

THE USE OF SOCIO-MATHEMATICAL LKPD BASED ON THE PJBL MODEL ON THE LEARNING INTEREST OF FOURTH GRADE ELEMENTARY SCHOOL STUDENTS

Mela Pertiwi¹, Deviyanti Pangestu², Yoga Fernando Rizqi³, Sowiyah⁴

Pendidikan Guru Sekolah Dasar, Universitas Lampung, Indonesia

melapertiwi05@gmail.com¹, deviyanti.pangestu@fkip.unila.ac.id², yoga.fernando@fkip.unila.ac.id³, sowiyah.1960@fkip.unila.ac.id

Abstract

The problem in this study is the low learning interest of fourth-grade students at Gunung Terang Public Elementary School 1. This study aims to determine the effect of using sociomathematics worksheets based on the Project Based Learning (PjBL) model on students' learning interest. This study uses quantitative research with a quasi-experimental method and a non-equivalent control group design. The population and sample in this study were obtained through purposive sampling with a sample size of 52 students. The data collection technique in this study used non-test instruments. Data analysis used simple regression tests. The results of the study indicate that there is an effect of the use of sociomathematics worksheets based on the Project Based Learning (PjBL) model on the learning interest of fourth-grade students at SD Negeri 1 Gunung Terang in the 2024/2025 academic year.

Article History
Submitted: 17 Juli 2025
Accepted: 2 Agustus 2025
Published: 31 Agustus 2025

Keywords: *socio-mathematics student worksheets, learning interests, PjBL model, elementary school*

A. INTRODUCTION

Education serves as a crucial mechanism for the cultivation and development of high-quality human resources, and among the myriad factors impacting the efficacy of the teaching and learning experience, the interest exhibited by students in the learning process stands out as a fundamental component that can significantly influence overall success. This intrinsic motivation, which can be defined as an inner drive compelling individuals to actively participate in educational activities, delve deeply into subject matter, and sustain their focus and concentration over extended periods, is essential for fostering a productive learning environment, as posited by Fitri and Sari (2024). Within the context of elementary education, this interest in learning emerges as the foundational cornerstone that not only shapes but also influences the formation of lifelong learning attitudes and habits that will persist throughout the students' academic journeys.

The effectiveness of learning processes is contingent upon a multitude of factors, with one of the most critical being the level of interest that students demonstrate toward their educational pursuits. Research conducted by Susanti and Fitri (2021) underscores the notion that there exists a positive and significant correlation between students' interest in learning and their academic performance, establishing that heightened engagement in learning activities is closely linked to improved academic outcomes. Academic achievement, in this regard, serves as a pivotal metric for evaluating the success of student learning, and it is important to acknowledge that this achievement is not solely dictated by cognitive capabilities; rather, it is also profoundly influenced by

the students' attitudes and intrinsic motivation toward the learning process. The findings of a study orchestrated by Imanisa and Rizky Ana (2020) substantiate this assertion, revealing a significant association between interest in learning and student outcomes, thereby indicating that enhancements in learning interest can directly translate to improved quality in student learning results.

Challenges associated with a deficit in student interest in learning are also observable at SD Negeri 1 Gunung Terang, where empirical observations conducted in the fourth-grade classrooms have identified a range of issues, most notably the pervasive low levels of student interest in learning. This observation is supported by the low percentages recorded on the learning interest indicators proposed by Slameto (2010), which encompass various dimensions such as students' feelings of enjoyment, their attentiveness, their overall interest, and their level of involvement in educational activities.

Upon analyzing the specific indicators utilized in assessing student interest, it becomes evident that the average percentages reflecting learning interest among the students are indicative of concern. For instance, students in Grade IV A reported a percentage of 49.54% on the indicator measuring feelings of happiness associated with learning, whereas their counterparts in Grade IV B presented a slightly lower percentage of 45.36%. In terms of the attention indicator, the results revealed that Grade IV A students achieved a percentage of 44.89%, contrasted with Grade IV B students who received a percentage of 43.27%. Similarly, when examining the interest indicator, the percentages for Grade IV A students were recorded at 43.78%, while Grade IV B students garnered a percentage of 41.88%. Finally, with regard to the involvement indicator, the data indicated that Grade IV A students acquired a percentage of 42.64%, while Grade IV B students demonstrated a percentage of 40.98%, further highlighting the disparities in student engagement and interest across the two classes.

The principal elements that contribute to the diminished enthusiasm for learning among students encompass a variety of behaviors, including but not limited to a lack of attention during instructional periods, engaging in conversations with peers, exiting the classroom without permission, an inability to maintain focus on the lesson at hand, a noticeable absence of participation in classroom discussions, and an infrequent tendency to pose questions that could further their understanding. The manifestation of low learning interest is particularly evident in those students who struggle to establish connections between different concepts, articulate their ideas or reflections that pertain to the educational material they have encountered, and consequently, they find themselves unable to cultivate a sense of autonomy in their learning journey, as well as a creative approach to problem-solving that aligns with the established learning objectives. Additionally, another significant contributor to the lack of engagement in learning activities among students is the observation that educators often face challenges that impede their ability to effectively prepare and utilize instructional resources, including the failure to incorporate supplementary educational materials, such as student worksheets, into their teaching practices, alongside the notion that

educators may not yet be fully equipped to optimally select appropriate learning models that can engage students effectively.

To address these challenges, various strategies can be employed to enhance students' interest in learning, one prominent method being the implementation of sociomathematics worksheets, which serve to intertwine social issues with the context of mathematics education. This innovative approach enables students to recognize the significance of the material in relation to their real-world experiences, thereby fostering a deeper connection to the subject matter. Sociomathematics worksheets are designed as educational tools that aim to support and streamline the learning process, ensuring that the interaction between educators and students is not only effective but also conducive to fostering increased student engagement and interest in the subject matter. Wedege (2003) articulated a foundational definition of sociomathematics with the intention of underscoring the critical intersection of mathematics education research and its implications for society, thereby highlighting the integral role that mathematics plays in various aspects of social life.

The implementation of sociomathematics worksheets must be characterized by a degree of adaptability and should be developed in a manner that is responsive to the unique contexts and conditions inherent in the ongoing learning process. This pedagogical approach will yield even greater effectiveness when it is synergistically combined with a project-based learning (PjBL) model, which places a strong emphasis on active student participation, the resolution of real-world problems, and collaborative endeavors among students. According to Hosnan (2014), project-based learning represents a forward-thinking instructional model that harnesses the power of projects as a medium to foster student engagement, creativity, and an overall enhancement in their motivation to learn.

In light of the aforementioned theoretical considerations and the identification of prevailing issues, it is imperative to pursue innovative approaches to the development of teaching materials, particularly those related to sociomathematics worksheets, which are anticipated to provide educators with robust support in facilitating engaging learning activities that ultimately aim to elevate students' interest in learning. The sociomathematics worksheets that are based on the project-based learning model can emerge as a viable alternative solution that holds promise for implementation in order to significantly boost students' enthusiasm for their educational pursuits. Given the context of the problems delineated above, the researcher has developed a keen interest in undertaking a research study entitled "The Use of Sociomathematics LKPD Based on the Project-Based Learning (PjBL) Model on the Learning Interest of Fourth Grade Elementary School Students,"

B. RESEARCH METHOD

This research endeavor employed a quantitative methodology characterized by an experimental framework, specifically utilizing a quasi-experimental design to systematically investigate the variables of interest. The particular design implemented was identified as a Non-Equivalent Control Group Design, which effectively involved

the delineation of two distinct groups, namely the experimental cohort and the control cohort. The experimental cohort was subjected to an innovative instructional treatment that incorporated the use of sociomathematics worksheets, which were intricately developed based on the principles of the Project Based Learning (PjBL) model, whereas the control cohort engaged exclusively with conventional textbooks that were provided by the educational institution. The population of interest for this investigation consisted of all fourth-grade students enrolled at SD Negeri 1 Gunung Terang, which included two classes, IV A and IV B, culminating in a total of 52 students participating in the study. The selection of the sample was executed using a saturated sampling technique, thereby ensuring that the entire student population within the specified grade level was included as the research sample. Class IV A was specifically designated to function as the experimental group, whereas class IV B was assigned the role of the control group for comparative analysis. Data collection methodologies employed in this research encompassed a variety of approaches, including the administration of questionnaires, comprehensive documentation studies, and systematic observations of student engagement. The instrument utilized to measure learning interest was meticulously designed, drawing upon the indicators articulated by Slameto (2010), which include: (1) the emotional experience of pleasure associated with learning, (2) the degree of attention exhibited by students during instructional activities, (3) the intrinsic interest that students demonstrate toward the subject matter, and (4) the extent of student involvement in the learning process overall.

C. RESULTS AND DISCUSSION

Results

1. Descriptive Analysis

The research data collection results were obtained through questionnaire scores given to the experimental class and control class as research samples. Overall, the data is presented in the following table.

Table 1. Descriptive Data of Research Results

Data	Experimental Class (IVA)	Control Class (IV B)
N	26	26
Highest Score	75	64
Lowest Score	51	46
Σ	1608	1391
Average	61.84	53.5
SD (Standard Deviation)	8.75	5.33

Based on Table 1, the research data was obtained from two different classes, namely the experimental class (IV A) and the control class (IV B), each consisting of 26 students. This study measured the questionnaire results in both classes. In the experimental class (IV A), the highest score obtained was 75 and the lowest score was 51, with a total questionnaire score of 1608, an average of 61.84, and a

standard deviation of 8.75. Meanwhile, the control class (IV B) had a highest score of 64 and a lowest score of 46, with a total questionnaire score of 1391, an average of 53.5, and a standard deviation of 5.33.

2. Description of Student Learning Interest Categories

This particular research endeavor was meticulously executed through the implementation of sociomathematics worksheets that were specifically designed in accordance with the principles of the Project Based Learning (PjBL) model, which was exclusively applied to the experimental class, whereas the control class did not receive any analogous pedagogical intervention or treatment. The instructional activities were primarily centered around the exploration of maps and their various integral components, which are essential for understanding geographical and mathematical concepts. The principal aim and overarching objective of this academic inquiry was to evaluate and quantify the levels of students' interest in the learning process, utilizing the specific indicators that were put forth by the esteemed educational researcher Slameto, which include enjoyment, attention, interest, and active involvement in the learning experience. Upon the conclusion of the instructional process, a carefully constructed questionnaire was administered to the students with the intention of assessing their levels of interest in learning, specifically focusing on each of the aforementioned indicators within both the experimental and control classes. The data collected from these measurements can be comprehensively examined in the subsequent table, which presents a detailed analysis of the findings. This systematic approach not only enhances our understanding of student engagement but also provides valuable insights into the effectiveness of the PjBL model in fostering a more stimulating learning environment. Therefore, the results of this study hold significant implications for future educational practices and methodologies aimed at increasing student interest and participation in the learning process.

Table 2. Percentage of Scores for Each Indicator of Student Interest in Learning

		Experimental Class		Control Class	
No	Indicators	%	Category	%	Category
1	Feelings of happiness Student attention Interest	73,84	High	49,12	Sufficient
2		72,30	High	48,27	Sufficient
3		75,84	High	49,44	Sufficient
4		59,48	High	50,48	Sufficient
Average		61,84	High	53,3	Sufficient

3. Results of Data Analysis Prerequisite Tests

a. Normality Test

In order to rigorously evaluate the students' learning interest questionnaire scores, normality tests were meticulously performed on both the experimental

group and the control group, employing the statistical analysis software known as SPSS version 25, particularly utilizing the One Sample Kolmogorov-Smirnov test, which is specifically designed to ascertain the alignment of the sample distribution with the established theoretical distribution, all while adhering to a significance threshold of 5% (0.05). The interpretation of the data indicates that it is classified as normally distributed if the significance value exceeds 0.05; conversely, should the significance value fall below the 0.05 mark, the data will be deemed to lack normal distribution characteristics. Upon careful examination of the test results, a significance value of 0.23 was obtained, which is clearly greater than 0.05, thereby allowing for the conclusion that the residual values exhibit characteristics consistent with a normal distribution. This finding underscores the importance of statistical rigor in educational research, as it confirms that the data derived from the questionnaire can be reliably utilized for further analysis and interpretation in the context of learning interests among students.

b. Linearity Test

Linearity testing constitutes a fundamental prerequisite that must be fulfilled in the context of comprehensive data analysis, serving as a crucial step in ensuring the validity of the inferential conclusions drawn from the data. This particular test is meticulously conducted utilizing the robust capabilities of SPSS software, which is designed to ascertain whether the relationship between two specified variables adheres to the principles of linearity or deviates from such a model. Upon careful examination of the calculation results derived from this analysis, a significance value of 0.684 was determined, which is notably greater than the conventional threshold of 0.05. In accordance with the detailed output provided in the *ANOVA table*, the noted *sig. deviation from linearity* value of 0.684, which distinctly surpasses the 0.05 benchmark, serves as compelling evidence that the data in question adequately satisfies the linearity assumption. This conclusion is vital, as it reinforces the integrity of the statistical methods employed in the analysis and bolsters the reliability of subsequent interpretations. Therefore, the findings derived from this linearity testing not only validate the linear relationship between the variables but also enhance the overall robustness of the analytical framework applied. Ultimately, such rigorous testing and validation processes are indispensable in the realm of data analysis, ensuring that the conclusions reached are both methodologically sound and statistically significant.

4. Hypothesis Test Results

The hypothesis testing procedure that was meticulously executed in the context of this particular study employed a straightforward linear regression analysis to critically assess the influence that the implementation of project-based learning (PjBL) oriented sociomathematics worksheets exerts on the level of learning interest among fourth-grade students enrolled at Gunung

Terang 1 Public Elementary School. The findings derived from the simple linear regression analysis revealed that the calculated t-value significantly surpassed the critical t-table value, specifically illustrating a comparison where 6.102 exceeds 1.711, coupled with an observed significance level of 0.001, which is notably less than the conventional alpha threshold of 0.05. In light of these two pivotal decision-making criteria, one can confidently infer that the alternative hypothesis (H_a) is indeed supported and accepted, thereby indicating that the utilization of PjBL-based sociomathematics worksheets has a measurable and positive impact on the learning interest exhibited by fourth-grade students attending SD Negeri 1 Gunung Terang during the academic year spanning 2024 through 2025. This conclusion not only underscores the relevance of innovative educational strategies in enhancing student engagement but also contributes to the broader discourse surrounding effective pedagogical practices in elementary education.

Discussion

The execution of pedagogical strategies within the experimental classroom setting unequivocally demonstrated that the students exhibited a marked enthusiasm and a high level of engagement throughout the entire learning process, which is critical in the educational landscape. The students, demonstrating remarkable adaptability, were not only able to adhere to the teacher's directives with great precision but also participated wholeheartedly in the activities, showcasing their capacity to connect the sociomathematics learning materials presented to them with their personal, real-world experiences, thus reinforcing the relevance of the educational content. This positive phenomenon can be attributed to the effective incorporation of project-based learning (PjBL)-oriented sociomathematics worksheets, which were meticulously designed to deliver a form of learning experience that was not only captivating and stimulating but also deeply contextual and pertinent to the students' lives. This observation aligns seamlessly with the assertions put forth by Arsana and Sujana (2021), who articulated that the synergistic integration of worksheets within the PjBL model has the potential to incite active engagement among students, thereby engendering a favorable influence on their overall interest in learning activities.

Upon conducting a thorough analysis of the indicators that reflect learning interest, which encompass various dimensions such as enjoyment, attention, interest, and engagement as posited by Slameto (2010), it became apparent that the dimension of interest emerged as the most significant and influential factor in this context. This heightened interest was particularly evident when students were granted the autonomy to delve into the subject matter through the lens of project work, thereby enabling them to independently uncover essential concepts and correlate them with the social realities that pervade their surroundings. Such findings corroborate the perspective presented by Mutawally (2021), which

suggests that genuine interest in learning material often evolves from the novelty and intrinsic relevance of the educational content to the students' lived experiences.

Furthermore, it is imperative to acknowledge that indicators of student happiness constitute a vital underpinning of effective learning environments. The students expressed a sense of comfort and intrinsic motivation when the learning activities were thoughtfully curated in a manner that was both innovative and interactive, thereby enhancing their overall educational experience. Sardiman (2011) underscores the pivotal role that happiness plays as an emotional catalyst that fosters a preparedness to engage in learning activities; consequently, when students derive enjoyment from the learning process, they are more likely to maintain their focus and, as a result, assimilate the material with greater ease and efficacy.

Moreover, the indicators pertaining to attention also underwent substantial reinforcement, as evidenced by the students' demonstrated ability to maintain focus and concentration while engaging in project-based assignments. The PjBL model inherently necessitates a heightened level of concentration and accountability, which serves to motivate students to channel their mental energy towards the successful completion of tasks and projects (Palupi et al., 2023).

In parallel, student engagement was vividly illustrated through the dynamic social interactions that transpired during activities, whether in the form of collaborative group discussions, the meticulous preparation of work plans, or the cooperative efforts involved in the completion of projects. This observation resonates with the foundational theories proposed by Piaget and Vygotsky, which underscore the critical significance of social interactions in the development of conceptual understanding and collaborative competencies among learners.

In summation, the comprehensive findings of this study elucidate a pronounced and significant impact attributable to the implementation of PjBL-based sociomathematics worksheets on the enhancement of students' interest in the learning process. These conclusions are consistent with the research conducted by Rahmah et al. (2024), which illuminated the efficacy of the PjBL model in augmenting both learning interest and motivation levels among students, as well as corroborating the findings of Arsana et al. (2021), which demonstrated that PjBL-oriented worksheets can effectively stimulate active participation by students within the learning framework. Therefore, the strategic utilization of PjBL-based sociomathematics worksheets not only facilitates a more meaningful and enriching educational experience but also fosters a profound interest in learning through the various dimensions of interest, attention, engagement, and the cultivation of a positive emotional learning atmosphere.

D. CONCLUSION

In light of the comprehensive analysis conducted on the research findings in conjunction with the subsequent discussion, it can be definitively concluded that this particular study has successfully identified a noteworthy effect stemming from the

utilization of Project-Based Learning (PjBL) oriented sociomathematics worksheets among fourth-grade students enrolled at SD Negeri 1 Gunung Terang. This significant impact is demonstrably evidenced by the average scores that were achieved by the students across each of the specific indicators related to their interest in learning, which were meticulously assessed throughout the study. Furthermore, this assertion is substantiated by the outcomes derived from the data analysis, which employed linear regression tests; these tests revealed a t-count that exceeded the critical t-table value, specifically illustrating a t-count of 6.102 in comparison to a t-table value of 1.711, accompanied by a significance level of 0.001 that is markedly less than the conventional threshold of 0.05. Consequently, these statistical results imply that the PjBL-based sociomathematics worksheets can be effectively implemented and utilized to significantly enhance the interest of students in their educational pursuits. In accordance with the aforementioned analytical decision-making process, it becomes apparent that the null hypothesis (H_0) has been categorically rejected, while the alternative hypothesis (H_a) has been affirmed, thereby indicating a positive and statistically significant relationship between the application of PjBL-based sociomathematics worksheets and the learning interests of fourth-grade students at SD Negeri 1 Gunung Terang during the academic year of 2024/2025. Therefore, this study not only contributes to the existing literature on educational methodologies but also underscores the potential for innovative instructional strategies to foster greater engagement and interest among young learners in mathematics education.

REFERENCE

- Arsana, I. W. O. K., & Sujana, I. W. (2021). Pengembangan lembar kerja peserta didik (LKPD) berbasis project based learning dalam muatan materi IPS. *Jurnal Ilmiah Pendidikan Dan Pembelajaran*, 5(1), 134-143. DOI: <https://doi.org/10.23887/jipp.v5i1.32817>
- Fitri, R., Azahra, S., & Sari, E. P. 2024. Peningkatan minat belajar peserta didik melalui penerapan model project based learning pada pembelajaran PAI kelas III SD SWASTA NUR ADIA. *Sindoro: Cendikia Pendidikan*, 3(7), 1-12. <https://doi.org/10.35905/alishlah.v17i1.985>
- Hosnan, M. 2014. Pendekatan saintifik dan kontekstual dalam pembelajaran abad 21 kunci sukses implementasi kurikulum 2013. Bogor: Ghalia Indonesia.
- Mutawally, A. F. (2021). Pengembangan Model Project Based Learning Dalam Pembelajaran Sejarah
- Palupi, M. A., & Husamah, H. 2023. Penerapan model project based learning untuk meningkatkan kreativitas dan hasil belajar IPAS siswa kelas 4 SDN Sumber Sari 2 Kota Malang. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 8(1), 4653-466. <https://doi.org/10.23969/jp.v8i1.8155>
- Rahmah, S., Suriansyah, A., & Cinantya, C. (2024). Implementasi model "Project Based Learning" untuk meningkatkan minat dan motivasi hasil belajar peserta didik di sekolah dasar. *MARAS: Jurnal Penelitian Multidisiplin*, 2(4), 2104-2110. <https://doi.org/10.60126/maras.v2i4.561>
- Susanti, R., & Fitri, Y. (2021). Pengaruh minat belajar terhadap prestasi belajar siswa di SMA Negeri 2 Medan. *Jurnal Pendidikan dan Pembelajaran*, 15(2), 85–92. <https://doi.org/10.31227/jpp.v15i2.2021>
- Trismayanti, S. 2019. Strategi guru dalam meningkatkan minat belajar peserta didik di Sekolah

Dasar. Al-Ishlah: *Jurnal Pendidikan Islam*, 17(2), 141-158.
<https://doi.org/10.35905/alishlah.v17i2.1045>

Wedeg, Tine. 2003. Sociomathematics: People and Mathematics in Society. Adults Learning Maths Newsletter, No. 20, December 2003. p. 2.