

The Influence of Differentiated Learning Strategies on Motivation and Geography Learning Outcomes

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ABSTRACT

This study aims to ascertain how diverse learning strategies in geography instruction affect the learning outcomes and motivation of SMA Negeri 1 Bunyu geography students. This study employs quantitative techniques and has an experimental design with a Nonequivalent Control Group Design, where an experimental class uses differentiated learning strategies, while the control class uses expository learning strategies. The use of this design is based on the problems teachers face in the classroom, such as low student motivation to learn, and the strategies teachers use are not diverse. This design makes it possible to compare different learning, differentiated, and expository strategies on student motivation in the classroom. Sixty-three students made up the study's sample, which was selected using a combination of random and probability sampling techniques. SPSS version 25.00 data analysis techniques using the t-test (Independent Sample T-test). With a value of 0.000 < 0.05, the t-test results showed that using a variety of learning strategies can improve learning outcomes and increase student motivation. Differentiated learning tactics are implemented based on the needs and abilities of students in order to provide an inclusive learning environment. The utilization of various strategies can improve students' academic achievement in addition to encouraging deeper knowledge. The findings of this study show how differentiated instruction can improve students' academic performance and motivation for studying geography.

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1. INTRODUCTION

Education, as the main foundation for individual and societal development, experiences continuous transformation over time. This change gives rise to new innovations that support successful learning, especially in knowledge acquisition (Andrzej Szymkowiak et al., 2021; Salunke et al., 2019). In light of this, educators must select the best teaching methods to raise students' comprehension and learning outcomes (Y. Chen, 2021; Filgona et al., 2020; Puspitarini & Hanif, 2019). This necessitates a paradigm change in which the focus is placed on the student rather than the teacher (Alamri et al., 2021; Alshraah et al., 2023; Komalasari et al., 2020). To ensure that every student may access learning in a way that best

suits their learning style and comprehension level, learning strategies used in this effort must be attentive to the needs of each individual student (Aslan et al., 2020; Drane et al., 2020; Moriña, 2017). Thus, in addition to giving students the chance to actively participate in the learning process, student-centered learning methodologies also reinforce learning experiences that are relevant and meaningful for them (Ali, 2019; Kansteiner, 2022; Sørensen et al., 2023).

In fact, in class there are several problems in learning geography in high school. Students think that geography subjects are boring. This is caused by the teacher's tendency to give more lectures rather than actively involving students in the learning process. As many as 79% of students were recorded as not having achieved the Learning Goal Achievement Criteria (KKTP). Apart from that, teachers' lack of understanding of students' needs also causes students to feel that they do not receive special attention in understanding learning material. The poor level of subject mastery among students is also influenced by the employment of unsuitable learning strategies during the learning process. Therefore, by using customized learning methodologies, researchers offer the best answer for geography education. With the use of a differentiated learning technique, students can investigate material in accordance with their aptitude, interests, and unique needs without feeling frustrated or as though their learning has failed. The differentiated learning approach makes the most of pupils' capacity to acquire significant life lessons (Chandra Handa, 2020; Magableh & Abdullah, 2020; Swandewi, 2021). Differentiated learning strategies emphasize the idea that each individual has unique interests, potential and talents, so teachers need to have the ability to coordinate and integrate these variations with appropriate strategies (Alam & Mohanty, 2023; Faiz et al., 2022; Magableh & Abdullah, 2020). Therefore, Teachers need organize lesson materials, activities, daily assignments, whether carried out in class or outside of class, as well as final evaluations according to the student's level of readiness in studying the material, the student's learning interests or preferences, and the method of delivery that suits the student's learning profile (Burden, 2020; Le et al., 2022; Yuliansyah & Ayu, 2021).

Numerous research studies on diverse learning strategies have been conducted, Sitorus (2023) focusing on the impact of strategies. Students' interests and learning results are increased by differentiated learning methodologies, as evidenced by the impact of differentiated learning on these two areas. In the classroom, differentiated instruction significantly affects students' learning outcomes. According to research by Laia (2022) on the subject. A study of the literature on the impact of differentiated learning strategies on student learning outcomes, carried out by Santa (2023), reveals that these strategies have a favorable effect on learning outcomes.

Based on the findings of Sitorus, Laila, and Santa, this study aims to explore more deeply the specific impact of differentiated learning strategies on students' motivation and learning outcomes in the context of geography education, to fill the gaps in the existing literature, and to strengthen the relationship between the current research and existing studies. Research on how diverse learning strategies affect student motivation and learning results in geography is therefore crucial. Thus, the question formulated for this study is: How, in comparison to standard teaching techniques, can a differentiated learning strategy improve students' motivation and learning outcomes in geography? This study can identify potential limits and demonstrate a proactive method to solve them. One potential drawback of this study is the sample size, as it may not fully represent the different student backgrounds and learning styles in geography classes.

2. METHODS

The research methodology used in this study is quasi-experimental (quasi experiment). By include a control group and an experimental group, researchers can intentionally create a cause-and-effect link (causal relationship) between two elements using quasi-experimental research (Sugiyono, 2012). Nonequivalent Control Group Design was the study design employed. This design offers a pretest prior to therapy administration and a posttest following treatment in each group. A class taught utilizing differentiated instruction is the experimental group, and a class taught using learning techniques is the control group. The study design is displayed in Table 1.

Table 1. Research Design

Subject	Pretest	Treatment	Posttest
Experiment	Motivation and Learning Outcomes	Teachers use differentiated learning strategies	Motivation and Learning Outcomes
Control	Motivation and Learning Outcomes	The teacher uses expository learning strategies	Motivation and Learning Outcomes

The class XI students from SMA Negeri 1 Bunyu, which comprised 3 classes and 94 students overall, made up the research population. In this study, sampling was done utilizing methods that random sampling using a technical approach and probability. The method of randomly selecting samples from a population without taking into account the layers or structure of that population is known as random sampling technique. Class XI A, including 30 individuals in the control group, and class XI C, comprising 33 individuals in the experimental group, were the chosen samples. These samples will be included in the test pretest and posttest. Test pretest and posttest using essay questions consisting of 7 questions with test indicators, namely: (i) analyzing geological locations Indonesia; (ii) understand the geographical location of Indonesia; (iii) analyzing the area of Indonesia; (iv) analyze Indonesia's territorial boundaries; (v) analyzing Indonesia's territorial boundaries; (vi) analyze the economic impact of Indonesia's geographical location; and (vii) analyze the advantages of Indonesia's geographical location.

The validity and reliability testing of the instruments are performed as indicated in the following table so that the exams that are administered can evaluate student learning results.

Table 2. Question Validity Test Results Student learning outcomes

Question no	Calculated r value	Table r value	Information
1	0.599	0.349	valid
2	0.579	0.349	valid
3	0.473	0.349	valid
4	0.472	0.349	valid
5	0.596	0.349	valid
6	0.434	0.349	valid
7	0.472	0.349	valid

According to table 2 above, there is a significance value larger than 0.05 for each of the seven questions. This illustrates how any question may be used as a tool to assess students' learning goals. Furthermore, the reliability test results are shown in Table 5.

Table 3. Reliability Test Instrument

Cronbach's Alpha	N of items
0.704	7

Based on the table, the reliability test conducted with the research instrument can be considered reliable, as indicated by the Cronbach's Alpha coefficient of 0.724, which is greater than 0.05. This result suggests that the developed instrument is capable of accurately assessing student learning outcomes. Therefore, it can be concluded that the tested instrument is both valid and reliable.

The impact of differentiation strategies on student motivation and learning outcomes was analyzed using a t-test. Data for this study were collected through tests and interviews, employing both quantitative and qualitative data analysis methods. The application of differentiated learning strategies was described, and relevant information was gathered through qualitative analysis. To evaluate the effect of these strategies on student motivation and learning outcomes, a t-test was conducted using SPSS version 25.0.

3. FINDINGS AND DISCUSSION

3.1. Normality Test

In this study, it is essential for the data to have a normal distribution, as many statistical tests and analyses rely on the assumption of normality. Having normally distributed data allows the use of parametric statistical tests, which provide more accurate results and interpretations. In addition, Findings are more trustworthy and broadly applicable when the data is normalized, which guarantees that the sample is typical of the population. This test operates under the premise that the residual value will be distributed normally if the significance value of the test is greater than 0.05. The residual value does not follow a normal distribution, on the other hand, if the significance value is less than 0.05. Table 7 shows the findings of the normalcy test.

Table 4. Normality Test

	Experimental Class	Control Class
N	33	30
NormalParameter, Mean	78.09	69.16
Std. Deviation	9.15428	8.38
Most extreme Absolute	165	144
DifferencesPositive	0.99	144
Negative	-165	-144
Kolmogorof-Smirnov Z	775	704
Asymp.Sig (2 – tailed)	585	705

According to the above table, the normality significance values for the experimental class and control class are greater than 0.05, meaning that the data from these classes are normally distributed. The experimental class has a significance value of 0.585 compared to the control class's 0.705.

3.2 Homogeneity Test

Homogeneity test is a procedure used to assess the degree of similarity or difference between data variants from research samples in the experimental class and control class. It is crucial to determine the homogeneity of data variants between experimental and control groups to ensure that any observed differences in outcomes are not due to initial differences in the groups themselves. This helps in attributing any observed effects to the treatment or intervention being studied rather than to baseline group disparities. The homogeneity test operates on the assumption that a distribution is homogenous if its significance value is more than 0.05 and inhomogeneous if it is less than 0.05. The following table displays the results of the homogeneity test.

Table 5. Homogeneity Test

Levene Statistics	Df1	Df2	Sig
1,360	5	13	301

Based on the homogeneity test table produced using the Test of Homogeneity (Levene's Statistics) above, it is reasonable to draw the conclusion that the research data on the motivation and learning outcomes of students in the experimental class and control class are homogeneous. This is because the homogeneity test's significant value of 0.301 is more than the criterion significance value of 0.05.

3.3 Descriptive Statistical Test

Descriptive statistics provides a summary of each research variable's mean, maximum, and minimum values. To assess how different learning strategies affect students' motivation and academic performance, it is useful to include a brief introduction using descriptive statistics that explains that the

goal of the analysis is to compare the characteristics of the students in the experimental and control groups, with a focus on their mean scores.

Table 6. Statistical Test Descriptive

Descriptive Statistics					
Class	N	Maximum	Minimum	Mean	Std Deviation
Experiment	33	95	60	78.09	9.15428
Control	30	88	57	69.17	8.38563
Valid N	30				

From data on tables results pretest The students above appear to be the class average control is 69.17 and the experimental class is 78.09. So the difference between the two is 8.93. This proves that the influence of differentiated learning strategies can increase motivation and results Study students at SMA Negeri 1 Bunyu.

3.4 T test

The t test is used to conduct an effectiveness test to see whether the differentiated learning technique is successful in raising student motivation and learning results. The Independent Sample T Test test is the one that is employed. A technique for comparing two groups of means from two distinct (independent) samples is the Independent Sample T-Test. By comparing the two sample means, the Independent Sample T-Test test can, in theory, ascertain whether there is a mean difference between two populations. From the significant level of p (Sig (2-tailed)), decision making is evident. H0 is accepted if p is greater than 0.05 and rejected if p is less than 0.05. The table that follows displays the t-test findings.

Table 7. Results of the T Test

t-Test Results	Significance
of the Independent Sample Test	0,000

The significance level in the t test displays a value of $0.000 < 0.05$ based on the hypothesis test. Therefore, it can be said that geography instruction is effective and strategically differentiated in raising student motivation and learning objectives.

Discussion

Based on the findings of the researchers' data analysis, it is evident that class XI students' motivation and learning outcomes are impacted by the use of differentiated learning strategies that take into consideration their interests, talents, learning styles, and needs. The implementation of differentiated learning strategies by researchers is far more effective than teacher-centered learning or traditional approaches used by teachers, as evidenced by the higher average learning results of students in experimental classes. The results of this research support previous research conducted by Sitorus (2023) which showed that differentiated learning strategies increased students' interest and learning outcomes. Research conducted by Laia (2022) also demonstrates the findings that varied learning strategies have a major impact on students' learning outcomes when used in the classroom. Students can study in accordance with their interests and level of readiness thanks to differentiated learning methodologies. Differentiated learning is recognizing each student's unique capabilities and areas of need for independent learning rather than trying to teach them various things (Bondie et al., 2019). Students can adjust learning according to their interests and readiness, thus ensuring that every individual present in the class is truly involved and enjoys each stage of learning, so that students can attend and learn with enthusiasm.

Differentiated learning is beneficial for various levels of education, especially for students with diverse learning challenges (Ruben, 2013). Students demonstrate variations their academic levels,

learning preferences, learning styles, and learning talents, hence individualized teaching strategies are needed to fulfill each student's demands (Muñoz et al., 2022; Rogowsky et al., 2020; Tzenios, 2020). Differentiated teaching methods honor each person's individuality and potential while enabling learners of various backgrounds and skill levels to demonstrate their knowledge, comprehension, and abilities (Celik, 2019; Ginja & Chen, 2020; Melese & Tinoca, 2019). With the aim of optimizing learning opportunities for every student in the class, teachers actively modify the curriculum, resources, teaching strategies, student work, and learning activities while applying a differentiation strategy (Gheysens et al., 2022; Ginja & Chen, 2020; Onyishi & Sefotho, 2020).

Student motivation to learn is impacted by differentiated instruction (Domen et al., 2020; Handiyani & Muhtar, 2022; Malacapay, 2019). Motivation plays a central role in the entire learning process. When students feel motivated, they. A key component of the entire learning process is motivation. When students are motivated, they are more likely to be engaged in every learning phase of the process, both cognitively and emotionally, and to demonstrate a keen interest in the content being covered (Filgona et al., 2020; Sekreter, 2019; Shangguan et al., 2020). The key to raising students' motivation levels is the implementation of diversified learning methodologies (Ginja & Chen, 2020; Magableh & Abdullah, 2020; Malacapay, 2019). Through consideration of individual differences in learning styles, interests, and skill levels, educators may design more engaging and difficult lessons for every student. This facilitates the creation of an engaging and dynamic learning environment where students may actively participate in the process of learning and develop a deeper comprehension of the subject matter being taught..

Apart from motivation, differentiated learning strategies also have an impact on student learning outcomes in geography subjects (Aguilar et al., 2021; Daumiller et al., 2021; Sari et al., 2021). By considering individual learning needs, teachers can present material appropriate to students' level of understanding. For example, students who have higher abilities may be given more complex assignments or more in-depth research projects, while students who need additional help may be given extra support or simpler material. Thus, differentiated learning strategies help improve students' understanding and achievement in geography. Students who are involved in differentiated learning tend to have higher motivation, are more active in the learning process, and achieve better learning outcomes compared to students who are not involved in this strategy.

The advantages of differentiation learning strategies compared to other learning strategies are: (i) helping teachers to group the abilities or learning styles of each student, thereby enabling teachers to adjust learning approaches to suit individual needs (Malacapay, 2019); (ii) increasing flexibility in the learning process, with students not being fixed in one group, thus allowing them to interact with various classmates (Smale-Jacobse et al., 2019); (iii) eliminating labeling of students with different abilities, because differentiated learning allows students to study with classmates who have similar abilities and interests; (iv) assist teachers in monitoring the progress of each student both at school and at home, by involving the role of parents in supporting the student's learning process (Shareefa, 2021); (v) building a harmonious relationship between teachers and students, with students instilling full trust in the teacher, thereby creating high learning motivation and enthusiasm for continuous learning (J. Chen & Guo, 2020); and (vi) strengthening Pancasila education attitudes in students, such as diversity, independence, mutual cooperation, critical thinking and creativity, which are important aspects in forming student character (Zakso et al., 2021).

Unlike alternative methods of learning, differentiated instruction is crucial because every person is unique. Differentiated instruction allows all students in a diverse classroom community to learn new material in various ways, making it an effective teaching strategy. Developing learning products, managing, constructing, or reasoning concepts, and creating evaluation procedures are all essential to ensure that students with different backgrounds can learn together in one class. According to the explanation above, differentiated learning practices may therefore enhance student motivation and learning outcomes.

4. CONCLUSION

Differentiated learning practices can boost student motivation and learning outcomes, according to the research's findings. Descriptive statistical tests that reveal an average score difference of 8.93 between the experimental class and control classes (69.17 and 78.09, respectively) corroborate this result. This suggests that learning outcomes and student motivation are positively impacted by varied learning modalities. Additionally, the T-test findings indicate a significance level of 0.000, proving the efficacy of customized geography instruction in raising student motivation and academic results. Therefore, the findings of this study provide compelling evidence for the efficacy of varied learning approaches in the context of teaching geography. Teachers can integrate differentiated learning strategies into classroom planning and activities by understanding and responding to individual differences among students. One effective way to do this is by using initial assessments to identify students' needs, interests, and learning styles. Based on the results of the assessment, teachers can design varied activities, such as study groups with different levels of difficulty, customised tasks, and use various media and teaching methods such as visual, audio and kinesthetic. Teachers can also provide choices for students in how they demonstrate understanding, for example through projects, presentations or writing. Policy makers can support the implementation of differentiated learning strategies by incorporating differentiation principles into curriculum development and teacher training programmes. They can provide training that focuses on differentiation techniques, develop resources that assist teachers in implementing this strategy, and create an environment that supports flexibility and innovation in the classroom. With strong policy support, teachers will be better able to implement differentiated learning strategies effectively, which in turn can improve the quality of education and ensure every student gets optimal learning opportunities according to their needs and potential. This suggests that varied learning modalities positively impact learning outcomes and student motivation. Additionally, the T-test findings indicate a significance level of 0.000, proving the efficacy of customized geography instruction in raising student motivation and academic results. Therefore, the findings of this study provide compelling evidence for the efficacy of varied learning approaches in the context of teaching geography.

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