

Effect of Interactive Media on Fifth Graders' Learning Motivation at SDN 9 Ampenan

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ABSTRACT

Instructional media serve a pivotal function in facilitating the achievement of learning objectives. The integration of interactive learning media represents a significant innovation within the educational landscape, particularly in fostering enhanced learning motivation, encouraging students to engage more actively in the learning process. This study examines how interactive media influence fifth-grade students' learning motivation at SDN 9 Ampenan. Employing a quantitative approach with a quasi-experimental method, the research utilized a nonequivalent control group design. The population consisted of all fifth-grade students, with the sample comprising class Va (31 students) as the experimental group and class Vc (29 students) as the control group. Data were collected using a structured student motivation questionnaire. The results, analyzed using an independent sample t-test, revealed a calculated t-value of 8.061, which exceeds the critical t-value of 1.988 at a 5% significance level ($\alpha = 0.025$), with a p-value of $0.001 < 0.05$, indicating statistical significance. These findings suggest that the application of interactive media exerts a significant positive effect on the learning motivation of fifth-grade students at SDN 9 Ampenan.

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1. INTRODUCTION

In contemporary education, learning is expected to embrace student-centered approaches that actively foster learners' intrinsic motivation. Learning should not merely direct students toward finding answers but guide them in formulating meaningful questions as part of their cognitive development [1]. As highlighted by Hotimah et al [2], the primary objective of learning extends beyond behavioral change; it is to cultivate professional character and mental dispositions oriented toward a global perspective, which can be achieved through innovative and dynamic instructional practices. Such approaches emphasize the importance of holistic education, where students are not only recipients of

knowledge but active participants in the learning process. Such innovation addresses modern educational challenges by optimizing learners' potential and effectively utilizing available resources, encouraging joyful, engaged learning experiences.

Incorporating media into instructional practices serves as a transformative educational strategy, enabling students to discover and construct conceptual understanding more effectively, while aiding teachers in conveying complex ideas more easily. According to Rahmatih et al [3], instructional media help students grasp concepts by presenting content in a concrete and visually representative format. Media function as a pedagogical bridge between teacher and learner, as Marniati et al [4] noted, who emphasized that instructional media serve as conduits for transmitting educational content. This is reinforced by Athifah et al [5], who observed that the integration of media facilitates the delivery of instructional material, improves student comprehension, and helps maintain student focus throughout the learning process. Therefore, the strategic use of media not only enhances the quality of instruction but also promotes active learning and sustained student interest.

Numerous benefits are associated with the utilization of instructional media in classroom settings. Faturrahman et al [6] noted that such media can enhance students' willingness to learn and positively influence their psychological engagement. More specifically, Sansao et al [7] identified two major advantages: first, media foster interaction between teachers and students; second, they facilitate engaging content delivery, standardize instructional messages, promote effective communication, and optimize the use of time and energy. Batubara [8] further explained that advances in science, technology, and socio-cultural dynamics largely shape the evolution of instructional media. In this way, instructional media support pedagogical effectiveness and reflect broader trends in technological integration and educational reform.

According to Wina Sanjaya [9] and Ermiana et al. [10], instructional media can be categorized from several perspectives: (1) based on modality: (a) auditory media (e.g., radio), (b) visual media (e.g., photographs, illustrations), and (c) audiovisual media (e.g., videos); (2) based on distribution scope: (a) wide-reach media (e.g., television, radio), and (b) limited-reach media (e.g., slide films); (3) based on usage method: (a) projected media (e.g., OHP transparencies), and (b) non-projected media (e.g., printed images). These categorizations provide educators with a framework to select media that best suit their instructional goals and the characteristics of their students.

Bretz [11] groups media into several types, namely: 1) audio media; 2) print media; 3) still visual media; 4) motion visual media; 5) semi-motion audio media; 6) semi-motion media; 7) still audiovisual media; 8) motion audiovisual media. Gerlach and Ely [12] classify media from physical characteristics into several types, namely: 1) media from the original object (real object and model); 2) printed verbal presentation media (printed verbal); 3) printed visual media (printed visual); 4) photo media (still picture); 5) film or video tip (motion picture); 6) sound recording (audio recorder); 7) programmed instruction; 8) imitation of situations and conditions (simulation). These diverse classifications highlight the flexibility and richness of media options available for

instructional purposes, allowing tailored implementation based on content, context, and learner needs.

Among these categories, interactive instructional media are designed to stimulate student activity and enable direct and meaningful transmission of knowledge. Handini et al. [13] state that interactive media can create a refreshed classroom environment where learners demonstrate increased focus, enthusiasm, and active engagement. Zulfa et al [14] highlighted that interactive learning tools ignite student interest and promote independent learning and direct participation, contributing to more effective teaching and learning processes. Additionally, Rosmarlina et al [15] noted that such media assist educators in content delivery through customizable control features aligned with instructional goals. One example of widely adopted interactive instructional media is PowerPoint-based digital learning content. This form of media combines simplicity with versatility, making it a practical choice for enhancing classroom interactivity and accessibility.

Muthoharoh [16] stated that PowerPoint is a computer program for presentations developed by Microsoft and specifically designed to display multimedia programs (text/written elements, audio, and visuals simultaneously) attractively and stimulate active student activity. In line with what Aulia et al [17] stated, using interactive media based on PowerPoint can create active, innovative, and efficient learning situations and a comfortable learning atmosphere. In addition to using learning media, teachers and parents also play an important role in motivating students, thus enabling the effectiveness of the learning process. Citing findings by the Program for International Student Assessment (PISA) 2022, Indonesia is ranked 70th out of 75 countries in student engagement and self-motivation [18]. This underscores the urgent need to adopt instructional strategies and media that foster greater student engagement and learning enthusiasm.

These facts indicate that the quality of education in Indonesia is very poor. Based on this reality, several factors certainly hinder the progress of education in Indonesia. Suncaka [19] stated that the determinants of the success of an education system include several factors, namely students, the role of a teacher, economic conditions, facilities and infrastructure, and the environment. Noeryuliza et al. [20] stated that some schools still rely on textbooks and conventional media in the learning process, leading to a lack of active participation from the students. Symptoms that are considered to hinder the success of the learning process were also found at SDN 9 Ampenan, such as teachers still using the lecture method, completing assignments using textbooks, learning media in the form of posters/pictures, and the absence of the use of projectors or computers in the learning process. The lack of facilities and infrastructure in the form of learning media is one of the factors that hinders the success of a learning process. These observations reflect systemic issues that must be addressed to promote meaningful and equitable educational outcomes.

Moreover, researchers identified clear symptoms of diminished student motivation and classroom engagement, such as boredom, procrastination in completing assignments, inattentiveness, and a tendency to be distracted during lessons. These behaviors are believed to contribute to poor academic performance, particularly in science, as reflected in the average achievement rate of only 57.5%, which falls below the minimum mastery criteria (KKM) of 75. Drawing from both the PISA report and the school-based findings, it

becomes evident that intervention is required to address students' low motivation and engagement in learning. In response, this study was undertaken under the title: The Effect of PowerPoint-Based Interactive Media on the Learning Motivation of Fifth Grade Students at SDN 9 Ampenan. This research explores whether the strategic use of interactive digital media can solve motivational challenges and foster a more engaging learning environment.

2. METHOD

This study used a quantitative experimental approach with a quasi-experimental design based on a nonequivalent control group design. This design consisted of two groups: one group as the experimental group receiving treatment, and the other as the control group without treatment. This study was conducted at SDN 9 Ampenan, Jl. Gotong Royong No. 70 Pejeruk, Ampenan District, Mataram City, West Nusa Tenggara 83511. The study was conducted in the odd semester of the 2024 academic year, from November 2024 to December 2025. The population of this study was all fifth-grade students of SDN 9 Ampenan, consisting of 31 students from class VA, 26 from class VB, and 29 from class VC. The sample was made up of 31 students from class VA and 29 students from class VC.

The research design used in this study was a nonequivalent control group design. In this research design, subjects were randomly selected for participation in the study. In this design, there are two groups of subjects, one group as the experimental group receiving treatment and the other as the control group without treatment, with both groups given the same research instrument as a pretest and posttest [21]. The design of this study can be seen in Table 1 below:

Table 1. Pretest and Posttest Control Group Design

Class	Pretest	Treatment	Posttest
Experiment	0 ₁	x	0 ₂
Control	0 ₃	-	0 ₄

The data collection techniques in this study used questionnaires and documentation. A questionnaire is a series of questions compiled using a measurement tool for research variables [22]. Documentation was used as a supporting technique to obtain and complete the data needed by the researcher. The documentation method was used to obtain authentic supporting data in the form of images or photographs of student learning activities, as well as learning materials such as teaching modules, lesson plans, textbooks, student worksheets, and learning media used by teachers during the learning process.

The researcher used data collection instruments to simplify the data needed during the study. The instrument used in this study was a learning motivation questionnaire. The scale used in this study was the Guttman scale, which provides two answer choices: yes/no and good/bad, intending to elicit a firm response from respondents regarding a problem being studied [23]. The learning motivation questionnaire is a closed-ended questionnaire with several multiple-choice questions to be answered by respondents [24].

3. RESULTS AND DISCUSSION

3.1. Results

The data for this study were obtained through pretest and posttest questionnaires on student learning motivation in the experimental class using interactive PowerPoint media and the control class without any treatment.

The results of the student learning motivation questionnaires in the control and experimental classes are shown in Tables 2 and 3 below:

Table 2. Descriptive Statistics of Control Class

Value	Pretest	Posttest
Average	23,96	49,48
Maximum	40	75
Minimum	15	25

Based on Table 2, the data from the pretest and posttest learning motivation questionnaire results for control class students can be seen, which were obtained by asking questions using the student learning motivation questionnaire sheet. It can be seen that the pretest results for the control class obtained an average score of 23.96, with the highest score of 40 and the lowest score of 15, and the posttest results for the control class obtained an average score of 49.48, with the highest score of 75 and the lowest score of 25.

Table 3. Descriptive Statistics of Experimental Class

Value	Pretest	Posttest
Average	24,67	75,64
Maximum	50	95
Minimum	15	50

Based on Table 3, the data from the pretest and posttest learning motivation questionnaires for the experimental class students can be seen, which were obtained by asking questions using the student learning motivation questionnaire sheet. It can be seen that the pretest results for the experimental class obtained an average student score of 24.67, with the highest score of 50, and the lowest score of 15, while in the posttest results for the experimental class, the average student score was 75.64, with the highest score of 95 and the lowest score of 50.

After knowing the results of the learning motivation questionnaire for the control and experimental classes, the comparison between the results for the control and experimental classes was mapped. The comparison of the questionnaire results can be seen in Figure 1 below.

Based on figure 1, it can be seen that the pretest results of the control class obtained an average value of 23.96 with the highest value of 40, and the lowest value of 15, while in the pretest results of the experiment obtained an average value of 24.67 with the highest

value of 50, and the lowest value of 15. Then, in the posttest results of the control class, an average value of 49.48 was obtained, with the highest value of 75 and the lowest value of 25, while in the posttest results of the experimental class, an average value of 75.64 was obtained, with the highest value of 95 and the lowest value of 50.

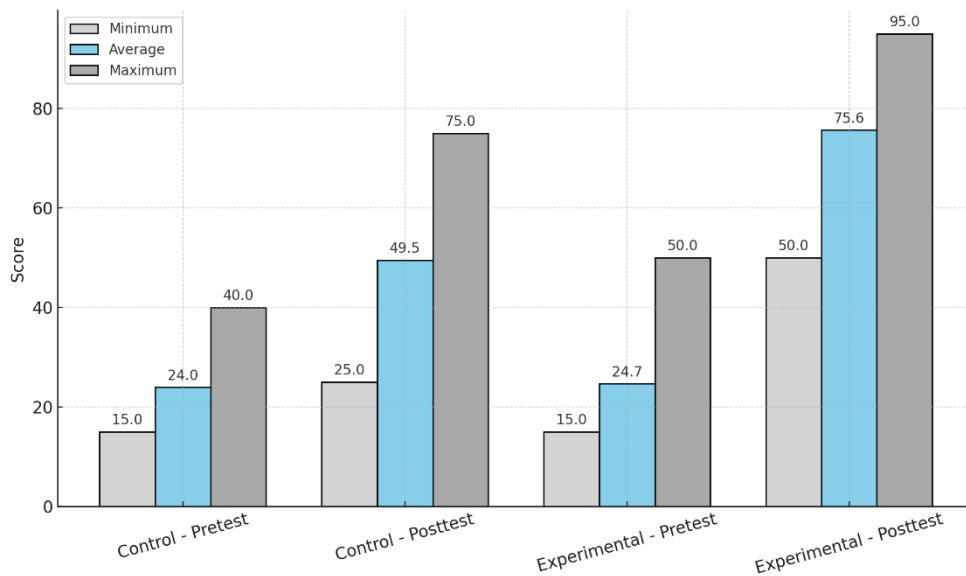


Figure 1. Comparison of Control Class and Experimental Class Questionnaires

The next step is to conduct data analysis. The data analysis in this study used normality tests, homogeneity tests, and hypothesis tests using SPSS 27 version for Windows. The results of the data analysis are as follows:

The normality test in this study used the Shapiro-Wilk test with the help of SPSS 27 version for Windows. The results of the normality test can be seen in Table 4 below:

Table 4. Normality Test Results

Class	Shapiro Wilk		
	Statistics	df	Sig
Control Pretest	.924	29	.038
Control Posttest	.964	29	.409
Pretest Experiment	.935	31	.060
Experiment Posttest	.947	31	.130

Table 4 shows that in the control class, the pretest data results have a significance value of 0.038, and the posttest data results have a significance value of 0.409. Then, in the experimental class, the pretest data results have a significance value of 0.060, and the posttest data results have a significance value of 0.130. Based on the data from the normality test, the significance value is greater than 0.05; thus, the data is normally distributed.

Next, a homogeneity test was conducted using the Levene Statistics test with the help of SPSS 27 version for windows, using the provision that if the significant value > 0.05 then it can be said that the variance of the sample group data is proven to be the same (homogeneous), then if the significant value < 0.05 then it can be said that the variance of the sample group data is proven to be not the same (not homogeneous). The results of the homogeneity test can be seen in the following table 5:

Table 5. Results of Homogeneity Test

		Levene Statistic	df1	df2	Sig
Student Learning Motivation	Based on the mean	3.263	1	58	.076
	Based on the median	3.213	1	58	.078
	Based on the median and with adjusted df	3.213	1	50.828	.079
	Based on the trimmed mean	3.155	1	58	.081

Table 5 shows that the significant value is 0.076, greater than 0.05, which means that the sample variance in this study can be said to be the same (homogeneous). After the data has been declared normally distributed and homogeneous, then hypothesis testing is carried out using the independent sample t-test with the help of SPSS 27 version for Windows, with the provision that if the value of $t_{count} > t_{table}$ then H_a is accepted, however, if the value of $t_{count} < t_{table}$ then H_0 is accepted, and if the significant value is < 0.05 then H_a is accepted, however, if the significant value is > 0.05 , then H_0 is accepted with a significance level/ α of $5\% = 0.05$. The results of the hypothesis test in this study can be seen in Table 6:

Table 6. Hypothesis Test Results

Independent Sample Test			
	t	df	Sig (2-tailed)
Equal variances assumed	8.061	58	<.001
Equal variances not assumed	7.964	49.320	<.001

According to the results in Table 6, the computed t-value of 8.061 exceeds the critical t-table value of 1.988. The significance value ($p < 0.001$) is well below the 0.05 threshold. Therefore, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted. These findings confirm that the use of PowerPoint-based interactive media had a statistically significant effect on enhancing the learning motivation of fifth-grade students at SDN 9 Ampenan.

Based on Table 6, it is known that the value of $t_{hitung} > t_{tabel}$ is $8.061 > 1.988$ and the significant value is < 0.05 , namely sig (2-tailed) $0.001 < 0.05$, so it is following the provisions of hypothesis testing using the independent sample t test, namely if the value of $t_{hitung} > t_{tabel}$ maka H_a is accepted, however, if the value of $t_{hitung} < t_{tabel}$ maka H_0 is accepted, and if the significant value is < 0.05 then H_a is accepted, however, if the significant value is > 0.05 , then H_0 is accepted, which shows an influence of the use of

PowerPoint-based interactive media on the learning motivation of class V students of SDN 9 Ampenan.

3.2. Discussion

This study was conducted in experimental and control groups across two learning sessions. The first session involved administering a pretest questionnaire to measure baseline learning motivation, while the second session was devoted to administering the posttest questionnaire after the respective instructional interventions were implemented. The pretest phase established the students' initial motivational levels before applying PowerPoint-based interactive media in the experimental class and conventional teaching methods in the control class. This sequential design was intended to ensure a controlled comparison of the two instructional approaches.

During the first session, the pretest results revealed that the control group had a mean motivation score of 23.96, with scores ranging from 15 to 40. Similarly, the experimental group achieved a slightly higher mean of 24.67, with a minimum score of 15 and a maximum of 50. These comparable scores indicate that both groups were relatively homogeneous regarding initial motivation, and no significant difference was observed before the intervention. Such baseline equivalence is crucial for attributing subsequent outcome differences to the treatment rather than pre-existing disparities.

Subsequently, the treatment phase involved the implementation of PowerPoint-based interactive media in the experimental group, utilizing material on the "Geographical Characteristics of the Indonesian Archipelago—Phase C: Identifying Regional Locations through Map Analysis," as found in Chapter 6, Volume II of the fifth-grade science curriculum. In contrast, the control group continued with traditional lecture-based instruction, supported by textbooks and teacher-centered delivery, without any media-enhanced intervention. The contrast between the two instructional modalities formed the basis for evaluating the impact of media integration on student motivation.

Observationally, the implementation of interactive media in the experimental group appeared to foster a more dynamic and engaging classroom atmosphere. Students exhibited greater enthusiasm, attentiveness, and active participation in learning activities. Conversely, learners in the control group were observed to be less motivated, less focused, and comparatively passive. These qualitative findings are consistent with the assertions of Aliya et al. [25], who argue that integrating interactive media can significantly enhance classroom engagement and foster autonomous learning among students. Thus, preliminary observations supported the hypothesis that interactive media positively influence affective learning behaviors.

Following the instructional phase, both groups were administered the posttest questionnaire. The control group's mean posttest score increased modestly to 49.48 (range: 25–75), whereas the experimental group exhibited a substantial improvement, with a mean score of 75.64 and scores ranging from 50 to 95. These results strongly suggest that students who engaged with the PowerPoint-based interactive media experienced a marked enhancement in their learning motivation relative to their peers in the conventional setting.

This difference confirms the intervention's effectiveness and highlights the transformative potential of well-designed digital instructional tools.

A series of statistical analyses was conducted to validate the reliability of these findings. The Shapiro-Wilk normality test confirmed that the data were normally distributed, with significance values above the 0.05 threshold for most variables, excluding the control group's pretest score, which yielded a p-value of 0.038. Despite this, the data were deemed appropriate for further parametric testing. Additionally, Levene's test for homogeneity of variances yielded a significance value of 0.076, indicating that both groups exhibited statistically similar variances. These tests established the foundational assumptions necessary for applying inferential statistics with confidence.

Subsequently, an independent samples t-test was performed to test the study's hypothesis. The resulting t-value of 8.061 exceeded the critical value of 1.988, and the associated p-value of 0.001 was well below the significance level of 0.05. These outcomes lead to the acceptance of the alternative hypothesis (H_a), affirming that the application of PowerPoint-based interactive media significantly influences students' learning motivation compared to traditional instruction methods. This quantitative validation reinforces the earlier qualitative observations and affirms the intervention's educational impact.

The present findings align with prior research conducted by Handini et al. [13], who investigated the impact of interactive media on the academic performance of second-grade elementary students in Cluster I of Narmada District. Their study revealed a rise in learning outcomes from a pretest average of 36.73 to a posttest average of 78.06 in the experimental group, while the control group improved from 33.67 to 72.96. Hypothesis testing via the non-parametric Mann-Whitney U test yielded an Asymp. Sig. (2-tailed) value of 0.000, indicating statistical significance at the 5% level. Although the effect size was considered small ($d = 0.0237$), the results underscored the efficacy of interactive media in enhancing learning outcomes. The consistency between these findings and the current study lends credence to the broader applicability of interactive media across varied educational contexts.

Taken together, both the current study and existing literature substantiate the educational value of interactive media—particularly those developed using familiar platforms such as PowerPoint—as tools to boost student motivation, foster engagement, and improve learning experiences. The findings support the conclusion that technology-assisted instructional strategies can be effective alternatives to conventional pedagogy, particularly in enhancing affective learning domains such as motivation. Integrating interactive digital tools offers a promising path for educational innovation and reform in an era where student engagement remains a persistent challenge.

4. CONCLUSION

Based on the findings of this study, it can be concluded that the use of PowerPoint-based interactive media exerts a significant and positive influence on the learning motivation of fifth-grade students at SDN 9 Ampenan, particularly in the science topic on the Geographical Characteristics of Indonesian Regions. This effect is demonstrated by the

increase in the average motivation score from 24.67 before the intervention to 75.64 after the implementation of the interactive media.

The statistical results reinforce this conclusion, with an independent samples t-test yielding a t-value of 8.061—greater than the critical t-table value of 1.988—at a 0.05 significance level and a p-value of 0.001. These figures confirm the rejection of the null hypothesis (H_0) and acceptance of the alternative hypothesis (H_a), thereby validating the effectiveness of the PowerPoint-based interactive media in enhancing students' learning motivation.

Beyond the quantitative findings, the results also highlight the pedagogical potential of interactive media as practical, engaging, and student-centered instructional tools. As supported by Paramita et al. (2022), such media's dynamic and visually enriched format fosters increased student interest and motivation. In light of these findings, it is recommended that educators integrate interactive digital media—such as PowerPoint-based content—into their teaching strategies to promote more active learning environments and improve student engagement and educational outcomes.

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