**JOURNAL INTELLECTUAL SUFISM RESEARCH (JISR)**
e-ISSN: 2622-2175
p-ISSN: 2621-0592
JISR 6(2), May 2024, 83-99
Email: journaljisr@gmail.com
Indexing by: Sinta 5, Index Copernicus International, Garuda, Google Scholar, ROAD, PKP Index, DRJI, OneSearch, ISJD & RJI

# THE RELIGION-BASED KAHOOT GAME LEARNING APPROACH WITH PAKEM STRATEGY TO IMPROVE STUDENTS' LEARNING MOTIVATION AND LEARNING OUTCOMES IN EXCRETION SYSTEM TOPIC

**Nurul Fadilah [1] , and Nurul Hidayati [2]**
[1] Sains Education Study Program Trunojoyo Madura University, [2] Public Junior High School of Klampis, Indonesia

**Abstract.** This research aimed to measure the implementation, influence, and effectiveness of using the religion-based Kahoot game with the PAKEM strategy in increasing student motivation and learning outcomes on excretory system material. The study was conducted using a mixed-method, Classroom Action Research (CAR) approach, employing motivation questionnaires, as well as pre-tests and post-tests. Data analysis involved paired sample t-tests using SPSS and Excel. The research was carried out in two cycles in class VIII-C of SMP Negeri 1 Klampis. The results showed that in cycle I, the motivation questionnaire results before and after implementation differed by 6.4%, and the percentage results for the Kahoot game were still below 70%. Based on these findings, reflections were conducted and then re-applied in cycle II. The results indicated an increase in student motivation, with an average difference of 5.59% from cycle I to cycle II, along with an increase in groups achieving results above 70% in the Kahoot game. In conclusion, this strategy was effective in increasing student motivation and learning outcomes.
**Keywords:** *Kahoot game, PAKEM strategy, motivation and students' learning outcomes*

## INTRODUCTION

In the era of Society 5.0, technology is increasingly used by all groups, including children, youth and adults. The widespread use of this technology is sometimes misused by society, especially among junior high school age teenagers. One of them is a student of Public Junior High School of Klampis who uses his mobile phone in an unwise manner, that is, he uses his mobile phone only to play online games including mobile legend games, f fire games, mobile pub games and other games. This makes students lazy to study.

According to Prasetyo et al., (2023), there are various factors, including internal factors and external factors, that cause children to frequently play with their mobile phones and cause negative effects. The internal factor is that the child is bored at home and has a strong desire to rank high. Meanwhile, children's external environmental factors are less controlled by parents due to their inability to socialize with society, and therefore they prefer playing online games as a fun activity. This effect causes children to sometimes speak differently than they should. Additionally, children playing often say obscene words.

Corresponding author: Nurul Fadilah. Email: nurulfdilah123@gmail.com

Doi: 10.52032/jisr.v6i2.162

Online games do not always have a negative impact on students, on the contrary, many educational-based games are designed to provide a fun and interactive learning experience (Derajat, Widiyanti & Susilawati, 2024). Games such as Quizizz, Kahoot!, Wordwall and other games combine elements of entertainment with learning so that students are more motivated to understand the material (Sadewo & Marsofiyati, 2024). Low student motivation to learn sometimes arises from within the student and also the surrounding environment, such as teachers delivering material that is too monotonous because they only use the lecture method without the help of other learning media and the strategies used are not appropriate for students (Naibaho et al., 2021).

Similarly, low learning outcomes result from the lack of students in the teaching and learning process and the teacher's lack of ability to present topic and teachers' inaccuracy in designing and implementing learning (Tasya & Abadi, 2019). Therefore, the implementation of education-based online games such as Kahoot can change students' learning outcomes and increase student motivation in learning. Because the Kahoot game is an online learning environment based on educational games that supports classroom learning. Kahoot game is a game in the form of fun, free questions for learning and developing learning objects in order to create active, productive and innovative students in the classroom (Hartanti, 2019).

Additionally, the implementation of the Kahoot game uses the PAKEM strategy (Active, Creative, Effective and Fun Learning). This PAKEM strategy is aimed at discovering and developing students' greatest potential through learning methods that prioritize student activity in the learning process and encourage creativity, effectiveness, and fun (Sangadji & Marasabessy, 2021). PAKEM strategy is applied to create a lively classroom atmosphere, because students will actively ask questions, and put forward ideas, so that the classroom atmosphere will become more and more popular and appreciated by students. According to Sangadji & Marasabessy, (2021), implementing the PAKEM strategy in the classroom can increase the student's motivation to learn because the concept of Student-centered learning.

Excretion is one of the junior high school level topics; Here, excretion describes how metabolic wastes leave the body. These metabolic waste topics are excreted by organs such as the kidneys, liver, lungs and skin, which assist the excretion system. Metabolic wastes are wastes that are no longer used by the body. This metabolic waste can be in the form of water, sweat glands, urine, and $CO_2$ (Maryana et al., 2021).

In the Al-Qur'an, in Surah Ibrahim, verse 34, Allah SWT says:

وَاٰتٰىكُمْ مِّنْ كُلِّ مَا سَاَلْتُمُوْهُ ۗوَاِنْ تَعُدُّوْا نِعْمَتَ اللّٰهِ لَا تُحْصُوْهَا ۗاِنَّ الْاِنْسَانَ لَظَلُوْمٌ كَفَّارٌ ﴿٣٤﴾

"He gave you everything you asked for. If you count the blessings of Allah, of course you cannot count them. Indeed, man is truly unjust and infidel." (Q.S Ibrahim: 34).

From the above verse, it can be explained that Allah has gifted the human body with healthy enjoyment and normal functioning of every organ. This understanding can encourage feelings of gratitude and responsibility for taking care of the body, including the excretion system, which can remove metabolic waste in the form of toxins from the body. But there are still many teachers who do not connect science with religious doctrine. If Islamic spiritual values are integrated into the

preparation phase and learning process, learning science, especially excretion system topic, will be more interesting. The results of integrating general knowledge with religious knowledge can not only enable students to become familiar with natural law in natural sciences, but also enable students to become people of faith, piety and noble character, as expected in the goals of national education (Mualimin, 2020).

Based on the description above, a learning system that is able to change attitudes and increase student activity in the classroom needs to be developed further to encourage learning motivation and improve student learning outcomes significantly (Lince, 2022). Therefore, there is a need for research on "Learning to Using Religion-Based Kahoot Game to Increase Student Motivation and Learning Outcomes with PAKEM Strategy in Excretion System Topic". To determine the pre- and post-learning application, effect and development of the use of the PAKEM strategy on the excretory system topic and the religion-based Kahoot game on student motivation and learning outcomes. The problem formulation in this study is as follows:

a) How does learning using the religion-based Kahoot game with the PAKEM strategy on excretion system topic increase student motivation and learning outcomes?
b) What is the effect of learning on excretion system topic using the PAKEM strategy and the religion-based Kahoot game in increasing student motivation and learning outcomes?
c) How can learning be improved by using the religion-based Kahoot game to increase student motivation and learning outcomes with the PAKEM strategy on excretion system topic?

## METHOD

This research was designed using the Classroom Action Research (CAR) type. CAR is research conducted to identify problems in the classroom and provide good solutions to these problems (Azizah, 2021). The result is an improvement in the application of learning both in the classroom and at school. This CAR provides a method of working that connects existing theory and practice to change the classroom situation so that it becomes a unified whole in terms of ideas and actions.

This research uses mixed method, which is a mixture of quantitative and qualitative methods. The data collection technique used was a motivational survey before and after implementation of classroom action research to measure student motivation, as well as pre-test and post-test questions to measure student learning outcomes before and after implementation of learning.

The analysis technique used in this research is paired sample T test with the help of IBM SPSS software to calculate student learning outcomes. The calculation of the student motivation survey is done using Microsoft Excel 2010, the score received by each student can be calculated using the following formula:

$$P = \frac{F}{N} X\ 100\%$$

**Information :**

P : Percentage value obtained
F : Frequency of answers
N : Maximum frequency

100% : Fixed number

The above formula can be known with the help of the score obtained by each student. Evaluation points can be calculated based on table 1 below (Purwanto, 2010).

**Table 1.1** Assessment Score on Student Learning Motivation Questionnaire

| Alternative Answer | Score Alternative Answers |
|---|---|
| Strongly Disagree | 1 |
| Disagree | 2 |
| Neutral | 3 |
| Agree | 4 |
| Strongly Agree | 5 |

The students' learning motivation is classified into five categories which are presented in table 2, namely.

**Table 1.2** Classification of Student Learning Motivation

| Class Intervention | Classification |
|---|---|
| 85% - 100% | Very high |
| 70% - 85% | Tall |
| 55% - 70% | Currently |
| 40% - 55% | Low |
| 25% - 40% | Very low |

## TIME AND PLACE OF RESEARCH

This research was conducted at Public Junior High School of Klampis, with a total 27 students on Excretory System topic, especially class VIII-C. The research will be carried out in the odd semester of the 2023/2024 academic year with 2 cycles.

## RESEARCH PROCEDURAL

The following research procedural showed in the following chart.

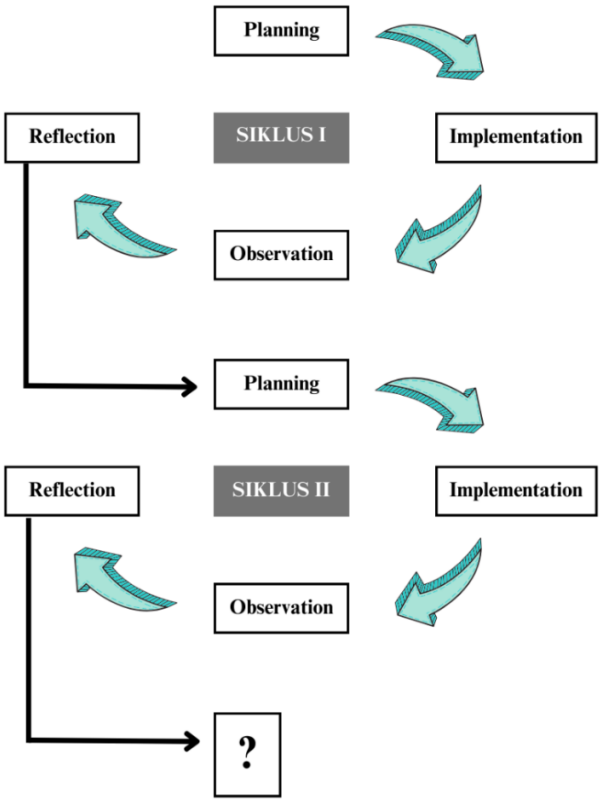


**Chart 1.1** Procedural Research Cycle I and Cycle II

The chart above explains that this research was carried out in 2 cycles. In each cycle there is planning, implementation, observation and reflection. The results of the research will be known after both cycles have been carried out. In the first cycle, learning was carried out using the team teaching method by applying the Kahoot game, it was seen that student motivation and learning outcomes increased. Likewise in cycle II to determine the increase in student motivation and learning outcomes after the Kahoot game was implemented, however the method used was different, namely the demonstration method.

## RESULT

### Research Implementation Stage

The implementation of classroom action research (CAR) will be explained in two learning cycles in the classroom; Here, each cycle consists of 4 stages: planning, implementation, observation and reflection. The implementation of this research was carried out collaboratively through educational games based on the Kahoot game focused on PAKEM learning.

### Description of Actions per Cycle

1. ***Research Cycle 1***

   The first cycle consists of four stages: planning, implementation, observation and reflection.

***a. Planning***

This first stage of research was carried out in two meetings on 30 October 2023 and 1 November 2023. The topic discussed was the excretion system, how the process of eliminating metabolic waste in the body works. The first meeting on October 30 2023 includes a preliminary test in the form of 11 multiple choice questions, as well as the distribution of a learning motivation survey. Before the learning took place, the researcher prepared a teaching module as a learning guide in class, created a Student Worksheet (LKS) in the form of an educational game-based game, namely Kahoot, created other instruments used in the research and prepared an evaluation tool.

In the second meeting on November 1, the lesson was filled with explaining the excretion system topic using the team teaching method, which is the PAKEM strategy that aims to make students even more active in learning with the help of teacher collaboration in teaching. What is explained is the definition of the excretion system, the organs that function in the excretory system and their functions. Then, after the learning is completed, students form study groups consisting of 3-4 people in each group.

***b. Implementation***

**Team Teaching Method**

1) Preliminary Activities (10 minutes)
   a) The teacher opens the lesson by greeting and praying together.
   b) The teacher announces the learning objectives to be implemented
   c) The teacher informs the learning method to be used (using a Kahoot-based online game)
   d) The teacher emphasizes the benefits of the learning topic in daily life
2) Core Activities (60 minutes)
   a) The teacher provides a motivation survey and pre-test questions regarding the excretion system topic before starting to learn the topic.
   b) The teacher gives trigger questions
   c) The teacher briefly explains topic related to the excretion system, the organs that help the excretion system and the function of each organ.
   d) The teacher divides the students into several groups, class 1 consists of 6-8 groups and each group consists of 3-4 people.
   e) The teacher prepares the laptop and LCD and instructs the group representatives to open the Kahoot game.
   f) The teacher explains how the Kahoot game works
   g) The teacher starts the game, when each group completes 1 question, the teacher provides an explanation to repeat or correct the answer if there is a wrong answer in order to minimize student misconceptions.
   h) After finishing the game, the teacher shows the total score of the game, so that students can see the winning results of each group. And the teacher gives prizes to the winners

i) The teacher provides a motivation survey after completing the learning process.

3) Closing Event (10 minutes)
   a. After the learning is completed, the teacher and students reflect on the activities performed.
   b. The teacher assigns the students the task of re-learning about the excretion system as a guide for the next meeting.
   c. The teacher ends the lesson by reading a prayer together.

***c. Observation***

Observations regarding the implementation of the first cycle of classroom actions were carried out by the teacher as the researcher and observer, and by other teacher friends as observers. During the activities, the students' active learning during the learning process and the points produced by each group after completing the Kahoot game were observed. Student activity in the learning process can be seen from the motivation survey given before and after learning in cycle 1. Student motivation survey data can be seen in the table below.

**Table 1.3** Cycle 1 Motivation Questionnaire Data

| No | Student Name | Before (%) | After (%) |
|---|---|---|---|
| 1 | AN | 57.57 | 44.24 |
| 2 | AF | 60.00 | 67.87 |
| 3 | AH | 66.06 | 64.84 |
| 4 | AI | 68.48 | 70.30 |
| 5 | DH | 72.12 | 72.72 |
| 6 | IH | 74.54 | 61.81 |
| 7 | IT | 66.06 | 64.84 |
| 8 | NW | 59.39 | 63.03 |
| 9 | MI | 64.24 | 63.03 |
| 10 | MW | 58.18 | 70.90 |
| 11 | MF | 56.96 | 72.12 |
| 12 | MS | 70.90 | 70.90 |
| 13 | MR | 58.18 | 83.63 |
| 14 | MA | 67.87 | 76.96 |
| 15 | NR | 46.66 | 72.72 |
| 16 | NS | 66.06 | 69.09 |
| 17 | PRA | 60.60 | 73.93 |
| 18 | RR | 72.12 | 69.69 |
| 19 | RS | 65.45 | 72.12 |
| 20 | SG | 58.18 | 77.57 |
| 21 | SA | 63.03 | 70.90 |
| 22 | SNF | 58.18 | 67.27 |
| 23 | SNA | 63.03 | 72.72 |
| 24 | SU | 58.18 | 78.18 |
| 25 | VM | 53.33 | 70.90 |

| | | | |
|---|---|---|---|
| 26 | RS | 61.21 | 71.51 |
| 27 | AG | 69.69 | 65.45 |
| Final | | 1706.67 % | 1879.39 % |
| Average Value | | 63.20% | 69.60% |

The above data are taken from a survey distributed to 27 students; here the motivation questionnaire contains 33 statements, which refer to the 2010 ARCS Keller motivation model, with 5 characteristics according to Likert: Attention, Involvement, Confidence and Satisfaction. Scale; They are: strongly disagree, disagree, undecided, agree and strongly agree. The motivation questionnaire was distributed before and after learning, and as a result, the average score before learning, 63.20%, was classified as medium, and after learning, 69.60% was classified as high. The motivation survey score for each student is calculated based on available analysis techniques.

The scores produced by each group can be seen in the final results of the Kahoot game obtained as shown in the image below.

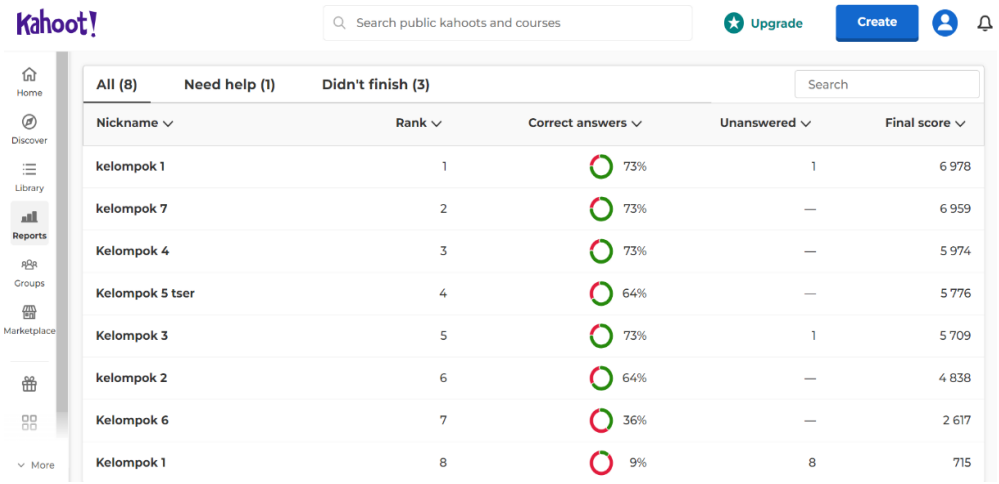


**Figure 1.1** Kahoot Cycle 1 Game Score

According to the figure above, it can be seen that the percentage value produced by each majority group produces a percentage of 73% with an average value of 4,945.75. The average percentage produced by the 8 groups was 57%. The percentage scores produced by the 8 groups can be seen in the figure below.

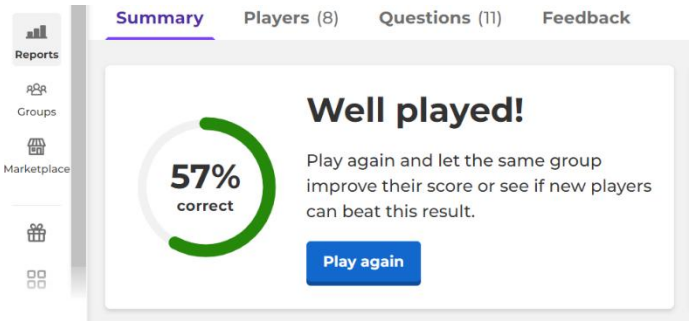


**Figure 1.2** Percentage Scores for 8 Groups in Cycle 1

***d. Reflection***

Based on the observation results regarding students' activity and enthusiasm in learning and the scores obtained in the Kahoot game, reflection is required to see students' deficiencies, weaknesses and successes in learning. The emerging findings are that the percentage value for each group is still below 70%, and the student learning motivation before and after the implementation of learning is still a large difference of 6.4%. The classification of learning motivation achieved before learning is categorized as medium, and after learning is categorized as high.

One of the reasons why scores and average grades are not optimal is that students are playing educational games for the first time, namely the Kahoot game, as seen from the learning methods that need to be changed to reactivate the courses. Judging by the observation results in cycle 1, this will have an impact on learning outcomes and student motivation in learning. Therefore, teachers need to make changes in learning by changing their learning methods and preparing more comprehensive learning tools.

***2. Research Cycle II***

As in cycle I, cycle II was carried out in four stages, namely planning, implementation, observation and reflection. Research is still focused on classes and educational games based on the Kahoot game are still implemented using the PAKEM strategy but using different methods.

***a. Planning***

The second cycle of this research was held in two meetings on November 6 and 8, 2023. In the third meeting held on November 6, 2023, learning was carried out using the Kahoot game with the PAKEM strategy, but the method used was different from the first cycle. The method used in Cycle II is the demonstration method. II. During the learning process in the loop, the researcher shows various figures of the organs that help the excretion system and explains the parts of these organs.

After learning is complete, the application of the Kahoot game continues. The way this game works is the same as in cycle I. Each group representative uses a mobile phone to enter the Kahoot game. At the second meeting on November 8 2023, the researcher gave a final motivation survey after carrying out the Kahoot game with 2 different methods each cycle but using the same strategy, namely the PAKEM strategy. The second meeting on November 8 2023 consists of giving the final motivation survey and pots-test questions to students.

***b. Implementation***

**Demonstration Method**

1) Preliminary Activities (10 minutes)
    a) The teacher opens the lesson with greetings and prayers all together.
    b) The teacher informs how to learn in this meeting.
    c) The teacher relates the benefits of excretory system topics to daily life.
2) Core Activities (60 minutes)

a) Provide information about the topic
   - The teacher repeats the topic presented in cycle I
   - The teacher continues with a more detailed explanation about the excretory system, namely the parts of each organ that help the excretory system.
   - The teacher asks students to pay attention to the explanation of the figure of the parts of the body.

b) Practical activities
   - The teacher orders students to join their groups
   - The teacher asks group representatives to participate in the Kahoot game
   - The teacher starts the game, after each problem the teacher discusses the problem.

c) Test the results
   - At the end of this game the teacher displays the final score so that students can see the final score
   - The teacher gives prizes to 1st, 2nd and 3rd place winners

3) Closing Ceremony (10 minutes)
   a) Teachers and students reflect together on the learning activities carried out
   b) The teacher closes the lesson by praying together and saying greetings.

The second meeting was filled with giving a final motivational survey to see the results after the learning and implementation of the Kahoot game-based game, as well as giving post-tests to see the student learning outcomes after the implementation.

***c. Observation***

The implementation of observations in cycle II is the same as cycle I. This means that the implementation is carried out by the teacher as a researcher and as an observer with the assistance of other teacher friends. The activities observed were also the same, namely the students' activeness and enthusiasm in the learning process, but what was different in stage I was the application of the methods used by the teacher. As a researcher and other observer, the teacher observes student changes during cycle I by applying the team teaching method using the demonstration method in cycle II. The results of the observations can be seen in the results of the student motivation survey below.

**Table 1.4** Cycle II Motivation Questionnaire Data

| No | Student Name | Before (%) | After (%) |
|---|---|---|---|
| 1 | AN | 44.24 | 67.87 |
| 2 | AF | 67.87 | 72.72 |
| 3 | AH | 64.84 | 70.30 |
| 4 | AI | 70.30 | 72.72 |
| 5 | DH | 72.72 | 78.18 |
| 6 | IH | 61.81 | 64.84 |
| 7 | IT | 64.84 | 70.90 |
| 8 | NW | 63.03 | 72.12 |

| | | | |
|---|---|---|---|
| 9 | MI | 63.03 | 78.18 |
| 10 | MW | 70.90 | 76.96 |
| 11 | MF | 72.12 | 84.84 |
| 12 | MS | 70.90 | 81.21 |
| 13 | MR | 83.63 | 81.21 |
| 14 | MA | 76.96 | 70.90 |
| 15 | NR | 72.72 | 78.78 |
| 16 | NS | 69.09 | 72.12 |
| 17 | PRA | 73.93 | 78.18 |
| 18 | PR | 69.69 | 72.12 |
| 19 | RS | 72.12 | 78.18 |
| 20 | SG | 77.57 | 83.63 |
| 21 | SA | 70.90 | 78.18 |
| 22 | SNF | 67.27 | 72.12 |
| 23 | SNA | 72.72 | 82.42 |
| 24 | SU | 78.18 | 86.06 |
| 25 | VM | 70.90 | 72.72 |
| 26 | RS | 71.51 | 75.15 |
| 27 | AG | 65.45 | 70.90 |
| Final | | 1879.39% | 2030.30% |
| Average Value | | 69.60% | 75.19% |

The data above was taken from the results of a motivation survey after completing learning cycle II and compared with the motivation survey after learning cycle I. The survey was given to 27 students, where the motivation survey consisted of 33 statements referring to the ARCS motivation model. Keller 2010, namely Attention, Relevance, Trust and Satisfaction with 5 characteristics based on a Likert scale. Based on the data above, comparing the results of the student learning motivation survey after learning cycle I and cycle II, it can be seen that there is a difference of 5.59%. The percentage of learning motivation achieved after learning in cycle I was 69.60%, which was included in the high category, likewise the percentage of learning motivation achieved after learning in cycle II was 75.19%, which was included in the high category. It can be said that implementing the Kahoot game using different methods but using the same strategy, namely the PAKEM strategy, is effective.

Observations were made not only from the motivation survey results, but also from the scores each group produced after completing the Kahoot game. The scores of each group can be seen in the figure below.

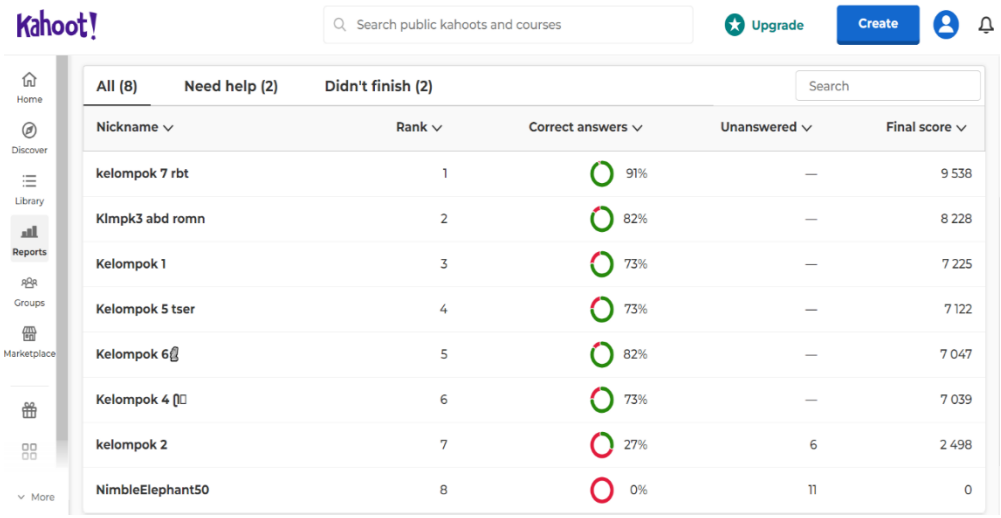


**Figure 1.3** Kahoot Cycle II Game Score

***d. Reflection***

Based on the results of observations in cycle II, it can be seen that students' activity and enthusiasm for learning and the scores obtained in the Kahoot game are quite high. This is evident from the average value of the motivation survey given after learning cycle II compared to the motivation survey in cycle I, there is a difference of 5.59%. In addition, with the increase in students' scores on the Kahoot game, the average score achieved exceeded 70%. Therefore, a learning system using games, especially the Kahoot game, can make students active and enthusiastic in learning. Apart from that, implementing the PAKEM strategy method can make the learning process more active and less boring for students.

## ANALYSIS OF STUDENT LEARNING OUTCOMES DATA

Students' learning outcomes can be learned from the scores of the pre-test and post-test questions given by the researcher. Pretest questions were given before learning in cycle I, and post-test questions were given after learning in cycle II. Regarding the results of the analysis of student learning outcomes, first a normality test is carried out as in table 1.5 below.

| | Kolmogorov-Smirnov[a] | | |
|---|---|---|---|
| | Statistic | df | Sig. |
| Pre-test | .197 | 35 | .001 |
| Post-test | .143 | 35 | .069 |

**Table 1.5** Normality Test

The data are normally distributed as all data have sig. ≥ 0.05, so the above data is parametric. Thus a paired sample T test can be performed. The results of the paired sample T test from the pre-test and post-test questions can be seen in table 1.6 below.

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Pre-test | 41.66 | 35 | 22.785 | 3.851 |
| | Post-test | 63.71 | 35 | 23.372 | 3.951 |

**Table 1.6** Paired Sample Statistics

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Significance | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | One-Sided p | Two-Sided p |
| | | | | | Lower | Upper | | | | |
| Pair 1 | pre_test - post_test | -22.057 | 18.033 | 3.048 | -28.252 | -15.863 | -7.236 | 34 | <,001 | <,001 |

**Table 1.5** Paired Sample Test

To calculate the results of the above data, you can first find out the test hypothesis performed:
$H_0$: $\mu_1 = \mu_2$ (There is no difference in learning outcomes before and after applying Kahoot game learning using PAKEM strategy on excretory system topic)
$H_1$: $\mu_1 \neq \mu_2$ (There is a difference in learning outcomes before and after applying Kahoot game learning using PAKEM strategy on excretory system topic)

Based on the data above, it can be seen using t table and t count. The determination of the t table can be seen in statistics books where the significance is 0.05:2 = 0.025 (2-sided test) and the degrees of freedom (df) n-1 or 35-1 = 34, then the t table result is: 2.032. Then, if the t number is compared with the t table, the SPSS output shows that the t number is -7.478. If the calculated t value < -t table, namely -7.478 < -2.032 then $H_0$ is rejected. Therefore, it can be concluded that this research looks at student learning outcomes, there are differences in learning outcomes before and after implementing the Kahoot game learning using the PAKEM strategy on excretory system topic. Apart from that, from the mean value it can be seen that the average learning outcomes after being treated with the application of the PAKEM Kahoot strategy learning game on the excretory system topic are higher than before being given the application treatment. Learning the Kahoot game with the PAKEM strategy on the topic disposal system.

## DISCUSSION

Based on the results of research conducted over 2 cycles using the PAKEM strategy (Active, Creative, Effective and Fun Learning) in increasing student motivation and learning outcomes in the Kahoot game-based learning process. Learning outcomes in cycles I and II obtained from research results on pre-test and post-test questions increased with an average difference of 22.05, the results obtained from pre-test questions were 41.66, while the results from post-test questions -test is 63.71. Thus, there is an increase in the average student score before and after implementing the Kahoot game learning with the PAKEM strategy in the excretion system topic.

In Cycle I the average score obtained from the motivation survey results given before learning was 63.20%, and the average score after learning was 69.60%. Meanwhile, in cycle II, after learning in the loop, student learning motivation results were visible with an average score of

75.19%. In both cycle I and cycle II, it was seen that students' learning motivation increased before and after learning to apply the Kahoot game with the PAKEM strategy to the excretion system topic in the cycle. From this it can be concluded that students accept and are willing to use education games in the learning process.

PAKEM strategy is a strategy used in learning activities that encourages students to develop in their cognitive, effective and psychomotor aspects through various learning activities (Limbong & Arifianto, 2022). PAKEM learning is not limited to just textbooks when looking at the learning resources used, it can use a variety of learning environments to enrich students with a variety of learning experiences. Apart from this, it can also be seen in the learning carried out in various ways, such as learning activities in which a large number of students participate or activities carried out in groups.

PAKEM is the acronym for Active, Creative, Effective and Fun Learning. What is meant by active is that the teacher is obliged to create a classroom environment that will enable students to actively ask questions and express their opinions during the learning process(Rafikasari et al., 2021). Creative, teachers need to have creativity in creating learning environments so that every student has imagination and curiosity in learning. Effectively, that is, the learning process takes place using a design that can support the maximum achievement of learning objectives. And finally, fun learning means that the teacher can create a fun, cool atmosphere in the learning process and leave a good impression on students (Limbong & Arifianto, 2022).

PAKEM strategy in the learning process can increase learning motivation; This is based on the research conducted by Natali and Pujiono (2022) which stated that learning with PAKEM can increase students' motivation to learn because they can be seen to be happier. They become more active and willing to participate in the learning process. Learning motivation can also be increased by associating real environmental problems with learning topics so that students can solve the problems themselves (Do et al., 2023). The relationship between real environmental problems and this topic will be interesting if it is done in the form of a learning environment so that the learning has creative value.

Creativity in making learning media not only increases motivation, but is also able to improve student learning outcomes. This is based on research by Somayana, (2020) who stated that the percentage produced by students applying PAKEM learning has increased very well. The improvement experienced by students is shown by the increasing number of students who apply active aspects during the learning process.

Increases and decreases in student learning outcomes are influenced by changes in the behavior of the students themselves. Improved learning outcomes can also be obtained from discussion activities, because students who have the motivation to lead will make efforts to prepare for debates which will ultimately influence their learning outcomes (Herrera et al., 2023). The process of increasing motivation and learning outcomes by implementing the religion-based Kahoot game can also have an impact on understanding religious values, supporting character education, and presenting a religious context in learning.

According to Panjaitan et al., (2020), learning is carried out to try to change the behavior of individuals (students) who study. Therefore, it can be said that learning outcomes are the abilities that students acquire as a result of the process of learning activities carried out both individually and in groups. According to the results of the research, the implementation of learning using the PAKEM strategy to increase student motivation and learning outcomes in the excretory system topic applied using the Kahoot game was carried out for 2 cycles. In Phase I, we use team teaching methods, where the teacher as the researcher briefly explains the excretory system and then continues with the implementation of the Kahoot game. II. The model used in the cycle is a demonstration model, the teacher shows pictures of the parts of the excretion system organs and continues with the application of the kahoot game.

The increase in motivation and learning outcomes that the researchers observed increased. This applies to both I and II. It is proven by the increase in the percentage value before and after learning in the cycles. If the percentage value before implementation in cycle I is 63.20%, the percentage value obtained after applying learning in cycle I is 69.60%, in cycle II it is 69.60%. At the end of the cycle, it was 75.19%. The percentage value obtained from the learning motivation survey distributed to students consists of 33 statements, including Attention, Interest, Confidence and Satisfaction, with 5 features based on the Likert scale, referring to motivation model the ARCS Keller 2010.

The Discussion on why Kahoot games should be based on religion and what impact it has on the human excretory system material is also added. in students' learning outcomes can be seen from the results of the pre-test and post-test questions filled out by the students before and after the implementation of the Kahoot game with the PAKEM strategy. Student learning outcomes are measured with the help of IBM SPSS software. The average results achieved increased by a margin of 22.05. After performing the paired sample T test, it was found that $H_0$ was rejected; This means that there is a difference in learning outcomes before and after the implementation of Kahoot game learning using the PAKEM strategy on excretory system topic

## CONCLUSION

Based on the analysis and discussion of the results of this classroom action research, the following conclusions can be drawn:

1. This research went through 2 cycles of implementing the religion-based Kahoot game to increase student motivation and learning outcomes using different methods. Meanwhile, we applied the team teaching method in cycle I, while cycle II implemented learning using the demonstration method. This research has 4 stages, namely planning, implementation, observation and reflection.
2. There are influences before and after implementing the Kahoot game using different methods in each cycle. This effect is characterized by increased motivation and student learning outcomes. In cycle I, students were still not used to the Kahoot game and there was a lack of cooperation between group members. Meanwhile, in cycle II there has been a change in the cycle; students are more willing to play the game and each group member is willing to work together to complete the game.

3. Learning the religious-based Kahoot game on excretion system and presentation system topic for class VIII-C students using various methods in each cycle can increase student participation and effectiveness to be more active in the learning process, thereby increasing student motivation and motivation. learning outcomes.

**REFERENCES**

Azizah, A. (2021). Pentingnya Penelitian Tindakan Kelas Bagi Guru dalam Pembelajaran. *Auladuna : Jurnal Prodi Pendidikan Guru Madrasah Ibtidaiyah*, *3*(1), 15–22. https://doi.org/10.36835/au.v3i1.475

Do, H., Do, B. N., & Nguyen, M. H. (2023). Heliyon 3How do constructivism learning environments generate better motivation and learning strategies ? The Design Science Approach. *Heliyon*, *9*(12), e22862. https://doi.org/10.1016/j.heliyon.2023.e22862

Derajat, L.S., Widayanti, R., & Susilawati, S. (2024). Media Pembelajaran Berbasis Teknologi di MI/SD. *Reslaj: Religion Education Sosial Laa Roiba Journal*,6(1), 4417.

Fandos-Herrera, C., Jiménez-Martínez, J., Orús, C., Pérez-Rueda, A., & Pina, J. M. (2023). The influence of personality on learning outcomes and attitudes: The case of discussants in the classroom. *International Journal of Management Education*, *21*(1). https://doi.org/10.1016/j.ijme.2022.100754

Limbong, F., & Arifianto, Y. A. (2022). Strategi Guru Pendidikan Agama Kristen dalam Menerapkan Model Pembelajaran PAKEM. *TELEIOS: Jurnal Teologi Dan Pendidikan Agama Kristen*, *2*(1), 41–51. https://doi.org/10.53674/teleios.v2i1.41

Leny, L. (2022). Implementasi Kurikulum Merdeka untuk Meningkatkan Motivasi Belajar pada Sekolah Menengah Kejuruan Pusat Keunggulan. *Prosiding*, 1(1), 39.

Maryana, O. F. T., Inabuy, V., Sutia, C., Hardanie, B. D., & Lestari, S. H. (2021). *Ilmu Pengetahuan Alam*. Pusat Perbukuan Badan Standar, Kurikulum dan Asesmen Pendidikan Kemendikbutristek.

Mualimin, M. (2020). Pengembangan nilai Islami peserta didik melalui integrasi Alquran dan Hadis dalam pembelajaran biologi. *Humanika*, *20*(2), 129–146. https://doi.org/10.21831/hum.v20i2.29299

Naibaho, S. W., Siregar, E. Y., & Elindra, R. (2021). Analisis Faktor-Faktor Penyebab Rendahnya Motivasi Belajar Siswa Mts Negeri 1 Tapanuli Tengah Disaat Pandemi Covid-19. *Jurnal MathEdu (Mathematic Education Journal)*, *4*(2), 304–312. https://doi.org/10.37081/mathedu.v4i2.2596

Panjaitan, J., Juliana, M., Dao, N., & Batee, A. (2020). Peningkatan Motivasi Dan Hasil Belajar Fisika Dengan Menerapkan Modelpembelajaran Pakem. *Jurnal Penelitian Fisikawan*, *3*(1), 8–17.

Prasetyo, A., Rondli, W. S., & Ermawati, D. (2023). Dampak Permainan Game Online Terhadap Prestasi Belajar Siswa Sekolah Dasar. *Jurnal Educatio FKIP UNMA*, *9*(1), 333–340. https://doi.org/10.31949/educatio.v9i1.4733

Purwanto, M. N. (2010). *Prinsip-prinsip dan Teknik Evaluasi Pengajaran*. PT. Remaja Rosdakarya.

Rafikasari1, F., Ibrahim, M., Amin, S. M., & Djazilan, S. (2021). Keefektifan Pembelajaran Agama Islam melalui Pendekatan Pembelajaran Aktif, Kreatif,Efektif, dan Menyenangkan (Pakem) di Sekolah Dasar. *Jurnal Basicedu*, *5*(5), 3233–3241. https://doi.org/https://doi.org/10.31004/basicedu.v5i5.1314

Sangadji, H., & Marasabessy, A. (2021). Penerapan Model Pembelajaran Pakem Untuk Meningkatkan Hasil Belajar Ipa Pada Siswa Kelas V Sd Negeri 162 Kabupaten Halmahera

Selatan. *KUANTUM Jurnal Pembelajaran & Sains Fisika*, *2*(2), 21–37.
Sadewo, A.P., & Marsofiyati. (2024). Analisis Penggunaan Media Pembelajaran Digital Interaktif Terhadap Motivasi Belajar dan Hasil Belajar Mahasiswa Universitas Negeri Jakarta. *Jurnal Cendekia Pendidikan*, 7(9).
Somayana, W. (2020). Peningkatan Hasil Belajar Siswa Melalui Metode Pakem. *Jurnal Pendidikan Indonesia*, *1*(3), 283–294.
Tasya, N., & Abadi, A. P. (2019). Faktor Penyebab Rendahnya Hasil Belajar Siswa. *Sesiomedika*, 660–662.