PAEDAGOGIA
Jurnal Penelitian Pendidikan,
http://jurnal.uns.ac.id/paedagogia

DOI: 10.20961/paedagogia.v26i1.68900
Page. 22-29
Vol. 26 No. 1, February 2023
p-ISSN 0126-4109; e-ISSN 2549-6670

THE INFLUENCE OF THE *JIGSAW* LEARNING MODEL ON CRITICAL THINKING SKILLS

Wawan Muliawan*

Biology Education, Faculty of Mathematics and Natural Sciences, Hamzanwadi University, Indonesia.

Abstract: This study aimed to investigate the impact of using the Jigsaw Type Learning Model on the Critical Thinking Ability of Class XI students at a certain high school. The research followed an experimental approach using Quasi-Experimental Design. The population in this study consisted of two classes, with a total of 76 students in the first semester of Class XI IPA. A simple random sampling technique was used to select Class XI IPA 2 as the experimental group and Class XI IPA 1 as the control group. The critical thinking ability test in the form of an essay test, consisting of 10 questions, was used as the research instrument. The results of the data analysis showed that the average post-test score for the experimental group was 83.59, while the control group's average post-test score was 50.08. Based on the statistical analysis using the t-test formula with a 5% confidence level, the calculated t-value was 15.7. When compared with the t-table value of 1.404, it was found that t-value of 15.7 > t-table value of 1.404. Therefore, the conclusion drawn from this study was that there is a significant impact of using the Jigsaw Type Cooperative Learning Model on the Critical Thinking Ability of Class XI Students at the mentioned high school

Keywords: Jigsaw, critical thinking skills, biologi

INTRODUCTION

Education is a process of building national civilization. Education must be directed at the concept of change, the growth, and development of the nation's children to become good individuals who respect each other and have skilled emotional maturity/have life skills, and culture (Supardie and Darmawan, 2012: 1) . Education must touch the potential of conscience and the potential competence of students. The concept of education is increasingly important when someone has to enter life in society and the world of work because the person concerned must be able to apply what is learned at school to deal with problems faced in daily life today and in the future (Trianto, 2009: 1).

The experiences that previous students or their social environment has owned are not used as learning material in class, so it places students as passive learning participants (Martanto et al, 2009: 10).

Correspondence address: Jl. TGKH. M. Zainuddin Abdul Madijd 132 Pancor Lombok Timur , Indonesia
email: wawanmuliawan2019@gmail.com

Received: December 20, 2022 Accepted: January 12, 2023 Online Published: February 27, 2023

In other words, the lack of careful selection of teaching strategies will be fatal to the achievement of the teaching objectives themselves (Widja, 1989:13)

Efforts are made to fulfill the mandate of the law to achieve national goals in general, as well as school education goals in particular. They are urged by the increasing importance of the need for quality human resources, it is necessary to develop critical thinking skills through learning as a form of applying the concept of thinking that must be able to respond to global and local demands. According to Nur (in Deswati et al, 2012: 2), cooperative learning can activate students and stimulate student interest in learning. Based on several studies in the field of education, it was reported that the application of cooperative learning models could motivate and involve students in the teaching and learning process to improve learning outcomes (Tsay. M and Brady. M, 2010: 85). Students can study in groups with their friends by respecting each other's opinions and providing opportunities for others to express their ideas by conveying their opinions in groups so that students will have high motivation because there is encouragement and support from their friends (Ria, 2012: 4).

The 2013 curriculum was developed by improving mindsets, including: strengthening learner-centered learning patterns, individual and group learning patterns, and critical learning patterns. One of the main goals of going to school is to improve students' ability to think critically and make rational decisions about what to do or believe.

Improving the quality of education must be carried out continuously and continuously. Factors that can determine the quality of education include the quality of learning and student character, including talents, interests, and abilities. The quality of knowledge can be seen from the interaction of students with learning resources and educators. Quality interactions are fun and can create learning experiences. To deal with the rapidly changing world is to form a culture of critical thinking in society. The top priority of an education system is educating students on how to learn and think critically.

Critical thinking is one of the future competencies needed by students. In general, critical thinking combines intellectual abilities and thinking skills to analyze and solve problems so that you can ultimately draw conclusions from a problem. The ability to think critically will provide more precise direction in thinking, and working,

and help more accurately determine the relationship between something and another. Therefore, thinking critically is needed in solving problems or finding solutions. Data is needed to make logical decisions to solve a problem, and good critical thinking skills are needed to make the right decision. (Amri, et al. 2010: 62).

Based on the results of observations and interviews conducted with Biology teachers, teachers still apply the conventional method in delivering learning materials, namely the lecture method. This method tends to provide unidirectional and passive information because learning is teacher-centered, where the role of the teacher is much more in the teaching and learning proces,s so student participation in learning activities still needs to be improved. Learning like this causes students to be inactive, such as the behavior of students who are less confident in asking questions, and expressing, opinions/ideas/ideas so that students have not been able to develop critical thinking skills in finding alternative solutions to solving problems related to real everyday life.

Conventional learning, namely the lecture method used by the teacher, causes students to be less interested in studying biology subjects, besides that students are passive in participating in learning activities which has an impact on the value of student learning outcomes which are still relatively low, the average student score is 70%, the This is still below the KKM set by the school, which is 80%.

Based on this, then through applying the jigsaw learning model, as expressed by Lie (Rusman, 2014: 218), "cooperative learning of the jigsaw model is a cooperative learning model using students learning in small groups in a heterogeneous manner and students working together interdependently. Positive and responsible independently. In this jigsaw model, students have many opportunities to express opinions and process the information obtained, which can improve communication skills and student memory. Jigsaw-type cooperative learning is a learning that leads to students' critical thinking skills. Setiawan (Almukarram et al., 2016: 9) said that the more often a person is faced with something that requires him to think, the more his thinking ability will develop and increase. Critical thinking skills train students to make decisions from various perspectives carefully and be able to express their own opinions. In the previous study the learning process was in the classroom, and students were less active because the teacher was still using conventional learning models.

METHOD

The type of research used in this study is an experiment. Experiments can be interpreted as research methods used to find the effect of certain treatments on others under controlled conditions. This study uses Quasi-Experimental. This type of research has a control group but cannot fully function to control external variables that affect the implementation of the experiment. Quasi-experimental design is used because it is difficult to get a control group used in research (Sugiyono, 2012: 116).

The form of design used in this research was using the Posttest-Only Control Design as research design because, in this study, the researcher wanted to know the significant effect between the experimental class using the Jigsaw cooperative learning model and the control class using the Jigsaw cooperative learning model. Conventional learning is seen from students' critical thinking skills through the results of the post-test (final score after treatment (Sugiyono, 2012: 114).

In this study, the population was all eleven students of the Natural Sciences program in a private school in East Nusa Tenggara, a total of 76 students. The technique used in taking class sampling is a simple random sampling, which consists of class XI IPA 2 as an experimental class and class XI IPA 1 as a control class.

The instrument used in this study was an essay test or essay in the form of a student's critical thinking ability test, which was compiled based on five indicators essential thinking ability, including: giving simple explanations, building basic skills, inference (concluding), providing further reasons, and developing strategies and tactics on the subject of biodiversity. The essay test given after treatment totaled ten questions.

The technique used in determining the sample in this study is a simple random sampling technique, and the instrument used is an essay test. This essay is loaded in indicators of critical thinking. This test is used to assess the extent to which the success of the Jigsaw cooperative learning model can improve students' critical thinking skills. Then the analysis technique using the t-test formula (t-test). The t-test formula uses the Polled Variance t-test formula.

RESULTS AND DISCUSSION

The results of data analysis revealed that there was an effect of applying the Jigsaw cooperative learning model to students' critical thinking skills. This was known from the experimental and control

classes, where the experimental class was students who were given treatment using the Jigsaw type learning model, while the control class used the lecture method. This can be seen from the difference in the results of the final test given to students, where the experimental class has a higher average score (83.59) than the control class's average score (50.08). The results of the average post-test scores of students' critical thinking skills for each indicator for the experimental and control classes are as follows; indicators provide simple explanations (84.38) : (72.65), build basic skills (87.84) : (77.78), inference (conclude) (84.68) : (76.07), provide more explanation continue (70.72) : (61.97), and develop strategies and tactics (79.28) : (71.37). For more details can be seen in Table 1.The difference in the post-test average scores for each indicator of students' science process skills in the experimental and control classes can also be seen in Figure 1 a and b

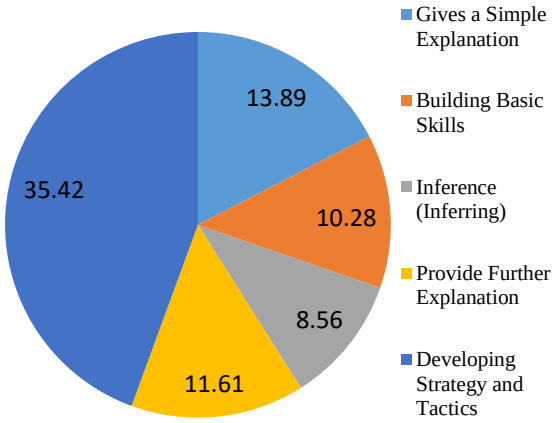
The results of data analysis on hypothesis testing also show an influence of the Jigsaw cooperative learning model on the critical thinking skills of class XI MA Mu'allimin students. After being analyzed with the t-test, the t_count value is 15.7. Then to find the value of t_table, namely dk = n1+n2-2 = 37+39-2= 74 at a significant level of 5%, the value of t_table is 1.404. This shows that tcount > ttable (15.7> 1.404). So the result of testing the hypothesis is significant thus Ha is accepted, and Ho is rejected. So it can be concluded that there is an effect of applying the Jigsaw cooperative learning model to the critical thinking skills of students .

Table 1. The average value of each critical thinking ability indicator

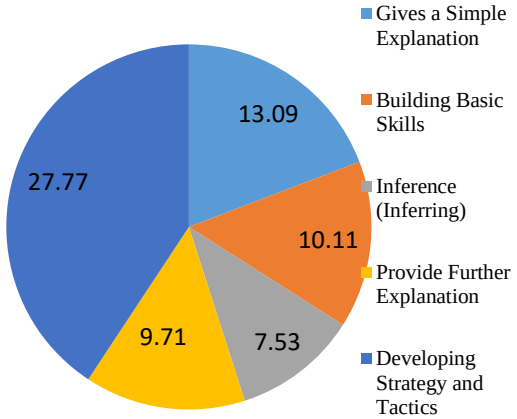
Indicator	Average Value of Each Indicator	
	Exper- iment Class	Control
It gives a Simple Explanation	13.89	13.09
Building Basic Skills	10.28	10.11
Inference (In¬ferring)	8.56	7.53
Provide Fur-ther Explana¬tion	11.61	9.71
Developing Strategy and Tactics	35.42	27.77

The data analysis results show that students' critical thinking skills after being applied to learning with the Jigsaw cooperative learning model have a higher effect on student’s necessary thinking skills than the lecture method learning method. This is because students listen well and actively find their information

about the learning material provided to understand and remember it more quickly. This causes most students to be able to answer questions correctly and develop ideas in providing solutions to a given problem. According to Lie (2004:28), cooperative learning methods differ from group learning.



(a)



(b)

Figure 1. Average value of students' critical thinking per-indicator (a) in experiment class (b) control class

Learning with the Jigsaw cooperative model allows students to maximize their learning activities. Applying this learning model will train students to have the courage to express opinions, work together, develop themselves, and be individually responsible, have positive interdependence, personal interaction and group processes (Budiawan and Arsani, 2013: 140). In this learning the teacher must be able to create learning that involves students actively in teaching and learning activities that occur both physically and mentally. Learning that occurs collaboratively and in groups can create interactions between teachers, students and the material being studied. According to (Kristanti, 2010:5). one of which affects student learning outcomes is student achievement motivation. This creates a conducive classroom atmosphere, and provides opportunities for each student to express ideas or opinions, exchange information through their communication when discussing. The liveliness created by students who are more active in collaborative discussions can motivate students to increase their maximum critical thinking skills.

CONCLUSION

Based on the discussion results, it can be concluded that Jigsaw is defined as

a type of cooperative learning strategy that places students in small groups to investigate a topic. The Jigsaw Cooperative learning model influences the critical thinking skills of MA Mu'allimin students. So this Jigsaw cooperative model is recommended to be applied in other schools to develop students' critical thinking skills.

REFERENCES

Agustina, Ria. (2012). *Wanita Kesepian Rentan menjadi Pecandu Belanja*. Diunduh pada 10 November 2014 http://www.klikunic.com/2012/05/awas-wanita-kesepian-rentan menjadi.html#ixzz1zX9MpWES

Almukarram, M. Ali S dan Evi Apriana (2016). Penerapan Model Pembelajaran Kooperatif Tipe Jigsaw Terhadap Peningkatan Kemampuan Berpikir Kritis Pada Konsep Pencemaran Lingkungan Di SMA Negeri 12 Banda Aceh. *Jurnal Biotik. 4*(1).

Anita, Lie. 2004. *Cooperative Learning: Mempraktekkan Cooperative Learning di Ruang-Ruang Kelas*. Jakarta: PT. Gransindo.

Amri, Sofan dan Ahmadi, Khoiru, Iif, dkk. (2010). *Proses Pembelajaran Inovatif dan Kreatif dalam Kelas*. Jakarta: Prestasi Pustakarya.

Budiawan, Made dan Niluh Kadek Alih Arsani. (2013). Pengaruh Model Pembelajaran Kooperatif Tipe Jigsaw Dan Motivasi Belajar Terhadap Prestasi Belajar Ilmu Fisiologi Olahraga. *Jurnal Pendidikan Indonesia, 2*(1): 138.

Kristanti, Erva Elli. (2010). Pengaruh Aromaterapi Lavender terhadap Penurunan Derajat Kecemasan pada Lansia di Panti Wredha St. Yoseph Kediri. *Jurnal STIKES Baptis Kediri.*

Lie A. (2010). *Cooperative Learning*. Jakarta: Penerbit Grasindo.

Martanto, SD, dkk. (2009). *Pembelajaran Sejarah Berbasis Realitas Sosial*.

Nur, A. (2006). *Model Pembelajaran Kooperatif*. Jakarta: Departemen Pendidikan Nasional Direktorat Jendral Pendidikan Tinggi.

Rusman. (2014). *Model-model Pembelajaran.* Jakarta: PT. Rajagrafindo Persada

Sugiyono. (2014). *Statistik Untuk Penelitian.* Bandung: Alfabeta

Supriadie, Didi dan Deni Dermawan. (2012). *Komunkasi Pembelajaran.* Bandung: PT Remaja Rosdakarya

Trianto. (2009). *Mendesain Model Pembelajaran Inovatif-Progresif*. Jakarta: Kencana Prenada Media Group

Tsay, M. and Brady, M. (2010). A Case Study of Cooperative and Communication Pedagogy: Does Working in Teams Make A Difference? *Journal of The Scholarship of Teaching and Learning, 10,*(2): 78-89.

Widja, I Gde. (1989). *Dasar – Dasar Pengembangan Strategi Serta Metode Pengajaran Sejarah*. Jakarta : Debdikbud

Yamin, Martinis. (2013). *Strategi & Metode dalam Model Pembelajaran*. Jakarta: GP Press Group Takdir Ilahi.