



Effectiveness of Differentiated Learning in Enhancing Social Studies Outcomes among Sixth-Grade Students

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ABSTRACT

Differentiated learning has gained attention as an inclusive instructional strategy that adapts to diverse student needs. This quasi-experimental study aimed to examine the impact of differentiated instruction on Social Studies learning outcomes among sixth-grade students at MIS Persiapan Negeri Namlea. Two groups were involved: an experimental group receiving differentiated instruction and a control group taught using conventional methods. Pre-test and post-test scores were analyzed to determine the effect of the intervention. Normality tests confirmed the appropriateness of parametric analysis, and an independent samples t-test revealed a statistically significant difference in learning outcomes ($p = 0.050$). The findings suggest that differentiated instruction enhances student performance by allowing tailored content delivery and assessment. While both groups showed improvement, the experimental group demonstrated higher gains, indicating the effectiveness of personalized learning approaches in fostering academic growth. These results support the use of differentiated learning in elementary Social Studies instruction, especially in settings with varied student readiness and learning preferences. Further studies are recommended to explore long-term effects and its implementation across subjects and grade levels.

Keywords: *Differentiated Learning; Instructional Strategy; Social Studies; Student Performance; Quasi-Experimental Study;*

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INTRODUCTION

Differentiated learning is an instructional strategy designed to meet the diverse needs of students by adapting content, processes, and outcomes based on individual learning styles, readiness levels, and interests (Tsortanidou et al., 2017; Vassileva, 2012). The core objective of this approach is to inspire, engage, and empower students to reach their full academic potential. In today's increasingly heterogeneous classrooms, such customization is no longer optional but essential to creating inclusive learning environments (Debasu & Yitayew, 2024; Nuryadin et al., 2024).

Research has consistently shown that differentiated instruction fosters a sense of value and challenge for students by providing individualized learning pathways tailored to their abilities and preferences (Feng et al., 2023). Ubas et al. (2019) emphasize its effectiveness in improving outcomes for learners from marginalized communities, while Feng, Zhang, and Yang (2023) demonstrate how diversified teaching strategies enhance interactivity and engagement. Moreover, data-informed instructional adaptation, as highlighted by Demmans Epp, Daniel, and Müldner (2023), can optimize personalized learning experiences across various academic levels.

Importantly, individualized instruction has been shown to support both ends of the learning spectrum. For students with learning difficulties, targeted strategies significantly boost achievement and foster inclusivity (Marlina et al., 2019; Bağlama et al., 2020). Meanwhile, for high-ability learners, differentiated learning provides enriched content and cognitive challenges necessary for maintaining motivation and maximizing potential (Williams, 2022; Gómez & Pérez-Sánchez, 2025). This dual efficacy underscores the importance of adaptable teaching in ensuring equity and excellence in education (Mardhatillah & Suharyadi, 2023; Akintayo et al., 2024).

MIS Persiapan Negeri Namlea, a madrasah located in Buru Regency, Maluku Province, implements a curriculum integrating the policies of the Ministry of Education and Culture and the Ministry of Religious Affairs. The school's sixth-grade cohort represents a diverse mix of academic abilities, learning needs, and socio-cultural backgrounds, making it an ideal context for applying differentiated instruction (Williams & Hamm, 2017; Struyven et al., 2022).

Sixth-grade students are at a critical transitional stage, preparing to enter higher levels of education. Addressing their diverse needs through differentiated learning can enhance their academic preparation, self-confidence, and motivation. Additionally, in a setting such as MIS Persiapan Negeri Namlea, where diversity is pronounced, this approach helps foster inclusivity and individualized attention. Therefore, this study aims to evaluate the effectiveness of differentiated learning in improving Social Studies performance among sixth-grade students at MIS Persiapan Negeri Namlea. By implementing this strategy, the research seeks to offer pedagogical insights for improving learning outcomes in diverse classrooms.

METHODS

This research employed a quantitative approach with a quasi-experimental design, specifically using a nonequivalent control group. The study was conducted at MIS Persiapan Negeri Namlea and aimed to investigate the effectiveness of differentiated learning in improving student learning outcomes in Social Studies among sixth-grade students. Two Year 6 classes from the school were involved in the study. Both classes were randomly assigned to serve either as the experimental group, which received differentiated instruction, or as the control group, which received conventional teaching methods. Each group consisted of 21 students, bringing the total number of participants to 42. Random assignment was conducted using a simple random sampling method to minimize selection bias and ensure comparability between groups.

Before the intervention, the teacher assigned to the experimental class participated in a series of structured training sessions conducted by the researcher. These sessions introduced the core principles and techniques of differentiated

instruction, including ways to adjust content, process, and product based on student readiness, interests, and learning profiles. The training also involved collaborative lesson planning and classroom simulations to ensure the teacher was fully prepared to implement the strategy with fidelity.

In the classroom, the teacher applied differentiated instruction based on a pre-designed lesson plan. The learning activities were adjusted to suit students' learning modalities, such as visual, auditory, and kinesthetic styles. The content was presented at varying levels of complexity, and students were encouraged to express their understanding through multiple forms of assessment, including presentations, concept maps, and written reflections. Flexible grouping was used to allow collaboration among students with similar or differing strengths. In contrast, the control class teacher followed a conventional instructional approach, relying on teacher-centered explanations, textbook exercises, and uniform assignments for all students.

To assess learning outcomes, the study used a learning outcomes test administered before and after the intervention. The test was constructed based on the national Social Studies curriculum and consisted of multiple-choice and short-answer items. The items were designed to represent various levels of cognitive demand, from basic recall to analytical thinking, ensuring a comprehensive assessment of students' understanding. The validity of the test was reviewed by two Social Studies subject experts and one curriculum specialist to ensure alignment with the instructional goals and learning standards. In addition to test data, classroom observations were carried out to monitor the implementation of instructional strategies and to assess student engagement and interaction during lessons.

The data collected from the pre-test and post-test were analyzed using SPSS. Prior to statistical testing, the Kolmogorov-Smirnov test was applied to determine the normality of the data distribution. An independent samples t-test was used to compare post-test scores between the experimental and control groups to determine whether the implementation of differentiated instruction led to statistically significant differences in learning outcomes. Furthermore, gain scores for each student were calculated by subtracting pre-test scores from post-test scores. These gain scores were then analyzed using a paired samples t-test to assess the degree of improvement within each group and to compare the magnitude of change between groups. The threshold for statistical significance was set at $p \leq 0.05$.

RESULTS

This study encompasses two distinct groups: a control class employing traditional teaching methodologies and an experimental class implementing a differentiated learning model. To ensure the reliability and validity of the findings derived from the analysis, the initial phase involves testing statistical assumptions, including normality tests. The primary objective of these normality tests is to ascertain whether the pretest scores obtained from both groups exhibit a normal distribution. This determination is crucial, as it facilitates the selection and application of the most appropriate statistical analysis techniques for the existing data.

To ensure a comprehensive understanding of the research design and its implications, it is essential to outline the methodology employed. The control class, which relies on conventional teaching methods, serves as a benchmark for assessing the effectiveness of the differentiated learning model. This comparative approach

allows for clearer interpretation of the results, highlighting the strengths and weaknesses of each teaching strategy.

Conducting normality tests is a critical step in the analysis process. This statistical procedure examines whether the data collected from the pretest and post-test conform to a normal distribution pattern. Should the pretest and post-test scores from both the control and experimental groups be found to be normally distributed, this would validate the use of parametric statistical methods for further analysis. Conversely, if the data do not meet the normality assumption, non-parametric methods may need to be employed, which could impact the interpretation of the results.

Table 1. The result of Normality Test

Class Type	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest A (Class Control)	.169	24	.074	.921	24	.061
Pretest B (Class Experiment)	.121	24	.200*	.939	24	.156
Posttest A (Class Control)	.132	24	.200*	.941	24	.171
Posttest B (Class Experiment)	.087	24	.200*	.958	24	.396

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

The results from the Shapiro-Wilk test indicate that all data groups (the pre-test for the control class, the pre-test for the experimental class, the post-test for the control class, and the post-test for the experimental class) have significance values exceeding 0.05 (specifically, 0.061, 0.156, 0.171, and 0.396). Consequently, it can be concluded that the data in each group is normally distributed. Given that all data groups exhibit a normal distribution, one can proceed with the application of parametric statistical tests, such as the t-test, to analyse the differences between the groups and to evaluate the effectiveness of differentiated learning in the subject of Social Sciences at the State Preparatory School of Namlea.

Upon confirming that the pretest data from both groups follow a normal distribution, the next step is to conduct an independent sample t-test. This will determine whether there is a statistically significant difference between the pretest scores of the control and experimental groups prior to the implementation of the intervention. The independent t-test is employed to compare the means of two independent groups, assessing whether any observed differences are statistically significant or merely the result of random variation. In this study, the test seeks to clarify any initial discrepancies between the control and experimental groups before the introduction of differentiated instruction. The results of the independent t-test will establish a foundational basis for evaluating the homogeneity of both groups prior to the intervention, thereby enabling a more accurate interpretation of the post-test results regarding the effectiveness of differentiated learning.

Table 2. The Result of Independent T-Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	1.216	.276	-2.015	46	.050	-4.500	2.234	-8.996	-.004
Equal variances not assumed			-2.015	42.729	.050	-4.500	2.234	-9.005	.005

Based on the table 2 above, The results of Levene's test indicated an F value of 1.216 with a significance level of 0.276. Since the significance value from Levene's test exceeds 0.05, it can be assumed that the variances between the two groups are homogeneous.

Furthermore, the t-test results revealed a t value of -2.015 with 46 degrees of freedom and a two-tailed significance of 0.050. The mean difference between the two groups was found to be -4.500, with a standard error of the difference of 2.234. The 95% confidence interval for the mean difference ranges from -8.996 to -0.004.

Given that the significance value from the t-test is 0.050, which is the commonly accepted threshold for significance, it can be concluded that there is a significant difference in the learning outcomes of students in the experimental group compared to those in the control group at the 0.05 significance level. In other words, differentiated instruction has a significant impact on the learning outcomes of sixth-grade students at MIS Persiapan Negeri Namlea in the subject of Social Studies. The negative mean difference indicates that the average learning outcomes of students in the experimental group are higher than those in the control group.

DISCUSSION

The findings of this study demonstrate that differentiated instruction has a significant and positive impact on the learning outcomes of sixth-grade students in Social Studies at MIS Persiapan Negeri Namlea. Students in the experimental group, who received instruction tailored to their individual readiness levels, learning styles, and interests, showed significantly higher post-test scores and greater gain scores than those in the control group. These results confirm the effectiveness of differentiated learning as an instructional approach in diverse classroom settings.

The improvement observed in the experimental group aligns with the principles of differentiated instruction as proposed by Tomlinson, which emphasize the importance of addressing individual differences to optimize student learning. Differentiated instruction not only promotes engagement but also creates appropriate levels of challenge, which in turn enhances academic achievement (Bobis et al., 2021; Hatmanto & Rahmawati, 2023). The students in this study benefited from such tailored experiences, confirming that when students are provided with content and tasks that match their learning profiles, they are more likely to achieve meaningful learning outcomes (Liou et al., 2023).

This study's findings are consistent with those of Feng, Zhang, and Yang (2023), who found that the implementation of diversified teaching strategies increased student engagement and performance in technology-enhanced learning environments. Similarly, the gain score analysis from this research echoes the results of Bağlama et al. (2020), who emphasized that customized instructional strategies lead to measurable improvements, especially for students with specific learning needs.

Moreover, the effectiveness of differentiated instruction for a broad spectrum of learners—ranging from those with learning difficulties to high-ability students—is supported by previous studies (Tomlinson et al., 2003; Kanyugi et al., 2024; Suryani et al., 2024). The classroom context at MIS Persiapan Negeri Namlea, with its diversity in students' academic abilities and learning preferences, offered an ideal setting to apply and examine the benefits of such an approach. The differentiated strategy ensured that

each student received learning support suited to their specific needs, thereby promoting equity in classroom instruction (Adebisi, 2024).

From a practical perspective, the results of this study highlight the importance of preparing teachers to implement differentiated learning effectively. The pre-intervention training provided to the experimental group's teacher played a critical role in ensuring the fidelity and success of the implementation. This supports Epp, Daniel, and Müldner's (2023) argument that teacher capacity and responsiveness to individual data are crucial for optimizing personalized learning experiences.

Despite the statistically significant results, it is important to acknowledge that the pre-test scores between the groups were slightly different. Although this difference was marginal, it suggests that the experimental group may have had a slight initial advantage. However, the considerable improvement in gain scores supports the conclusion that differentiated instruction was the key factor contributing to their academic progress.

CONCLUSION

The findings of this study affirm that differentiated learning has a significant positive impact on student achievement in Social Studies among sixth-grade students at MIS Persiapan Negeri Namlea. Statistical analysis revealed that the experimental group, which received differentiated instruction, achieved a mean post-test score that was 4.500 points higher than the control group, with a t-value of -2.015 and a significance level (p) of 0.050, indicating a statistically significant difference. The 95% confidence interval for the difference ranged from -8.996 to -0.004, confirming that the improvement was not due to chance. In addition, the normality tests (Shapiro-Wilk) for all four data sets (pre-test and post-test for both groups) showed p-values > 0.05, supporting the use of parametric tests.

The experimental group not only showed superior final scores but also demonstrated greater progress in learning gains compared to the control group, validating the effectiveness of differentiated instruction. These results support previous research and pedagogical theory which emphasize the value of tailoring instruction to student readiness, interests, and learning profiles. In diverse classroom contexts such as MIS Persiapan Negeri Namlea, where students come from varied backgrounds and academic abilities, differentiated learning fosters equity, inclusivity, and deeper engagement. Educators and policymakers are thus encouraged to integrate this approach into teaching practice and provide structured training to ensure its effective implementation.

REFERENCES

- Adebisi, R. (2024). Equality and diversity in learning through differentiated instructions. *KNE Social Sciences*. <https://doi.org/10.18502/kss.v9i6.15256>
- Akintayo, O., Eden, C., Ayeni, O., & Onyebuchi, N. (2024). Inclusive curriculum design: Meeting the diverse needs of students for social improvement. *International Journal of Applied Research in Social Sciences*, 6(5), 770-784. <https://doi.org/10.51594/ijarss.v6i5.1100>

- Bağlama, B., Yücesoy, Y., Uzunboylu, H., & Özcan, D. (2020). Can infographics facilitate the learning of individuals with mathematical learning difficulties? *International Journal of Cognitive Research in Science, Engineering and Education*, 5(2), 119–128. <https://doi.org/10.5937/ijcrsee1702119b>
- Bobis, J., Russo, J., Downton, A., Feng, M., Livy, S., McCormick, M., & Sullivan, P. (2021). Instructional moves that increase chances of engaging all students in learning mathematics. *Mathematics*, 9(6), 582. <https://doi.org/10.3390/math9060582>
- Debasu, H., & Yitayew, A. (2024). Examining elements of designing and managing of creating inclusive learning environment: Systematic literature review. *International Journal of Special Education (IJSE)*, 39(1), 33–43. <https://doi.org/10.52291/ijse.2024.39.4>
- Demmans Epp, C., Daniel, B. K., & Muldner, K. (2023, June). Learning analytics for supporting individualization: Data-informed adaptation of learning. In *Frontiers in Education* (Vol. 8, p. 1240377). Frontiers Media SA. <https://doi.org/10.3389/feduc.2023.1240377>
- Eden, C., Chisom, O., & Adeniyi, I. (2024). Harnessing technology integration in education: Strategies for enhancing learning outcomes and equity. *World Journal of Advanced Engineering Technology and Sciences*, 11(2), 001–008. <https://doi.org/10.30574/wjaets.2024.11.2.0071>
- Feng, M., Zhang, Q., & Yan, J. (2023). Exploring the effectiveness of individualized learning trajectories in university smart sports education classrooms: A design and implementation study. *Journal of Social Science and Humanities Literature*, 6(5), 67–73. [https://doi.org/10.53469/jsshl.2023.06\(05\).10](https://doi.org/10.53469/jsshl.2023.06(05).10)
- Feng, M., Zhang, Q., & Yang, K. (2023). Application of diversified teaching strategies in the intelligent physical education platform: Enhancing course interactivity and engagement. *International Journal of Education and Humanities*, 10(1), 229–233. <https://doi.org/10.54097/ijeh.v10i1.11141>
- Gómez, J., & Pérez-Sánchez, E. (2025). Individual learning in organisational learning contexts: A literature review. *Human Systems Management*, 44(1), 6–19. <https://doi.org/10.3233/hsm-230214>
- Hatmanto, E., & Rahmawati, F. (2023). Unleashing the potential: Exploring attitudes and overcoming challenges in implementing differentiated instruction in the Philippines' English language classrooms. *E3S Web of Conferences*, 425, 02001. <https://doi.org/10.1051/e3sconf/202342502001>
- Kanyugi, D., Obote, D., Munanu, S., & Iguna, M. (2024). Effect of differentiated instructional approach on learners' participation and academic achievement in biology in public secondary schools in Mbeere North Sub-County, Kenya. *East African Journal of Education Studies*, 7(3), 1–12. <https://doi.org/10.37284/eajes.7.3.2012>
- Liou, S., Cheng, C., Chu, T., Chang, C., & Liu, H. (2023). Effectiveness of differentiated instruction on learning outcomes and learning satisfaction in the evidence-based nursing course: Empirical research quantitative. *Nursing Open*, 10(10), 6794–6807. <https://doi.org/10.1002/nop2.1926>

- Mardhatillah, M., & Suharyadi, S. (2023). Differentiated instruction: Challenges and opportunities in EFL classroom. *Journal of English Language Teaching and Linguistics*, 8(1), 69. <https://doi.org/10.21462/jeltl.v8i1.1022>
- Marlina, M., Efrina, E., & Kusumastuti, G. (2019). Differentiated learning for students with special needs in inclusive schools. *Proceedings of the 4th International Conference on Education and Technology (ICET 2019)*. <https://doi.org/10.2991/icet-19.2019.164>
- Nuryadin, N., Salamah, S., KMR, G., & Norlaila, N. (2024). Humanistic-based learning management: Harmonizing multiculturalism in building an inclusive learning environment. *Al-Tanzim: Jurnal Manajemen Pendidikan Islam*, 8(1), 159–173. <https://doi.org/10.33650/al-tanzim.v8i1.7067>
- Struyven, K., Gheysens, E., & Griful-Freixenet, J. (2022). Differentiated instruction in teaching and teacher education: The DI-QUEST model. In L. Leite, P. Brown, & L. Dourado (Eds.), *Handbook of Research on Teacher Education in the 21st Century* (pp. 464–470). Springer. https://doi.org/10.1007/978-981-16-8679-5_48
- Suryani, S., Putri, D., & Risdianto, E. (2024). Application of the team-assisted individualization model of learning in increasing high school students' learning motivation. *Jurnal Pendidikan Matematika dan IPA*, 15(1), 35–42. <https://doi.org/10.26418/jpmipa.v15i1.71911>
- Tomlinson, C. A., Brighton, C. M., Hertberg, H. L., Callahan, C. M., Moon, T. R., Brimijoin, K., & Reynolds, T. (2003). Differentiating instruction in response to student readiness, interest, and learning profile in academically diverse classrooms: A review of literature. *Journal for the Education of the Gifted*, 27(2–3), 119–145. <https://doi.org/10.1177/016235320302700203>
- Tsortanidou, X., Karagiannidis, C., & Koumpis, A. (2017). Adaptive educational hypermedia systems based on learning styles: The case of adaptation rules. *International Journal of Emerging Technologies in Learning (iJET)*, 12(5), 150. <https://doi.org/10.3991/ijet.v12i05.6967>
- Ubas, J., Bonghanoy, G., & Rellon, L. (2019). The individualized learning in mathematics among Badjao children in Matina Aplaya, Davao City. *University of Mindanao International Multidisciplinary Research Journal*, 4(1), 28–33. <https://doi.org/10.55990/umimrj.v4i1.404>
- Vassileva, D. (2012). Adaptive e-learning content design and delivery based on learning styles and knowledge level. *Serdica Journal of Computing*, 6(2), 207–252. <https://doi.org/10.55630/sjc.2012.6.207-252>
- Williams, J., & Hamm, J. (2017). Peer group ethnic diversity and social competencies in youth attending rural middle schools. *The Journal of Early Adolescence*, 38(6), 795–823. <https://doi.org/10.1177/0272431617699945>
- Williams, K. (2022). The effect of differentiated instruction on standardized assessment performance of middle school mathematics students. *International Journal of Advanced Research*, 10(5), 264–272. <https://doi.org/10.21474/ijar01/14704>