



## The Impact of Using Kahoot Application as an Interactive Learning Media in Improving the Digital Literacy Abilities of Elementary School Students

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### ABSTRACT

This study aims to examine the impact of using the Kahoot application as an interactive learning medium in improving the digital literacy skills of elementary school students, particularly in the dimensions of critical thinking, digital collaboration, and digital ethics. The main problem behind this study is the passive participation of students and the lack of variety of digital learning media at SDN 76, Bengkulu City. The method used is a quantitative approach with a quasi-experimental design involving 39 third-grade students who were divided into an experimental group and a control group. The sampling technique was carried out using purposive sampling, while data collection used test instruments (pre-test and post-test), observation, and documentation. The results showed that the use of Kahoot significantly improved students' digital literacy, where the average score increased drastically from 30% in the initial stage to 75% after the intervention. Statistical analysis through a t-test showed a significance value of 0.000 ( $<0.05$ ), which proved a very significant difference in ability due to the use of interactive media. The research instrument was also proven to be very reliable with a Cronbach's Alpha value of 0.974. In conclusion, Kahoot is effective not only in increasing active engagement and motivation to learn through gamification elements, but also as a powerful tool for developing basic operational skills, information navigation, and digital ethics awareness in elementary school students.

**Keywords:** Kahoot App, Interactive Media, Digital Literacy, Elementary School, Gamification.

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## INTRODUCTION

The information and communication technology revolution has made digital literacy an essential competency encompassing technical skills, critical thinking, and problem-solving skills using technology. However, observations at SDN 76, Bengkulu City, revealed a digital competency gap, with teachers still predominantly using conventional approaches and lacking varied media, resulting in students' passive learning. This research aims to address this gap. Although the use of Kahoot has been extensively researched, previous studies, such as those by Wang & Tahir (2022), focused more on the dynamics of student engagement and motivation without addressing the dimensions of digital literacy as a learning outcome. This study aims to address this gap by deeply analyzing the relationship between Kahoot use and improvements in three key dimensions of digital literacy: critical thinking, digital collaboration, and digital ethics. This research integrates various recent academic works to build a strong argumentative framework. According to Murphy, 2023, Kahoot offers a highly user-friendly interface that allows teachers and students to participate in quizzes immediately without technical issues. This is crucial in education, where time and efficiency are crucial. Digital literacy indicators for elementary school students include digital device proficiency, cybersecurity understanding,

proactive and ethical communication skills, and the ability to sort and evaluate information. These indicators are intended to promote the productive and safe use of technology.

Learning media is a crucial element in the learning process. With media, students will more easily understand what the lecturer explains during the learning process. There are various types of media, such as printed books, modules, worksheets, and electronic media such as video, audio, and multimedia presentations. Online content can also be used. One important course for medical records and health information students is public relations. This course explores how to maintain a good image and communicate with the public. Explaining public relations can train good communication skills. A medical records professional must have good communication skills to provide services. Therefore, this course is crucial for medical records and health information students. To understand public relations material, lecturers, as facilitators, must be able to convey the material effectively so that students can understand it. One way to achieve this is through the use of engaging and innovative learning media (Al Kudri, Maisharoh, 2021).

explains that learning media acts as an aid in the learning process, aiming to clarify the message conveyed by the teacher to students, so that learning objectives can be more optimally achieved. Furthermore, learning media plays a crucial role as an intermediary in conveying information from the teacher to students. Meanwhile, learning methods are methods or procedures that assist students in receiving and processing information to achieve learning objectives. Therefore, the use of media in the learning process is expected to be an integrated part of the overall learning system. Learning media can create enjoyable learning through interactive learning media, which display images, sounds, and videos packaged within an application. One such application is the Kahoot application. Kahoot is an alternative choice among various types of interactive learning media, making the learning process enjoyable and engaging for both students and teachers (Armila, dkk, 2025).

Education plays a crucial role in the advancement of a nation because quality education fosters a competent, competitive, and prepared generation that is ready to face the challenges of the globalization era. As stipulated in Law No. 20 of 2003, education is a conscious and planned effort to create a conducive learning environment and an effective learning process, enabling students to actively develop their full potential. This comprehensive educational objective encompasses the formation of religious character, self-control, positive personality development, intellectual intelligence enhancement, noble character formation, and the acquisition of practical skills that are beneficial to their personal lives as well as within the context of society, nation, and state (Tokan, 2016). According to Wijaya, dkk (2025) kahoot is a game-based learning platform that allows users to create, share, and participate in interactive quizzes. Kahoot is typically used in educational contexts to make learning more fun and interactive, both in the classroom and online. Kahoot works by projecting quiz questions onto a home screen, while participants answer them using their devices, such as smartphones, tablets, or computers. This system provides real-time scoring, allowing students to see their rankings and motivating them to participate more actively. The platform is not limited to quizzes; it also supports a variety of other activities such as polls, discussions, and puzzles. Kahoot can be used by teachers to gauge student understanding, review material, or as an evaluation tool. Furthermore, Kahoot is also used in various other sectors, such as corporate and social training, to create a more dynamic and interactive environment. Interactive media, such as software, applications, or learning platforms, enable users to not only passively receive information but also actively participate in the process, for example by selecting options, answering questions, or performing certain actions that influence the process or the final outcome. Interactivity in learning can increase student engagement and motivation, and help them understand the material better through active participation.

According to Clark and Sweller (2016), interactive learning media emphasizes the importance of user efficiency and participation. Media should be user-friendly and designed to increase learning motivation and minimize unnecessary distractions, allowing students to concentrate on the material. Indicators of interactive media include:

1. Student engagement

2. Cognitive aspects

3. Learning motivation

Jonassen (2000) suggests that interactive learning media encompasses the ability to provide constructivist learning experiences in which students actively construct knowledge through exploration, problem-solving, and reflection. Media must enable interaction that allows students to control the learning process.

Sadiman (2021) defines learning media as any form of intermediary (media) used by educators to convey learning messages, stimulate students' thoughts, feelings, attention, and willingness, thereby encouraging the learning process.

The Kahoot app presents an innovative solution in the digital learning ecosystem, presenting a concept that integrates learning evaluation elements with an engaging interactive game format. This system is equipped with real-time student activity monitoring features, allowing educators to conduct formative assessments and receive instant feedback on student understanding (Kamal Hossain & Abdullah Al Younus, 2024).

Research findings from the Center for Assessment and Learning of the Ministry of Education, Culture, Research, and Technology (2023) provide strong empirical evidence that the implementation of digital-based learning applications is positively correlated with an increase in higher-order thinking skills (HOTS) in 73% of students who were the subjects of the study. Digital educational applications offer a much richer and more in-depth learning experience, with interactive presentation of learning content, engaging visualizations, and the integration of various multimedia elements that can stimulate students' analytical and critical thinking skills. This phenomenon is in line with the trend of increasing internet penetration in Indonesia, which, based on data from the Indonesian Internet Service Providers Association (APJII), is projected to reach 221,563,479 users in 2024 (out of a total population of 278,696,200), with a penetration rate reaching 79.5%, an increase of 1.4% from the previous period (Prastiyanto, 2020). According to Aulia (2026) One digital platform widely used in learning is Kahoot!, a game-based educational quiz application that integrates elements of competition, speed, and immediate feedback. This platform allows teachers to present questions in the form of interactive quizzes that students can access through digital devices in real time. These characteristics make Kahoot! not only an evaluation tool but also a learning medium capable of increasing active student participation. Several studies have shown that the use of Kahoot! positively contributes to student motivation, engagement, and learning outcomes, including in mathematics, which is often considered difficult. In today's digital era, information and communication technology has been integrated into various aspects of life, including education. The use of technology in the learning process is expected to improve the quality and effectiveness of teaching and learning. One technological innovation currently popular among educators is the Kahoot application, an interactive learning platform that allows educators to design quizzes and teaching materials in an engaging and enjoyable way. The use of technology-based learning media has become a trend, one example of which is the use of Kahoot. The Kahoot application offers a solution to this problem. Kahoot is an internet-based learning medium that offers a quiz game feature. This platform functions as an interactive tool in delivering material, as it can be used in various learning activities such as practice questions, material enrichment, and pre- and post-tests. Furthermore, the Kahoot application can be accessed via mobile phones, making it easy for students and teachers to use it anytime and anywhere. (Siti, dkk, 2025)

Digital Literacy: Ma & Ismail (2025) emphasize that digital literacy encompasses complex skills in managing data and critically evaluating information while considering ethics.

The research question regarding Kahoot's impact on digital literacy is crucial because: First, it transforms students from passive recipients of information into active participants capable of operating digital devices productively. Second, it prepares the younger generation to face digital challenges through mastery of data ethics and security. Third, it provides insight into effective quantitative methodologies for exploring similar issues in the future, particularly within the context of educational infrastructure in Indonesia. This study used a quasi-experimental design on 39 third-grade students of SDN 76 Bengkulu City. Based on the results

of data analysis, the t-test data showed a significance value of 0.000 ( $<0.05$ ), which means there is a very significant difference between digital literacy skills before and after the Kahoot intervention. The average digital literacy score increased drastically from 30% (low level) to 75% after the implementation of Kahoot. Discussion of this improvement was driven by gamification elements (points and rankings) that created a healthy competitive atmosphere. Through quizzes, students not only learn subject matter but also practice accessing, assessing, and utilizing information using digital devices. Based on these issues, the purpose of this study is to test the effect of using the Kahoot application in improving students' digital literacy, especially in three main dimensions: critical thinking, digital collaboration as an interactive medium, and digital ethics. Provide a reference for educators and policy makers in designing effective technology-based learning strategies at the elementary school level.

The novelty of this research can be seen in its innovative approach, which differs from previous research. Researchers used the latest methods and technologies in data collection and analysis, such as sophisticated statistical analysis software and more efficient data collection techniques. This approach enabled researchers to obtain more accurate and relevant information. This novelty not only provides a fresh perspective but also opens up opportunities for further research in the future, which could explore other aspects that may have been previously unexplored.

That 30% of students experience confusion when faced with overly complex interfaces. The disadvantages include:

- a. Distraction; students may focus more on the game than on the material being taught.
- b. Limited time; the time required for explanations and quizzes can reduce time for other learning.

According to Mayer (in Safitri, 2022), an expert in multimedia learning, interactive learning media requires cognitive feasibility to reduce cognitive load on students and promote comprehension. Media must be able to harmoniously combine text, images, and interactions to enhance learning effectiveness.

Based on the results of field observations conducted, classroom learning with 39 students as research subjects at SDN 76 Bengkulu City. From the observations conducted, problems emerged such as, students tend to be passive during the learning process, indicating minimal active participation and two-way interaction, so that learning activities are dominated by the role of the teacher as a transmitter of information. The learning media implemented by teachers appeared to be less varied and less interesting in terms of presentation, which resulted in a monotonous learning atmosphere and less able to arouse student enthusiasm for learning. Other observation findings revealed a digital competency gap among educators in schools, where some teachers still experience obstacles in integrating digital technology into the learning process. The majority of teachers are more comfortable using conventional approaches in conducting evaluation and assessment of learning, have not optimally utilized the various potentials of available technology, so that the learning experience presented to students tends to be static, less interactive, and less able to accommodate the learning needs of the digital generation.

In general, learning strategies used in classrooms and at research sites include class discussions to enhance understanding, simulations and role-plays to practice teaching skills, and active learning that directly engages students in the learning process. Various methods, such as lectures, discussions, and demonstrations, are also employed to deliver material effectively. With the right approach, learning not only prepares qualified teachers but also equips them with the skills needed to face the challenges of modern education.

Kahoot is a game-based learning platform that allows elementary school students to participate in interactive quizzes. Research shows that using Kahoot can motivate student learning engagement. According to (Hidayat, 2023), "the use of Kahoot in elementary school learning can increase student interest and engagement, thereby making the learning process more enjoyable."

## METHOD

The approach used in this research is quantitative. According to Sugiyono (2014:14), quantitative research can be defined as a research method based on the philosophy of positivism, used to examine a specific population or sample.

A quantitative approach allows researchers to measure the impact of the Kahoot application (independent variable) on students' digital literacy skills (dependent variable), as well as to test the statistical significance of this relationship. This research employed a quantitative approach with a quasi-experimental method. The research was conducted at SDN 76, Bengkulu City. The study was planned to last for two months, from February 12 to March 12, 2026. The population consisted of all 239 students at SDN 76, Bengkulu City. The sample was drawn using a purposive sampling technique with specific criteria. The total sample size was 39 students, consisting of:

**Table 1. Sample Data**

CLASS	AMOUNT
III A	20
III B	19
TOTAL	39

The experiment was conducted through several systematic stages to verify the findings: first, a pre-test was administered to both groups before the treatment to measure students' basic digital literacy skills. Then, the intervention (treatment) group was taught using the interactive Kahoot media, which included gamification elements, engaging visual design, and interactive quizzes. A post-test, a final test, was administered after the learning period was completed to determine the extent of improvements in digital literacy. The classroom teacher acted as an observer to monitor student engagement, motivation, and digital behavior throughout the process using a provided observation sheet and secondary data collection documentation in the form of previous learning outcomes, teaching modules, and class activity notes.

The materials and equipment used included: Software, namely the Kahoot application (as an interactive medium) and IBM SPSS Statistics Version 20 (for statistical analysis). Hardware, namely a laptop/computer, tablet, or smartphone used by students to access the Kahoot quizzes. The test materials, namely a test sheet consisting of 15 questions covering dimensions of critical thinking, technology use, digital ethics, and data security.

## RESULT AND DISCUSSION

### 1. Description of Pretest and Posttest Data

The results of the study showed a significant increase in the digital literacy skills of third-grade students. Before the intervention, the average digital literacy score was only 30%, but after using Kahoot, this figure increased to 75%. More than 80% of students were able to answer the post-test questions correctly.

### 2. Prerequisite Analysis Test

The data underwent a series of statistical tests using SPSS to ensure the validity of the findings:

#### a. Homogeneity Test

The Levene's Test value was 0.084 ( $>0.05$ ), indicating that the data variance was homogeneous.

Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
Digital literacy skills	Based on Mean	,084	1	37	,774
	Based on Median	,107	1	37	,745
	Based on Median and with adjusted df	,107	1	36,978	,745
	Based on trimmed mean	,080	1	37	,778

#### b. Reliability Test

The research instrument had a Cronbach's Alpha value of 0.974, which is categorized as very high or highly reliable.

Reliability Statistics	
Cronbach's Alpha	N of Items
.974	15

c. Hypothesis Testing

Hypothesis testing was conducted using an Independent Samples T-Test to determine significant differences between before and after treatment.

**Table 2. Hypothesis Test Results (t-test)**

Group	Sig. 2-tailed)	Mean Difference	Information
Pre-test & Post-test	0,000	-13,774	H <sub>0</sub> rejected, H <sub>a</sub> accepted

Since the Sig. (0.000) value is <0.05, there is a significant difference, proving that using the Kahoot application has a positive impact on students' digital literacy.

**CONCLUSION**

The implementation of the Kahoot application as an interactive learning medium has been proven to have a significant positive impact on improving the digital literacy skills of third-grade students at SDN 76, Bengkulu City. The increase in the average digital literacy score, which jumped from 30% to 75%, confirms that the integration of gamification elements, engaging visual design, and an instant feedback system can transform students' learning patterns from passive to active, critical participants. This success is supported by Kahoot's effectiveness in motivating students to interact productively with digital devices, fostering critical thinking skills in problem-solving, and fostering basic awareness of ethics and data security in cyberspace. Statistically, these findings were validated by a t-test significance value of 0.000, indicating that the difference in abilities before and after the intervention was not a coincidence, but rather a result of the effectiveness of the media used. The prospects for developing this research are wide open, particularly in integrating more complex Kahoot features such as discussion or survey modes to deepen the dimensions of students' digital collaboration. In the future, this study could be further applied by expanding the research subject to higher education levels or comparing the effectiveness of Kahoot with other interactive platforms to build a more comprehensive digital education ecosystem. Furthermore, it is recommended to develop a technology-based curriculum that focuses not only on mastering academic material but also consistently incorporates digital literacy indicators as competencies for elementary school graduates to face global challenges in the digital era.

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