

The Effectiveness Of The Team Quiz Type Cooperative Learning Model In Improving The Learning Outcomes of Grade XI Students at SMAN 4 Palu

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Received 05 March 2025; accepted 11 June 2025; published 11 June 2025

| ABSTRACT | KEYWORDS |
|---|---|
| <p>This study aims to determine the influence of the Team Quiz type cooperative learning model on student learning outcomes at SMA Negeri 4 Palu. This study uses a quantitative research method with the type of Quasi Experimental research. Data collection techniques that include observations, tests, and documentation to determine student learning outcomes using a team quiz-type cooperative learning model. The research sample consists of two classes, namely an experimental class that applies the Team Quiz model and a control class that uses the Discussion learning method. Data was collected through learning outcome tests conducted before and after the implementation of the learning model. Data analysis was carried out with a test (t-test) to compare the learning outcomes of the two groups. The results of this study show that the application of the team quiz type cooperative learning model has an influence on the learning outcomes of grade XI students in Geography at SMA Negeri 4 Palu. Based on results The research obtained the average score of student learning outcomes in the experimental class was 78.5 and the control class was 68.58. and data analysis that includes pretest and posttest tests using an inferential statistical formula at a significant level of 0.05. the calculated t-test is obtained t-count = 4.28 and the significant level $\alpha = 0.05$ in t-table in 1.667 this means t-count > t-table. So that H_0 is rejected and H_1 is accepted. So it can be concluded that the team quiz type cooperative learning model has an effect on student learning outcomes. Therefore, it is recommended that teachers consider using this model in the learning process to improve student engagement and understanding.</p> | <p>Cooperative Learning Model, Team Quiz, Learning Outcomes</p> <p>This is an open-access article under the CC-BY-SA license</p>  |

1. Introduction

Learning is a series of events that are planned to teach, activate and encourage students to learn. This can show that in learning, the components that interact are the teacher as the teacher and the student as the person who learns in a deliberate, planned, and coordinated situation by the teacher so that one of the teacher's duties is created. Teachers basically have an important role in determining the quality of learning carried out, apart from being facilitators and guides for students, teachers must also act professionally, as in learning at school there are many lessons that must be learned by all students, one of which is geography (Rohmah, 2017). Geography is one of the subjects taught in high school that studies the relationships, similarities, and differences between spaces on Earth. In this study, geography focuses on the interaction between humans and the natural environment, as well as how humans influence and are influenced by the environment. Geography learning materials require innovative methods and can cover all the content taught. In geography learning, there are geospherical phenomena that are difficult to reach directly, so a method is needed that can describe these phenomena clearly. The method used must be able to present all materials, interesting, fun, and can increase student engagement (Listiqowati, et al., 2021).

The teaching and learning process is an activity that involves a series of activities, ranging from planning, implementation, to assessment, by utilizing media, procedures, and learning resources to achieve educational goals. This learning process is an implementation of the independent curriculum, which emphasizes more on students' activeness in learning independently. Students are given the opportunity to improve their own knowledge and creativity. The learning process shows intentional and conscious interaction with the purpose. This interaction starts from pedagogic learning activities between educators (teachers) and pedagogic learning activities. Which processes systematically through the stages of design, implementation and evaluation (Djaledje & Nurvita, 2023). Many factors affect the success of learning, one of which is the learning model applied by teachers. A teacher must be able to choose the right model because they must understand the characteristics of each student because learning is different for each student. With the right model, it is hoped that students will become more active, creative, and interested in learning.

Based on the results of an interview on February 1, 2024 with a geography subject teacher at SMA Negeri 4 Palu, the researcher obtained information that the students' physics science learning outcomes were relatively low, which was marked by the average score of grade VIII students for the 2023/2024 school year was 72.2 from the KKM standard (Minimum Completeness Criteria) which was 75. This is because the teacher during the learning process, namely: 1) the teacher has applied the discussion method, but the discussion method applied is not collaborated with the learning model such as the Team Quiz type cooperative learning model; 2) few students are active in answering questions and cooperation between teams is still lacking; 3) lack of mastery of material concepts in accordance with learning objectives so that it does not increase student activity; 4) since the enactment of the Independent Curriculum, students who are not eligible to move up to the next class are forced to be raised to the next class because the Independent Curriculum requires students to be more.

One of the efforts made to overcome these problems is to implement a learning model that can demand the active role of students directly so that the material presented can be accepted and understood properly by students. In this learning model, students can also learn cooperatively, so that students are not only subjects or complements in learning activities but must be able to become subjects who are directly part of both question and answer and discussion activities and can express opinions. The learning model is the highest level in the learning framework. It is a general learning framework because it offers a basic understanding or philosophy that is relevant to the material. The learning model describes the roles, resources, and methods that students use during learning. In addition, there are learning methods that explain what must be done to achieve the learning goals. The task at this level is to show how these learning frameworks relate to each other (Julaeha & Erihadiana, 2021). Cooperative learning refers to a grouping system that is divided into 3, 4 and 6 people with different academic abilities, genders, and tribes. During the learning process, students are given the opportunity to work together in small groups to solve problems or talk to each other. Group assignments can encourage students to work together to combine new knowledge with what they already know. Cooperative learning is a learning approach that prioritizes student collaboration to achieve learning goals (Munandar, 2020). Contrary to David and Kroll (in Ali, 2021), Cooperative Learning is an activity that takes place in a learning environment so that students in small groups share ideas with each other and work collaboratively to complete tasks. So from several opinions, researchers conclude that Cooperative Learning is learning that is carried out in groups that emphasizes the involvement of all students through discussion activities. Where students discuss with each other team members of 4-6 collaboratively so that it can stimulate students to be more enthusiastic in learning.

The quiz team method is one of the learning methods that can arouse students' enthusiasm and critical thinking. By definition, the quiz team method is a method of passing answers from one group to another. The Team Quiz type is an active learning model developed by Mel Siberman, in which in this Team Quiz type students are divided into three teams. Each student on the team is responsible for preparing a short-answer quiz, and the other team uses their time to check the notes. Silberman, (in Elseria Damanik et al., n.d. 2023) stated that the Team Quiz method is a method that can increase students' sense of responsibility for what they learn, and this Team Quiz method makes students feel happy when learning and does not make them feel afraid of the subject. The purpose of the Team Quiz Type Cooperative learning model is to develop teamwork, active learning skills, and in-depth knowledge that is impossible to obtain if they try to learn the material alone. In the quiz team learning model, each team is responsible for the success of its team and the completeness of the material learned and can also convey it to other groups.

According to silberman, (in Agustini et., 2019), the steps to implement the team quiz learning method are as follows :

1. choose a topic that can be presented in three segments.
2. Divide students into three teams A, B and C.
3. Explain the format of the lesson and start presenting the material, limiting it to 10 minutes or less.
4. Order team A to prepare a short answer quiz. The quiz must be ready in no more than 5 minutes. Teams B and use this time to check their records.
5. Team A gives a quiz to team B members. If team B cannot answer one question, team C immediately answers it.
6. Team A directs the next question to team member C, and repeats the process.

7. When the quiz is over, continue with the second segment of your lesson, and appoint team B as the quiz guide.
8. After team B completes the quiz, continue with the third segment of your lesson and appoint team C as the quiz guide.

Learning outcomes are abilities that students acquire as a result of the teaching and learning process, these abilities are both in the form of cognitive, affective, and psychomotor abilities which are characterized by the formation of behavioral changes in a person that may be caused by changes in their level of knowledge, skills, or attitudes. Related to the cognitive realm according to the revised taksonomi bloom (in Nafiati, 2021) has several levels:

Knowing, remembering and re-recognizing knowledge, facts, and concepts, from what has been learned.

1. Understanding, building meaning or interpreting learning messages,
2. Including what is said, written, and drawn.
3. Applying, Using ideas and concepts that have been learned to solve problems in real situations or conditions.
4. Analyze, use information to classify, group, determine the relationship of information with other information, between facts and concepts, arguments and conclusions.
5. Evaluating, Assessing an object, an object, or information with certain criteria.
6. Create, lay or connect parts in a new whole; compiling new formulations from existing formulations.

2. Method

This research is a quasi-experiment research, which is a research method used to find the effect of treatment on an object under investigation using a control class and an experimental class (sugiyono, 2014). This type of research is quantitative research, quantitative approach is used to research a specific population or sample, sampling techniques are carried out by purposive sample. This research was carried out at SMA Negeri 4 Palu Jl. Mokolembake No.10, West Palu District, Palu City, Central Sulawesi 94111. This research was carried out in semester of the 2023/2024 Academic Year on September 2024.

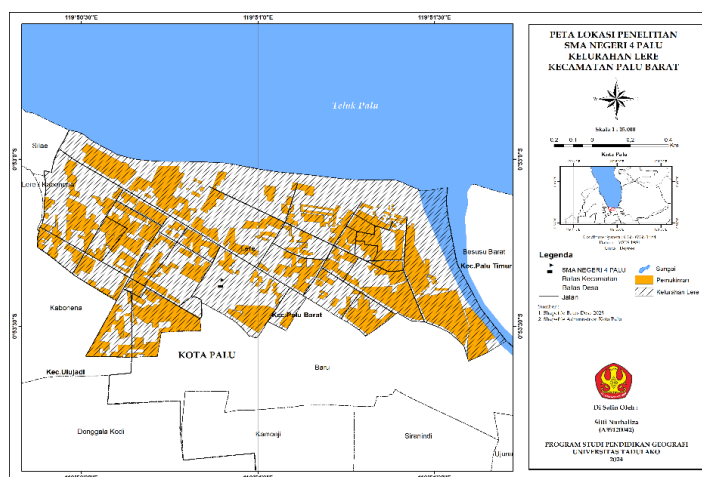


Fig 1. Research location 2024

The population in this study is all grade XI students at SMA Negeri 4 Palu which consists of 13 classes with a total of 446 students. In this study, the samples taken in the research of class XI J as the experimental class of class XI as the control class. The data collection techniques in this study are observation, test, and documentation. Observations were made to identify what things hindered the learning outcomes. The test will be carried out in two forms, namely pre-test and post-test. Documentation is carried out to obtain information through various written sources or documents. In this study, the documentation used was absenteeism and student grade lists. The research instrument used in the research

is in the form of multiple-choice questions, which are given in two stages, namely pre-test and post-test. Multiple-choice questions before being given to students are tested for validation, and reliability.

Validity relates to the ability to quickly measure something that wants to be measured. A valid learning outcome test is a learning outcome test that accurately measures the circumstances to be measured (Humaira et al., 2023). In this study, to test the validity of the validation test questions was carried out to experts from Tadulako University lecturers, namely Mr. Rendra Zainal S, Pd., M, Pd,. Then it was tested for revalidation using the Excel 2016 Application. The decision-making criteria in the validation test are as follows: 1. If the value of $r_{table} > r$ is calculated, it is said to be invalid 2. If the value of $r_{table} < r$ is calculated, then it is considered valid. After the question items were tested for validity, the question items as many as 19 valid numbers were then tested for reliability. To test the reliability of the question, the Kuder-Richardson 20 formula is used. In this study, the researcher used Microsoft Excel, from the calculation results showed that the valid question items had a reliability index of 0.97. With that, it can be concluded that the items are reliable, so they can be used as a tool to measure students' difficulty in solving problems and as a data collection tool. The normality test is carried out to determine whether the data has a normal distribution or not. The normality test was carried out using the Shapiro Wilk statistical test with the help of the SPSS Statistic 25 application. The value of the significance criterion of the normality test using the Shapiro-Wilk test is that if the sig value is < 0.05 , the data is not normally distributed. If the sig value is > 0.05 , then the data is normally distributed.

Table 1. Normality

| Class | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----------------------|---------------------------------|----|------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Pretest Eksperiment | .187 | 36 | .003 | .920 | 36 | .013 |
| Posttest Eksperiment | .186 | 36 | .003 | .927 | 36 | .020 |
| Pretest Control | .151 | 36 | .037 | .920 | 36 | .012 |
| Posttest Control | .170 | 36 | .010 | .922 | 36 | .015 |

It can be seen that the significant value (sig) of the results of the data test is, the experimental pretest is 0.13, the experimental posttest is 0.20, the control pretest is 0.12 and the posttest is 0.15. The value of the significance criterion of the normality test using the Shapiro-Wilk test is that if the value < 0.05 , the data is not normally distributed. If the data > 0.05 , then the data is normally distributed. Based on this statement, it can be concluded that the data from variable X and variable Y meet the criteria, the data is normally distributed because the significant value > 0.05 . The homogeneity test was carried out to find out whether the data on the level of student learning outcomes of the control class and the experimental class were homogeneous or had the same variation. To determine the homogeneity of the data, a Homogeneity of Variance test was carried out using SPSS Statistic 25. The value of the significant criteria for the homogeneity test is, if the sig value is < 0.05 , it means that the sample distribution is not homogeneous, while if the sig value is > 0.05 , it means that it is homogeneously distributed.

Table 2. Test of Homogeneity of Variances

| | | Levene Statistic | df1 | df2 | Sig. |
|---------------------------|--------------------------------------|------------------|-----|--------|------|
| Student Learning Outcomes | Based on Mean | 3.151 | 1 | 70 | .080 |
| | Based on Median | 2.148 | 1 | 70 | .147 |
| | Based on Median and with adjusted df | 2.148 | 1 | 66.867 | .147 |
| | Based on trimmed mean | 2.997 | 1 | 70 | .088 |

It can be seen that the significant value (sig) of the test results is, Based on Mean for the variable of the level of student learning outcomes of 0.80. The value of the significant criteria for the homogeneity test is, if the sig value is < 0.05 , it means that the sample distribution is not homogeneous, while if the sig value is > 0.05 , it means that it is homogeneously distributed. Therefore, from the above data, it is

concluded that the data of the X and Y variables meet the criteria, and are homogeneously distributed because the values of $0.80 > 0.05$.

3. Results and Discussion

The geographical location of SMA Negeri 4 Palu is located at the point $0^{\circ} 53' 29, 98''$ S and $119^{\circ} 51' 31, 04''$ T. SMA Negeri 4 Palu is located on Jalan Mokolembake No.10, Lere Village, West Palu District with the geographical location of Lere Village is as follows:

| | |
|-------|----------------------------------|
| North | : Bordering Palu Bay |
| East | : Adjacent to east palu district |
| South | : Adjacent to kel. Baru |
| West | : Adjacent to ulujadi district |

Its strategic location and easy access to public transportation greatly supports the people of Palu City and its surroundings to send their children to school at SMA Negeri 4 Palu occupying an area of +4 Ha. The spacious location allows this school to have various facilities that can support the development of students and teachers. SMA Negeri 4 Palu occupies an area of +4 Ha. The fairly large location allows this school to have various facilities that can support the achievements of students and teachers, both academic achievements (curricular) and achievements in the extracurricular field (sports, arts, and so on). SMA Negeri 4 Palu has a room for the teachers' council, a principal's room, a vice principal's room, a master's room, a counseling guidance room, a communication room, a physics laboratory, a chemistry laboratory, a computer room, a student organization room, a youth red cross room, a library, and eight gardens with 32 classrooms. To find out the learning outcomes of students using a team quiz type cooperative learning model with natural resources material in geography subjects at SMA Negeri 4 Palu, a written test in the form of multiple choice is used as a technique in collecting data for both variable X and variable Y. The data that has been obtained will be processed using statistical formulas. The following is the data processing carried out by the researcher.

Table 3. Result Pretest - Posttest

| Score | Qualification | Experiment Class | | Control Class | |
|--------|---------------|------------------|----------|---------------|----------|
| | | Pretest | posttest | Pretest | posttest |
| 81-100 | Very Good | 10 | 10 | 8 | 9 |
| 66-80 | Good | 16 | 25 | 12 | 15 |
| 56-65 | Enough | 5 | 1 | 8 | 5 |
| 41-45 | Not enough | 4 | 0 | 6 | 5 |
| 0-40 | Very Less | 0 | 0 | 2 | 2 |

Based on the information, there was a significant increase in geography learning outcomes in the experimental class compared to the control class. The highest qualification experimental class is very good as many as 15 students and the control class is very good qualification as many as 8 students.

After the results of student surveys in both the experimental class and the control class are known, then the data will be analyzed using inferential analysis of the t-test using a work table. Therefore, it is stated as follows.

Table 4. inferential analysis of the t-test

| Pretest (Experiment) | Posttest (Experiment) | Learning Outcomes | Pretest (Control) | Posttest (Control) |
|-------------------------|--------------------------|----------------------|-------------------|-----------------------|
| 10 | 10 | 5 | 8 | 9 |
| 16 | 25 | 4 | 12 | 15 |
| 5 | 1 | 3 | 8 | 5 |
| 4 | 0 | 2 | 6 | 5 |
| 0 | 0 | 1 | 2 | 2 |
| 36 | 36 | | 36 | 36 |
| 50 | 50 | | 45 | 45 |
| 64 | 100 | | 48 | 60 |
| 15 | 3 | | 24 | 15 |
| 8 | 0 | | 12 | 10 |
| 0 | 0 | | 2 | 2 |
| 137 | 153 | | 131 | 132 |

| Fx ² | fx | fy | Fy ² |
|-----------------|-----|-----|-----------------|
| 137 | 153 | 131 | 132 |

Based on the work table above, the data can be analyzed by entering into the calculation of the t-test as follows:

$$t = \frac{MX_1 - MX_2}{SD_{bm}}$$

| | | | | |
|----|---------------------------------|---------|---------------------------------|--------|
| a. | M _{x1} | = 4,25 | M _{x2} | = 3,63 |
| b. | SD ² _{x1} | = 14,26 | SD ² _{x2} | = 9,51 |
| c. | SD ² M _{x1} | = 0,39 | SD ² M _{x2} | = 0,26 |
| d. | SD _{bm} | = 0,14 | | |
| e. | t | = 4,28 | | |
| f. | db | = 70 | | |
| g. | t-test table | = 1,667 | | |

Based on the results of the inferential calculation of the t-test (t-test) above, the empirical t-test value (t-calculus) is 4.28 greater when compared to the value (t-table) at a significant level of 0.05, which is 1.667. Thus, the alternative hypothesis (H₁) which states "There is a positive influence of the Team Quiz type cooperative learning model on the learning outcomes of geography students", is accepted. Therefore, the null hypothesis (H₀) which states "There is no influence of the Team Quiz type cooperative learning model on the learning outcomes of geography students", is rejected.

Based on the results of this study, it is proven that there is an influence on geography learning outcomes between the experimental class and the control class. It is evidenced by the difference in the increase in pretest scores to postes in the experimental class and the control class. The experimental class that used the Team Quiz model experienced a higher increase in pretest scores to postes than the control class that used the discussion method. In the experimental class, the highest qualification pretest score was good with 16 students and the lowest qualification was failed with 0 students. The highest qualification of the experimental class is very good with 10 students and the lowest qualification is good with 5 students. Meanwhile, in the control class, the highest qualification pretest score is good with 8 students and the lowest qualification is less than 6 students. The highest qualification control class postes score is very good with 9 students and the lowest qualification is enough with 5 students.

Based on the theory presented by Silberman and Albert Bandura regarding the active learning model in the form of Team Quiz, the advantages of the Team Quiz model include a student-centered learning process that encourages students to express their own opinions, and the Team Quiz learning process is also a very enjoyable learning model that empowers all the potential and senses of the students, all of which have a positive impact on the process and learning outcomes of the students. This is evident from the research results obtained.

The cooperative learning model of the team quiz type can improve students' learning outcomes through several methods, namely:

1. Formation of Diverse Teams: Form groups of students with diverse abilities. This can help students support each other and learn from one another.
2. Define Learning Objectives: Explain the purpose of each quiz session, so that students understand the importance of the material to be learned.
3. Persiapan Materi: Siapkan materi yang jelas dan relevan dengan kurikulum.
4. Interactive Learning: Before the quiz, conduct a discussion session or interactive learning to delve deeper into the material. Use methods such as group discussions or question and answer.
5. Clear Game Rules: Explain the rules and procedures for conducting the quiz. Ensure all team members understand their roles.
6. Provide Feedback: After the quiz, give constructive feedback. Discuss the correct and incorrect answers, and explain the difficult concepts.

7. Motivation and Recognition: Provide awards or recognition to high-performing teams. This can enhance students' motivation to learn better.

The application of the team quiz type cooperative learning model in geography learning at SMA N 4 Palu makes it easier for students to learn in groups because team quiz type cooperative learning is student-centered learning so that students dare to express their own opinions. This is in accordance with research (Mahyana, 2017) with a team quiz-type cooperative learning model that makes it easier for students to interact with teachers. And stated that the team quiz learning model can result in more active learning and students feel happier. The team quiz learning model can produce a learning process that reaches a higher cognitive level.

4. Conclusion

Based on the results of the research that has been carried out, it shows that there is an influence of the team quiz type cooperative learning model on natural resource materials by testing hypotheses using an inferential statistical formula at a significant level of 0.05. The calculated t-test is obtained t-count = 3.49 and the significant level $\alpha = 0.05$ in t-table is obtained 1.667 this means t-count > t-table value. So that H_0 is rejected and H_1 is accepted.

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