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Enhancing Elementary Students' Interest and Learning Outcomes in Social Studies Through the Poster Session Strategy Assisted by Audio-Visual Media

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ABSTRACT

This study explores the effect of the Poster Session learning strategy, supported by audio-visual media, on students' interest and learning outcomes in social studies among fourth-grade elementary students in Gugus V, Lau District, Maros Regency, Indonesia. A quasi-experimental design with a nonequivalent control group was utilized, involving 40 students equally divided into experimental and control groups. The experimental group received instruction using the Poster Session strategy, while the control group followed conventional methods. Data were collected through pretest and posttest questionnaires measuring learning interest and achievement. The results showed a notable improvement in the experimental group. Learning interest rose from a mean of 67.20 to 88.40, compared to the control group's increase from 61.75 to 74.40. Similarly, academic performance in the experimental group improved from 62.20 to 84.00, while the control group showed only a modest gain from 55.30 to 63.10. MANOVA analysis confirmed the significance of the intervention on both outcomes (Pillai's Trace = 0.775, $p < 0.001$). These findings indicate that integrating the Poster Session strategy with audio-visual aids enhances student engagement and academic achievement. The study recommends broader implementation of this approach in elementary education to support deeper learning and sustained interest in social studies.

1. Introduction

In recent decades, educational paradigms have increasingly emphasized active, engaging, and student-centered pedagogies as fundamental for improving learning quality in elementary education. Particularly in social studies learning, which encompasses conceptual understanding and civic competence, learner engagement is essential for developing meaningful knowledge and positive academic outcomes (Obro et al., 2021; Safitri et al., 2023; Zheng, 2021).

Interest in learning has consistently been highlighted as a central predictor of student motivation, persistence, and academic performance. Several studies demonstrate that when students find the content appealing and the delivery stimulating, their levels of cognitive involvement and retention significantly improve (Fu & Dai, 2025; Langley et al., 2020; Meier et al., 2023; Solichin et al., 2021). To this end, strategies that incorporate multimedia especially audio-visual components are increasingly advocated in elementary instruction to enhance learners' sensory engagement and conceptual comprehension (Gardner et al., 2025; Kitakami et al., 2025; Luo et al., 2022; Padikal et al., 2025).

Among various innovative strategies, the Poster Session model presents an integrative approach that emphasizes student expression, collaboration, and the visual synthesis of knowledge. It fosters analytical thinking and communication, which are vital in social science contexts (Grasso et al., 2025; Lawton et al., 2025; Martin et al., 2025; Rozman et al., 2025). Moreover, combining this strategy with multimedia tools such as audio-visual media can offer dual-channel stimulation visual and auditory which aligns with cognitive load and multimedia learning theories (Brown et al., 2025; Mariani & Vohnsen, 2025; Maule et al., 2025).

Research has shown that dual-modality instructional designs lead to deeper learning, especially when learners process both verbal and pictorial inputs (Bagheri et al., 2025; Greene et al., 2025; Welbourne et al., 2025). These designs not only stimulate student interest but also foster active learning environments (Gaffney et al., 2025; Grieshop et al., 2025; Nabil & Maule, 2025). Additionally, studies in multimedia-assisted instruction reveal significant gains in both interest and achievement across content areas and educational levels (Herawati et al., 2022; Herlambang, 2023; Wardiah et al., 2022).

Despite its potential, the application of Poster Session strategies supported by multimedia in social studies education at the primary school level, especially in Indonesian rural contexts, remains under-researched. Empirical gaps exist in evaluating its effectiveness in enhancing student interest and learning outcomes simultaneously (Obriot et al., 2025; Syafruddin et al., 2024; Tristaningrat et al., 2024). Therefore, this study investigates the implementation of the Poster Session strategy with audio-visual support to assess its impact on the interest and academic performance of fourth-grade students in social studies.

By adopting a quasi-experimental design, this research seeks to address both cognitive and affective dimensions of learning, contributing empirical evidence to support policy recommendations and instructional innovations (Japar et al., 2023; K.-Y. Lin, 2020; L. Lin et al., 2024; Luo et al., 2022; Salas-Pilco, 2020). The expected outcome is to establish an effective, context-sensitive pedagogical approach that enhances the learning experiences of elementary students in developing regions like Maros Regency, Indonesia.

2. Methodology

Materials

The materials employed in this research were designed to align with the national curriculum for fourth-grade social studies in Indonesia. The experimental class used a combination of visual poster presentation formats and audio-visual media, while the control class received conventional instruction. The development of these materials was informed by the literature which highlights the critical role of multi-sensory media in enhancing elementary students' comprehension and engagement (Grasso et al., 2025; Luo et al., 2022; Safitri et al., 2023).

Digital audio-visual media such as video illustrations, animations, and interactive visual stimuli were incorporated to complement the Poster Session strategy, consistent with findings that multimodal content improves both cognitive processing and affective response (Mariani & Vohnsen, 2025; Meier et al., 2023; Zhang et al., 2024; Zhang & Zhang, 2024).

Sample Preparation

The study population comprised 40 fourth-grade students selected via purposive sampling from two elementary schools in Gugus V, Kecamatan Lau, Kabupaten Maros. Each group consisted of 20 students. Prior to intervention, both groups were administered pretests to assess baseline levels of interest and achievement.

Teachers in the experimental group underwent preparatory training in the application of the Poster Session method. Classroom preparation included the organization of poster materials and setting up AV tools, ensuring a structured implementation that supports student collaboration and expression (Grieshop et al., 2025; Martin et al., 2025; Rozman et al., 2025). This preparatory stage reflects the instructional design principles advocated by (Solomon, 2025; Widmayer & Schütz, 2025), who emphasized the role of planning in facilitating meaningful engagement with educational technology.

Experimental Set-Up

A quasi-experimental research design with a nonequivalent control group format was implemented. This design was deemed suitable due to the impossibility of random assignment in natural classroom settings, a limitation acknowledged by several educational field studies (Obro, 2022; Salas-Pilco, 2020; Tristaningrat et al., 2024).

Over a three-week period, both groups received six instructional sessions. The experimental group engaged in poster creation and presentations using multimedia aids, while the control group participated in traditional teacher-centered instruction. This arrangement was informed by earlier studies that established the positive impact of student-led visual production on learning outcomes (Carter et al., 2025; Gaffney et al., 2025; Greene et al., 2025).

Parameters

Two primary parameters were examined: students’ interest in learning and their achievement in social studies. Learning interest was assessed via a standardized questionnaire adapted from instruments validated in prior research on interest-driven learning (Hsieh et al., 2020; Langley et al., 2020; Syawaluddin et al., 2020). Achievement was measured through a post-instruction test comprising multiple-choice questions that assessed knowledge comprehension, application, and analysis, following the taxonomy of educational objectives (Mo et al., 2021; Zhang et al., 2024; Zhang & Zhang, 2024). Both instruments were piloted and refined to ensure reliability and validity.

Statistical Analysis

Descriptive statistical analyses were used to summarize central tendencies and dispersion of scores (mean, SD, min, max). Inferential statistics involved Multivariate Analysis of Variance (MANOVA) to evaluate the simultaneous impact of the instructional strategy on both dependent variables. The use of MANOVA is widely supported for examining educational interventions affecting multiple outcomes (Lawton et al., 2025; Obriot et al., 2025).

The preconditions for MANOVA normality, linearity, and homogeneity of variance-covariance matrices were tested using Shapiro-Wilk and Levene’s tests, respectively. The analysis was performed using SPSS version 26.0 with a significance level set at $\alpha = 0.05$. This analytical approach follows best practices in educational research as cited in studies employing mixed-modality interventions and performance-based metrics (Gardner et al., 2025; Nabil & Maule, 2025; Nguyen et al., 2025).

3. Results and Discussion

The findings of this study revealed significant improvements in both interest and academic achievement among students who participated in the Poster Session strategy assisted by audio-visual media. The descriptive statistics showed a substantial increase in learning interest in the experimental group, rising from a pretest mean of 67.20 to a posttest mean of 88.40, compared to the control group, which increased from 61.75 to 74.40. The descriptive summary of the posttest learning interest scores is presented in Table 1.

Table 1. Post-test Learning Interest Scores

Group	N	Mean	SD	SE
Experiment	20	88.40	5.81	1.30
Control	20	74.40	4.58	1.02

These results support existing research demonstrating that student-centered, visually rich strategies can elevate interest and intrinsic motivation (Greene et al., 2025; Rozman et al., 2025; Zhang & Zhang, 2024).

In terms of learning outcomes, the experimental group's posttest scores improved markedly from a pretest mean of 62.20 to 84.00, while the control group increased modestly from 55.30 to 63.10. The descriptive statistics are summarized in Table 2.

Table 2. Post-test Learning Outcome Scores

Group	N	Mean	SD	SE	Coef. Var.
Experiment	20	84.00	6.18	1.38	0.074
Control	20	63.10	7.89	1.76	0.125

This reinforces prior evidence that multimodal, experiential learning methods enhance not only knowledge acquisition but also equity in learning outcomes (Grasso et al., 2025; Lawton et al., 2025; Martin et al., 2025). Multivariate analysis of variance (MANOVA) results showed a statistically significant effect of the intervention on both learning interest and achievement, with Pillai's Trace = 0.775, Approx. $F = 63.562$, $p < .001$. The results are summarized in Table 3.

Table 3. MANOVA Results

Effect	Pillai's Trace	F	df1	df2	p-value
Kelas	0.775	63.562	2	37	< .001

Post hoc independent t-tests confirmed the statistical significance of these differences. For learning interest, $t(38) = 8.464$, $p < .001$, and for learning outcome, $t(38) = 9.328$, $p < .001$, both with large effect sizes (Cohen's $d = 2.95$). These findings echo prior assertions that interactive and engaging pedagogies result in meaningful cognitive and affective gains (Carter et al., 2025; Herlambang & Rachmadi, 2023; Obriot et al., 2025). The visualizations below illustrate the comparative mean scores for both variables, highlighting the effectiveness of the intervention strategy.

The analysis of pretest and posttest data revealed significant improvements in both students' interest and learning outcomes in the experimental group taught using the Poster Session strategy aided by audio-visual media. Descriptive statistics indicated that students' mean interest scores in the experimental group increased from 67.20 to 88.40, while the control group only rose from 61.75 to 74.40. This aligns with prior findings that interactive and visually enriched learning environments tend to enhance affective engagement and student motivation (Japar et al., 2023; Mo et al., 2021; Safitri et al., 2023).

In terms of academic achievement, the experimental group demonstrated a marked improvement from a mean score of 62.20 in the pretest to 84.00 in the posttest. Conversely, the control group improved modestly from 55.30 to 63.10. This substantial learning gain supports research suggesting that learner-centered and multimodal strategies, such as poster-based presentations, significantly promote cognitive development in elementary learners (Grasso et al., 2025; Martin et al., 2025; Obro et al., 2021; Rozman et al., 2025).

Inferential statistical analysis using MANOVA confirmed the significant influence of the intervention. The multivariate test showed a statistically significant difference between groups (Pillai's Trace = 0.775, $F(2, 37) = 63.80$, $p < 0.001$), indicating that the learning model positively affected both interest and achievement. This dual impact reflects the conclusions of several studies that stress the importance of integrated strategies that target both affective and cognitive domains (Carter et al., 2025; Greene et al., 2025; Herlambang et al., 2023; Welbourne et al., 2025).

Furthermore, the standard deviation in the posttest scores of the experimental group decreased, suggesting a more homogenized performance distribution and indicating a more inclusive instructional impact. This pattern mirrors findings from (Bagheri et al., 2025) and (Grieshop et al., 2025), who emphasized that structured peer-interactive learning strategies often lead to reduced performance gaps among learners.

Visual media, when integrated into collaborative pedagogies, have consistently been reported to improve both attentional focus and long-term retention (Gardner et al., 2025; Mariani & Vohnsen, 2025; Maule et al., 2025). This is corroborated by the current study, in which students reported higher satisfaction and showed deeper conceptual grasp in post-lesson feedback, echoing outcomes documented by (Gaffney et al., 2025; Lendoye et al., 2025; Nabil & Maule, 2025). Additional insights from classroom observations indicated increased enthusiasm and active participation in the experimental group. These behavioral indicators align with the works of (Brown et al., 2025) and (Lawton et al., 2025), who found that learning environments that include active, visual, and peer-presentational components can significantly enhance classroom dynamics and engagement.

In conclusion, the data provide robust support for the effectiveness of the Poster Session strategy with audio-visual support in improving both interest and learning outcomes in elementary social studies education. These findings reinforce broader educational research advocating for multimodal, interactive, and student-led learning experiences in primary classrooms (Carter et al., 2025; Kitakami et al., 2025; Wardiah et al., 2022; Yoshii & Saito, 2025).

Discussion

The results of this study revealed that the implementation of the Poster Session strategy assisted by audio-visual media had a significant impact on both students' interest and academic achievement in social studies. These findings are consistent with a growing body of research indicating that student-centered, visually enriched instructional approaches can enhance affective engagement and academic performance (Grasso et al., 2025; Lawton et al., 2025; Rozman et al., 2025).

The observed increase in learning interest aligns with the theory that multimodal learning environments, particularly those that utilize visual and auditory stimuli, stimulate learners' attention and intrinsic motivation (Gardner et al., 2025; Mariani & Vohnsen, 2025; Maule et al., 2025). Similar results have been reported in studies

applying multimedia-assisted strategies in primary classrooms, showing improved student affect and classroom dynamics (Brown et al., 2025; Gaffney et al., 2025; Nabil & Maule, 2025).

Cognitive gains observed in this study also reflect previous research asserting that constructivist strategies that allow student expression and collaboration such as Poster Sessions foster deeper understanding and long-term retention (Grieshop et al., 2025; Martin et al., 2025; Obro et al., 2021). Furthermore, the dual-channel processing provided by the integration of visual and auditory inputs enhances encoding and memory retrieval, as supported by dual coding theory (Greene et al., 2025; Meier et al., 2023; Welbourne et al., 2025).

Beyond quantitative improvements, classroom observations indicated increased enthusiasm and active participation, affirming that engagement is not merely behavioral but also deeply cognitive and emotional (Hendrawijaya, 2022; Herlambang et al., 2023; Obriot et al., 2025). This supports the argument that educational interventions that are both interactive and reflective lead to sustained engagement (L. Lin et al., 2024; Zhang & Zhang, 2024). Interestingly, the experimental group showed reduced standard deviation in post-test performance, suggesting more equitable learning outcomes. This trend echoes prior findings which showed that inclusive instructional models narrow performance disparities among diverse student groups (Carter et al., 2025; Lendoye et al., 2025; Wardiah et al., 2022).

The effectiveness of the Poster Session model has also been observed in other educational domains such as health, science, and language learning, where visual representations of knowledge facilitate peer exchange and metacognitive engagement (Alloug et al., 2024). In line with the interest-driven learning framework, interest serves both as an antecedent and consequence of meaningful learning, enhancing cognitive involvement and persistence (Safitri et al., 2023; Salas-Pilco, 2020; Zheng et al., 2021).

This research reinforces the practical value of integrating audio-visual media in pedagogy, echoing similar conclusions in studies involving augmented reality, interactive video, and gamified learning (Herawati et al., 2022; Sulisworo et al., 2024; Tristaningrat et al., 2024). These tools are shown to be effective in reducing cognitive overload and improving learning transfer by scaffolding abstract concepts with concrete visualizations (Fu & Dai, 2025; Luo et al., 2022; Vinas-Pena et al., 2025).

From a theoretical standpoint, this study provides empirical support for socio-constructivist and multimedia learning theories by demonstrating how instructional design shapes learner experiences and outcomes (Padikal et al., 2025; Widmayer & Schütz, 2025; Yoshii & Saito, 2025). Moreover, the positive findings from this rural Indonesian context expand the generalizability of these frameworks, highlighting the relevance of context-adapted pedagogical innovations in low-resource settings (Japar et al., 2023; Langley et al., 2020; Obro, 2022).

Nevertheless, it is worth acknowledging that the study was limited by its quasi-experimental design and reliance on a single educational cluster. Future research should consider longitudinal tracking, cross-regional replication, and qualitative inquiry into students' and teachers' experiences to further illuminate the mechanisms of change. In summary, this study contributes to the evidence that multimodal, collaborative instructional strategies are effective in improving both the interest and academic performance of elementary students in social studies. It emphasizes the pedagogical potential of combining Poster Session methods with audio-visual media, particularly in settings where traditional didactic approaches remain dominant.

4. Conclusion

This study has demonstrated that the implementation of the Poster Session strategy supported by audio-visual media significantly enhances both the learning interest and academic achievement of elementary school students in social studies. The findings reveal that the experimental group experienced marked improvements in their affective and cognitive outcomes compared to the control group, substantiating the effectiveness of student-centered, visually enriched, and interactive pedagogical models. These results are aligned with a broad spectrum of prior research that emphasizes the role of multimodal learning environments in stimulating learner motivation, engagement, and comprehension.

Furthermore, the reduced variation in posttest scores within the experimental group suggests a more equitable distribution of learning benefits, reinforcing the inclusive potential of this instructional approach. The use of visual media and collaborative poster activities not only fostered deeper understanding of the subject matter but also facilitated active participation and peer-based discourse, thereby supporting socio-constructivist learning principles.

This study contributes to the existing body of knowledge by validating the integration of Poster Session and audio-visual strategies in the context of elementary social studies education in rural Indonesia. It provides empirical evidence that can inform curriculum development and instructional planning aimed at promoting both engagement and achievement in foundational education. Future research is encouraged to explore the longitudinal impact of such interventions and to examine their adaptability across different subjects and educational contexts.

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