Increasing Student Learning Interest through Cooperative Learning and Interactive Quiz

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Abstract

Cooperative learning is one of the learning strategies that is implemented collaboratively or cooperatively among students. With good cooperation, it is expected that there will be high communication, interest and motivation in learning. Cooperative learning needs to be integrated with assessments in the form of interactive quizzes so that students are more interested in participating in learning. The purpose of this study was to determine the effect of cooperative learning with interactive quizzes conducted through Classroom Action Research (CAR). From the results of the study, it was found that the pretest and posttest of excretory system material in the first and second cycles experienced a significant increase. While between the first cycle and the second cycle did not experience a significant increase. Analysis of student interest in learning in each cycle and between cycles did not experience a significant increase. The results of the study were then analyzed descriptively with the support of supporting articles.

Keywords: *Cooperative learning; Interest in Learning; Interactive Quiz; Classroom Action Research.*

INTRODUCTION

The era of industrial revolution demands the implementation of learning that can provide high interest in learning. In accordance with Core Competency that students can understand knowledge (factual, conceptual, procedural, and metacognitive) based on their curiosity about science, technology, arts, culture related to phenomenal and visible events. One way to be able to improve it is to organize learning strategies that can adjust student learning time. This can support student success in learning.

Factors that influence student success in learning can come from internal and external sources. Internal factors are health, intelligence, interest and talent [1]. While the external factors are family,

school, environment and others [2]. Similarly, students at SMPN 14 Bandung, especially grade 8, that their learning success is also inseparable from internal and external factors.

Based on a survey of students' interests and talents that has been conducted on several respondents (students) at SMPN 14 Bandung, it states that as many as 35.9% of respondents like sports while science only amounts to 5.1%. This is reinforced by an interview with a science teacher who stated that students at SMPN 14 Bandung do not have a high interest in science subjects. To be able to increase student interest and learning outcomes, it is necessary to have the right learning strategy. [3] Cooperative learning strategies can increase student interest in learning from cycle 1 to cycle 3.

Cycle I reached a percentage of 34.62% with a poor category, cycle II reached 42.31% with a sufficient category and cycle III reached 80.77% with a very good category. In addition, student interest increased from cycle 1 to cycle 2 [4]. Before learning, the average student interest in learning was 56.3%. In cycle 1, the average student interest in learning became 64.4%, cycle 2 became 75.6%. [5] Cooperative learning can increase significant interest in learning.

In addition to providing cooperative learning, students should be given assessments that can increase students' interest in learning, namely assessments in the form of interactive quizzes. Interactive quiz is an application that contains learning materials in the form of assessments to improve subject matter knowledge by pressing the application button once [6]. Interactive quizzes are applications that contain learning material in the form of questions [7]. That way students can increase their insight into the learning material. Interactive quizzes are specifically designed with the aim of being more effective and efficient and can attract student interest in learning.

Student interest in learning increased after being given interactive quizzes [8]. The increase occurred from cycle 1 (73.28%) to cycle 2 (90.78%). Interactive quizzes can increase the average pre non test score of 57.40 and post non test score of 82.47 [9]. This shows that the value is higher after treatment and there is a significant effect on student interest in learning. The effect of interactive quizzes (Quizizz) on student interest in learning. The results obtained from the t-test in both classes showed the effect of Quizizz on student interest in learning, namely t count> t table 8.768> 2.011 [10]. Based on some of these data, it is necessary to conduct class action research on SMPN 14 Bandung students to increase student interest in learning through cooperative learning and interactive quizzes with excretion material.

The novelty of this research is the development of interactive quizzes by integrating them with cooperative learning. It is hoped that this research can add insight and improve students' learning interest skills. In addition, learning strategies can be used in school learning. With the development of learning strategies, it is hoped that educators can apply them to other materials.

I. METHOD

This research refers to the Classroom Action Research (CAR) procedure, the design used refers to the Kemmis and Mc. Taggart model. CAR aims to evaluate learning in the classroom by means of observation and action by teachers, or educators [11]. CAR is an activity of observing events in the classroom in a certain time cycle and the variables studied will always be related to classroom conditions [12]. CAR consists of 4 stages, the first is planning (problem identification, problem formulation, problem fixing). The second stage is implementation (preparation of materials, teaching modules, giving directions to students regarding learning steps, preparing pre and post test assessments). The third stage is observation (documentation, evaluation data collection) then continued with the fourth stage, namely reflection (rethinking the learning design, seeing the shortcomings and advantages of the actions that have been passed) [13].

The subjects studied in this study were 8th grade students of SMPN 14 Bandung, with a total of 32 students. The object in this study was to increase student interest through cooperative learning and the application of interactive quizzes. Sampling using convenience sampling technique. The research was conducted in the odd semester of 2023/2024 in November. Data collection techniques used observation and interviews with science teachers. Data were analyzed descriptively and presented in tables and graphs.

The planning stage in research is needed to prepare everything before the learning activities are carried out. In planning there are several things that are done, namely: (1) making learning objectives in accordance with the material (excretion). Learning objectives are also aligned with the research objectives, namely increasing student interest in learning with cooperative learning and interactive quizzes. (2) Making assessments that will be given as an analysis and evaluation of learning. The assessments given to students are diagnostic, formative and summative assessments. Diagnostic assessments contain questions that explore students' character, interests talents and environment. The formative assessment that is carried out during the learning process is the provision of worksheets, containing student exercise questions as evidence that they are following the learning well. Summative assessment in the form of interactive quizzes (pretest and posttest) that test the increase in student interest and learning outcomes.

The interactive quiz applications used in this research are Quizizz and quizwhizzer. Some important stages in making interactive quizzes are product planning, product development, content validation, product revision, and forming the final product. Product planning is to determine the question material, indicators, cognitive level, and difficulty level. After that, the product development process includes the process of making questions by adjusting the material, indicators, cognitive level,

and difficulty level. Then the content validation of the instrument is carried out by a validator lecturer to check whether the question is feasible as an instrument and in accordance with the indicators that have been compiled. After going through the validation process, the instrument product is revised and used as an instrument.

The last planning step is (3) making a learning design. The learning design used in this research is cooperative learning. The syntax of cooperative learning in general is to convey learning objectives and activities, present information, form study groups, help direct group learning, provide post tests as a form of evaluation, reflect back on the material that has been presented.

The implementation stage is carried out learning in the classroom in accordance with the planning that has been made. In the learning process, there are observers who observe the learning process, namely peer teachers and peers. During learning the observer observes, assesses and evaluates the process. Observer observations start from the initial activities, core, to closing activities. Observers also recorded activities carried out by students during learning and documented interesting things to be discussed during reflection. This means that the observer must be really careful in observing every activity that is taking place.

This final stage, which is carried out after the learning is complete. This activity is carried out on the same day to avoid missing anything. The action in this research is to evaluate and reflect on the learning process that has taken place. The activities carried out are discussing with observers to discuss the strengths and weaknesses of learning so that later it can be improved for learning.

II. RESULTS AND DISCUSSION

This research was conducted over 2 cycles with a total of 4 face-to-face meetings. Each cycle consists of the stages of planning, implementation, observation, followed by reflection.

a. Pre-cycle Student Condition

Pre-cycle conditions in the class were obtained from analyzing data from several students in the class through diagnostic assessments. Diagnostic assessment data is conducted before conducting learning activities. From the data, it can be seen that students' interest in science subjects in the PTK class is 30% of the respondents. In addition, 50% of respondents like to learn with audiovisual style, namely by seeing impressions and others with audiovisuals.

b. Student Condition During the First Cycle

In the first cycle the material used was the excretory system with a cooperative learning model integrated with giving quizzes through the Quizizz application. Before cycle 1 learning, students were given a pretest of learning interest and an interactive quiz on excretion material to determine initial ability. The results obtained from the pretest were that the interactive quiz on student excretion

obtained a class average of 47.59 while the learning interest pretest obtained a value of 54.16. From these results it can be seen that the average value of student excretion is low and still far below the minimum completeness criteria, which is 75. While the average value of student interest in learning is categorized as moderate. During the pretest with the interactive quiz method, the Quizizz application was used, which is expected to help students' interest in learning and learning outcomes. However, during the learning process, there was a slight obstacle that the Quizizz application was used to being used daily by students. According to observations, there are some students who already know the gap in how to find out the answer. This is evident in that the student's score rose very dramatically on his posttest. But the increase in postetst scores did not go hand in hand with the increase in the value of activeness during discussions, presentations, and answers to worksheets. The average student score on the learning was obtained by the excretion posttest of 53.55 while the learning interest posttest was 58.53.

Based on statistical analysis using SPSS, cycle 1 excretion pretest data shows data that is not normal, homogeneous. While the excretion posttest shows normal, homogeneous data. From the results of the normality and homogeneity tests, the Wilcoxon test was carried out to determine the effect on the pretest and posttest of excretion material in cycle 1. After the Wilcoxon test, the Asymp. Sig (2-tailed) of 0.036, it can be concluded that there is a difference between the pretest and posttest values of excretion material.

Cycle 1 learning interest pretest data shows data that is not normal, homogeneous. While the posttest of learning interest shows normal, homogeneous data. From the results of the normality and homogeneity tests, the Wilcoxon test was carried out to determine the effect on the pretest and posttest of learning interest in cycle 1. After the Wilcoxon test, the Asymp. Sig (2-tailed) of 0.420, it can be concluded that there is no difference between the pretest and posttest scores of students' interest in learning in cycle 1.

The results of the data exposure show that cooperative learning with Quizizz interactive quizzes has an effect on the pretest and posttest scores of excretion material. However, the pretest and posttest scores of learning interest did not show any effect. Cooperative learning that is implemented in this lesson is the student discussion method then the results of the discussion are presented.

Presentation of students who are tasked with explaining the results of discussions related to renal excretion material looks like students are less able to interpret the material in depth. This is evidenced by the display of tasks that are less detailed, namely not accompanied by pictures and parts that they will explain. Even though the excretion material is very basic and needs to be understood at the junior high school level.

The learning plan in cycle 1 was accompanied by the provision of worksheets with the hope that students would understand more about excretion material. In addition, the provision of worksheets is also used as an evaluation of the extent to which students understand the material being discussed. From the analysis of the worksheets answers, it can be seen that students' understanding is still not complete. The answers of students who are classified as the top rank are still unable to answer the question perfectly. However, if look at the student's answer, it is better than the other students. Students with moderate ability answered and explained correctly but was still incomplete because it was not accompanied by the final results of excretion and filtration materials.

c. Second Cycle Student Conditions

The second cycle used the same material as the first cycle, namely excretory system material. The learning model used was also cooperative learning. However, there is a slight difference, namely at the stage of giving quizzes. In the first cycle using the Quizizz application while the second cycle using the quizwhizzer application. Previously, it has been explained that there are few obstacles that the Quizizz application has been accustomed to being used daily by students. According to observations, there are some students who already know the loopholes of how to know the answer. To prove this assumption, it is necessary to change the use of the Quizizz application to another application, namely quizwhizzer.

Before cycle 2 learning, students were also given a pretest of learning interest and an interactive quiz on excretion material to determine initial ability. The results obtained from the pretest were that the interactive quiz on student excretion obtained a class average of 44.55 while the learning interest pretest obtained a value of 57.78. From these results it can be seen that the average value of student excretion is still low and far below the minimum completeness criteria, which is 75. While the average value of student interest in learning is categorized as moderate. At the time of the pretest with the interactive quiz method, the quizwhizzer application was used, it was hoped that it could help students' interest in learning and learning outcomes and could be more representative of the use of the previous application. Based on observations, it has been proven that student scores are more representative of the first cycle. This is supported by the data of postetst scores along with the value of activeness during discussions, presentations, and answers to worksheets. The average value of students in learning was obtained by the excretion posttest of 56 while the learning interest posttest was 58.69.

Based on statistical analysis using SPSS, cycle 2 excretion pretest data shows normal, homogeneous data. While the excretion posttest shows data that is not normal, homogeneous. From the results of the normality and homogeneity tests, the Wilcoxon test was carried out to determine the effect on the pretest and posttest of excretion material in cycle 1. After the Wilcoxon test, the Asymp.

Sig (2-tailed) of 0.025, it can be concluded that there is a difference between the pretest and posttest values of excretion material.

Cycle 2 learning interest pretest data shows data that is not normal, homogeneous. While the posttest of learning interest shows data that is not normal, homogeneous. From the results of the normality and homogeneity tests, the Wilcoxon test was carried out to determine the effect on the pretest and posttest of learning interest in cycle 2. After the Wilcoxon test, the Asymp. Sig (2-tailed) of 0.190, it can be concluded that there is no difference between the pretest and posttest scores of students' interest in learning in cycle 2.

The results of the data exposure show that cooperative learning with Quizizz interactive quizzes has an effect on the pretest and posttest scores of excretion material. However, the pretest and posttest scores of learning interest did not show any effect. The second cycle also applied Cooperative learning with the student discussion method then the results of the discussion were presented.

Presentation of students who are tasked with explaining the results of discussions related to lung excretion material looks like students are less able to interpret the material in depth. This is evidenced by the appearance of a less detailed task that is not accompanied by pictures and parts that they will explain.

The learning plan in cycle 2 was also accompanied by the provision worksheets. In addition, the provision of worksheets was also used as evaluation material in the second cycle. Table 3 is the result of descriptive analysis of students' answers.

From the analysis of the worksheets's answers, it can be seen that students' understanding is still not complete. Sudents have not been able to answer the question correctly. The question asked is the excretion mechanism in the lungs, but the student answered that the lungs are the respiratory organ. Basically, the lungs are the respiratory organ, but the chapter discussed in the lesson is excretion in the lungs. In addition, the student did not explain any mechanism in the answer. In picture number 2, students answered correctly that the lungs excrete waste substances in the form of carbon dioxide. However, the answer is incorrect because it is not equipped with an explanation of the lungs as a respiratory organ and excretory organ.

d. Learning Effect from Cycle 1 to Cycle 2

After analyzing each cycle, we can obtain information on the effect of learning from cycle 1 to cycle 2. The table presents the conclusion of the statistical analysis.

Table 1. Conclusion of Wilcoxon Statistical Analysis

	Cycle 1	Cycle 2	Learning interest cycle 1	Learning interest cycle 2
Pretest	not normal, homogeneous effect	Normal, homogeneous, effect	not normal, homogeneous, No effect	Not normal, homogeneous, No effect
Posttest	Normal, homogeneous effect	Not normal, homogeneous effect	Normal, homogeneous, No effect	Not normal, homogeneous, No effect
	No effect from cycle 1 to 2		**No effect from cycle 1 to 2**	

Based on the results of data analysis in the study, it can be seen that there is an effect of interactive quiz-based cooperative learning on excretion pretest and posttest scores in each cycle. This is evidenced by the Wilcoxon analysis test in each cycle. Conducted interactive quiz-based research that can support the results of this analysis, the study stated that the interactive quiz learning method can foster students' cognitive abilities [14]. Research analysis also stated that in each cycle there was an increase from 64% to 76.75% after applying cooperative learning [15]. The success of the research in each cycle is inseparable from several factors, namely good cooperation between the school, teachers, students and employees of course. Learning success can include student characteristics, learning process, instructional variables, and learning objectives [16]. Other research also discusses learning success, namely the affective aspects [17]. Other factors are cognitive intelligence, emotional, learning styles, strategies in learning [18].

However, when examined further, there was no significant effect on the interactive quiz scores on excretion material from cycle 1 to cycle 2. Student learning interest, both pretest and posttest comparisons for each cycle and comparisons between cycles, both had no significant effect. According to the results of observations, the cause is the decline in student interest at the beginning of cycle 2. Based on in-depth interviews with several students in the class, students felt unprepared with the test time being too short. In addition, the meetings in cycle 1 lacked depth and meaning due to the limited time (only 2 days per cycle). Another obstacle in the class was that the number of students was too large and only divided into 4 groups. So that the student discussion process becomes less optimal. Student conditions greatly affect learning success [19]. Another thing that can be a factor in learning failure is interest which begins to decline as a result of the aspects that students have faced [20]. Intelligence also greatly affects learning achievement [21], [22]. When reviewed from the pretest of the PTK class students, the class average is indeed far from the minimum completeness criteria, so that in the future it will take a lot of hard work so that students can pay attention to the learning process.

III. CONCLUSION

Based on the research that has been conducted, it can be concluded that interactive quiz-based cooperative learning has the potential to improve student learning outcomes. This can be seen that in cycle 1 and cycle 2 each experienced a significant effect from the pretest and posttest scores. However, in order to improve learning outcomes from cycle 1 to cycle 2 and to increase interest in learning, there is a need for evaluation and reflection, namely time management, student grouping to be more effective. This study suggest that the use of teaching method incorporated with interesting activities including role playing [23] is essential.

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