

THE USE OF THE KAHOOT APPLICATION IN PAI LEARNING TO IMPROVE STUDENTS' UNDERSTANDING OF GRADE 6 AT SDN 105321 TUMPATAN NIBUNG

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ABSTRACT

Abstrak: Penelitian ini bertujuan untuk mendeskripsikan pemanfaatan aplikasi Kahoot dalam pembelajaran PAI (Pendidikan Agama Islam) untuk meningkatkan pemahaman siswa kelas 6 SDN 105321 Tumpatan Nibung. Penelitian ini menggunakan metode kualitatif dengan pendekatan deskriptif. Data dikumpulkan dengan menggunakan metode observasi, wawancara, dan studi dokumen. Subjek penelitian adalah guru PAI dan siswa kelas 6 SDN 105321 Tumpatan Nibung. Hasil penelitian menunjukkan bahwa: (1) Penerapan aplikasi Kahoot dalam pembelajaran PAI dilakukan dengan tahapan persiapan, pelaksanaan, dan evaluasi; (2) Pemanfaatan aplikasi Kahoot berhasil meningkatkan pemahaman siswa terhadap mata pelajaran PAI yang dibuktikan dengan peningkatan nilai rata-rata siswa; (3) Faktor pendukung pemanfaatan Kahoot antara lain tersedianya sarana teknologi dan antusias siswa, sedangkan faktor penghambat antara lain keterbatasan waktu dan keterampilan teknis guru. Penelitian ini menyimpulkan bahwa aplikasi Kahoot efektif sebagai media pembelajaran interaktif untuk meningkatkan pemahaman siswa pada pembelajaran PAI kelas 6.

Kata Kunci: *Kahoot; Pembelajaran PAI; Pendidikan Agama Islam*

Abstract: This study aims to describe the use of the Kahoot application in PAI (Islamic Religious Education) learning to improve the understanding of grade 6 students at SDN 105321 Tumpatan Nibung. The study used a qualitative method with a descriptive approach. Data were collected using observation, interviews, and document studies. The subjects of the study were PAI teachers and grade 6 students at SDN 105321 Tumpatan Nibung. The results of the study showed that: (1) The implementation of the Kahoot application in PAI learning was carried out with the stages of preparation, implementation, and evaluation; (2) The use of the Kahoot application succeeded in improving students' understanding of the PAI subject as evidenced by an increase in students' average scores; (3) Supporting factors for the use of Kahoot include the availability of technological facilities and student enthusiasm, while inhibiting factors include limited time and teacher technical skills. This study concludes that the Kahoot application is effective as an interactive learning media to improve students' understanding of PAI learning in grade 6.

Keywords: *Kahoot; PAI Learning; Islamic Religious Education*



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A. PENDAHULUAN

Various aspects of life, especially in the field of education, are greatly influenced by advances in information and communication technology. It is now considered important to incorporate technology into the learning process to improve education and create a more engaging and interactive learning environment. Digital educational game applications such as Kahoot, which are designed to support the learning process, are one of the uses of technology in education. (Ahmad, M., & Smith, 2022)

The learning process must be changed in today's digital era. This is in line with the idea of education 4.0, which focuses on the use of digital technology in the educational process. The development of the Internet of Things, artificial intelligence, and virtual reality marks the Industrial Revolution 4.0, which has an impact on various aspects of life, including education, according to Schwab (2016). In this case, teachers must be able to utilize technology in learning to prepare students to face the challenges of the 21st century. (Wibowo, A., & Prasetyo, 2021)

The main objective of this subject is to foster faith, piety, and noble morals in students from an early age. Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 21 of 2016 stipulates that PAI has a strategic role in shaping students' religious and ethical character. However, PAI learning in elementary schools is often considered uninteresting and monotonous. Students may not be motivated to learn if the material is taught theoretically and does not use interactive methods. As a result, their understanding of religious material is limited, and moral values that should be firmly embedded are not conveyed properly. To overcome this, the learning approach must be made more innovative by the times. This includes combining technology and digital media to meet the needs of modern students. (Zuhdi, M., & Hidayatullah, 2021)

In line with that, Sa'adah et al. (2023) stated that the lecture method that is still dominant in Islamic Religious Education learning is less able to build active student involvement, especially in the digital era that demands a more interactive and participatory approach. They emphasize the importance of using educational platforms such as Kahoot to increase student participation and understanding of religious material in a fun way. Islamic Religious Education learning in schools tends to be normative-doctrinal and does not develop students' cognitive dimensions comprehensively. This causes students to be less interested in or understand Islamic Religious Education material. In fact, according to the constructivism theory put forward by Piaget and Vygotsky, elementary school-aged children need active, fun learning that involves direct experience to be able to construct their knowledge. (Sa'adah, M., Kurniawati, R., & Lestari, 2023)

The results of initial observations at SDN 105321 Tumpatan Nibung showed that there were problems in Islamic Religious Education learning, especially for sixth-grade students. Many students had difficulty remembering and understanding the material given. Pre-test data showed that the average Islamic Religious Education score of students was only 72.5. The results showed that around 40% of students scored below 75 percent of the school's Minimum Completion Criteria (KKM). The use of less varied learning methods is considered one of the causes of low student

learning outcomes. As long as learning is focused on one-way lectures, students become passive and bored quickly. They are also less actively involved. Students are not involved and involved in the learning process because they do not answer teacher questions and do not interact with each other during the learning process. This condition has a direct impact on the quality of students' understanding of Islamic Religious Education material. As a result, student learning outcomes are getting worse. (Nurhayati, N., & Syamsuddin, 2021)

To improve students' understanding of religious values, learning innovations are needed that encourage active student involvement and enhance an interactive and enjoyable learning atmosphere. (Fitria, L., & Harahap, 2022)

Students entering sixth grade are usually between the ages of eleven and twelve, which is the formal operational stage, according to Jean Piaget's theory of cognitive development. Children learn to think logically, systematically, and abstractly at this stage. However, each of the overall operational stages to the formal operational stage sometimes does not occur immediately. To support this cognitive development, learning strategies, and media must be adjusted to the age and learning needs of students. (Gomez, CJ, & Tedesco, 2021)

Fun and meaningful learning becomes very important in situations like this. Through the Quantum Learning approach, DePorter and Hernacki emphasize that a positive learning atmosphere can help students achieve better learning outcomes. Therefore, teachers must create a learning process that is not only informative but also interesting and attracts students to participate actively. Utilizing digital technology, especially educational game applications, is a way that can be used to achieve this. Applications like this can increase students' desire to learn, increase their engagement, and help them understand abstract concepts in a more fun and easy-to-understand way. (Yuliani, E., & Santosa, 2022)

Kahoot is one of the game-based learning platforms that has been widely used as an alternative to improve the quality of learning, including Islamic Religious Education (PAI) subjects. By combining interactive quiz features and a competitive learning environment, Kahoot can make learning more fun, and interesting, and encourage students to participate more actively in learning activities. Learning Theory: Kahoot is in line with Albert Bandura's idea of social learning theory. According to this theory, learning is a social process that occurs through observation, imitation, and modeling of the behavior of others. Students do not only learn on their own but also from interactions with others in their environment. Kahoot offers many interactive activities that encourage students to learn from their peers and encourage teamwork. (Wang, AI, & Tahir, 2020)

With this platform, teachers can create multiple-choice quizzes that can be accessed through various digital devices, such as smartphones, laptops, or tablets. The quizzes created can be customized with open materials and presented in an attractive visual format. In addition to creating a positive learning atmosphere, the use of Kahoot has also been shown to improve students' understanding of concepts and encourage them to actively participate in lessons. (Susanti, R., & Hidayat, 2022)

Previous studies have shown that the use of the Kahoot application in learning activities has a positive effect on various aspects of student learning. This study found that, because Kahoot offers open materials in the form of fun and competitive interactive quizzes, this application can increase students' active participation in lessons, and improve student concentration during lessons.

As shown by research conducted by Wang and Lieberoth (2016), the gamification feature in Kahoot can affect students' emotional and cognitive engagement. In addition, research conducted by Gazali (2018) on mathematics learning found that incorporating Kahoot into learning materials can significantly improve students' learning outcomes. In addition, in their research on language learning, Ismail and Mohammad (2017) found that Kahoot can help students master vocabulary and remember what is taught.

The results support the idea that the use of game-based technologies such as Kahoot is an effective strategy to make learning experiences more meaningful and enjoyable, and has a positive impact on students' academic achievement. (Licorish, S.A., Owen, H.E., Daniel, B., and George, 2020)

The Kahoot application has been widely used in various fields of study, but there has been little research examining how well it is used to teach Islamic Religious Education (PAI) in elementary schools. The subject of PAI has unique characteristics because it contains many abstract religious concepts, such as faith, morals, and spiritual values. These concepts are often difficult for elementary school students to understand directly, who are still at a certain stage of cognitive development.

Therefore, a learning approach is needed that is able to concretize these abstract concepts so that they are easier for students to digest. Exploring learning technology such as Kahoot can play an important role as an interactive and interesting media. With multiple-choice quiz features that can be designed visually and contextually, Kahoot helps teachers deliver Islamic Religious Education material in a way that is more fun, communicative, and relevant to the world of children. Learning activities become more dynamic and not monotonous and can encourage the active involvement of students in the process of understanding religious values. (Siregar, S., & Mulyati, 2022)

In the environment of SDN 105321 Tumpatan Nibung, the application of technology in the learning process of Islamic Religious Education (PAI) has not been utilized optimally. This is ironic, considering that the school has adequate supporting facilities and infrastructure, such as a well-functioning computer laboratory and an internet network that can be accessed to support digital-based learning. "To produce students who are faithful, pious, have noble character, are intelligent, and skilled and can face global challenges."

In addition, the school, especially the principal, also shows active support for learning innovation by encouraging teachers to integrate technology into the teaching and learning process. This support is in line with the vision carried by the school, namely "Creating students who are faithful, pious, have noble character, are intelligent, and skilled and can face global challenges." However, in practice, the use of digital technology such as interactive learning applications including Kahoot has not been

fully implemented in Islamic Religious Education learning. This is an opportunity as well as a challenge for teachers to develop innovative learning models that combine religious values with a digital approach so that the material is easier to understand and interesting for elementary school students. (Huda, M., Jasmi, KA, & Shahrill, 2021)

Based on the background that has been explained, the researcher feels motivated to conduct a study entitled "Implementation of the Kahoot Application in Islamic Religious Education Learning to Improve the Understanding of Grade VI Students at SDN 105321 Tumpatan Nibung." digital games such as Kahoot This study aims to explore the extent to which the use of digital-based learning media such as Kahoot can improve students' understanding of Islamic Religious Education material which tends to be abstract.

Through this research, it is expected that a more innovative, interactive, and enjoyable learning model will emerge in the context of religious education in elementary schools. In addition, the results of this study are also expected to serve as a practical reference for PAI teachers in designing learning strategies that effectively integrate digital technology. Thus, PAI learning is not only relevant to the demands of the times but is also able to shape students' character and religious understanding in a deeper and more meaningful way.

B. METHOD

In this study, a qualitative approach was used, and this type of research is descriptive. The qualitative approach was chosen because it allows researchers to gain a deeper understanding of the application of Kahoot in Islamic Religious Education (PAI) learning. The main purpose of descriptive research is to provide an in-depth picture of the phenomena that occur, both those that arise naturally and those that are created by humans (Creswell, JW, and Poth, 2021).

Qualitative methods provide an opportunity for researchers to understand the context and meaning behind the learning activities. By using this approach, researchers can explore the interactions, experiences, and perceptions of students when using the Kahoot application in the learning information process. In addition, the data obtained is narrative and contextual, allowing for a richer and deeper understanding of the phenomena being studied. (Saldana, 2021)

In qualitative research, the role of the researcher is very central as the main instrument in data collection and analysis. The presence of researchers directly in the field is crucial and necessary to obtain an authentic and in-depth picture. By using the Kahoot application, researchers act as participant observers and actively observe the PAI learning process. This allows them to observe various dynamics of student interactions and reactions directly. (Palinkas, LA, Mendon, SJ, & Hamilton, 2021) .

C. RESULTS AND DISCUSSION

The implementation of the Kahoot application in Islamic Religious Education learning in class 6 of SDN 105321 TUMPATAN NIBUNG was carried out through several stages:

1. Preparation Stage

In the preparation stage, Islamic Religious Education teachers carry out several activities:

- a. Prepare PAI learning materials to be delivered.
- b. Create an account on the Kahoot platform.
- c. Design a quiz with questions related to the Islamic Religious Education material that will be taught.
- d. Ensure the availability of supporting facilities such as an internet network, projector, and devices to access Kahoot (computer/laptop/smartphone).

Based on the results of interviews with Islamic Religious Education teachers, preparation for using Kahoot requires additional time compared to conventional learning preparation. However, the Kahoot platform is user-friendly enough that teachers do not experience significant difficulties in creating quizzes.

"At first, creating a quiz on Kahoot took longer, but once you get used to it, it becomes easier. The PAI teacher told me that the platform is easy to use, and I can save the quizzes I create to use again later. (Rahmawati, I. & Wulandari, 2021)

2. Implementation Stage

In grade 6 of SDN 105321 Tumpatan Nibung, the Kahoot application is used for Islamic Religious Education (PAI) learning to ensure that technology integration runs well. Several stages are passed in this implementation including the preparation stage; this stage is page 1 of 4 stages of implementation, and here is a detailed explanation of each stage:

- a. The teacher delivers learning materials according to the lesson plan.
- b. At the end of the lesson, the teacher displays the Kahoot quiz that has been created.
- c. Students are asked to access Kahoot via electronic devices, such as smartphones or lab computers.
- d. Students enter their respective names and PINs displayed on the projector screen.
- e. The teacher starts the quiz and students answer the questions displayed.
- f. The Kahoot system displays the correct answers and temporary ranking after each question.
- g. At the end of the quiz, the Kahoot system displays the final ranking and the students who scored the highest.

Based on the observation results, the use of Kahoot in Islamic Religious Education learning creates a fun and competitive learning atmosphere. The questions displayed show that students are enthusiastic and active in answering them.

"Because Kahoot is similar to playing games, I like to learn Islamic Religious Education with it. However, while studying. I also become more enthusiastic to answer questions correctly so I can get a high score," said one of the 6th-grade students. (Setiawan, B., & Nugroho, 2022)

3. Evaluation Stage

At the evaluation stage, Islamic Religious Education teachers carry out several activities:

- a. Download a Kahoot quiz results report that contains information about each student's answers and statistics on how many questions were answered incorrectly.
- b. Analyze quiz results to determine the level of student understanding of the material that has been presented.
- c. Reinforce material that is not yet well understood by students.

The Islamic Religious Education teacher stated that the Kahoot quiz result report was very helpful in evaluating students' understanding of the learning material. "With Kahoot, I can immediately see what material is still not well understood by students, so I can provide additional explanations or reinforcement at the next meeting," said the Islamic Religious Education teacher. (Nurjanah, S., & Prasetyo, 2023)

Use of Kahoot Application to Improve Students' Understanding of Islamic Religious Education Subjects

The use of the Kahoot application in Islamic Religious Education learning has been proven to improve the understanding of grade 6 students at SDN 105321 TUMPATAN NIBUNG. This can be seen from several indicators:

1. Improving Learning Outcomes

Based on the documentation of student learning outcomes before and after using the Kahoot application, there was an increase in the average score of students in the PAI subject. Before using Kahoot, the average score of students was 72.5. After using Kahoot, the average score of students increased to 85.3. after using Kahoot. This shows an increase in students' understanding of Islamic Religious Education material after using the Kahoot application.

2. Increasing Student Participation and Involvement

Based on the observation results, the use of Kahoot in Islamic Religious Education learning increases student participation and involvement in learning. Students appear more active and enthusiastic in participating in Islamic Religious Education learning. This is in line with the findings of interviews with Islamic Religious Education teachers who said that students who were previously passive in conventional learning became more active after using Kahoot.

"Some students who are usually passive in class, now become more active when we use Kahoot. They are more courageous in answering questions and are more focused on paying attention to the material," said the PAI teacher.

3. Increase Learning Motivation

The results of interviews with students showed that the use of Kahoot in Islamic Religious Education learning increased students' desire to learn. Students felt more interested and motivated to learn because they had the opportunity to learn while playing games. The competitive feeling of getting the highest score also became a motivation for students to understand the material well.

"I am more diligent in studying Islamic Religious Education at home because tomorrow there will be a Kahoot quiz. I want to be able to answer all the questions correctly and get first place," said one of the 6th-grade students.

4. Reinforcement of Material and Direct Feedback

Kahoot is basically a visual learning tool that has an attention feature. The function of attention is to attract students and divert their attention to the subject matter related to the visual meaning displayed or accompanying the text of the subject matter. Kahoot has the potential to be a useful learning resource and learning media to meet the needs of today's generation. In addition, Kahoot has the potential to increase student interest and support their learning styles. (Suwahyu, 2024)

Kahoot is one of the many learning media that can make learning in school interesting and not boring. Basically, this application makes learning interesting by focusing on the active participation of students in the competition to get the best grades from what they learn.

The use of Kahoot in Islamic Religious Education learning reinforces the material that has been delivered and provides direct feedback on student understanding. The Kahoot system displays the correct answer after students answer each question, so students can immediately know whether their answer is right or wrong. "Students can easily find out whether their answer is right or wrong with Kahoot. "If there is a wrong answer, I can immediately provide additional explanations and explain it again to the student, so that the student does not end up understanding the wrong concept," said the PAI teacher.

So, by strengthening the material and direct feedback, students can become more knowledgeable and understand the use of the Kahoot system making them more enthusiastic about learning Islamic Religious Education (PAI).



Figure 1. When the teacher delivers learning materials To students by the RPP.

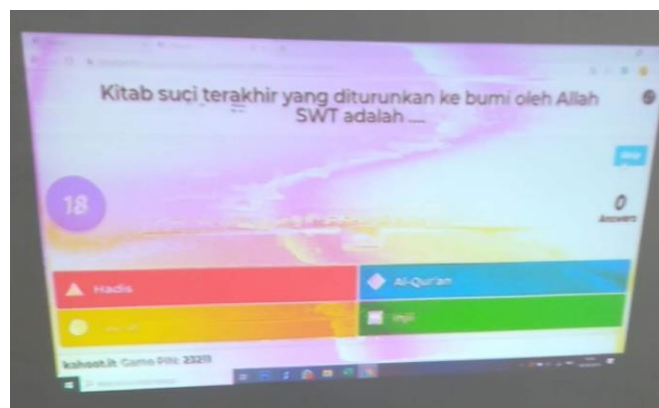


Figure 2. The teacher displays the Kahoot quiz that has been created



Figure 3. Students are asked to access Kahoot via electronic devices (computers in the computer lab or smartphones).

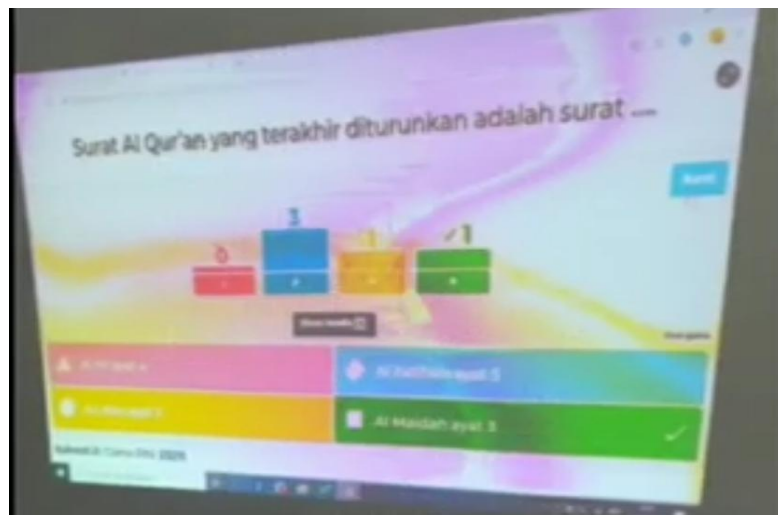


Figure 4. The teacher starts the quiz and students answer the questions displayed.

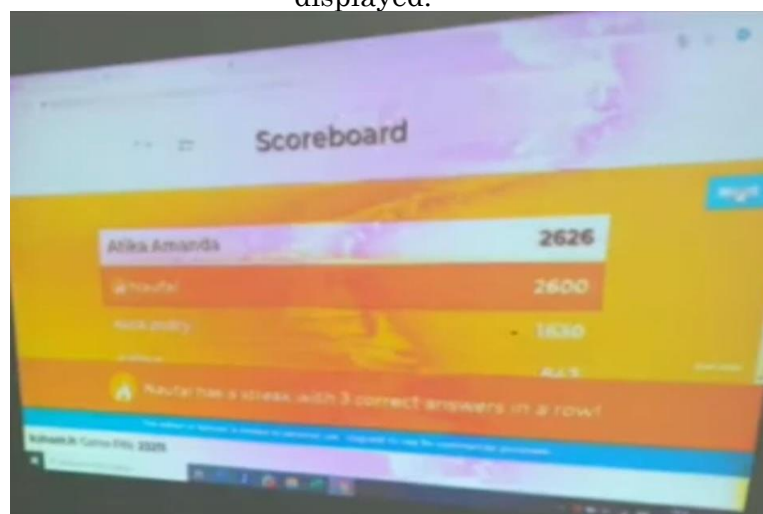


Figure 5. After each question, the Kahoot system displays the correct answer and the temporary ranking

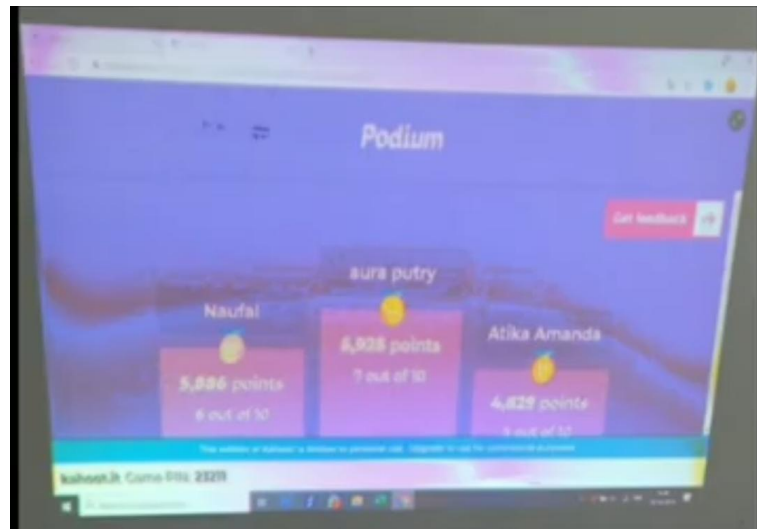


Figure 6. After the quiz is completed, the Kahoot system shows the student's ranking and highest score.

D. CONCLUSION

In grade 6 of SDN 105321 Tumpatan Nibung, the use of the Kahoot application in Islamic Religious Education (PAI) learning is divided into three main stages: preparation, implementation, and evaluation, where each stage is crucial to ensure that this digital technology can effectively support learning objectives. The preparation stage involves the Islamic Religious Education teacher creating a learning plan that includes selecting teaching materials aligned with students' basic competencies and preparing interactive quizzes on the Kahoot platform, including creating an account, compiling relevant questions, and ensuring students have the necessary technology devices. During implementation, teachers integrate the Kahoot application into learning activities by guiding students to use the quiz through their devices after discussing the main topic, allowing students to actively participate by entering their names and PINs, which fosters a dynamic, fun, and competitive learning environment that increases student engagement. At SDN 105321 Tumpatan Nibung, the use of the Kahoot application in Islamic Religious Education has been shown to improve students' understanding, as indicated by increased learning outcomes, higher participation, greater motivation, reinforcement of material, and immediate feedback provided through Kahoot. Supporting factors for using Kahoot in learning include the availability of facilities, support from the principal, student enthusiasm, and the ease of use of the application while inhibiting factors include time constraints, limited teacher technical skills, technical issues, and device limitations.

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research will be useful for the development of learning and evaluation in madrasahs.

REFERENCES

- Ahmad, M., & Smith, J. (2022). The impact of educational technology on student engagement: A case study of Kahoot in higher education & Society. *Journal of Educational Technology & Society*, 25(3), 45-58.
- Creswell, J.W., and Poth, Cn. and inquiry. (2021). Qualitative research design and inquiry: Choosing among five approaches DOI: 10. URL: [https://us.sagepub.com/en\(5th ed.\)](https://us.sagepub.com/en(5th ed.)). SAGE Publications. *SAGE Publications*. <https://doi.org/10.4135/9781071802775>
- Fitria, L., & Harahap, F. (2022). The influence of learning methods on student activity and learning outcomes in Islamic Religious Education lessons. *Journal of Islamic Education Innovation*, 98–108.
- Gomez, C.J., & Tedesco, J. (2021). Cognitive development and digital learning: Reconsidering Piaget in the age of gamification. *Educational Psychology Review*, 987–1005. <https://doi.org/10.1007/s10648-020-09585-1>
- Huda, M., Jasmi, K.A., & Shahrill, M. (2021). Exploring the integration of digital technologies in Islamic education: Opportunities and challenges. *International Journal of New Technologies in Learning (IJET)*, 241–250. <https://doi.org/https://doi.org/10.3991/ijet.v16i06.21267>
- Licorish, S.A., Owen, H.E., Daniel, B., and George, J.P. to K. (2020). Students' perceptions of the impact of Kahoot! on teaching and learning. *Research and Practice in Technology-Enhanced Learning, Bahasa Indonesia*, 1–23. <https://doi.org/https://doi.org/10.1186/s41039-020-00152-3>
- Nurhayati, N., & Syamsuddin, S. (2021). Analysis of students' learning difficulties in Islamic Religious Education subjects in elementary schools. *Journal of Elementary Islamic Education*, 45–56.
- Nurjanah, S., & Prasetyo, D. (2023). Implementation of Game-Based Learning with Kahoot in Islamic Religious Education Learning to Increase Student Engagement. *Journal: Tarbawi: Journal of Educational Sciences*, 75–84. <https://doi.org/10.32923/tarbawi.v19i1.6542>
- Palinkas, L.A., Mendon, S.J., & Hamilton, A. . (2021). Title: Innovative Designs for Qualitative Research Methods. *Journal: Qualitative Inquiry*, 639–650. <https://doi.org/10.1177/1077800420933286>
- Rahmawati, I. & Wulandari, D. (2021). (2021). Title: Utilization of Kahoot Application in Improving Student Motivation and Learning Outcomes in Islamic Religious Education Learning. *Journal: Al-Thariqah Islamic Religious Education Journal DOI*, 123–134. [https://doi.org/10.25299/al-thariqah.2021.vol6\(2.7582](https://doi.org/10.25299/al-thariqah.2021.vol6(2.7582)
- Sa'adah, M., Kurniawati, R., & Lestari, D. (2023). Application of Instructional Game Model with Kahoot! Platform as an Assessment Tool for Islamic Religious Education Learning in Elementary Schools. *Al-Madrasah Journal*, 7(1), 45-56.
- Saldana, J. (2021). The Coding Manual for Qualitative Researchers. *SAGE Publications SAGE Publications*. <https://doi.org/10.4135/9781529736506>
- Setiawan, B., & Nugroho, A. (2022). The Effectiveness of Using Kahoot

- Media to Improve Elementary School Students' Learning Outcomes. *J. Journal: Basicedu Journal*, 111–120.
<https://doi.org/10.31004/basicedu.v6i1.1950>
- Siregar, S., & Mulyati, T. (2022). Integration of interactive digital media in Islamic Religious Education learning in elementary schools: *A study of the use of Kahoot as a strategy to improve student understanding. Journal of Islamic Religious Education*, 45–56.
- Susanti, R., & Hidayat, T. (2022). Implementation of Kahoot media in interactive learning to improve student motivation and learning outcomes. *Journal of Technology and Learning*, 30–39.
- Suwahyu, I. (2024). Utilization of Kahoot Application in Islamic Religious Education Learning Process. *MediaTIK Journal*, 6 (1), 1–4.
<https://doi.org/10.59562/mediatik.v6i1.1357>
- Wang, AI, & Tahir, R. 202.) . K. (2020). The impact of using Kahoot! for learning – A literature review. *Computers & Education*.
<https://doi.org/https://doi.org/10.1016/j.compedu.2020.103818>
- Wibowo, A., & Prasetyo, Z. (2021). Implementation of Education 4.0 in Digital Learning: Literature Study. *Journal of Technology and Vocational Education*, 143-150.
<https://doi.org/10.21831/jptk.v27i2.40210>
- Yuliani, E., & Santosa, H. (2022). The use of educational game media to improve motivation and learning outcomes of elementary school students. *Journal of Educational Technology*, 24(1), 50–62. , 50–62.
- Zuhdi, M., & Hidayatullah, A. (2021). Rethinking Islamic education in the digital era: challenges and opportunities. *Journal of Islamic Education Studies*, 20–32.