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Implementation Of Game-Based Learning Using Kahoot Application In Increasing Student Interest And Motivation

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ABSTRACT
In this era of rapidly evolving information and communication technology, approaches to learning also need to be adjusted to remain relevant and effective. One approach that is gaining popularity is the use of game-based learning, where game elements are used in the context of learning. Digital applications such as Kahoot are one of the tools that attract attention in the implementation of game-based learning. This study aims to explore the potential and effectiveness of game-based learning implementation using the Kahoot application in improving students' learning achievement at IT Indah Junior High School in Medan. The population in the research conducted had a total of 120 students. Meanwhile, the research sampling was conducted by utilizing the Krejcie and Morgan tables, resulting in 90 research samples. The results of the validity test of learning interest with learning motivation have a distribution of rcount > rtable. Meanwhile, the reliability test provides a description of the Alpha Cronbach results for each variable having a value greater than 0.6. The results showed a significant effect. The results of the study showed a sig value (2-tailed) of 0.000, meaning that the sig value <0.05, which means that the game-based learning method using the Kahoot application can increase student interest and motivation to learn at IT Indah Medan Junior High School.

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INTRODUCTION

The development of information and communication technology will have a significant impact on human life. All fields, including education, are witnessing these transformations. Various information technology-based innovations emerge by providing representations of different approaches to the implementation of education with the help of media or applications. These innovations can influence the advancement of technology in the educational process. One of them is the impact on learning media development, which is an important point in the implementation of the learning process [1]. Approaches that incorporate media and applications into the learning process have the potential to introduce variations in both learning methods and resource usage. We do this to boost student enthusiasm for learning, lessen the likelihood of student boredom, and offer a method that isn't inflexible and monotonous throughout the learning process. We anticipate that implementing different

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learning methods and utilizing different learning media will influence the learning outcomes of students.

Considerations must guide the use of diverse learning methods and resources. This adapts to the learning environment's conditions, student characteristics, and the availability of adequate communication networks to support the learning process. In general, an application or medium used in the learning process can be online or offline. Therefore, when utilizing both online and offline applications as learning media, they should have multiple benefits, including boosting student engagement, fostering a collaborative learning environment, enhancing student comprehension, and offering immediate feedback. Other factors to consider when using applications as learning media include their ability to provide learning experiences that stimulate the development of students' critical and creative thinking abilities, adapt to various student learning styles, and motivate students to learn.

One of the familiar learning methods that can be used in the learning process is game-based learning. Game-based learning describes the mechanism of the learning process by using the concept of games as a tool or medium for conveying learning information in the form of learning materials. You can implement the game-based learning concept in the learning process through a variety of online and offline applications. You can use Kahoot, an online-based application, in the learning process. You can use Kahoot as an online-based learning medium. SeveralSeveral game functions, such as online quiz features, discussions, surveys, and conducting learning evaluations, are among the Kahoot features that can adapt to learning needs. Of course, Kahoot requires adjustments based on the direction and objectives of the learning implementation, as well as the expected competency achievements. Students can improve their learning outcomes by combining the Kahoot web-based application with game-based learning, based on the features and availability of these facilities [2] [3]. In addition, Kahoot's implementation can enhance the learning process by developing more effective and efficient learning media [4].

However, in reality, many teachers still utilize the teacher-centered learning approach, a traditional learning approach in which the teacher serves as the primary source of knowledge and instruction. Teacher-centered learning has several weaknesses that can affect the effectiveness of the teaching and learning process. One of the main disadvantages is that this approach tends to make students passive in the learning process. Students mostly listen to teacher lectures and record information, with little opportunity to actively participate, discuss, or explore the material independently. The teacher's inability to effectively utilize technological advancements in the classroom also impacts the learning outcomes of students. Among these are the teachers' lack of digital literacy, their limited knowledge of using technology, and the challenges they face when operating it. Therefore, the learning process is primarily passive and has a limited impact on student learning outcomes. During a school assessment, researchers at MIN discovered this issue. During the assessment, the researchers observed that a number of teachers were not adequately preparing their teaching materials for the school's learning process. Most of these teachers still adhered to traditional teacher-centered learning methods, which primarily involved listening to the teacher's lecture and recording information without providing many opportunities for students to actively

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participate, discuss, or independently explore the material. Furthermore, the teachers' inability to effectively utilize technological advancements hinders the smooth operation of the learning process, thereby making it challenging to enhance students' learning outcomes.

Based on research conducted by [5] it is stated that the use of the Kahoot platform combined with a game approach is able to increase student participation, which has implications for increasing learning evaluation scores as well as being able to maintain students' interest in learning during the learning process. . Apart from that, research conducted by [6], describes the results of the research in the form of the use of Kahoot, which can be used in evaluations outlining positive implications for students' knowledge and skills. Students can use the Kahoot web application as a formative evaluation medium to motivate, support, and even implement the learning process. We can suggest its use by modifying all the elements required for Kahoot's integration with the curriculum and education. [7] conducted additional research that centers on Kahoot testing and its integration with gamification in the learning curriculum. The research results showed that 73 out of 85, or around 86% of students, were able to complete the applied studies. The integration of Kahoot into the curriculum led to an increase in student knowledge of the presented learning material.

The research focuses on applying game-based learning methods, specifically using Kahoot as a learning medium, in Islamic religious education lessons for class VIII students at SMP IT Indah Medan. We can further analyze the application of Kahoot as a learning medium to understand its impact on student learning outcomes.

Literatur Riview

Interactive Learning Media

Learning media significantly contribute to improving students' abilities in the learning process [8]. This pertains to the primary function of learning media, which teachers use to convey information in the form of learning materials [9]. Several adjustments are necessary during the preparation and implementation of learning media to ensure optimal operation. We do this to ensure the achievement of learning objectives and the fulfillment of all aspects of student competency. Another important goal is to provide maximum understanding and increase students' knowledge through the achievement of good learning outcomes.

Teachers must consider several conditions in the learning environment when adjusting the type of learning medium to use. This covers several aspects, including student characteristics and resource availability, and refers to the ability of teachers and students to operate the learning media used. Teachers must be able to adapt quickly to all forms of transformation that might occur in the curriculum, learning implementation mechanisms, facilities, and infrastructure, including developments in learning media [10]. This refers to technological developments in the digital revolution era that are impacting educational innovation. Various innovations emerge in the learning implementation process, fostering effective and creative learning through the utilization of information technology and leading to the creation of interactive learning media [11].

One type of interactive learning medium aims to help students understand the material provided. Teachers use interactive learning media, which can be either hardware or software, to convey information in the form of learning materials to students, ensuring two-way

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interaction characteristics [12]. Interactive concepts implemented in learning media must also have the ability to be swift and effective in student learning activities.

Game Based Learning

In the learning process, learning models are used to achieve active participation of students in learning activities and motivate students to learn information [13]. Several learning models, including game-based learning, are relevant to the learning process. Game-based learni Applying game-based learning requires orienting learning activities around the Game-based learning has the potential to shift the learning paradigm from teacher-centered to student-centered [14]. The impact is that students can gain direct learning experiences that allow them to interpret themselves based on the situations they encounter. Several requirements must be satisfied for the application of game-based learning concepts in a learning environment. According McGonigal in [15] describe some of these features as follows:

1. Goals
   The goal feature focuses on the outcomes students achieve through game-based learning activities. The description of the goal is part of the game concept design, which will give students a sense of purpose.
2. Rules
   The rule feature represents constraints related to the game-based learning implementation mechanism's context.
3. The feedback system
   This feature describes potential information about how close students are to the game's objectives.
4. Voluntary participation
   This feature describes students' connection and attachment to a game based on their understanding. This fosters a sense of readiness to embrace the established objectives, guidelines, and evaluations.

When incorporating game-based learning into the educational process, students have the ability to interact with the platform in two different ways. The learning platform or medium. The use of information and communication technology applications in the learning process is known as technology-enhanced learning (TEL). TEL describes the use and involvement of information and communication technology applications to improve student learning outcomes. Adopting TEL in a learning process not only innovates the learning implementation mechanism but also offers an alternative to conventional learning systems [16]. Kahoot is one application that can incorporate interactive concepts into the learning process. Kahoot! is a game-based learning platform that students use to review their knowledge, for formative assessment, or as a break from traditional classroom activities [17].

In addition, the integration of game-based learning concepts and interactive learning media can enhance students' learning motivation [18] [19]. The use of Kahoot as an interactive learning medium has an incentive to integrate game-based learning to develop knowledge and skills, learn by solving problems, and provide situational-based learning experiences.

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Learning Motivation

Learning motivation describes a learner's internal and external drive to achieve learning goals during learning activities. Learners' learning motivation can come from a variety of sources, including their interests, goals, rewards, and support in their environment. Students' demonstrated interest in learning during the process reflects their constant focus on acquiring knowledge through their learning activities. To ensure that students have the best possible chance to comprehend and assimilate the diverse information presented in the teacher's learning materials, this enables learners to develop the confidence necessary to successfully complete the learning challenges set by the teacher.

The learning challenges typically mimic the characteristics of a competition within the educational setting. So that learnThe aim is for learners to seize the chance to acquire knowledge in the shape of solutions and accurate responses to the challenges, and strive to finish them quickly. search activities, learning motivation is considered to be able to influence student learning outcomes. We can use a variety of indicators, such as the desire to succeed, motivation and learning needs, hopes and ideals, award recognition, favorable learning environments, and engaging learning activities.[20] [21].

Enthusiasm for Learning

Researchers have developed various variations of learning models and media to achieve learning objectives that focus on direct learner involvement and participation. Linearly, the involvement of learners in the learning implementation process will have an impact on student learning outcomes. The effort also involves creating an active learning environment and atmosphere to enhance and sustain students' learning activities. Enthusiasm for student learning provides a representation of the feeling of comfort and excitement that students feel when carrying out learning activities. During the implementation of learning activities, learners will receive information through the use of learning media. During the learning process, the knowledge transfer process will greatly affect students' focus and concentration. So directly, learning media is one of the factors that can affect student enthusiasm and learning outcomes [22]. [23] describe some indicators of learning enthusiasm as follows:

1. Persevere in facing the task
2. Tenacious in facing difficulties
3. Showing interest
4. enjoys working alone
5. Does not quickly grow bored with routine tasks
6. Capable of defending his or her opinion
7. Remains steadfast in their beliefs.
8. Enjoys discovering and solving problems.

RESULTS AND DISCUSSION

Data requirements

This research employed a quasi-experimental design with a single group. This study employed a questionnaire, rather than a comparison class, to examine the impact of implementing Kahoot Games as quizzes on student interest and motivation. The purpose of giving questionnaires to

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students is to measure whether there is a significant influence on students after the application of game-based learning through Kahoot media. The research targets class VIII students at IT Indah Junior High School, comprising a total research population of 120 students. The determination of the research sample was carried out using the Krejcie table, with the sample results having a total of 90 students. Islamic religion lessons utilize Kahoot applications as instructional tools. The Kahoot application serves as an interactive learning medium, employing a game-based learning approach.

To determine the required sample size from a specific population with a certain level of confidence and margin of error, use the sampling formula from the Krejcie and Morgan table. This formula is a simplified form of statistical calculation to facilitate the sampling process. Equation (1) displays the basic formula Krejcie and Morgan used. We use the sampling formula from the Krejcie and Morgan table to determine the required sample size from a specific population, taking into account the level of confidence and the margin of error. This formula is a simplified form of statistical calculation to facilitate the sampling process. Equation (1) reveals the basic formula Krejcie and Morgan used.

$$S = \frac{X^2 NP(1-P)}{d^2(N-1)+X^2P(1-P)} \quad (1)$$

Description

S : Required sample size

X^2 : Represents the chi-square table value at the desired confidence level (e.g., 3.841 for a 95% confidence level).

N : Population size

P : Population proportion (assumed to be 0.5 to maximize sample size if the true proportion is unknown).

d : The desired margin of error (for example, 0.05 for a 5% margin of error)

Meanwhile, hypothesis testing in the research conducted utilizes the T-test, as shown in Equation (2), while a variance test can be conducted using formulation (3). The research method should be included in the Introduction. The method contains an explanation of the research approach, subjects of the study, the conduct of the research procedure, the use of materials and instruments, data collection, and analysis techniques.

$$t = \frac{X_1 - X_2}{S\sqrt{(\frac{1}{n1}+\frac{1}{n2})}} \quad (2)$$

$$S^2 = \frac{(n1-1)S_1^2+(n2-1)S_2^2}{n1+n2-1} \quad (3)$$

Description

X_1 : the experimental class's average value.

X_2 : the average value of the control class.

n_1 : number of students in the experimental class

n_2 : number of control class students

S_1 : the experimental class's variance value.

S_2 : variance value of the control class.

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Meanwhile, the conceptual framework diagram in the study describes the hypothesis about the relationship between the variables used. Variable X signifies the initialization of game-based learning variables, while Y1 and Y2 initialize other variables, signifying learning motivation and learning interest, respectively. The conceptual framework of the research conducted can be illustrated in Figure 1.

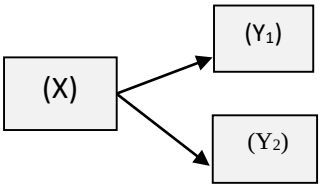

Figure 1. Conceptual Framework

Following the development of Industrial Revolution 4.0, learning activities have changed, particularly in terms of student and teacher interaction. In addition to these changes in interaction, there have been significant shifts in the way students think and behave. Teachers must innovate in the learning process to stay abreast of technological advancements. The current industrial revolution (4.0) has made classroom learning flexible, enabling access anytime and anywhere. Mobile applications that are currently being developed align with current learning needs, allowing for convenient interaction between students and teachers during the learning process.

The Kahoot application, which is based on online quiz games, aims to serve as a medium that can enhance student interest and motivation in the learning process, particularly in Islamic religion material. Before examining the impact of the Kahoot application, which takes the form of an online quiz game, on students' interest and motivation to learn, researchers tested the validity and reliability of the tests they distributed to research subjects. The test used 90 respondents from several of the same classes so as to produce the results expected by the researcher.

The Corellation Product Moment technique, when used to test the validity of research-related instruments, aims to correlate the total number with each distributed question item. To test the validity of the test, data processing is done using SPSS (Statistical Product and Service Soluction) version 26 for Windows. Once we know the correlation coefficient (rxy), we will compare it with the rtable at a significance level of 5%. If rxy exceeds the rtable, we declare the question instrument valid, but if rxy falls below the rtable, we declare it invalid. Table 1 below presents the results of the validity test.

Table 1. Results of the Learning Interest Questionnaire Validity Test

No	Statement Item	r_{count}	r_{table}	Decisiom
1	Question 1	0,763	0,278	Valid
2	Question 2	0,777	0,278	Valid
3	Question 3	0,720	0,278	Valid
4	Question 4	0,623	0,278	Valid
5	Question 5	0,666	0,278	Valid

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No	Statement Item	r_{count}	r_{table}	Decisiom
6	Question 6	0,646	0,278	Valid
7	Question 7	0,629	0,278	Valid
8	Question 8	0,703	0,278	Valid
9	Question 9	0,634	0,278	Valid
10	Question 10	0,475	0,278	Valid

Table 1 above reveals that all questions are considered valid due to their rcount value exceeding rtable. So it can be concluded that the questions given to respondents related to the study interest questionnaire in the sample are said to be able to be used as a measuring tool desired by respondents. Table 2 presents the results of the validity test for the learning motivation questionnaire.

Table. 2 Learning Motivation Questionnaire Validity Test Results

No	Statement Item	r_{count}	r_{table}	Decisiom
1	Question 1	0,621	0,278	Valid
2	Question 2	0,625	0,278	Valid
3	Question 3	0,725	0,278	Valid
4	Question 4	0,786	0,278	Valid
5	Question 5	0,616	0,278	Valid
6	Question 6	0,412	0,278	Valid
7	Question 7	0,543	0,278	Valid
8	Question 8	0,358	0,278	Valid
9	Question 9	0,474	0,278	Valid
10	Question 10	0,479	0,278	Valid

Table 2 above reveals that all questions are considered valid due to their rcount value exceeding rtable. Therefore, we can conclude that the sample's respondents found the questionnaire on learning motivation to be a useful measuring tool. Meanwhile, data reliability testing is carried out with the provisions of Cronbach's alpha. We conclude that the question instrument is considered reliable if the Cronbach alpha value exceeds 0.6. Table 3 displays the results of the reliability test with SPSS version 26.

Table 3. Reliability Test Results

Variables	Alpha Cronbach	Number of Items	Decision
Learning Interest	0,857	10	Reliable
Learning Motivation	0,769	10	Reliable

Based on table 3, it is known that the results of the reliability test with the Cronbach Alpha value of learning interest are 0.857 and the Cronbach Alpha value of learning motivation is 0.769. For each of the 10 question items, the results obtained show that it is greater than the Cronbach Alpha of 0.60. Therefore, we conclude that the measuring instruments used in this research are reliable. We carry out the assumption test first, followed by the hypothesis test,

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after verifying the test's validity. The normality test is the assumption test carried out. The assumption test or hypothesis test applied aims to ensure the research hypothesis. If the Asym Sig test result obtained has reached p <0.05, then it is concluded that the hypothesis is accepted. (Selakambang 2019) We conduct the normality test to determine the normality of the data distribution. The following table displays the results of the normality test.

Table 4. Normality Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		90
Normal Parametersa,b	Mean	,0000000
	Std. Deviation	4,04732527
Most Extreme Differences	Absolute	,056
	Positive	,053
	Negative	-,056
Test Statistic		,056
Asymp. Sig. (2-tailed)		,200c,d

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

The table displays a sig value of 0.200, signifying a value greater than 0.05, leading to the conclusion that the data is normal. The t test, also known as the hypothesis test, is the next step after the assumption test. We conduct this test to compare the initial and final abilities of students after receiving different treatments. This test also sees whether the game with Kahoot will affect students' learning interest and motivation. The following table displays the results of the hypothesis test.

Tabel 5. T Paired Samples Test

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Learning Interest & Learning Motivation	90	,567	,000

With the provisions, a sig value of <0.05 means there is a difference. The results revealed a sig (2-tailed) value of 0.000, indicating a difference in value between the pre-treatment and post-treatment periods. Therefore, we can conclude that the Kahoot quiz game significantly boosts the interest and motivation of 8th grade students in studying the Islamic religion.

CONCLUSIONS

The research focused on assessing the effectiveness of the Kahoot application, a game-based learning innovation, in boosting student motivation and interest in learning. Based on the results of the research conducted, there is a significant effect, with the results of the study showing a sig (2-tailed) value of 0.000, meaning that the sig value is <0.05, which means that

the game-based learning method using the Kahoot application can increase student interest and learning motivation at IT Indah Medan Junior High School. Therefore, the implementation of the Kahoot method demonstrates superior learning effectiveness compared to conventional methods. The advantages offered are in the form of more flexible interactions that do not completely rely on the teacher. Furthermore, the observed impact demonstrates the advancement of digital literacy skills essential in today's world.

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