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Effect of Talking Stick Learning on Senior High School Students' Geography Achievement: Quasi-Experimental Study

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Abstract

Low achievement in geography learning remains a challenge at the senior high school level, partly due to teachers' ineffective implementation of instructional models. This study aims to examine the effect of the Talking Stick cooperative learning model on achievement in geography among twelfth-grade senior high school students. A quantitative approach with a quasi-experimental design was employed, involving 30 students divided into an experimental group and a control group. Data were collected using a multiple-choice achievement test and analyzed through inferential statistics. The results indicate that students taught using the Talking Stick model achieved higher average learning outcomes than those receiving conventional instruction. These findings suggest that the Talking Stick cooperative learning model effectively enhances students' achievement in geography by promoting active participation, confidence in expressing ideas, and peer interaction. This study contributes to the literature on cooperative learning by providing empirical evidence that the Talking Stick model represents a practical instructional alternative for improving the quality of geography learning in senior high schools.

Keywords: *learning outcomes, learning model, talking stick*

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Introduction

Education is a dynamic manifestation of human culture and a prerequisite for its Development. Therefore, developments in education must align with changes in cultural life. Education plays a vital role in advancing human welfare and resources, encompassing both teaching and learning, both in schools and beyond. Education enables individuals to develop mindsets that set the direction and goals of their lives, face and resolve various challenges, and improve their standard of living (Leoni, 2025; Piao & Managi, 2023). Learning is a necessity for every individual. Learning is a process by which an individual interacts with their environment to achieve behavioral change (Nadhifah et al., 2021; Sinaga et al., 2024; Soleha et al., 2021). This process involves mental and psychological activities that occur in active interaction with the environment, which results in changes in knowledge, skills, and attitudes (Ferdian et al., 2018; Saha et al., 2021; Wang et al., 2020). Learning characteristics can be identified through learning experiences that involve transitions from not knowing to knowing, both in positive thinking and action (Ferdian et al., 2018; Rajagukguk et al., 2020; Rudini & Saputra, 2022; Saha et al., 2021; Wang et al., 2020). These changes can lead to behavioral adjustments that occur during the learning process.

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Learning outcomes are the specific abilities or skills students acquire after completing the teaching and learning process, encompassing cognitive, emotional, and psychomotor skills. Problems often encountered after teaching and learning activities concern the evaluation of learning outcomes. (Biantoro et al., 2020; Hapsari & Fitria, 2020). Learning outcomes are the skills students acquire after completing a learning experience (Ahmar, 2023; Suhery et al., 2020). Learning outcomes refer to the skills acquired by students through various learning activities (Ahmar, 2023; Hasrudin & Asrul, 2020; Suhery et al., 2020). Learning outcomes are the results achieved by students after completing the learning process, reflecting their understanding of the material taught (Prameswari & Anik Lestariningrum, 2020; Usman & Listiani, 2022). Learning outcomes are the experiences students or learners gain after participating in learning activities. These experiences encompass the cognitive domain, which relates to students' ability to solve questions presented after participating in the activity. (Balfaqeeh et al., 2022; Nurfadillah et al., 2024).

However, a current problem is that many students still lose interest in learning. This is supported by prior research, which indicates that many students still achieve low learning outcomes (Agustina, 2021; Wiradarma et al., 2021). Other findings also revealed that low student learning outcomes are attributable to the lack of varied learning models used by teachers, which in turn affects learning outcomes (Riadi et al., 2022; Sinta et al., 2022). This problem is also found in several schools. Based on researchers' observations of student geography learning outcomes, the average student exam score remains low, below the school's Minimum Completion Criteria (KKM) of 75. Based on observations and discussions with peers in Class XII Geography B at SMA N 2 Tembilahan, several factors contribute to low student learning outcomes. First, the teacher's role is still dominant in the learning process. Second, teachers still rely extensively on the lecture method. Third, the teacher's role is limited to that of a knowledge transfer agent. The remaining factors include laziness in reading, reluctance to ask questions, avoidance of answering teacher questions, embarrassment in expressing opinions, students wandering in and out of class, and ignoring teachers when they are explaining lessons. These factors contribute to low learning outcomes.

To address this issue, teachers need to implement classroom-based solutions. Therefore, teaching and learning require specific skills and expertise to create a more active, creative, and innovative classroom atmosphere, thereby preventing monotony that can disrupt student comfort and make it difficult for them to understand the material. This can be supported by Constructivist Learning Theory, an educational theory that prioritizes the Development of students' logical and conceptual reasoning (Nurhidayati, 2017; Suryana et al., 2022). One constructivist learning theory that encourages the Development of student learning values is the Active Learning Approach (Hasja et al., 2023; Kusnadi & Azzahra, 2024; Syaparuddin et al., 2020). The cooperative learning model is a learning approach that involves several small groups, in which students are required to be actively involved, enabling them to develop their own conceptual understanding through hands-on experiences (Hartiningrum & Ula, 2020; Paryanto & Kurniasih, 2020; Seika Ayuni et al., 2017). Selecting the right learning model can involve students and help them participate actively in the learning process, enabling them to achieve learning objectives effectively. The learning model is a conceptual framework that describes strategies for achieving specific learning objectives and guides teachers in designing and implementing learning activities (Ahyar & Edyansyah, 2021; Tela et al., 2019). Therefore, a learning model is needed to improve student learning outcomes. One learning model that can be applied is the Talking Stick learning model.

Previous research indicates that appropriate learning models can facilitate student learning (Rajagukguk et al., 2020; Rianto & Takaedengan, 2024). Other findings also confirm that the widely used learning model for implementing student-centered activities primarily addresses teachers' challenges in engaging students who are unable to collaborate. This cooperative approach is a choice to address the weakness of competition: only some students become smarter, while others become increasingly ignorant. Other findings indicate that Talking Stick is a learning model that helps build students' confidence in answering and speaking with others (Kurniawati & Sudiana, 2023; Kusumayani et al., 2019). The use of sticks in turns serves as a medium to prompt students to act quickly and accurately, while also measuring their understanding of the material (Bijanti, 2023;

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Sayekti et al., 2021). However, this study differs from prior research by applying Talking Stick Cooperative Learning to high school students' geography learning. Accordingly, the purpose of this study is to analyze the effect of Talking Stick Cooperative Learning on geography achievement among high school students.

Method

This study uses a quantitative research approach, specifically a quasi-experimental design with a non-equivalent control group (Pitriani et al., 2017). The research was conducted at SMAN 2 Tembilahan. The population consisted of 90 twelfth-grade students, from whom two classes were selected through purposive sampling based on comparable academic characteristics. Class XII A (30 students) served as the experimental group, while Class XII B (30 students) functioned as the control group. The experimental group received instruction using the Talking Stick cooperative learning model, whereas the control group was taught using conventional teaching methods. Students' learning outcomes were assessed using pre- and posttests administered to both groups.

Data were collected using a multiple-choice geography achievement test developed in accordance with the Grade XII geography curriculum indicators. Before implementation, the instrument underwent validation to ensure its quality. Content validity was established through expert judgment by geography education specialists. Item analysis was conducted to examine item difficulty and discrimination indices, ensuring that the test items were appropriate for measuring students' cognitive learning outcomes. The instrument's reliability was assessed using internal consistency analysis, which indicated sufficient reliability for research purposes. Data analysis was conducted using inferential statistics in SPSS version 20. Normality was tested using the Kolmogorov–Smirnov test, and homogeneity of variance was assessed using Levene's Test. An independent-samples t-test was then conducted to assess differences in learning outcomes between the experimental and control groups at $\alpha = 0.05$. Ethical considerations were addressed throughout the study. Permission to conduct the research was obtained from the school authorities, and informed consent was secured from all participating students. Participants were assured that their data would be used solely for research purposes and that it would be treated confidentially.

Results and Discussion

This study aims to analyze the effect of applying the Talking Stick model in geography learning on the learning outcomes of class XII students. This study was conducted in class XII SMAN 2 Tembilahan. This study involved 60 samples, comprising 30 students from Class XII A and 30 students from Class XII B. To calculate the average for the experimental class, data were obtained from 30 students, yielding a total of 2560 learning outcomes, with a mean of 80.22. At the same time, the average of the control class of 30 students was 75.60, and the learning outcomes of all students were 2380. Based on the study's results, hypothesis testing was conducted using the t-test. Before performing the t-test, a conditional test was conducted: a normality test and a homogeneity test on the final test results. The results of the normality test are presented in Table 1.

Table 1. Normality Test Results

Class	N	Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)	α (Significance)	Decision Criteria	Conclusion
Experiment	30	0.868	0.868	0.05	Sig. > 0.05	normal
Control	30	0.687	0.687	0.05	Sig. > 0.05	normal

The variable normality test was performed manually and using the SPSS 20 for Windows program, utilizing the Kolmogorov-Smirnov test (Ks test) with the Kolmogorov-Smirnov Z Asymp. Sig. (2-tailed) criteria. If the p-value is 0.05, the data are likely to come from a normally distributed population. This is based on the results of the normality test for data comprising 30 respondents, including both experimental and control data, as shown in the Asymp. The Sig. (2-tailed) value of

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the experiment (0.868) is greater than 0.05, and the control class (0.687) is also greater than 0.05. The Asymp. Sig. (2-tailed) The obtained value exceeds the significance level α = 0.05. Thus, the null hypothesis (H0) is rejected, and the data are typically distributed across groups, allowing them to be used to further test the research hypothesis. The results of the Homogeneity Test are presented in Table 2.

Table 2. Results of Homogeneity Test

Variable	Levene Statistic (F)	df1	df2	Sig.	α (Significance)	Decision Criteria	Conclusion
Geography Learning Outcomes	2.65*	1	58	0.083	0.05	Sig. > 0.05	The Data is homogeneous

The homogeneity of variances test was conducted in SPSS 20 for Windows using Levene's test (Ls test). Based on the results of the Levene statistical homogeneity test (Ls test) for the research variables above, the p-value was 0.083, which exceeds 0.05. The Levene statistical test value (Ls test) obtained was greater than the value of α = 0.05. Thus, it can be concluded that all data groups in this study originate from a homogeneous population, allowing them to be used and further tested to support the research hypothesis.

After conducting homogeneity and normality tests, a t-test was performed to determine whether there was a statistically significant difference in scores between the two groups. The following illustrates data processing using a t-test. Hypothesis testing was conducted to address research questions that had previously been conjectural. In this study, the research hypothesis is divided into two parts: the null hypothesis (H0) and the alternative hypothesis (H1). H0 = accepted if sig > 0.05 and t count ≤ t Table means there is no significant difference in character between the experimental class using the learning model. Compare the control class, which does not use the Talking Stick learning model, with the experimental class that employs it. Ha = accepted if sig < 0.05 and t count ≥ t Table, meaning there is a significant difference in character between the experimental class using the talking stick learning model and the control class without using the talking stick learning model. The results of the t-test are presented in Table 3.

Table 3. t-Test Results

Variance Assumption	t	df	Sig. (2-tailed)	Average Difference	Std. Error Difference
Equal variances are assumed	4.697	58	0.000	18.433	3.924
Equal variances are not assumed	4.697	52.574	0.000	18.433	3.924

Based on the t-test results in the Table above, the calculated t value is 4.697 with df = 58 and a significance value (Sig. 2-tailed) = 0.000, which is smaller than α = 0.05. This suggests a significant difference in student learning outcomes between the experimental and control classes. The average learning outcomes of students in the experimental class are higher than those in the control class, with an average difference of 18,433 points. Thus, it can be concluded that the Talking Stick learning model has a positive and significant effect on the geography learning outcomes of class XII students at SMAN 2 Tembilahan.

The results of the data analysis show that the Talking Stick learning model has a positive effect. This is due to the following factors. First, the Talking Stick learning model has a positive impact on student learning outcomes. The Talking Stick method is a group learning model using sticks (Antara et al., 2017; Boinah, 2017). The group holding the stick must first answer the teacher's questions after studying the primary material. This activity is repeated until all groups have had an opportunity to answer the teacher's questions. The Talking Stick is a simple type of cooperative learning (Antara et al., 2017; Boinah, 2017; Lestari et al., 2017). In implementing the Talking Stick

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model, the teacher divides the class into heterogeneous groups of five or six students. These groups are formed on the basis of familiarity, intelligence, friendship, or shared interests. Talking stick learning model because this model has several advantages, namely Testing student readiness in learning, Training students to understand the material quickly, Encouraging students to be more active in learning, because students never know when the stick will arrive, and Students dare to express their opinions (Bijanti, 2023; Rani et al., 2019; Sayekti et al., 2021). This has a positive impact on students' learning outcomes in geography. The talking-stick model can provide opportunities for students to demonstrate their abilities and participate in learning (Pour & Sukroyanti, 2018; Seika Ayuni et al., 2017). In addition, the advantages of learning with this model include training student readiness, developing reading skills, and improving understanding of the material. This model also encourages students to remain prepared in any situation.

Second, the Talking Stick learning model has a positive effect by increasing student learning activity. With this model, students not only listen to the teacher's explanation but also play a more active role in the learning process (Kurniawati & Sudiana, 2023; Nurlaelah et al., 2024). The Talking Stick cooperative learning model encourages teachers to be creative in creating varied and innovative questions. The Talking Stick learning model facilitates students' understanding of the material more effectively (Bijanti, 2023; Indrahayu et al., 2023; Rani et al., 2019; Sayekti et al., 2021). The Talking Stick learning model engages students, making them feel both interested and challenged to explore the material in depth, thereby enabling them to answer questions correctly both individually and in groups (Marnola et al., 2022; Pour & Sukroyanti, 2018; Seika Ayuni et al., 2017). The purpose of forming groups is to provide all students with opportunities to participate in the learning process through active engagement in thinking activities. Students in the experimental class, who used the Talking Stick learning model, became more motivated to learn. Furthermore, their attention became more focused, thus improving concentration during learning. In this model, the teacher uses a stick and passes it to students one at a time. The last student to hold the stick may answer questions posed by the teacher about the material under study. This is why the Talking Stick learning model has a positive impact: it enhances student engagement in the learning process.

The findings of this study are consistent with prior studies demonstrating that the Talking Stick learning model has a positive and significant effect on student learning outcomes. This model has been shown to foster an active, engaging, and participatory learning environment, thereby increasing student motivation and understanding of the subject matter (Kusumayani et al., 2019; Seika Ayuni et al., 2017). Other studies have found that the use of the Talking Stick model in elementary school classrooms significantly improves learning outcomes and student engagement compared with conventional methods (Meganingtyas et al., 2019; Rajagukguk et al., 2020). Using the Talking Stick learning model, teachers provide opportunities for students to share their thoughts and express their understanding, enabling them to respond to the teacher's questions. Meanwhile, students in the control class who were taught using conventional learning, namely, students listened to the teacher's explanation, then discussed and took notes on the learning material discussed in the meeting, it was seen that some students were less focused on listening to the material explained by the teacher in front of the class.

The results of this study provide important implications for education, particularly in the application of student-centered learning models. The application of the Talking Stick model has proven effective in improving students' geography learning outcomes, as it encourages active participation, fosters social interaction, and fosters a sense of responsibility for the learning process. These findings reinforce the view that cooperative learning can be a strategic alternative for teachers in creating an interactive and enjoyable learning environment. This study has several limitations that require attention. First, the analysis was conducted quantitatively without in-depth qualitative exploration of the learning dynamics and students' experiences during the implementation of the Talking Stick model. This leaves the conceptual context and affective aspects of the learning process unexplored. As a follow-up, further research is recommended to employ a mixed-methods approach that combines quantitative and qualitative analysis to provide a more comprehensive understanding of the effectiveness of the Talking Stick model.

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Conclusion

The findings of this study demonstrate that implementing the Talking Stick cooperative learning model improves Geography learning outcomes among twelfth-grade students at SMAN 2 Tembilahan. Beyond demonstrating higher academic achievement than conventional instruction, this study highlights the pedagogical value of the Talking Stick model in fostering an active, interactive, and engaging learning environment that encourages student participation, confidence, and sustained attention. From a theoretical perspective, these findings reinforce the relevance of cooperative learning principles in enhancing student-centered learning in Geography education. Practically, the results suggest that the Talking Stick model can serve as an effective instructional alternative for teachers seeking to improve classroom engagement and learning quality. Future research is recommended to examine the long-term effects of this model across different learning topics, student characteristics, and educational contexts, and to integrate qualitative approaches to better understand students' learning experiences.

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