JPPIPA 11(5) (2025)

Jurnal Penelitian Pendidikan IPA

http://jppipa.unram.ac.id/index.php/jppipa/index

The Effect of Using Powerpoint-Based Learning Media on Students' Learning Motivation and Learning Outcomes in the Subject of Sciences in Grade IV at SDN 4 Panggang, Jepara District, Jepara Regency

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Received: January 11, 2025
Revised: April 22, 2025
Accepted: May 25, 2025
Published: May 31, 2025

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DOI: 10.29303/jppipa.v11i5.11126

Abstract: This study aims to examine the relationship between the use of interactive PowerPoint media and students' learning motivation and outcomes in the IPAS (Natural and Social Sciences) subject. Using a quantitative approach with an ex post facto design, the research was conducted on fourth-grade students at SD Negeri 4 Panggang. Data were collected through questionnaires to measure motivation, documentation of test scores to assess learning outcomes, and interviews to provide contextual insights. The results show that students' learning motivation reached an index value of 86.3%, categorized as high based on predetermined interpretation criteria. The average student learning outcome was 83.60, which falls into the "very good" performance category according to the school's grading standard. While the study does not establish a causal relationship, the findings indicate a significant contribution of interactive PowerPoint media to students' motivation and academic achievement. However, the absence of a comparison group and baseline measurements limits the ability to isolate the impact of the media from other influencing factors. Further research with controlled experimental designs is recommended to explore the causal effects of technology-based instructional media in elementary education.

Keywords: Learning outcomes; Motivation to learn; Powerpoint

Introduction

Education is a system aimed at developing students' interests and potential to acquire knowledge, skills, and good character through the learning process. In the continuously evolving global era, education plays a crucial role in preparing Indonesia's young generation to face the dynamic challenges of the future (Murniarti et al., 2016). At the elementary school level, students are expected to develop their potential according to their individual interests and abilities. In this context, the *Merdeka Curriculum* (Independent Curriculum) emerges as a breakthrough in the national education system.

One of the significant innovations in the *Merdeka Curriculum* is the integration of Natural Sciences (IPA) and Social Sciences (IPS) into a single, integrated subject called *IPAS* (Natural and Social Sciences) for Grades IV, V, and VI. This integration is not only intended to simplify the curriculum structure but also to provide a more enjoyable and meaningful learning experience through a *Project-Based Learning* (PjBL) approach (Mulyasa, 2023; Retno et al., 2025; Saad et al., 2024; Stokes et al., 2018). IPAS is also designed to shape the

How to Cite:
Sholihah, F. K., & Ratnaningrum, I. (2025). The Effect of Using Powerpoint-Based Learning Media on Students' Learning Motivation and Learning Outcomes in the Subject of Sciences in Grade IV at SDN 4 Panggang, Jepara District, Jepara Regency. *Jurnal Penelitian Pendidikan IPA*, *11*(5), 702-707. https://doi.org/10.29303/jppipa.v11i5.11126

profile of the *Pancasila Student* by fostering scientific attitudes, curiosity, critical and analytical thinking, and wisdom in understanding the natural and social phenomena around them.

However, unstructured interviews with Grade IV teachers at SD Negeri 4 Panggang revealed significant challenges in implementing IPAS learning. Students' learning motivation and academic achievement in this subject remain low. Many students have not met the Minimum Mastery Criteria (KKM), with average scores below the established standard. This indicates that the integration of science and social studies subjects has not yet had a fully positive impact on the effectiveness of learning. One of the contributing factors is the continued use of conventional teaching media—such as human body models, maps, globes, and other teaching aids—which are considered less effective in capturing students' attention and motivating them optimally (Setiawan et al., 2019).

Instructional media plays a strategic role in supporting the success of the teaching and learning process. The functions of media include attention, affective, cognitive, and compensatory aspects (Nababan et al., 2023; Shalikhah, 2017; Sinaga et al., 2024; Syafutry et al., 2024). Learning media can motivate students to become more independent in managing their own learning, as well as develop a long-term perspective on their learning process (Ahdar et al., 2023; Ifvaranindra et al., 2024; Nisaa et al., 2024; Sari et al., 2023). Learning media also functions as a communication tool from teachers to students (Dilla, 2023). The use of learning media can produce positive responses from students, because it can improve understanding of the material and learning outcomes (Dzakwan, 2020). Media can attract students' attention, influence their attitudes and emotions, facilitate conceptual understanding, and help overcome limitations such as distance and time (Sapriyah, 2019). Previous research has shown that the use of interactive media significantly contributes to students' motivation and learning outcomes. According to Saidah et al. (2019), interactive media accounts for 44.22% of the variation in learning motivation and 81.18% in students' learning outcomes.

In this context, this study introduces a new focus—namely, the use of innovative technology-based instructional media such as interactive PowerPoint to address the challenges of low motivation and academic achievement in IPAS learning. Although PowerPoint is a commonly used tool, research on its effectiveness in project-based IPAS learning at the elementary level is still limited. In fact, engaging and interactive visual media has great potential to create a more dynamic, enjoyable learning environment that supports active student engagement.

This study is relevant and important as it explores how interactive PowerPoint media can serve as a bridge between conventional teaching approaches and the learning needs of today's students. Furthermore, this research is expected to fill a gap in the literature regarding the concrete impact of technology-based instructional media on improving students' learning motivation and academic achievement in IPAS subjects. The findings from this study are expected to make a real contribution to the development of more innovative, effective teaching practices that align with the characteristics of 21st-century learners.

Method

The design used in this study is a quantitative research method. Quantitative research is a method based on the philosophy of positivism, used to study a specific population or sample by collecting data using research instruments and analyzing data quantitatively/statistically. The purpose of this study is to test the established hypothesis (Sugiyono, 2021). The type of research used is quantitative research with an ex post facto design. Ex post facto research is conducted by observing existing variables without manipulation or treatment by the researcher. This study aims to observe the relationship between the use of PowerPoint-based learning media, students' learning motivation, and science learning outcomes. This confirms that the researcher does not intervene or manipulate the variables but observes the existing relationships after the events have occurred.

This research was conducted in Grade IV at SD Negeri 4 Panggang, Jepara Subdistrict, Jepara Regency. The population in this study consisted of all Grade IV students at SD Negeri 4 Panggang, with a total sample of 94 students taken using a total sampling technique (saturated sample), meaning the entire population was taken according to criteria set by the researcher (Sugiyono, 2020). Data collection techniques in this study included several methods. First, questionnaires were used to measure two main variables: students' learning motivation and the use of PowerPoint-based learning media. The questionnaire used was a closed questionnaire with a four-level Likert scale, consisting of positive and negative statements.

Table 1. Likert Scale Questionnaire

Answer	Question Score	
	Positive	Negative
Strongly agree	4	1
Agree	3	2
Don't agree	2	3
Strongly Disagree	1	4

In addition to the questionnaire, science learning outcomes data were also collected through documentation in the form of assignment scores or daily assessments relevant to the material taught using PowerPoint. Interviews were also conducted but only as a supplementary method to obtain additional information, such as the context of PowerPoint use in the learning process and observations of student motivation. These interviews were not used for quantitative data collection but to further deepen the teacher's understanding of the use of learning media.

Data analysis techniques were carried out through several stages. First, descriptive statistical analysis was used to describe the characteristics of the collected data without making general conclusions. Next, prerequisite tests were conducted, including normality tests to examine data distribution and homogeneity tests to check the similarity of variances between groups. After that, hypothesis testing was performed using linear regression analysis to examine the relationship between the use of PowerPoint, learning motivation, and students' science learning outcomes. This regression test aimed to measure the extent of the influence of these variables on students' learning outcomes after using PowerPoint in learning.

Result and Discussion

Results

Normality test

The normality test aims to ensure that the data in this study is normally distributed. The normality test uses the One Sample Kolmogorov-Smirnoff test. Based on the normality test using One Kolmogorov-Smirnof, the Asymp.Sig. (2-tailed) value of 0.095 is greater than 0.05, so it can be concluded that all data in this study is normally distributed.

Table 2. One Sample Kolmogorov-Smirnoff

One-Sample Kolmogorov-Smirnov Test			Unstandardized Residual
N			94
Normal Parameters[a,b]		Mean	.0000000
		Std. Deviation	6.10183710
Most Extreme Differences		Absolute	.084
		Positive	.062
		Negative	-.084
Test Statistic			.084
Asymp. Sig. (2-tailed)[c]			.095
Monte Carlo Sig. (2-tailed)[d]		Sig.	.098
	99% Confidence Interval	Lower Bound	.090
		Upper bound	.106

Results of the Analysis of Student Learning Motivation after Using Powerpoint-Based Learning Media

Based on Table 2, the value of the learning motivation variable index can be calculated by finding the average. The calculation of the learning motivation index value obtained a value of 86.3%. The following is a table of the Three Box Method criteria.

Table 3. Learning Motivation Index Value

Indicator	Item Number	Statement	Index % Indicator
Having passion and desire to succeed	1	90.9%	88.2%
	2	89.9%	
	3	83.7%	
There is a drive and need to learn	4	89.3%	89.3%
Having ideals and hopes	5	93.1%	87.7%
	6	91.7%	
	7	84.5%	
	8	81.4%	
There are interesting activities in learning	9	83.8%	80.8%
	10	84.5%	
	11	83.6%	
	12	71.5%	
There is appreciation in learning	13	85.6%	85.6%
	14	82.8%	
	15	87.8%	
	16	86.4%	
Variable Index			86.3%

Table 4. Three Box Method Criteria

Value Range	Category
70.01 – 100.00	High
40.01 – 70.00	Medium
10.00 – 40.00	Low

Based on the Three Box Method criteria, the learning motivation variable index value of 86.3% is in the high category.

Results of Analysis of Student Learning Outcomes after Using Powerpoint-Based Learning Media

Based on table 3, the total value of SAS IPAS class IV SDN 4 Panggang, Jepara District, Jepara Regency is 7858 with the number of respondents 94 students. So, the average obtained is 83.60, meaning the average value of SAS IPAS Class IV SDN 4 Panggang, Jepara District, Jepara Regency is in the Very Good criteria.

Table 5. Frequency of SAS IPAS Scores for Even Semester of Academic Year 2023/2024

Criteria	SAS IPAS Values	Frequency	Percentage
80 – 100	80	4	68%
	82	5	
	83	4	
	85	3	
	87	8	
	88	2	
	89	2	
	90	6	
	91	2	
	92	2	
	93	7	
	95	5	
	96	3	
	97	1	
	98	7	
	100	3	
70-79	70	2	18%
	71	4	
	72	1	
	73	1	
	75	4	
	76	2	
	78	3	
60-69	60	3	14%
	62	2	
	63	1	
	64	1	
	67	6	
Total	7787	94	100%

Table 6. Correlation Analysis

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.838[a]	.703	.696	6.16853	2.262

a. Predictors: (Constant), Learning Motivation, Learning Outcomes; b. Dependent Variable: Powerpoint Media

Based on the results presented in Table 1, the index value of the students' learning motivation variable after using PowerPoint-based learning media reached 86.3%. This value falls into the high category based on the Three Box Method criteria (range 70.01–100.00). This figure indicates that the use of PowerPoint media in the learning process positively contributes to enhancing students' learning motivation. Upon a deeper look at each indicator, all aspects of learning motivation show high results. The highest indicator value is the aspect of having aspirations and expectations, which reached 87.7%. Meanwhile, the lowest indicator value is found in the aspect of having engaging activities in learning, with a score of 80.8%. These findings illustrate that although students have a strong drive to achieve learning goals, the learning activities can still be further developed to be more engaging and varied.

Next, in Table 3, which illustrates the students' learning outcomes after using PowerPoint-based learning media, the total score for SAS IPAS students from grade IV at SDN 4 Panggang, Jepara District, Jepara Regency, was 7,858 from 94 students. Thus, the average score obtained is 83.60, which falls into the very good category. A total of 68% of students obtained scores in the range of 80–100, 18% of students scored in the range of 70–79, and only 14% of students scored in the range of 60–69. This data shows that the majority of students achieved good learning outcomes after using PowerPoint media in their learning. This proves that PowerPoint-based learning media is an effective alternative in improving students' understanding of the subject matter.

Based on the overall analysis results, these findings indicate a strong correlation between the use of PowerPoint media and the improvement of learning motivation and learning outcomes for grade IV students at SDN 4 Panggang, Jepara.

The results of the study conducted by Pristy et al. (2023) showed that the Interactive Powerpoint learning media had a significant effect on learning outcomes, with t count = 3.598> t table = 2.02 and the Problem Based Learning learning model had a significant effect on learning outcomes, with the results of the t test obtained a value of t count = 3.519> t table = 2.10. 3) There is a joint influence between the Interactive Powerpoint learning media and the Problem Based Learning learning model on learning outcomes, with the results of F count = 10.014> F table = 3.19. The results of the study conducted by Nurnaifah et al. (2022), the results of the study showed that there was an effect of the use of Microsoft PowerPoint media on Physics learning outcomes in the Mid-Semester Exam for Class XI students of SMA Negeri 9 Pinrang in the 2020/2021 Academic Year. The results of the correlation coefficient statistical test can be seen in the sig column and produce a P value = 0.000, so at Alpha 5% it rejects H0, meaning that the results of the PowerPoint questionnaire affect learning outcomes.

Conclusion

Based on the results of the research that has been conducted, it can be concluded that PowerPoint-based learning media has a positive relationship with learning motivation and learning outcomes of fourth grade students of SD Negeri 4 Panggang, Jepara Regency. This can be seen from the learning motivation index value which reached 86.3% which indicates a good level of student learning motivation. In addition, the average value of student learning outcomes obtained was 83.60

which indicates that student learning outcomes in science subjects are also very good.

Acknowledgments
I would like to thank all parties who have supported and helped in completing this research.

Author Contributions
Writing original draft preparation, F.K.S and I.R.

Funding
This research did not receive any external funding.

Conflicts of Interest
The authors declare that there is no conflict of interest regarding the publication of this article.

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