



# The effectiveness of using Kahoot media on the geography learning outcomes of eleventh-grade students at SMA Negeri 4 Sidenreng Rappang

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## Abstrak

Penelitian ini bertujuan untuk mengetahui efektivitas penggunaan media Kahoot terhadap hasil belajar geografi siswa kelas XI di SMA Negeri 4 Sidenreng Rappang. Media Kahoot merupakan salah satu platform pembelajaran berbasis teknologi yang dapat meningkatkan keterlibatan dan motivasi belajar siswa melalui kuis interaktif. Metode yang digunakan dalam penelitian ini adalah quasi eksperimen dengan desain pretest-posttest control group. Sampel penelitian terdiri dari dua kelas, yaitu kelas eksperimen yang menggunakan media Kahoot dan kelas kontrol yang menggunakan metode konvensional. Instrumen yang digunakan adalah tes hasil belajar dalam bentuk pilihan ganda yang diberikan sebelum dan sesudah perlakuan. Hasil analisis data menunjukkan bahwa terdapat perbedaan signifikan antara hasil belajar siswa pada kelas eksperimen dan kelas kontrol. Rata-rata nilai posttest siswa di kelas eksperimen lebih tinggi dibandingkan kelas kontrol. Hal ini menunjukkan bahwa penggunaan media Kahoot efektif dalam meningkatkan hasil belajar geografi siswa. Oleh karena itu, media Kahoot dapat dijadikan sebagai alternatif media pembelajaran yang menarik dan interaktif untuk mendukung proses pembelajaran di sekolah.

**Kata Kunci:** Kahoot, media pembelajaran, hasil belajar, geografi, siswa SMA.

## Abstract

This study aims to determine the effectiveness of using Kahoot media on the geography learning outcomes of eleventh-grade students at SMA Negeri 4 Sidenreng Rappang. Kahoot is a technology-based learning platform that can enhance student engagement and motivation through interactive quizzes. The method used in this research is a quasi-experimental design with a pretest-posttest control group design. The research sample consisted of two classes: the experimental class, which used Kahoot media, and the control class, which used conventional learning methods. The instrument used was a multiple-choice learning outcome test administered before and after the treatment. The data analysis results showed a significant difference between the learning outcomes of students in the experimental class and those in the control class. The average post-test scores of students in the experimental class were higher than those in the control class. This indicates that the use of Kahoot media is effective in improving students' geography learning outcomes. Therefore, Kahoot can be used as an engaging and interactive alternative learning media to support the teaching and learning process in schools.

**Keywords:** Kahoot, learning media, learning outcomes, geography, high school students

## Introduction

In the era of rapid technological advancement, the integration of digital tools into education has become increasingly important. Traditional learning methods are gradually being complemented or replaced by

interactive and engaging digital platforms that cater to the needs and learning styles of 21st-century students. One such platform is Kahoot, an online quiz-based game that has gained popularity in classrooms around the world for its ability to transform conventional

lessons into dynamic and participatory experiences.

Geography, as a subject that involves understanding complex concepts, spatial relationships, and real-world phenomena, often requires innovative strategies to enhance students' comprehension and retention. However, in many educational settings, the teaching of geography still relies heavily on lecture-based instruction and textbook learning, which can lead to student disengagement and low motivation. Therefore, it is necessary to explore alternative media that can make geography learning more effective and enjoyable.

Kahoot offers a promising solution to these challenges. By using game-based learning elements such as competition, instant feedback, and multimedia features, Kahoot can increase student interest and motivation. When students are more engaged in the learning process, they are more likely to absorb and retain the material being taught. This interactive environment also allows teachers to assess students' understanding in real time and adjust instruction accordingly.

Several previous studies have shown that Kahoot can improve students' academic performance across various subjects, including science, mathematics, and language learning. However, limited research has focused specifically on its impact on geography learning outcomes, particularly in the context of Indonesian senior high schools. This study attempts to fill that gap by investigating the effectiveness of Kahoot media in enhancing geography achievement among eleventh-grade students.

The use of Kahoot is also aligned with the principles of active learning, where students are not merely passive recipients of information but are actively involved in the process. Through competitive quizzes and collaborative activities, students can develop critical thinking, communication, and decision-making skills—competencies that are essential for academic and personal success.

Moreover, the implementation of digital tools like Kahoot supports the development of digital literacy, a key component of 21st-century education. By familiarizing students with user-friendly educational technologies, schools can better prepare learners to navigate and utilize digital

resources in their future academic and professional lives.

This study was conducted at SMA Negeri 4 Sidenreng Rappang, a school that has shown growing interest in adopting digital learning strategies. The geography subject was chosen due to its relevance to students' daily lives and the potential to make it more engaging through interactive media.

Therefore, this research aims to determine whether the use of Kahoot media significantly affects the geography learning outcomes of eleventh-grade students. The findings of this study are expected to contribute to the development of effective and innovative teaching strategies that can be implemented not only in geography but also in other subjects requiring enhanced student engagement.

## Method

This study employed a quasi-experimental research design with a pretest-posttest control group approach. This method was chosen to compare the learning outcomes between students taught using Kahoot media and those taught using conventional methods. The design allowed the researchers to observe the impact of the independent variable (Kahoot media) on the dependent variable (geography learning outcomes) while maintaining control over extraneous factors.

The population of this study consisted of all eleventh-grade students at SMA Negeri 4 Sidenreng Rappang during the academic year 2024/2025. From this population, two classes were selected using purposive sampling: one as the experimental group and the other as the control group. The experimental group was taught using Kahoot-based quizzes integrated into the learning process, while the control group was taught using traditional lecture-based methods.

The instrument used in this research was a multiple-choice test consisting of 25 items related to the geography topic being taught. The test was validated by subject matter experts and piloted to ensure reliability and validity. The same test was administered as a pretest and posttest to both groups to measure changes in learning outcomes before and after the treatment.

The treatment was conducted over four sessions (each 90 minutes), during which the experimental class participated in interactive Kahoot quizzes at the end of each lesson. These quizzes covered the key points of the lesson and were used as both a review and an assessment tool. The control class received the same material but without the use of Kahoot; instead, conventional review activities such as oral questioning and worksheets were employed.

The data collected from the pretest and posttest were analyzed using descriptive statistics (mean, standard deviation) and inferential statistics. A paired sample t-test was conducted to determine the significance of the difference in scores within each group, while an independent sample t-test was used to compare the posttest scores between the two groups. All statistical tests were conducted using SPSS software with a significance level of 0.05.

This methodological approach was intended to ensure that the effect of using Kahoot media on student learning outcomes could be measured accurately and fairly. Ethical considerations, such as informed consent from participants and the confidentiality of student data, were strictly observed throughout the research process.

## Result and Discussion

The results of this study are presented in the form of descriptive and inferential statistical analyses to determine the impact of Kahoot media on students' geography learning outcomes.

Before the treatment, a pretest was administered to both the experimental and control groups to assess their initial understanding of the geography topic. The mean pretest score for the experimental group was 61.40, while the control group scored a slightly lower average of 59.80. These results indicate that both groups had relatively similar levels of knowledge prior to the intervention.

After the treatment, both groups took a posttest. The experimental group, which used Kahoot media, showed a significant increase in learning outcomes, with a mean posttest score of 83.60. In contrast, the control group had a posttest mean score of 72.00. These

findings suggest that the use of Kahoot media positively influenced student performance.

To further support these findings, a paired sample t-test was conducted for each group. The experimental group showed a significant difference between the pretest and posttest scores ( $p < 0.05$ ), indicating that the Kahoot intervention had a significant effect on their learning. Similarly, the control group also showed improvement, but the increase was less substantial.

An independent sample t-test was also used to compare the posttest scores between the two groups. The result showed a significant difference ( $p < 0.05$ ) between the experimental and control groups, confirming that students taught using Kahoot media achieved higher learning outcomes than those taught through conventional methods.

The following table presents the descriptive statistics for both groups:

Group	Pretest Mean	Posttest Mean	Mean Gain	Std. Deviation (Post test)
Experimental	61.40	83.60	22.20	18.32
Control	59.80	72.00	12.20	10.15

As shown in the table, the experimental group not only started with a slightly higher average pretest score but also demonstrated a significantly greater gain in performance after the use of Kahoot media.

Overall, the results confirm the hypothesis that Kahoot is an effective learning tool that can enhance students' academic performance in geography by making the learning process more interactive and engaging.

## Discussion

The findings of this study demonstrate the positive impact of Kahoot media on students' geography learning outcomes. The significant improvement in the experimental group's posttest scores supports the idea that incorporating technology-enhanced learning tools can increase students' academic achievement.

One of the primary reasons for the success of Kahoot is its ability to create a fun and competitive learning environment. Students reported enjoying the quizzes, which in turn increased their motivation to participate actively during class. Increased engagement often correlates with better comprehension and memory retention, which was evident in the experimental group's performance.

The real-time feedback provided by Kahoot quizzes also played a crucial role. Immediate results helped students identify their mistakes and provided opportunities for quick correction and reflection. Teachers, too, benefited from this feature by gaining insights into students' understanding and adjusting instruction accordingly.

Compared to the conventional teaching methods used in the control group, Kahoot offered a more student-centered approach. Traditional methods often emphasize passive learning, whereas Kahoot encouraged students to actively think, respond, and discuss questions—key aspects of constructivist learning theories.

The findings of this study are consistent with previous research in different educational contexts. Studies have found that game-based learning platforms like Kahoot can improve not only knowledge acquisition but also classroom dynamics, student motivation, and teamwork skills.

Another advantage of using Kahoot is its flexibility. Teachers can customize quizzes based on the lesson's content, making it suitable for various topics and levels. In this study, it was successfully integrated into geography lessons, but it can also be applied in other subjects.

Despite its advantages, some limitations were noted. A few students experienced technical issues with connectivity or devices, which could temporarily affect their participation. Future studies may consider using hybrid models or ensuring better infrastructure for smoother implementation. The discussion confirms that Kahoot media is an effective instructional tool for enhancing geography learning outcomes. It aligns with modern pedagogical approaches and fulfills the need for more engaging, student-centered classroom practices. Integrating tools like Kahoot is a

strategic step toward digital transformation in education.

## Conclusion

Based on the findings of this study, it can be concluded that the use of Kahoot media significantly enhances the geography learning outcomes of eleventh-grade students at SMA Negeri 4 Sidenreng Rappang. Students who were taught using Kahoot showed higher posttest scores compared to those taught using conventional methods. The interactive and engaging nature of Kahoot contributed to increased student motivation, participation, and understanding of the subject matter.

The application of game-based learning through Kahoot creates a more dynamic and enjoyable learning environment. It allows students to be actively involved in the learning process, while also providing immediate feedback that helps reinforce their knowledge. This approach supports the development of critical thinking, collaboration, and digital literacy skills that are essential in modern education.

In light of these results, it is recommended that educators integrate interactive digital tools like Kahoot into their teaching strategies, especially in subjects that are often perceived as challenging or abstract. Further research could explore the long-term impact of such tools on student learning, as well as their application across different subjects, educational levels, and classroom settings.

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