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Implementation of Kahoot! Training to Support Digital Learning Practices among Elementary School Teachers

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ABSTRACT

The integration of digital technology into elementary education requires teachers to develop practical skills in utilizing interactive learning media. However, the use of game-based learning platforms at SD Islam Madinaturramlah Banjarmasin remained limited. This community service activity aimed to support elementary school teachers in utilizing Kahoot! as an interactive digital learning medium. The program involved approximately 16 participants and was implemented through preparation, material delivery, platform demonstration, hands-on practice, and evaluation using pre-test and post-test assessments. During the training, participants were guided to develop interactive quizzes and simulate their use in classroom learning. The evaluation recorded 16 pre-test responses with an average score of 99.38 and 15 post-test responses with an average score of 89.33. The difference in scores should be interpreted cautiously because the two assessments emphasized different levels of knowledge and practical application. Observations during the training indicated that participants actively engaged in discussions and were able to develop and simulate Kahoot!-based quizzes. These findings suggest that hands-on training can provide practical experience for teachers in integrating game-based digital learning media into elementary school learning activities. Further evaluation using equivalent assessment instruments is recommended to measure changes in teachers' competencies more accurately.

Keywords: digital learning, elementary school teachers, game-based learning, Kahoot!, teacher training

INTRODUCTION

The rapid development of information and communication technology has encouraged digital transformation in various sectors, including education. The integration of technology into learning is increasingly important for creating more interactive, participatory, and student-centered learning experiences (Al-faritzi, 2024; Sahnan & Wibowo, 2023). Digital technology in education is not only used to deliver learning materials but can also facilitate student engagement, provide varied learning experiences, and support the development of innovative learning environments. Therefore, teachers' ability to appropriately utilize digital learning technologies has become an important competency in contemporary education.

At the elementary school level, the selection of learning media should consider the characteristics of young learners, who generally respond positively to visual, interactive, and activity-based learning experiences. The use of appropriate digital media can support

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teachers in creating learning activities that attract students' attention and encourage their participation in the learning process (Dwijayanthi, 2022; Hani et al., 2024; Safitri et al., 2022; Sirait et al., 2024). In contrast, learning activities that rely predominantly on conventional lectures, textbooks, and written assignments may provide fewer opportunities for interactive student participation. Consequently, the integration of educational technology and game-based learning represents one approach for developing more engaging learning environments.

One digital platform that can be utilized to support interactive learning is Kahoot!, a game-based learning platform that allows teachers to develop online quizzes and conduct interactive learning activities in real time. The use of Kahoot! provides opportunities for teachers to combine learning and assessment activities in a more engaging digital environment (Rusmardiana et al., 2022). Previous studies have also reported that the implementation of Kahoot! can contribute to students' learning motivation, engagement, and participation during learning activities (Fitriyani, 2026; Hadijah et al., 2025; Rahmasari, 2025).

Previous research has provided evidence of the potential benefits of Kahoot! in educational settings. Wang and Tahir (2020), through a literature review, identified positive findings related to learning performance, classroom dynamics, and engagement. Similarly, Licorish et al. (2018) reported favorable student perceptions regarding the use of Kahoot! in supporting classroom interaction and learning experiences. Plump and LaRosa (2017) also highlighted the potential of Kahoot! to facilitate active learning and provide immediate feedback. These findings support the selection of Kahoot! as an interactive learning platform, although its effective implementation still requires teachers to develop appropriate digital and instructional skills.

Despite the potential benefits of digital learning media, their utilization at SD Islam Madinaturramlah Banjarmasin had not been fully optimized. Based on initial observations and discussions with the school, several teachers still relied primarily on textbooks and written assignments as learning media, while the use of interactive digital platforms remained limited. Teachers also had limited experience in developing and implementing game-based digital learning activities. This condition indicated a gap between the increasing need for technology-supported learning and teachers' practical ability to integrate interactive digital media into classroom activities.

Based on these conditions, practical training was considered necessary to support teachers in developing their ability to use interactive digital learning media. Kahoot! was selected because its game-based features allow teachers to develop quizzes, provide immediate responses during learning activities, and create more participatory learning experiences. Therefore, this community service activity was conducted to strengthen elementary school teachers' practical skills in using Kahoot! as an interactive learning medium. The activity also supports efforts to expand the integration of digital technology in education and contributes to Sustainable Development Goal 4 concerning inclusive and equitable quality education.

METHOD

This community service activity was conducted at SD Islam Madinaturramlah Banjarmasin, located on Jl. Meranti III, Komp. Madinah RT. 36 No. 08, Banjarmasin City, South Kalimantan, Indonesia. The school was selected as a community service partner based on its need to strengthen teachers' ability to utilize interactive digital learning media, particularly game-based learning platforms. Initial coordination and discussions with the school indicated that the utilization of interactive digital learning media remained limited,

highlighting the need for practical training in developing technology-supported classroom activities. The location of the community service activity is shown in Figure 1.



Figure 1. Location of the community service activity

The training involved approximately 16 participants, of whom 13 completed the official attendance list. Participation in the evaluation activities was recorded separately, with 16 responses collected during the pre-test and 15 responses during the post-test. The community service team consisted of three lecturers and two university students. The lecturers were responsible for delivering the materials, demonstrating the platform, and facilitating discussions, while the university students provided technical assistance during the practical sessions.

The activity was implemented through four main stages: preparation, training, hands-on practice, and evaluation. During the preparation stage, the team coordinated with the partner school, identified training needs, prepared materials, and developed pre-test and post-test instruments. The training materials focused on introducing Kahoot!, explaining its potential benefits for elementary school learning, and demonstrating its main features for creating interactive quizzes.

The training stage began with the administration of a pre-test to identify participants' initial knowledge of digital learning media and Kahoot!. This was followed by material delivery and a live demonstration of the platform, including the steps for accessing Kahoot!, creating quiz questions, configuring quiz settings, and conducting interactive quiz sessions. Participants were also introduced to examples of how Kahoot! could be incorporated into elementary school learning activities.

During the hands-on practice stage, participants were instructed to access Kahoot! using their individual accounts and follow a step-by-step demonstration provided by the community service team. The demonstration covered accessing the platform, navigating its features, creating quiz questions, configuring answer options, and conducting interactive quiz sessions. Participants were encouraged to follow the demonstrated procedures using their own accounts and develop quizzes relevant to their teaching subjects. The lecturers provided instructional guidance, while university students assisted participants in addressing technical difficulties. This approach enabled participants to gain direct experience with the platform through guided practice rather than relying solely on theoretical explanations.

The evaluation stage involved pre-test and post-test assessments administered through an online questionnaire, supported by direct observation during the practical sessions. Both assessments consisted of 10 multiple-choice questions, with each correct answer receiving 10 points and a maximum possible score of 100. The pre-test assessed participants' basic knowledge of Kahoot!, including its functions, benefits, accessibility,

technical requirements, and game participation procedures. In contrast, the post-test focused on practical application, including quiz creation, the Quiz and Reports features, Live Game and Assign modes, and strategies for classroom implementation. Evaluation data were analyzed descriptively using response counts, mean scores, minimum scores, maximum scores, and item-level correct response rates. Since the instruments contained different questions and participant responses were not individually matched, the scores were not treated as paired measures of competency improvement. Practical engagement was additionally examined through observations during guided activities using participants' individual Kahoot! accounts.

The evaluation findings were interpreted with consideration of the differences in participant response numbers and assessment content. Therefore, the outcomes of this community service activity were discussed in terms of participants' demonstrated practical abilities and understanding of Kahoot! rather than claims of statistically verified improvement in digital competencies.

Table 1. Stages of the community service activity

No.	Stage	Activity
1	Preparation	Coordination with the partner school and identification of training needs
2	Preparation	Preparation of training materials and evaluation instruments
3	Training	Administration of the pre-test
4	Training	Delivery of Kahoot! materials and platform demonstration
5	Hands-on Practice	Development of interactive Kahoot!-based quizzes
6	Hands-on Practice	Discussion, simulation, and technical assistance
7	Evaluation	Administration of the post-test
8	Evaluation	Participant reflection and feedback
9	Evaluation	Descriptive analysis of evaluation results

RESULTS AND DISCUSSION

The OHS socialization and training activity was attended by 15 male woodworkers from Alalak Tengah, Banjarmasin. The participants were approximately 30–55 years old, had 5–10 years of experience in wood-processing activities, and were involved in various tasks such as wood cutting, frame production, furniture making, and finishing. None of the participants had previously attended formal OHS training. During the activity, participants were actively involved in discussions, PPE demonstrations, hands-on practice, and workplace-safety observations.

The Kahoot! training program was conducted at SD Islam Madinaturramlah Banjarmasin to support teachers in utilizing interactive digital learning media. The activity consisted of material delivery, platform demonstration, hands-on practice, discussion, and evaluation. During the training, participants were introduced to the main features of Kahoot!, including quiz creation, question development, answer configuration, and interactive quiz implementation. The training emphasized direct practice to provide participants with opportunities to apply the knowledge gained during the sessions.

The use of Kahoot! in this community service activity was also informed by the broader literature on game-based learning. Sailer and Homner, (2020) reported positive effects of gamification on cognitive, motivational, and behavioral learning outcomes across educational settings. Furthermore, Kohnke and Moorhouse, (2022) described the

instructional potential of Kahoot! for supporting interactive learning activities. However, these previous findings should be distinguished from the outcomes of the present community service activity, which primarily documented teachers' practical experiences during training rather than directly measuring changes in students' motivation or academic performance.

Participants demonstrated active engagement throughout the training activities. They participated in discussions, asked questions, explored the available features, and practiced developing quizzes based on their teaching subjects. During the practical session, participants were guided to create and simulate interactive quizzes using Kahoot!. Observations indicated that participants were able to follow the procedures and demonstrate their understanding of the platform through practical activities. Figure 2 presents the implementation of the Kahoot! training program.

An important aspect of the training was the use of individual Kahoot! accounts during the practical session. Participants were instructed to access the platform independently and follow the procedures demonstrated by the instructors. This approach provided opportunities for participants to become familiar with the platform interface, explore quiz development features, and practice configuring interactive learning activities. The direct use of individual accounts also allowed participants to experience the technical steps involved in preparing Kahoot!-based learning materials. However, the number of participants who independently completed and successfully implemented their own quizzes was not systematically recorded. Therefore, the practical outcomes are presented descriptively without assigning unsupported completion rates or competency improvement percentages.



Figure 2. Implementation of the kahoot! training activities

The practical session was an important component of the activity because participants were not only introduced to the Kahoot! platform but were also required to develop their own interactive quizzes. The hands-on practice provided participants with opportunities to explore the Kahoot! platform and develop interactive quizzes under the guidance of the community service team. This approach supported participants' practical experience in using technology-based learning media, although individual task completion was not systematically assessed. Previous studies have similarly indicated that Kahoot! can be used as an interactive learning medium and is positively perceived by learners because of its game-based and participatory characteristics (Rusmardiana et al., 2022). The use of Kahoot! has also been associated with increased learning motivation and engagement in educational activities (Hadijah et al., 2025; Rahmasari, 2025).

Evaluation was conducted through pre-test and post-test assessments, supported by observations during the practical sessions. The assessments were used to describe participants' understanding of Kahoot! before and after the training. A total of 16 responses were recorded during the pre-test and 15 responses during the post-test. The evaluation results were analyzed descriptively based on response counts, mean scores, highest scores, lowest scores, and item-level correct response rates. The overall evaluation results are presented in Table 2, while the selected item-level evaluation results are summarized in Table 3.

Table 2. Participant evaluation results

Indicator	Pre-test	Post-test
Number of Responses	16	15
Mean Score	99.38	89.33
Highest Score	100	100
Lowest Score	90	70

The pre-test results showed a mean score of 99.38, with 15 out of 16 responses achieving the maximum score of 100 and one response scoring 90. This distribution indicates a ceiling effect, suggesting that the pre-test primarily assessed basic knowledge already understood by most respondents. Meanwhile, the post-test produced a mean score of 89.33, with five responses scoring 100, five scoring 90, four scoring 80, and one scoring 70. These findings indicate differences in the score distributions between the two assessments. However, the results cannot be directly compared to measure learning improvement because the instruments assessed different aspects of Kahoot! knowledge and application.

Table 3. Selected item-level evaluation results

Assessment	Evaluated aspect	Correct responses	Percentage
Pre-test	Basic function of Kahoot!	16/16	100%
Pre-test	Purpose of Game PIN	16/16	100%
Post-test	Quiz feature	8/15	53.3%
Post-test	Joining a quiz	12/15	80.0%
Post-test	Reports feature	15/15	100%
Post-test	Live Game and Assign modes	12/15	80.0%

The item-level evaluation results presented in Table 3 provide further insight into participants' understanding of specific Kahoot! features. The pre-test results indicated strong familiarity with basic functions, while the post-test showed variations in participants' understanding of practical applications. In particular, the Quiz feature recorded the lowest correct response rate at 53.3%, suggesting that this aspect may require additional explanation and practice. Meanwhile, the Reports feature achieved a 100% correct response rate, indicating that respondents answered this topic correctly in the post-test. These findings highlight the importance of providing more focused guidance on specific Kahoot! features during future training activities. However, differences in test content and response counts prevent direct conclusions regarding individual learning improvement.

The difference in the number of responses also limits direct comparison between the two assessments. While 16 responses were collected during the pre-test, only 15 were recorded during the post-test. Furthermore, 13 participants completed the official

attendance list. These differences were considered when interpreting the findings, and the results were analyzed descriptively without conducting paired statistical comparisons.

Beyond the test scores, practical activities provided additional information about participants' ability to use Kahoot!. Participants practiced creating quiz questions, configuring answer options, and simulating interactive quiz sessions. These observations suggest that the training provided opportunities for participants to develop practical experience in using game-based learning media. However, the activity did not employ a standardized performance assessment to quantify individual skill improvement.

The findings highlight the potential contribution of practice-oriented training to teachers' digital learning experiences. By combining demonstrations and hands-on activities, participants were able to explore Kahoot! features and apply them to the development of interactive learning quizzes. This approach is consistent with Rusmardiana et al., (2022), who reported positive perceptions of Kahoot! as an interactive learning medium.

Previous studies have also suggested that Kahoot! can support learning motivation, participation, and engagement (Hadijah et al., 2025; Rusmardiana et al., 2022). The present activity contributes to these discussions by focusing on elementary school teachers' practical experiences in developing game-based digital learning materials rather than directly measuring student learning outcomes.

The observations during training indicated that participants actively engaged in the learning process and demonstrated the ability to develop and simulate Kahoot!-based quizzes. These findings are relevant to the initial needs identified at the partner school, where the use of interactive digital learning media remained limited. The training therefore provided practical exposure to a digital platform that teachers could potentially integrate into their classroom activities.

Nevertheless, several limitations should be acknowledged. First, this community service activity was conducted at a single elementary school with a relatively small number of participants, limiting the generalizability of the findings. Second, the pre-test and post-test emphasized different aspects of Kahoot! knowledge and application, preventing direct measurement of learning improvement. The near-ceiling pre-test scores also limited the ability to identify further knowledge gains. Third, the difference in the number of pre-test and post-test responses and the absence of matched individual data restricted comparative analysis. Furthermore, participants' practical activities were documented through observations rather than a standardized performance assessment rubric, and individual quiz completion rates were not systematically recorded. Therefore, the findings should be interpreted as descriptive evidence of participants' engagement and practical exposure to Kahoot! rather than conclusive evidence of improved digital competencies or classroom teaching effectiveness.

To support the sustainability of the program, teachers are encouraged to gradually integrate Kahoot! into their regular classroom activities by developing quizzes aligned with their respective subjects and learning objectives. Peer-sharing activities within the school could provide opportunities for teachers to exchange quiz materials, discuss technical challenges, and share experiences in implementing game-based learning. Future community service programs may include follow-up mentoring, structured practical assessments, and monitoring of classroom implementation. These activities could help evaluate the extent to which teachers continue using Kahoot! and provide further evidence regarding its contribution to students' engagement and learning experiences.

CONCLUSION

The Kahoot! training program at SD Islam Madinaturramlah Banjarmasin was successfully implemented to support elementary school teachers in utilizing interactive digital learning media. Through demonstrations, hands-on practice, and discussions, participants gained practical experience in developing and simulating Kahoot!-based quizzes for classroom learning. The evaluation results indicated a generally high level of understanding, although differences in the pre-test and post-test instruments prevented direct measurement of competency improvement. The main contribution of this community service activity was providing teachers with practical opportunities to explore and apply game-based digital learning tools. Future programs should incorporate equivalent assessment instruments, structured practical skill evaluations, and follow-up assistance to support the sustainable integration of Kahoot! into elementary school teaching practices.

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