The Influence of Listening Team Learning (LTL) Model on Students' Learning Outcome in Science

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Abstract: 21st Century Learning requires teachers to choose learning models or strategies more creatively. This study aims to determine the differences in learning outcomes taught by the listening team model and conventional class models at SMPN 2 Maniangpajo. The design of this research is The Nonequivalent Posttest-Only Control Group Design. With the population of this study, all students in class VIII SMPN 2 Maniangpajo with a total of 70 students, and the sample was taken by purposive sampling obtained a sample of 47 students. The instruments used were learning achievement tests, and teacher and student observation sheets. The results of this study indicate that; 1) The learning outcomes of students taught using the listening team learning model have a moderate categorization with an average student learning outcome of 75.83. 2) The learning outcomes of students who are taught by the conventional model have a low categorization with an average score of students is 67.39. 3) There are significant differences in learning outcomes between the control and experimental classes. The listening team learning model is more effective than conventional learning models on student learning outcomes.

Keywords: Listening team learning model; Science; Senior high school

Introduction

The changing paradigm of learning in the 21st century demands continuous changes from teachers to improve the quality of learning (González-Pérez et al., 2022). The development of science and technology is growing rapidly every day (Martinez, 2022). The world of education must respond well to this development (Kubat, 2018). Educational goals are the learning outcomes achieved by students after carrying out learning activities. Learning is said to be successful if students have a good understanding of the teaching and learning process (Kubat, 2018). To get a good education, all stakeholders are responsible for conducive and supportive teaching and learning conditions (Dr. Nasir Shaheen et al., 2020).

Improved learning outcomes are reflected in the successful acquisition of qualifications in a subject, which depends on several aspects. One thing that makes a big difference is how the teacher applies what has been learned. Improving learning outcomes is not easy to achieve optimally, because many factors affect learning outcomes themselves (Perangin-angin et al., 2022;

Azizah et al., 2022). It is recommended that teachers can choose and use models, media, and learning strategies that are suitable for the learning material being taught so that students can easily understand the lesson. Learning strategies are divided into two parts: teacher-centered and student-centered (Wael et al., 2018).

Based on observations of several students and the results of interviews, it is still difficult to interpret what is taught by the teacher. Students memorize a concept or formula without knowing the origin and meaning of both. Students' difficulties in solving various problems indicate that students understanding of concepts is still weak and have not achieved the expected mastery of learning.

One of the models that can be used to improve learning outcomes is by applying the Listening Team cooperative learning model (Cámara-Zapata et al., 2020). In listening Team cooperative learning, students are required to be responsible for tasks in the group which make students more motivated to find the right answers to solve problems and find ways to complete learning activities (Tran, 2019). If learning activities take place actively, it will affect students' understanding. The term

cooperative learning in the foreign language sense is cooperative learning. In essence, the cooperative learning method is a method or strategy of cooperation learning whose concept is almost not much different from group learning.

There are basic elements of cooperative learning that distinguish them. Cooperative learning is a broader concept encompassing all types of group work including more teacher-led or teacher-directed forms. In general, cooperative learning is considered to be more teacher-directed, where the teacher sets tasks and questions and provides materials and information designed to help learners solve the intended problem.

Cooperative learning is done by forming small groups of heterogeneous members to work as a team to solve problems, and tasks, or work on something to achieve a common goal. Cooperative learning is learning that uses small groups so that learners work together to maximize their learning and that of other members (Fadhilah et al., 2023). This principle is a co-operation-based learning process. Cooperation between students and between other components in the school, including school cooperation with parents and related institutions. Cooperation between students is visible when the class has chosen a problem to study together. All the work is arranged, the people are determined, and who does what is a form of cooperation (Yuliastini, 2017).

Learning with the Listening Team method begins with the presentation of learning material by the teacher. Then the teacher divides the class into groups. Each group has its role. For example, 40 people in a class are divided into 4 groups. The first group is the questioner group, the second group and the third group are the answering groups. A second group is a group of people who answer based on a certain perspective, while the third group is a group of people who answer with a different perspective from the second group. This difference is expected to lead to an active discussion characterized by a dialectical process of thinking so that they can find structural knowledge (Hargrave et al., 2017). The fourth group is the group in charge of reviewing and making conclusions from the results of the discussion.

Method

The type of research used in this study is the Quasi Experiment (Gopalan et al., 2020). The research design used in this study was The Nonequivalent posttest - Only Control Group Design (Krishnan, 2019).

|		
Treatment Group **X**		**O₁**
Control Group		**O₂**
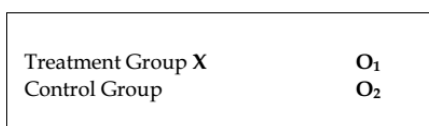
Figure 1. Research design

The population in this study were all students of class VIII SMPN 2 Maniangpajo, Makasar consisting of 3 classes. The research instrument used is a test of learning outcomes of light and optical devices consisting of 10 numbers, where this test is given after applying the cooperative listening team model and the conventional model and student observation sheets with teachers. The learning device used is a lesson plan (RPP) which contains learning steps.

Result and Discussion

Descriptive analysis of students' learning outcomes in the experimental group. The results of the descriptive analysis of student learning outcomes in the experimental group can be seen in Table 1.

Table 1. Descriptive Statistics of Learning Outcomes in the Experimental Group

Descriptive Statistic	Experiment Class
Maximum	100
Minimum	60
Average	75.83
Deviation standard	13.48
Variant	181.88
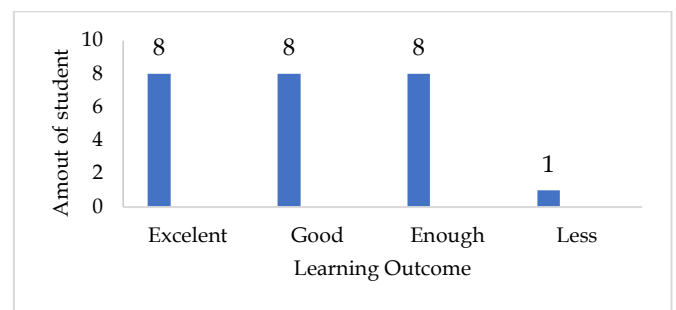
Figure 2. Learning outcome categories of experimental class students after the treatment

Based on Table 1 above indicates that the maximum value is the highest learning outcome value obtained by students in the experimental class of 100. While the minimum value is the lowest value obtained by students of 60 in the experimental class. The average or mean is obtained from analysis using SPSS Statistic Version 20. Likewise, the variance value obtained is 181.88.

Based on Figure 2 indicates that in the experimental class, there were 8 people in the excellent category, 8 people in the good category, and 8 people in the sufficient category.

Descriptive Analysis of Student Learning Outcomes in the Control Class

The results of the descriptive analysis of student learning outcomes in the control class can be seen in Table 2.

Table 2. Descriptive Statistics of Physics Learning Outcomes of Control Classes

Descriptive Statistic	Experiment Class
Maximum	80.0
Minimum	60.0
Average	67.39
Deviation standard	8.10
Variant	181.88

Based on Table 2 above, shows that the maximum value is the highest physics learning outcome value obtained by students in the control class of 80. While the minimum value is the lowest value obtained by students of 60 in the control class. The average or mean obtained from analysis using SPSS Statistic Version 27 is 67.39. Likewise, the variance value obtained is 65.61.
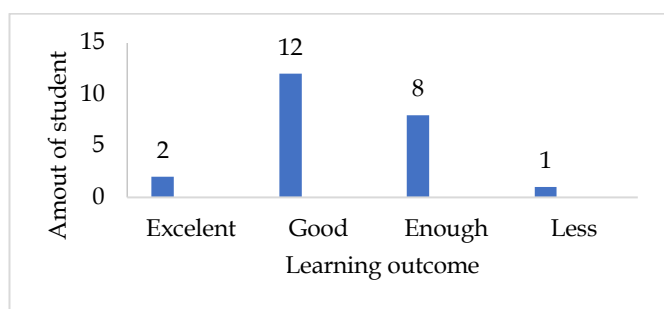
Figure 3. Learning outcomes category of control class students after treatment

Based on Figure 3 shows that the number of students who have physics learning outcomes in the good category is 12 students and in the sufficient category there are 11 students.

Inferential Analysis

Inferential tests are divided into two, namely prerequisite tests and hypothesis tests. The prerequisite tests used are the normality test and the homogeneity test. As for the hypothesis test, independent sample t2 was used. The normality test using the Kolmogorof-Smirnof test found that the data were normally distributed. It can be seen in the following table.

It is said to be normally distributed if the significant value is greater than 0.05 (sig>0.05) so it can be concluded that the value of student learning outcomes in the experimental class and control class is normally distributed. For the homogeneity test, the variance analysis test was used so that the following results were obtained.

Table 3. Normality Test Results of Experimental Student Learning Outcome Values with the IBM SPSS Version 27 Program

Tests of Normality					
Kolmogorov-Smirnova			Shapiro-Wilk		
Statistic	Df	Sig.	Statistic	Df	Sig.
.213	24	.106	.851	24	.002

Table 4. Normality Test Results of Physics Learning Outcomes of Control Class Students with the IBM SPSS Version 27 Program

Kolmogorov-Smirnova			Shapiro-Wilk		
Statistic	Df	Sig.	Statistic	Df	Sig.
.298	23	.100	.769	23	.000

Table 5. Results of Homogeneity Test Calculation of Learning Outcome Values

Levene statistic	Df1	Df2	Sig.
.263	2	20	.771

Based on the Levene Statistic test in Table 5, in the significant column, a significance of 0.771 is obtained. This signature value is greater than 0.05 so it can be concluded that both classes have the same variance or are homogeneous. After the prerequisite test is carried out, if the data is proven to be normal and homogeneous, the analysis is carried out by hypothesis testing. The hypothesis test used in this study is the independent sample t2 test in the experimental class and control class. Based on the results obtained, the t-count value is -2.587 and the t-table value is 1.67943 then (t-count = -2.587 < t-table = 1.67943). Based on these results, it can be shown that H1 is accepted. It can be concluded that overalls there is a significant difference in physics learning outcomes between classes that learn using the listening team cooperative learning model and classes that learn using conventional learning models (Kurniawan et al., 2023).

Learning Outcomes between Students Taught Using the Listening Team Cooperative Learning Model

After the researchers processed the data obtained from the learning outcomes test (multiple choice) with a total of 10 questions, the researchers conducted descriptive analysis testing so that an average value of 75.83 was obtained. Where there are 8 people with student learning outcomes in the very good category, this happens because, during the learning process, students are active in class and listen well to their friends' explanations so that they can answer the questions given. There are 8 students with student learning outcomes in the good category, this happens because, during the learning process, students are less active in class and do not listen to the explanation of the teacher or their friends so they are unable to answer the questions given properly as well as 8 students who are in the sufficient or insufficient category.

Thus, it can be said that the learning outcomes in the experimental group were high. These research findings are from previous research where the understanding and learning outcomes of students increased. In line with some studies (Astra et al., 2020; Munir et al., 2019) which explain that student understanding has increased with student learning outcomes increasing in each cycle from various

domains, both cognitive, affective, and psychomotor domains. The tests given can be done well so that learning outcomes improve better. This indicates that the level of thinking or cognition of students increases with the implementation of the listening team learning model (Sudirman et al., 2021).

The listening team cooperative learning model can make active discussions (student-centered) because of the student's thinking process, create responsible groups, can explain the subject matter, students focus on the learning process (Adiatma et al., 2022). Activities in sharing knowledge such as providing information, asking about things that are not understood, and conveying information to fellow friends can make the memory of the subject matter last longer it will make it easier for students to solve problems quickly and accurately (Remedios et al., 2012). According Murad et al. (2021) states that the listening team learning model can lead to active discussions that are characterized by a dialectical process or students' thinking skills so that they can find out structural knowledge by themselves. Another study (Utami et al., 2021) also explains that in the listening team model, discussion activities involve working together in groups, expressing opinions, and helping each other solve problems, because students are active in learning, students memory in absorbing subject matter is getting bigger, listening team can also stimulate students to express ideas and debate opinions so that students actively participate in the learning process.

This is also reinforced by research conducted (Suparman et al., 2021) entitled " Application of listening team learning model in improving middle school students' mathematical reasoning ability". Obtained learning outcomes show student interaction with learning resources shows a positive trend seen from the average value of 80 students per meeting seen from the results of the LKM.

Learning Outcomes between Students Who Were Not Taught Using the Listening Team Cooperative Learning Model

After the researcher processes the data that has been obtained from the learning outcomes test (multiple choice) with a total of 10 questions, the researcher conducts descriptive analysis testing so that an average value of 67.39 is obtained. Where there are 12 students with student learning outcomes in the good category, this happens because, during the learning process, students are less active in class and do not listen to explanations from teachers and friends so they are unable to answer the questions given properly. And 11 students who are in the sufficient or insufficient category. Thus, it can be said that the learning outcomes in the control group were in the moderate category.

The results showed that the listening team cooperative learning model can affect student understanding. This is evidenced by the learning outcomes of experimental class students higher than the control class, namely the average student learning outcomes in the experimental class of 75.51 higher than the student learning outcomes in the control class of 65.51.

Learning in conventional methods, students mostly listen to the teacher's explanation in front of the class and carry out tasks if the teacher gives practice questions to students (Yusup et al., 2017). Often used in conventional learning include the lecture method, question and answer method, discussion method, and assignment method. Other methods that are often used in conventional methods include expository. This expository method is like a lecture, where learning activities are centered on the teacher as the giver of information (learning materials) (Sudirman, 2022). He or she speaks at the beginning of the lesson, explaining the material and sample questions accompanied by questions and answers. Learners do not only listen and take notes. The teacher and learners practice solving the exercises and learners ask questions if they do not understand (Azhar, 2022). The teacher can check learners' work individually, and explain it again to learners individually or classically. So that students only focus on the teacher who is explaining the learning material taught in front of the class causing interaction among students to decrease (Abidin et al., 2019).

Based on the results of this study, students' learning outcomes were in the medium category. Some factors that cause this hail include; (1) The learning process is boring and students become passive because they do not have the opportunity to discover the concepts taught themselves. (2) The density of the concepts given can result in students not being able to master the material taught. (3) Knowledge gained through this model is forgotten more quickly. (4) Lectures cause students to learn to memorize which does not lead to understanding.

The Difference in Learning Outcomes between Students Who Were Taught and Those Who Were Not Taught with the Listening Team Type Cooperative Learning Model

The results of this study indicate that there is no significant difference in physics learning outcomes between students taught by the listening team cooperative learning model and student groups not taught by the listening team cooperative learning model. This can be seen in the t-test analysis that has been done. Where the experimental class had 24 samples and the control class had 23 samples, and the average obtained for the experimental class was 75.83 and 67.39 for the control class with a standard deviation for the experimental class of 13.48 and 8.10 for the control class.

Conventional learning in the control class uses a conventional learning process, where learning activities

are centered on the teacher to provide information to students. In this process, the method used is the lecture method so that students only focus on what the teacher says and do the questions given (Ekeanyanwu, 2021). While in the learning process in the experimental class, students are required to be active in understanding the learning, the implementation of the listening team cooperative learning model begins with the presentation of material by the teacher and students listen to what is delivered. Cooperative learning is a learning strategy that emphasizes the social aspects of learning and uses small groups of 4-6 heterogeneous students to work together to complete tasks and achieve learning goals, as well as to gain rewards (Ding et al., 2022).

The scope of task completion is not only in terms of answering questions, but more than that students' reason based on their knowledge in understanding the material they learn. This means that cooperative learning is based on constructivism (Baloche et al., 2017). Students' activeness in learning activities will bring a new feeling to students who will feel very valued. This is because students feel involved in understanding the knowledge of the material they learn. Thus, cooperative learning becomes a learning strategy that can motivate students learning. Cooperative learning emphasizes working collaboratively. Of course, it is related to groups. The groups formed are only around 4 - 5 people, meaning that the groups formed are small. The purpose of forming small groups is to provide opportunities for students to be actively involved in the thinking process and learning activities (Harianto et al., 2020).

Conclusion

Based on the results of the analysis, it is concluded (1) The learning outcomes of students taught using the listening team learning model have a high categorization. (2) The learning outcomes of students taught using conventional learning models have moderate categorization. (3) The listening team learning model is more influential than the conventional learning model on the learning outcomes of seventh-grade students of SMPN 2 Maniangpajo based on the results of the t2 sample test calculation, where t-count is greater than t-table (2.587> 1.67943). The listening team learning model in this study can be said to be effective in the learning process to improve student learning outcomes. For future researchers who want to research learning outcomes or others, it can be used as a reference and try to re-examine with other variables which are certainly relevant to the study.

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