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The Influence Of The Jigsaw Cooperative Learning Model And Learning Motivation On Student Science Learning Outcomes

Nadrah Nadrah
Elementary School Teacher Education Lecturer, FKIP Muhammadiyah Makassar University

*Corresponding Author
Email: nadrah@unismuh.ac.id

Abstract

This study aims to determine the effect of the model jigsaw cooperative learning and learning motivation on student learning outcomes class VI science subject at SD Inpres 2 Tidung. Researchers use the approach post test only control group design, which was carried out on 40 class VI students as a sample (object) of the researcher, consisting of 20 people as the experimental group and 20 people as the control group. For obtain data about learning outcomes using learning outcomes tests, while data about learning motivation using a learning motivation questionnaire. Data analysis using two-way analysis of variance and tukey (Q) test . The results of the study showed that (1) the students' learning outcomes in science were following the jigsaw cooperative learning model is higher than students who follow the conventional learning model, (2) students who have high learning motivation there is a difference in science learning outcomes between students who follow the jigsaw cooperative learning model with students who follow conventional learning models. (3) students who have learning motivation low there is a difference in science learning outcomes between students who follow the model jigsaw cooperative learning with students following the model conventional learning, and (4) there is an interaction effect between models learning by having learning motivation towards science learning outcomes.

Keywords: Cooperative Learning, Learning Motivation, Science Learning Outcomes

INTRODUCTION

Article 31 paragraph 2 of the 1945 Constitution states that: every citizen right to education and proper teaching where education it is very important in shaping one's self-character towards maturity (Hakim & Sakti, 2019). The higher the level one's educational attainment pattern level he thought would be higher and more critical in addressing various problems, by therefore no matter how an educator or educational staff should try to strive for an effective learning process and interest by students to improve the quality of educational attainment in each citizen (Sulfemi & Kamalia, 2020).

In Law no. 20 of 2003 elaborated on Functions and Objectives National Education which states that National Education functions develop capabilities and shape national character and civilization dignified in order to educate the life of the nation, aims to developing students' potential become a man of faith and fear of God Almighty, noble, healthy, knowledgeable, competent, creative, independent, and become democratic citizens as well responsible (Putra, Kaharudin, Rahim, & Nabawi, 2018). Also in Law no. 20 of 2003 concerning the education system National, which has a vision of realizing an education system as an institution strong and authoritative society to empower all citizens Indonesia is developing into quality human beings so that they are able and proactively responding to the challenges of the ever-changing times (Han & Son, 2020;Legrain et al., 2021). The human quality needed by the Indonesian people in the future is that able to face increasingly fierce competition with other nations in the world. The quality of Indonesian people is produced through implementation quality education (Subiyantari, Muslim, & Rahmadyanti, 2019).

The quality of Indonesian education is still considered by many low. This can be seen from several indicators. First , graduates from schools or colleges that are not ready to enter the world of work due to lack of competency. According to economic observer Dr. Berries Priyono (in

Amin et al., 2020), the provision of skills obtained from educational institutions is inadequate to be used independently, because what is learned in educational institutions often only fixated on theory, so students are lacking innovative and creative Second , the ranking of the Human Development Index (HDI) Indonesia is still low (in 2004 ranked 111th out of 117 countries and in 2005 ranked 110th under Vietnam with a rating of 108th). third , the International Educational Achievement (IEA) report that ability reading Indonesian elementary school students ranked 38 out of 39 countries surveyed. Indicators of low quality of education in Indonesia above more pay attention again to the data of the Ministry of Youth and Sports which stated that as many as 37.06 percent of Indonesian youth just graduated from school Basic (SD) (Kenedi, Eliyasni, & Fransyaigu, 2019).

To determine the success or failure of students to study in an institution, it is generally used as a benchmark for learning outcomes (Astalini et al., 2021) This is because learning outcomes are an indication of educational results. The results of an individual's learning is an interaction between various factors that influence it, which are generally grouped into two major factors, namely internal and external factors Included in factors include physical health factors, talent, interest, motivation, intelligence, and so on. Being included in the factor outside of which includes the completeness of infrastructure, time, learning conditions, learning resources, and environmental conditions, the approach used by the teacher in learning process and so on (Evita et al., 2019 ;Law et al., 2019).

Based on Ministerial Regulation No. 22 of 2006 p. 463 mentioned Science Natural Knowledge (IPA) is one of the subjects given starting from SD/MI/SDLB to SMP/MTs/SMPLB. In the future students will face tough challenges because of community life The world is always changing all the time. Therefore science subjects designed to develop knowledge, understanding, and abilities analysis of the social conditions of society in entering life dynamic society (Sumarsono et al., 2019).

To become citizens of a democratic Indonesia, and responsible too peace-loving citizens of the world, then in education formal education in schools must be given science. This is stated in the law Republic of Indonesia No. 20 of 2003 concerning the National Education System (SISDIKNAS) article 37 states that the primary and secondary education curriculum must contain education religion , civics education , languages , mathematics , science natural sciences , social sciences , arts and culture , physical and sports education , skills/vocationalism , and content local (Mohebi et al., 2019).

Based on the description and juridical basis, it can be understood that knowledge knowledge Natural in the National Education System has a position very important and strategic and therefore necessary get attention especially at the level primary and secondary education. However, it is realized that in the field there is the tendency of students to be less focused and less motivated to pursue and deepen the field of study of science Even this subject is considered a subject that a lot of memorization, so that the impact on student achievement in the field science studies do not achieve maximum learning mastery (Cerón-García et al., 2022). It is realized that one of the factors that can influence Student achievement is the teacher's ability to manage the class. With using a learning model that fits the learning needs of students, It is hoped that the learning potential of students can be explored and developed optimal (Niknam, Dhillon, & Reed, 2020).

In connection with the use of learning methods a teacher must Be observant in choosing learning methods that will be applied in class. Although in the world of education there are many learning methods, however not all methods are effective in achieving learning objectives in each subject. A learning method is only effective for a subject certain discussion, but on the other hand less powerful to achieve the goal learning on other subjects. This is in accordance with the statement proposed by Soetomo (in Shakerian et al., 2020) that the right method for one purpose

learning, or learning materials are not necessarily appropriate for different learning objectives and materials, so the selection of methods learning is specific to a particular teaching and learning process (Molinillo, Aguilar-Illescas, Anaya-Sánchez, & Vallespín-Arán, 2018).

The pattern of science learning emphasizes the elements of education and provision to students. The emphasis on learning is not limited to effort feed or stuff students with a number of rote concepts only, but lies in the effort so that they are able to make what has been studied as a provision in understanding and participating in acting the life of the surrounding community, as well as a provision for him to continue their education to a higher level of education (Khan et al., 2019;Hsu et al., 2019). Here it is actually emphasizing the mission of science education Therefore, design teacher learning should be directed and focused according to the conditions and the potential development of students so that learning is carried out truly useful and beneficial for students (Georgiou & Kyza, 2018;Huang et al., 2020).

RESEARCH METHODS

The population is the group that attracts the attention of the researcher, the group that which the researcher would like to generalize the results of his researh. The population can basically be classified into two parts, namely the target population and the reachable population. The target population in this study were all students of SD Inpres 2 Tidung. The reachable population is all Grade VI students of SD Inpres 2 Tidung .

This study uses a total sample, where the entire population used as research subjects. Group determination is not done randomly random, but using existing classes. Because of the possibilities the characteristics of the subjects are different from each other, so before the treatment, it is carried out pre-test on the subject group that will be used as the experimental group and control group . The hypothesis is that no difference in results science learning between the prospective experimental group and the prospective control group . The pre-test results were then analyzed to find out whether the group subjects have the same ability or not. Based on the results of the pre test analysis to prospective experimental groups and prospective control groups did not differ significantly. Thus, both groups are eligible for involved in research. Of the two classes selected and eligible, then drawn to determine the class that was given the treatment and the control class (Hidayat, Anisti, & Wibawa, 2020).

This research is a quasi experimental research with nonequivalent control group design with the consideration that in determination of the experimental group and the control group cannot be done with random individual random, but done with random groups. The experimental design used was The Posttest – Only Control Group Design. The design describes the treatment given in learning through two learning methods, namely the learning method cooperative jigsaw technique for experimental classes and learning methods conventional for the control class in terms of high creativity and creativity students' low achievement in science learning. In this research treatment is classified into three namely: subject matter, method learning and implementation time. Use of learning methods categorized into two namely learning by using the method cooperative learning jigsaw technique for experimental classes and learning with conventional learning methods for the control class.

Low student learning achievement is a reflection of obstacles that appear in learning activities. The learning process is a a system that includes very complex activities that include aspects pedagogical, psychological, and didactic. Aspect pedagogical refers to the fact that learning in school, a teacher very necessary in accompanying and guiding students in development towards maturity. Obstacles that arise in activities learning can occur in various

aspects. Viewed from the aspect of students itself, learning difficulties can arise from internal factors and external factors.

According to Haditono (in Lestari et al., 2019) students' internal factors include biological aspects and psychological aspects. Biological aspects include physical health, and aspects Psychological include: intelligence, talent, interest, attention and emotion. Factor External Students can be: family, school, community, and environment other social. Barriers from family factors can come from people's relationships parents with children, how to educate children, discipline in managing time playing and learning children by parents, exemplary parents, harmonious atmosphere in the household, the economic situation of the household. Barriers from factors schools can be in the form of a way of presenting lessons that are not good, teacher relations with students, student relationships with peers, textbooks, facilities and infrastructure, curriculum, study time, learning environment, discipline schools, learning methods and approaches that are less effective. According to Dimyati and Mudjiono (in Van Leeuwen & Janssen, 2019), internal factors that experienced and internalized by students who influence the learning process as following: attitude towards learning, learning motivation, learning concentration, processing learning materials, store the acquisition of learning outcomes, explore the results of learning that stored, the ability to achieve or show learning outcomes, self-confidence students , intelligence and learning success, study habits, and students' aspirations (Pokhrel & Chhetri, 2021).

Student external factors can be: teachers as student coaches study, learning infrastructure and facilities, assessment policies, student social environment at school, and the school curriculum. The didactic aspect refers to the setting student learning by teachers. In this case the teacher must be able to determine the method as well as good and effective learning strategies for the learning process based on competency standards and basic competencies want to achieved. Likewise the external learning conditions that must be created by the teacher varies greatly. In this case the teacher is very instrumental in determining how which are considered effective for teaching students (Johnson & Johnson, 2018).

Based on conceptual analysis and the condition of science education, it is not Few students have difficulty following science subjects because of the method learning that is chosen and used by the teacher is felt to be inappropriate. Thus, the independence of students in learning is lacking trained and the teaching and learning process will take place rigidly so that does not support the development of knowledge, attitudes, morals, and skills Students (Hasan, 1996) . Selection of models and learning methods that fit the purpose curriculum and student potential is the ability and basic skills that must be owned by a teacher (Kosasih, 1992).

This is based on assumptions that the teacher's accuracy in choosing learning models and methods will be influence on the success and student learning outcomes (Jarolimek, 1967), because the models and learning methods used by teachers are influential on the quality of the teaching and learning process it does (Wahab, 1986). Based on the description above it can be concluded that the cause learning barriers in students are very complex so that problems arise also very complex. The problems that arise are: method or approach how learning can help improve learning achievement students in the field of science studies (Lamb, Annetta, Firestone, & Etopio, 2018).

RESULT AND DISCUSSION

The object of this study is the difference in science learning outcomes as a result of the treatment between the application of the Jigsaw cooperative learning model and conventional learning models by considering learning motivation. This study uses a factorial research design using Two-way Anava as a tool for analyzing data. Therefore data This study was grouped into:

1) students' achievement in science learning following the Jigsaw cooperative learning model, 2) science learning achievement of students following the conventional learning model, 3) achievement learn science students who have high learning motivation, 4) learning achievement Science students who have low learning motivation, 5) learning achievement Science students who follow the Jigsaw cooperative learning model and have high learning motivation, 6) science learning achievement of students who follow the conventional learning model and have the motivation to learn high, 7) science learning achievement of students who follow the learning model Jigsaw cooperative type and have low learning motivation, and 8) achievement learn science students who follow conventional learning models and have low learning motivation (Behnamnia, Kamsin, & Ismail, 2020).

Data on student achievement in science as a whole, namely after sampling based on learning motivation can be assessed through the calculation of the central size (average, mode, median) and the spread of the data (standard deviation) gives the data results on science learning achievement of students following the model Jigsaw cooperative learning type has a theoretical score range of 0-45, n = 42, minimum score = 27.00, maximum score = 45.00, range = 18.00, many class = 7, interval = 2, mean = 34.52, standard deviation = 5.64, mode = 29.00 and 25.00, and median = 21.00.

Distribution of data frequency as much as 10.9% of students get a score around the average in science learning achievement, as much as 46.9% of students obtained a score below the average, and as many as 42.3% of students obtained a score above average. Data on science learning achievement of students following the model conventional learning has a theoretical score range of 0-45, n = 42, score minimum = 26.00, maximum score = 43.00, range = 17.00, number of classes = 7, interval = 2, mean = 32.97, standard deviation = 4.2, mode = 33, and median = 33. The distribution of data frequency as much as 23.4% of students get a score around average in science learning achievement, as many as 39.1% of students get a score below the average, and as many as 37.5% of students get a score above average. In order to make it clearer, the following is a graph.

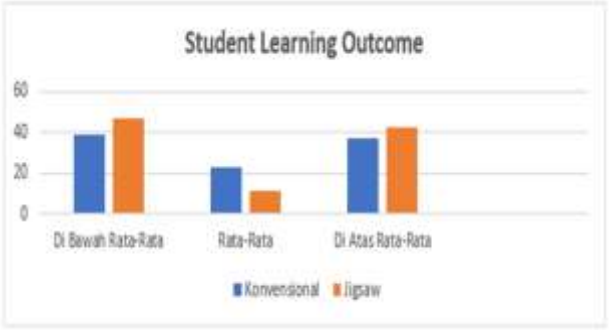

Figure 1. Chart comparison score results study student

Data about science learning achievement Students who follow the cooperative learning model Jigsaw type and have high learning motivation have a range of scores theoretical 0-45, n = 21, minimum score = 35.00, maximum score = 45.00, range = 10, number of classes = 6, interval = 1, mean = 39.44, standard deviation = 2.75, mode = 40, and median = 39.5.

Frequency distribution of students' science learning achievement following the jigsaw cooperative learning model and have high learning motivation shows that as many as 31.3% of students get a score around the average in science learning achievement, as much as 37.5% of students obtained a score below the average, and as many as 31.4% of students obtained a score above average. Data on science learning achievement of students following the model conventional learning and have high learning motivation range of theoretical scores 0-45, n = 21, minimum score = 25, maximum score = 36, range = 11, number of classes = 6, interval = 1, mean = 29.6, standard deviation = 2.66, mode = 29, and median = 29 (Rasmitadila et al., 2020).

Frequency distribution of students' science learning achievement follow the conventional learning model and have high learning motivation shows that as many as 25% of students get a score around the average in science learning achievement, as many as 34.4% of students get a score below the average, and as many as 40.7% of students get a score above average.

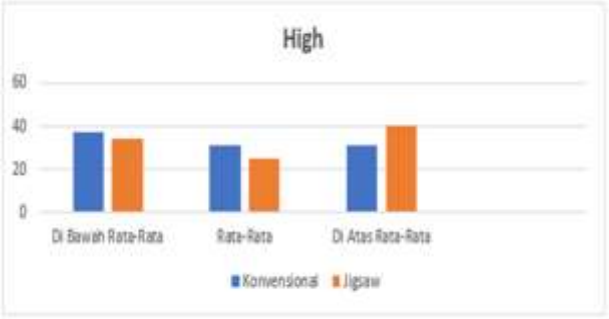

Figure 2. Chart comparison score results study students who have motivation study tall

Data on the science learning achievement of the students who took part Jigsaw type cooperative learning model and has low learning motivation has a theoretical score range of 0-45, n = 21, minimum score = 25, score maximum = 36, span = 11, number of classes = 6, interval = 1, average = 29.59, standard deviation = 2.66, mode = 29, and median = 29.

Frequency distribution of students' science learning achievement following the jigsaw cooperative learning model and have low learning motivation show that as much as 25% of students get a score around the average in science learning achievement, as many as 34.4% of students get a score below the average, and as many as 40.7% of students get a score above average. Data on the science learning achievement of the students who took part conventional learning models and have low learning motivation has a theoretical score range of 0-45, n = 21, minimum score = 32, score maximum = 43, span = 11, number of classes = 6, interval = 1, average = 36.3, standard deviation = 2.4, mode = 36, and median = 36 (Bedenlier, Kondakci, & Zawacki-Richter, 2018).

Frequency distribution of students' science learning achievement follow the conventional learning model and have low learning motivation shows that as many as 28.1% of students get a score around the average in science learning achievement, as much as 37.5% of students obtained a score below the average, and as many as 34.3% of students obtained a score above average, so looked more clear , following served histogram graph of frequency every interval class.

Figure 3. Chart comparison score results study students who have motivation study low

Given the many factors associated with the teaching and learning process in classes, as well as the existence of constraints in the form of: limited time, energy, costs and the ability of researchers, then the scope of this research is limited to learning model factors and motivation applied in the process learning in the field of Natural Sciences . Learning model that applied is a jigsaw cooperative learning model and model conventional and learning motivation on student learning outcomes in Class V I at science lessons at SD Inpres Tidung 2 Makassar.

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CONCLUSION

After all stages of the research were carried out starting from classroom observation, preparation of research instruments accompanied by trials and critical studies of research instruments, up to data collection and analysis finally in this study obtained some findings. Based on above findings in this study it can be concluded that the learning model and learning motivation has a significant influence on science learning achievement . Therefore, the Jigsaw type cooperative learning model can used to improve science learning achievement in student groups who have high learning motivation, while the learning model Conventional can be used to improve learning achievement in groups of students who have low learning motivation. Based on this, need efforts to use the Jigsaw cooperative learning model in the process science study field .

The learning model and learning motivation both have an influence significant interaction on science learning achievement in students . This matter it can be said that the influence of learning models on learning achievement Science is very dependent on student learning motivation. The science learning achievement of students who follow the Jigsaw cooperative learning model is better than the science learning achievement of students who follow the learning model conventional, while students who have low motivation, science learning achievement Students who follow the type of cooperative learning model Jigsaw is lower than the learning achievement of students who follow the model conventional learning. Conversely, the influence of learning motivation on Science learning achievement of students does not depend on the learning model .

Science learning achievement of students who have high learning motivation is better than the science learning achievement of students who have low learning motivation, good for students who follow the Jigsaw cooperative learning model as well as students who follow conventional learning models. The results of this study have provided findings that learning achievement Science in students who follow the Jigsaw cooperative learning model better than learning achievement in students who follow the model conventional learning. In other words, the type cooperative learning model Jigsaw has a significant effect on improving achievement learning science in class V I SD Inpres 2 Tidung. A teacher must be careful in choosing a learning model that will applied in the main learning process. Learning model that can motivate students to carry out complex thinking processes through exchange of information, communication of tasks, application of social skills, and activity in doing the task in the group is Jigsaw type cooperative learning model.

The application of the Jigsaw cooperative learning model is in progress learning in the field of science studies requires teachers who are able to compile the learning stages in the Lesson Unit (SP). equivalent to the stages of the Jigsaw cooperative learning model. Basically the learning model is divided into three stages, namely stage work on specific tasks of each group member, stage of discussion in groups, and communication of tasks to another group. At the stage of doing specific tasks from each - each group members, students must do their own assignments charged by the group and if something is unclear, you can ask to other group members but still in one group. Results work assignments of each group member will be used as the basis of exchanging information with other members in group discussions. The results of the discussion in the group are then conveyed to other groups. Based on the findings that have been concluded previously and in in order to achieve learning objectives in the field of science studies, which in basically boils down to improving student achievement in science learning.

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