description
0,00	0,05	0,00 < 0,05	There is an Influence

Based on the table above, it is known that the calculated value < table with a score of $0.00 < 005$. This significance can be concluded that using Microsoft sway media in learning affects the learning outcomes of fifth-grade students in Natural Science subjects.

This is also based on the difference in the average learning outcomes of the experimental and control classes during the study, with the experimental class getting special treatment using Microsoft Sway as a learning medium. In contrast, the control class did not get special treatment using Microsoft Sway media as a learning medium.

Table 6. Average student learning outcomes

Class	Number of students	Average
Experiment	30	82,13
Control	30	73,29

Based on the difference in the table above, it is known that the average experimental class gets a score of 82.13 while the control class is 73.29, with a number of each respondent 31 students. This shows that the use of Microsoft Sway learning media can affect the learning outcomes of grade V students in Natural Science subjects. And it can be concluded that Microsoft sway media influences the learning outcomes of fifth-grade students in natural science subjects.

The results of this study are relevant to previous studies conducted by (Pande et al., 2022) that the use of Microsoft Sway affects critical thinking and improves learning outcomes. Then from research conducted by (Saheriestyan & Primasatya, n.d.) that Microsoft Sway can make students more focused on learning so that it can improve student achievement. Microsoft Sway media is not only for Natural Science subjects but can be used in other subjects, such as research conducted by (Pangeli et al., 2022). This media can improve student learning outcomes in German language subjects with a positive response of 70.85% because this media can motivate students to learn.

This study's results follow previous research (Maghfiroh, 2018), which suggests that the use of word wall media can improve student learning outcomes. Furthermore, the research results (Isnaeni & Hildayah, 2020) suggest that using learning media can make students more enthusiastic about learning and interacting well. This is reinforced by the statement (Wahyuningtyas & Sulasmono, 2020) that learning media has a vital role in improving learning outcomes because it can make the learning process fun and not monotonous so that it can attract students' attention to participate in learning. Furthermore, it is argued that learning media can motivate students to improve their learning outcomes (Harsiwi & Arini, 2020).

The difference in learning outcomes between the experimental and control classes is based on the use of learning media. In the experimental class, during the learning process in the classroom, students' enthusiasm was high in accepting the material taught with the use of Microsoft Sway illustrated in the teaching and learning process in class. This causes student motivation in learning to increase so that, which could affect student learning outcomes. Conversely, students' enthusiasm for accepting learning was relatively low in the control class.

With the previous explanation, it can be used as a reference by teachers in carrying out the teaching and learning process using learning media because the main task of teachers at this time is not only teaching to convey material to students but must produce the golden generation. In the future that they can compete with the changing era and the demands that must be made (Siregar & Mansyur, 2021). Therefore, teachers at this time must be able to utilize technology-based learning media to influence student learning success to prepare a golden generation (Zulvira, 2022).

In the success of student learning, the use of Microsoft Sway media can be used as one of the supporting factors for learning success students during the teaching and learning process in school. (Harsiwi & Arini, 2020). In education, learning media can be used as a bridge in conveying information from teachers to students. (Ardian et al., 2020). Microsoft Sway media is one way to utilize technology in the educational aspect as a tool to facilitate students in learning. (Febrinasti et al., 2021).

Thus, this research has a positive impact on the use of Microsoft Sway media, which affects student learning outcomes and can provide a solution to overcoming low student learning outcomes, especially in natural science subjects.

Conclusion

Based on the explanation of the previous discussion, it can be concluded that there is an effect of Microsoft Sway media on student learning outcomes when compared to not using digital technology-based media. The use of technology-based learning media can make students more active and motivated in the learning process in the classroom

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