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Kahoot!-Based Interactive Multimedia: Can it Increase Social Studies Learning Interest?

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ABSTRAK

Revolusi Industri 4.0 menuntut guru beradaptasi, menguasai dan menggunakan perangkat teknologi yang mendukung proses pembelajaran. Namun permasalahan yang terjadi saat ini yaitu masih banyak guru yang kesulitan dalam mengembangkan media pembelajaran digital yang dapat digunakan dalam kegiatan pembelajaran. Penelitian ini bertujuan untuk mengembangkan multimedia interaktif berbasis Kahoot! untuk meningkatkan minat belajar siswa kelas IV SD pada pembelajaran Ilmu Pengetahuan Sosial. Penelitian ini menggunakan model ADDIE yang melibatkan analisis, desain, pengembangan, implementasi, dan evaluasi. Subjek penelitina yaitu siswa di SD yang berjumlah 30 siswa. Penelitian ini menggunakan desain one-group pretest-posttest. Metode pengumpulan data menggunakan kuesioner dan tes. Instrumen pengumpulan data menggunakan lembar kuesioner dan soal tes. Teknik analisis data menggunakan analisis deskriptif kualitatif, kuantitatif, dan statistik inferensial. Hasil penelitian yaitu Terdapat perbedaan yang signifikan antara Pretest dan Posttest yang mendapat perlakukan menggunakan Kahoot! berbasis multimedia. Dapat disimpulkan bahwa penggunaan multimedia interaktif berbasis Kahoot! dapat meningkatkan minat belajar Ilmu Pengetahuan Sosial pada siswa kelas IV SD.

ABSTRACT

The Industrial Revolution 4.0 requires teachers to adapt, master, and use technological devices supporting learning. However, the current problem is that many teachers still need help developing digital learning media for learning activities. This research aims to create interactive multimedia based on Kahoot! to increase fourth-grade elementary school student's interest in learning Social Sciences. This research uses the ADDIE model, which involves analysis, design, development, implementation, and evaluation. The research subjects were 30 elementary school students. This research uses a one-group pretest-posttest design. Data collection methods use questionnaires and tests. Data collection instruments use questionnaire sheets and test questions. Data analysis techniques use descriptive qualitative, quantitative analysis, and inferential statistics. The research results show a significant difference between the Pretest and post-test, which were treated using Kahoot! Multimedia based. Interactive multimedia based on Kahoot! can increase interest in learning Social Sciences in fourth-grade elementary school students.

1. INTRODUCTION

We are entering the era of the Industrial Revolution 4.0, where the world of technology enters the world of education. This situation requires teachers to have the ability to adapt, master and use technological devices that support the learning process. Technology allows learning to be packaged into games, such as educational games. This digital technology is expected to improve the quality of learning and engage and motivate students in the learning process (Nurpratiwiningsih et al., 2018; Sabirli et al., 2020). In this modern era, technology is developing very quickly. Technology can be used all over the world, especially in the field of education. Teachers should be able to utilize technology in the classroom.

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Technology should be used to support and increase students' interest in the lesson. One type of learning that uses technology is e-learning. Students' motivation to learn is essential, and fun learning methods can help them learn more (Al Ghawail et al., 2022; Balalle, 2024; Martin-Somer et al., 2021). Their motivation influences students' enthusiasm during the teaching and learning process. A person will not perform learning activities if there is no desire to learn. Various learning materials can increase students' motivation and create a fun learning atmosphere. In teaching and learning activities, motivation can be defined as a driving force within students that drives learning activities and a direction that allows students to achieve goals. The term "motivation" can also refer to the effort that drives a person to take action to achieve a predetermined goal.

Learning media is a means of channelling learning information that the teacher will convey to students. Teachers can use learning media in teaching and learning activities (Garza et al., 2023; Wirani et al., 2022; Zhang et al., 2024). Therefore, learning media can generate student interest in learning materials and improve student understanding of the material. In this case, it is necessary to develop various exciting and fun learning models to enhance the effectiveness and efficiency of learning. Everyday life, especially education, is greatly influenced by scientific progress. Everyone should get an education that includes high skills and intelligence. The world of education will change very quickly as many technological innovations will help improve and support learning. The media used helps learning (Blinkoff et al., 2023; Chang et al., 2021; Gutierrez et al., 2023; Nja et al., 2023; Wasito et al., 2022). Suitable media can be a powerful bridge between subject matter and student understanding. They can also broaden the scope of learning by giving students access to different sources of information and resources from around the world. Using media wisely, educators can create an inclusive learning environment and motivate students to explore and learn more deeply. Thus, the use of media in education can increase.

Most students use their cell phones to play games, such as WhatsApp, Facebook, and Instagram, but it is still rare for students to use cell phones for learning. So that students are not quickly bored in the learning process, we can utilize mobile phones to package learning into educational games (Anufriev et al., 2024; Blas et al., 2024; Hang et al., 2023). As teachers, we must be adept at incorporating learning through educational mobile games. We must use advanced technology to increase students' interest in learning by utilizing cell phones as a learning evaluation medium. Today's technological advancements allow teachers to make better use of learning media. With more accessible access to various digital tools and platforms, teachers can create more dynamic and engaging student learning experiences (Boysen et al., 2023; Janssen et al., 2023; Thomas et al., 2022). They can also use technology to encourage creativity and exploration in learning, create collaborative learning environments, and encourage students to talk to each other. In other words, technological advancements not only provide teachers with more sophisticated teaching tools but also give them the ability to be more creative and engaging.

One application that can be used as learning media is Kahoot!Kahoot! is a game-based multimedia interactive learning media that is easy to operate and user-friendly for teachers and students (Idris et al., 2020; Machon et al., 2023). This application builds visualization to make the learning process more effective. Kahoot! can be used to create quizzes, including activities before or after the test and questions that must be completed. This research aligns with current educational conditions because students must learn using existing technology. On the other hand, for students, social studies learning is currently a boring lesson, making students lose interest in social studies learning. This situation requires teachers to have the ability to adapt, master and use technological devices that support the learning process. This digital technology is expected to improve the quality of learning and engage and increase student learning motivation.

However, in contrast to previous studies that did not consider multimedia and only focused on one media during learning. As a result, learning tends to be boring, student interest decreases, and learning outcomes are affected. Therefore, innovative and creative methods are needed to provide direct experience to students and support assessment activities so that teachers can find the best way to ensure students are included, especially in skill development in learning activities. In this case, the researcher developed media to assess student learning outcomes. This media allows students to actively participate in learning to increase interest in learning. In this study, researchers used interactive multimedia content combined with the Kahoot! application so that students can play an active role in the teaching and learning process. This research is fundamental because learning now takes place using technology-based media. Therefore, variations are made to make the press enjoyable so students can develop high learning motivation and achieve good learning outcomes.

This study uses Kahoot!-based interactive multimedia content to increase grade IV students' interest in learning social studies. The questions I ask in this research are: "Does the use of Kahoot!-based interactive multimedia content affect increasing social studies learning interest in fourth-grade students?". This research can also answer the following questions: Variations were created to make the media more

fun. This makes students highly motivated to learn and achieve good learning outcomes. This study aims to determine the effectiveness of using Kahoot!-based multimedia content in social studies subjects for elementary school students. This research also aims to work with interactive multimedia to develop Kahoot!-based interactive multimedia.

2. METHOD

This research media development method uses a research and development (R&D) approach by applying the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). Meanwhile, the experimental method was used to test the research's effectiveness and measure the impact or influence of the developed learning media on student learning outcomes. As a practitioner and control group, this research was conducted on 30 fourth-grade students at Kebon Jeruk 02 Elementary School in West Jakarta, Indonesia. This study uses a one-group pretest-posttest design, where one sample group will be given treatment, and the results will be measured before and after treatment seen in Tabel 1. Before treatment is provided, students will take a pretest to measure clean and healthy living behaviour. After the treatment is given, students will take a posttest to measure changes in clean and healthy living behaviour. Students follow the treatment through learning materials. The comparison of pretest and posttest scores will be analyzed using statistical tests to find out whether there is a significant difference in changes in students' clean and healthy living behaviour with learning materials after participating in the treatment.

Tabel 1. Experimental Design of Kahoot!Multimedia Research to Learning Interest

Group	Pretest	Treatment	Posttest
Experiment	O_1	X	O_2

Notes:
O_1 = Pretest before being given treatment
O_2 = Posttest after being given treatment
X = Kahoot!-based interactive multimedia

This study involved a population of elementary school students at Kebon Jeruk 02 Elementary School in West Jakarta, Indonesia. It used a random sample using the Slovin formula, so there were 30 students in this experimental and control group. This study uses pretest and posttest instruments related to students' cognitive abilities, including material understanding and learning interest. Before giving treatment, a pretest was given to students. After giving experimental treatment experimentally, a posttest was given to students. This way, the treatment results can be known more accurately because they can be compared with the conditions before and after the treatment. In statistical analysis, a normality test was performed. The Kolmogorov-Smirnov test was carried out to test the normality of the data distribution. Levene's test is also used to measure data homogeneity. In this study, inferential statistics for hypothesis testing using t-test. Conclusions from the hypothesis are made using criteria with a significance level of 0.05.

3. RESULT AND DISCUSSION

Result

The researcher outlined several descriptions of Kahoot!-based interactive media displays developed by the researcher. This interactive media was created by collaborating interactive media with Kahoot! to create learning materials, quizzes, and evaluation media. This Kahoot! page contains all the components of the interactive quiz. Students can access Kahoot! on their phone or laptop for free by logging in. Students enter the pin code, which is available live by the teacher. After that, students are directed to enter a username. After the teacher starts the quiz, students can immediately work together on the quiz questions provided by the teacher. If the teacher has started the quiz, the page displayed. After that, if there is a video or YouTube in the question section, students choose the start sign contained in the video or YouTube. Then, students get a more detailed explanation of the existing learning material. This section is an interactive section using the YouTube feature provided by Kahoot!. If the student has finished the quiz, then the student will be directed to the final page, namely the podium winner. After looking at the scoreboard and the winner's podium, it can be seen that students who can and cannot train focus on doing the quiz given. The Kahoot display is presented in Figure 1.

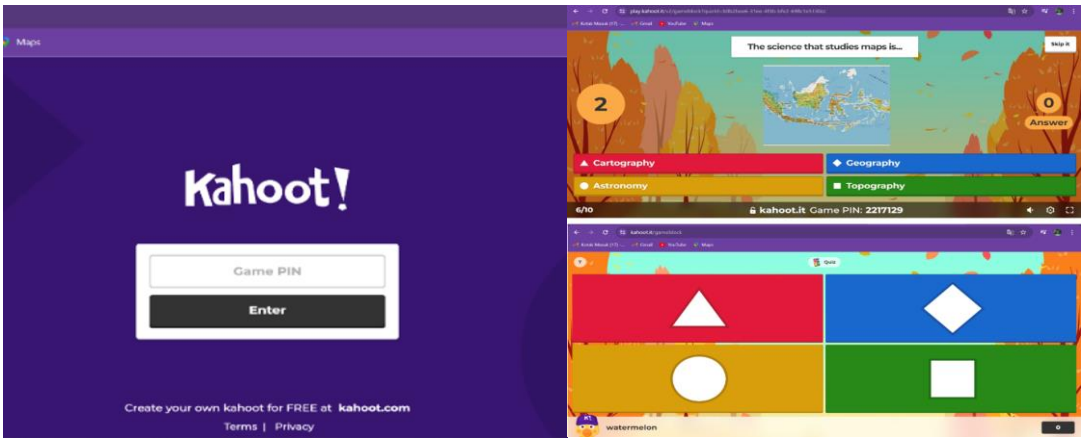

Figure 1. Kahoot Display

The Shapiro-Wilk test was carried out to test the distribution of the data. In this case, as presented in Tabel 2, the data distribution was tested using SPSS 22. The significant result of normality on the Pretest is 0.194. It can be concluded that the considerable result of normality is more than 0.05, which means that the data is normally distributed. The significant consequence of normality on the Pretest is 0.073. It can be concluded that the significant results of normality are more than 0.05, which means that the data is normally distributed. In Table 3, the homogeneity test results in this study used SPSS 22. Based on Tabel 3, due to a significance value larger than 0.05 stating that H0 is accepted, it can be concluded that the data is homogeneous.

Tabel 2. Normality Test Results

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest of Learning Interest	0.106	30	0.200	0.952	30	0.194
Posttest of Learning Interest	0.133	30	0.189	0.937	30	0.073

Tabel 3. Homogeneity Test Results

		Levene Statistic	df1	df2	Sig.
Learning Interest	Based on Mean	1.017	1	58	0.317
	Based on Median	1.039	1	58	0.312
	Based on the Median and with adjusted df	1.039	1	57.102	0.312
	Based on trimmed mean	1.019	1	58	0.317

Furthermore, researchers used a t-test to test the level of significance, and then they used SPSS 22 to present the data in Tabel 4, There was a significant difference between the Pretest and Posttest that received treatment using Kahoot!based multimedia. The significant result of the T-test is 0.047. It can be concluded that the significant result of the T-test is less than 0.05, which means H0 is rejected, and HI is accepted. This means there has been a significant change in the use of Kahoot!-based multimedia regarding student learning interests.

Tabel 4. T-Test Results

Pair 1	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pretest-Posttest	-2.867	7.578	1.384	-5.696	-.037	-2.072	29	0.047

Tabel 4 shows that implementing Kahoot!-based interactive media can improve science learning interest for 4th-grade elementary school students in the Kebon Jeruk sub-district, West Jakarta, Indonesia. This makes the research successful because Kahoot!-based interactive media can significantly impact student learning interests. Thus, using Kahoot!-based interactive media for online learning today is essential, especially in social content.

Discussion

The results of data analysis show that the application of interactive media based on Kahoot! can influence students' interest in learning. Technology utilization is also needed to support the learning process, including stages, implementation, and evaluation. Evaluation is also essential because it provides an overview of the learning objectives achieved by the material presented. Technology-supported assessment makes learning more effective and efficient and increases students' interest in learning (Battigalli et al., 2023; Brauner & Ziefle, 2022). Technology allows teachers to provide learning interest to students immediately after the learning process is complete. Kahoot!Games based on local wisdom are a learning media in the form of online games that can help students increase their interest in learning. Digital media refers to visual and audio-visual media strategies that focus on colours, images, components, music and questions that can be used both in groups and individually, both inside and outside of learning (Godara & Herminghaus, 2023; Parras et al., 2022; Pozo et al., 2021). Kahoot! is an example of an innovative teaching and learning tool. The use of Kahoot! can help achieve the desired learning objectives because Kahoot! shows students' evaluation skills, which is an integral part of teaching and learning activities. This Kahoot! media presents statements or questions for children as a quick response quiz. Therefore, the Kahoot! application encourages students to participate in class more actively.

Gamification can be applied in learning methods by using one of the platforms that are still rarely used, namely Kahoot!Kahoot!It applies game elements in the learning process, so Kahoot!is considered appropriate to be used as a medium to increase student learning motivation through direct learning using handphones or distance learning (Gauthier et al., 2022; Krilasevic & Grammatico, 2023; Lima et al., 2022; Martirosyan & Cao, 2023). Kahoot!in education can make learning exciting, increase student engagement, provide benefits to students, and take place in schools. Although not all schools use this media, it is a good idea to use Kahoot!as an additional medium to evaluate learning content or deepen material knowledge. Teachers can use Kahoot!At the beginning of the lesson, open-ended questions will be asked to assess students' knowledge, or at the end of the lesson, students' understanding will be evaluated (Gomez et al., 2021; Hirata et al., 2022). Kahoot! learning media idea development students can use their smartphones to access Kahoot! learning media, a quiz-style media with attractive visuals. Students can access quizzes using links created in Kahoot!. Kahoot! is easy to implement in students' learning activities. The advantages of Kahoot!-based learning media include easy access, ease of observation, ease of use, and links to websites, music, videos, text, and websites that can be read on any cell phone, containing many available features.

Intense interest in learning is recognized by high enthusiasm and curiosity, which encourages a person to participate more actively in online learning activities (Eisentraut et al., 2022; Gijalvo et al., 2022; Krath et al., 2021). Understanding the interaction dynamics unique to international students led us to consider the role of learning interest in these interactions and its influence on satisfaction. Learning interest, a student's intense emotional and cognitive engagement with the subject matter, is particularly influential in online learning. Changes in learning interest can affect learning outcomes. High learning interest can motivate students to actively participate in online learning actively, increasing their satisfaction with learning. Academic engagement has a significant influence on satisfaction in the learning process. Student learning interest is the desire or motivation of students characterized by attention and deliberate active involvement, which ultimately results in satisfaction with changes in their knowledge, attitudes and skills. While possessing in-depth knowledge, learners not only ask questions to fulfil their curiosity but also show perseverance in the face of challenges and are dedicated to long-term projects related to the material of interest (Al-Tawaha et al., 2023; Graben et al., 2022). Student learning interest indicates a high interest and enthusiasm or a strong desire for something. A student shows interest in learning activities diligently and persistently, even for a long duration. They are active and creative in learning activities and completing tasks (Lensberg et al., 2021). They do not get tired or bored while learning; they feel happy and enjoy learning, so learning activities become a hobby and an integral part of their lives. Based on the description above, student interest in learning does not arise suddenly or spontaneously but develops due to habits in the learning process. Student learning interest is a crucial factor that supports the effectiveness of the learning process, which in turn will affect the student's learning outcomes.

This research can strengthen previous studies and confirm that Kahoot!-based interactive media can improve science learning interest for fourth-grade elementary school students. This is consistent with prior research, which found that interactive media can improve student learning interest (Anggraeni et al.,

2021; Teichmann et al., 2020; Wulandari, 2020). Using the media can affect good student learning interest in the current digital era. In the digital era, students are likelier to like technology-related things in games and learning. Furthermore, students' cognitive abilities can also be improved by using interactive learning media (Bawa & Brockport, 2021; Setyaningsih et al., 2020). Interactive learning media can make students more active and not bored. Especially in social learning, which has dense subject matter, there is a need for interactive learning media to make it easier for students to understand the material. Teachers can create interactive learning media to make it easier for students to understand learning material by using technology as a means for teachers to provide material.

Interactive media has advantages and is very appropriate for online learning today. According to what researchers have proven, using Kahoot!-based interactive media can yield significant results compared to conventional learning. Using interactive media can increase learning motivation, make students more active, and provide more knowledge to students. Students experience changes in classroom learning activities, especially when given Kahoot!-based interactive media. The changes shown are very positive and affect not only learning interest but also the process of teaching and learning activities in the classroom. Learning and teaching activities online today make it difficult for teachers to provide suitable learning media to students. However, the solution of giving Kahoot!-based interactive media can be applied to learning, especially in the context of social lessons in elementary schools.

4. CONCLUSION

This conclusion is based on the posttest results in the experimental class given the treatment, namely by implementing learning using Kahoot!-based interactive media. Kahoot!-based interactive media positively impacts social studies learning outcomes in the fourth grade at Kebon Jeruk 02 Elementary School in West Jakarta, Indonesia. It is recommended that Kahoot!-based interactive media can be implemented in elementary schools to increase students' interest in learning. The limitation of this study is that this research was only applied to elementary school students in the West Jakarta area. Therefore, further research can include East, South, Central, and North Jakarta areas to comprehensively determine the effect of technology on students' interest in learning.

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