

Implementation of Cooperative Learning Model Jigsaw to Improve Student Learning Outcome

Elpisah¹, Rego Devila², Hartini³

*Department of Economics Education STKIP Pembangunan Indonesia, Makassar
South Sulawesi, Indonesia
Corresponding Author: Elpisah*

Abstract: *Jigsaw learning as a cooperative learning method by economic learning improve academic skills and students result learning. This research aims: 1) to know the implementation of Jigsaw Technique as a learning economic methodology, 2) to know the effectiveness learning of Jigsaw technique by improve of student learning result on the concept of economic learning. The research subject is the students class VIII that consists of 20 students in Junior High School, Maros District, South Sulawesi, Indonesia. This research is a qualitative research where the type is Classroom Action Research. This research is conducted in dua cycles. The results of this classroom action research show the students activity showed there has been an improve in the students' learning activities in value avarage Cycle I at 57,5% and Cycle II improve by 85,5%. Based the results research that result learning students improve through the use of cooperative learning model of Jigsaw.*

Keyword: *Jigsaw Learning Models, learning outcomes*

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I. Introduction

Rapid development in the field of technology and information today is not separated in relation to education. Education is an indispensable thing for the individual, when and wherever he is (Oemar, 2011) which becomes one of the indicators that determine the welfare of one's life and will progress if the ability to think logically developed (Simanjuntak et al. 2018) to make an appropriate result with the aim that has been established (Purwanto, 2014). Education institutions have a key role in training a knowledgeable and skillful generation, and their effectiveness depends greatly on the methods of education they choose to teach their students. The lecture method of teaching is focused on hearing as the means of learning and can only be effective by 13% (Ahadian, 2007). Furthermore, Kagan (1994) contended that one of the highest goals of education is to provide students with the experience that will allow them to structure their own future social and physical environments in positive ways, including their own continuing education. According to Resnawita et al. (2018) the development of the education sector is one of the priorities in national development in Indonesia that national education has a very important function and purpose, as stated in the law of the Republic of Indonesia No, 20 of 2003 on National Education System (Sisdiknas). To achieve the purpose of education, through this learning process undertaken by students is the key to the success of student learning. Learning is a conscious effort made by teachers and students to achieve the behavioral change that teachers expect (Abdurahmann 2010). Schools are faced with pressure to produce competent students in an era of standardized tests, which has raised many questions about what is the best way to teach social studies (Soares & Wood, 2010) it dependent on the performance of HR members (Hartini & Aslindawati, 2013).

Human have role important in organization's success (Hartini et al. 2018). Similarly geachers have an important role in selecting and applying appropriate learning strategies in the implementation of classroom learning. The ability of teachers in choosing and using learning strategies has an impact on improving the success of learning (Ritonga, 2017; Slameto, 2010). Teachers in the cooperative learning group had positive attitudes towards their learning since it enabled them to be academically, socially and psychologically more successful than they would otherwise have been. A good teaching method exposes the learners to challenging situations and provides them with opportunities for interaction, consultation, cooperation, discussion, and debate with themselves and their teacher so that they can develop their power of thinking and participation (Gulpinar & Yegen, 2005). A teacher has an essential role in the teaching and learning process effective and beneficial for the psychological condition of the students (Rachmah, 2017).

Sardiman (2011) argue that learning strategies used by teachers are plans to achieve learning objectives and help students achieve their learning objectives. By choosing the right learning strategy can influence and determine the student's own learning outcomes One of the developed methods is cooperative learning is described as a method where students work together in small mixed groups and help each other for a common

academic aim, develop communication abilities, increase problem solving and critical thinking abilities and take an active part in their own learning process (Prince, 2004). Cooperative learning leads to positive outcomes such as higher achievement, more positive attitudes toward the subject, higher self-esteem, greater acceptance of differences among peers, greater persistence and retention (Cohen, 1988; Slavin, 2011) a greater understanding of the material is obtained. Elaborative thinking is promoted because students give and receive explanations more often (Johnson et al., 1986). However, this techniques in the social studies classroom are not used as frequently as other disciplines use cooperative learning strategies (Yamarik, 2007).

Cooperative learning is a methodology that employs a variety of learning activities to improve students' understanding of a subject by using a structured approach, which involves a series of steps, requiring students to create, analyze and apply concepts (Kagan, 1990; Shabani, 2014; Eilks, 2005; Baharuddin & Wahyuni, 2015; Kagan, 1994; Johnson et al. 1989). One alternative teaching method to teaching is jigsaw grouping, a kind of cooperative learning method. This approach has been claimed to promote more positive student attitudes toward their own learning, enhance more positive relationships between participants develop self-esteem and cohesiveness, and improve learning skills (Johnson & Johnson, 2005). In cooperative learning, the students maximize both their and other student's learning (McHale, 2002) by creating an environment for the students to work together by dividing them into small groups by goal they solve the problems all together, everybody in the group have the right to talk, and they use the time well (Erdem, 2009).

In education, jigsaw is a teaching technique invented by social Psychologist Elliot Aronson in 1971. Students of an average sized class (26 to 33 students) are divided into competency groups of four to six students to research (Adams, 2013). Jigsaw learning as a cooperative learning method, according to the results of some studies, can improve academic skills, social competence, behavior in learning, and motivation to learn (Rachmah, 2017) maintaining a group work skill, skills towards emotions, coping with aggressive coping with stress skills (McHale, 2002) the interest of working with their colleagues, learnt from each other and hence learnt better (Adams, 2013; Tran & Lewis, 2012). Futhermore, (Siltala (2010); Jayaram, 2013) argue that in Jigsaw technique, students are members of two groups, i.e home group and expert group. In the heterogeneous home group, students are each assigned a different topic. After that students leave the home group and group with the other students with their assigned topic. In the new group (expert group), students learn the material together before returning to their home group. Once back in their home group, each student is responsible for teaching his assigned topic. The students believed that the jigsaw method is an innovative teaching and learning activity and were generally satisfied with the process and the execution, participation was a valuable experience which enabled them to share knowledge with other classmates and gain a better understanding of the subject (Yu, 2017) the creation of an atmosphere of interaction and cooperation between the students and teachers, and the near elimination of fatigue from classrooms (Shahri et al. 2017).

Jigsaw's cooperative learning model does not automatically make the group members become experts or master the material given to them but is slowly trained to be responsible to his friends. This task can motivate a student to be more serious in learning and respecting others, develop his logic of thinking because he has to design his own how the material he understands is shared with a group of friends in a coherent, correct and easily understood group of friends (Simanjuntak et al. 2018). It not only enhances the motivation and performance of students, develops their social skills for group work (Kam-wing, 2004). Thus, in order to attain personal goal (reward) students must encourage group members to help one another with a group task (Slavin, 1990). Positive interdependence is the belief that students are linked together with other students in such a way that one cannot succeed unless the group members also succeed (Hendrix, 1999). Some students like to cooperate with their peers (Gardner, 1999). The institutional education in Indonesia has undertaken various strategies to enhance students' achievement. However, the quality of students' achievement is still insufficient. The government also insists that teachers should improve their competences so that they can solve teaching-learning problems in their classrooms (Basyah et al. 2017). Uno (2016) states the visible learning outcomes of students acquired abilities. Learning is done to seek behavioural change in the learning individual. Behaviour change is the result of learning. Learning process and student learning outcomes are generally influenced by two factors. First, internal factors derived from the students themselves both physiological and psychological such as physical conditions, senses, talents, interests, intelligence, motivation and cognitive abilities, comes from outside the students. Second, external factors both environmentally and instrumental such as nature, social, curriculum, teacher, facilities and facilities and school management concerned (Purwanto, 1998).

According to Adams (2013) there can be some obstacles when using the jigsaw technique. *First*, a dominant student. In order to reduce this problem, each jigsaw group has an appointed leader. Dominance is eventually reduced because students realize it is not in the best interest of the group. *Second*, a slow student in the group. It is important that each member presents the best possible report to the group. In order to reduce this problem, the jigsaw technique relies on "expert" groups. Students work with other individuals from other groups working on the same segment of the report. In this "expert" group they are given a chance to discuss their reports and gather suggestions from other students to modify their reports as needed. *Thirth*, that of bright

students becoming bored. There is less boredom of bright students in the jigsaw classroom than in the traditional classroom. Bright students should be encouraged to develop the mindset of a teacher. A goal of a jigsaw classroom is to decrease competition and increase cooperation and so competitive students can create difficulties.

The Curriculum and Assessment Policy Statement (CAPS) Economics curriculum establishes that it is important that learners learn how to gather relevant information and to transform this information into marketable knowledge. Economics education focuses on the teaching and learning of Economics as a subject. It encompasses the content to be taught (what), the methods of teaching (how), the evaluation of those methods (why), and information of general interest in teachers of Economics from elementary to graduate school level (Van Wyk, 2012). The subject of economics education is one of the compulsory subjects that are included in the National Curriculum of the Indonesian education system. Various kinds of policies and decisions have been made by the Education Department to improve students' achievement in their study of economics (Basyah et al. 2017).

Some research on the influence of cooperative jigsaw learning and the importance of learning strategies in the implementation of learning by teachers in the class. Such as Ritonga et al. (2017) the found that implementation of jigsaw learning strategy considers that students are individuals who have the ability and limitations, for that in learning students need to be organized in such a way that between one another fill each other and together they have the same knowledge and skills. This is in accordance with the learning objectives that the purpose of learning activities in the classroom is to achieve the learning objectives of students together. Therefore, (Adams, 2013; Tran & Lewis, 2012) found that Jigsaw learning as a cooperative learning method, can improve academic skills, social competence, behavior in learning, the interest of working with their colleagues, learnt from each other and hence learnt better. In other hand, (Hadi et al. 2018; Resnawita et al. 2018; Hidayah et al. 2016; Cagatay & Demircioglu, 2013); Basyah et al. 2017; Yu, 2017) the finding result that implementation of jigsaw models can improve student learning outcomes by the increase in the average value of students and the completeness of classical learning at the end of implementation. However, Renol HS et al. (2017) found that the economic learning using problem-based learning model with prezi aid obtains learning outcome better than that using jigsaw type of cooperative learning model with prezi aid. It may be due to such factors as: problem based learning that can invite the students to be more active during learning process. Based on research gap pervious, the researcher tries to implement cooperative learning Jigsaw with subjects economic for this study students Junior High School in Manrimisi Lompo, Indonesia

Various learning models have been used by teachers to improve student learning outcome in economics include lecturing, individual and group presentation, as well as discussion in pairs, small groups. However, the Jigsaw model is rarely used by teachers of economics at school. Therefore, the researcher tries to implement cooperative learning Jigsaw to achieve the learning objectives which prioritizes cooperation among students through cooperation activities in groups which providing opportunities for students to further develop their abilities. These research aims are: 1) To know the implementation of Jigsaw Technique as a learning economic methodology, 2) To know the effectiveness learning of Jigsaw technique by improve of student learning result on the concept of economic learning in class VIII SMPN 30 Manrimisi Lompo, Maros District, South Sulawesi on the subject of economic.

II. Research Method

Research Design

This research is a qualitative research where the type is Classroom Action Research. According to Kemmis and Mc. Taggart (1982) classroom action research is a study that solution-oriented is group or personally owned and conducted. It is characterized by spiraling cycles of problem identification, systematic data collection, reflection, analysis, data-driven action taken, and finally problem redefinition. Researchers to plan actions, carry out actions, collect data, analyze and process data, conclude and report on research results. The presented study was conducted at Junior High School in Maros, South Sulawesi, Indonesia. The research design used One group pretest – posttest method was used. This study chosen samples for the Pretest is student class VIII Junior High School were given the questionnaire to assess the knowledge on the concepts of economic learning.

Research Objectives

1. To know the implementation of Jigsaw Technique as a learning economic methodology
2. To know the effectiveness learning of Jigsaw technique by improve of student learning result on the concept of economic learning.

Sample

Subjects for this study were 20 students in class VIII SMPN 30 Satap Manrimisi Lompo, Maros District, South Sulawesi, Indonesia. The sum of the students is 20 students that consist of 8 male students and 12 female students. while the object of research is the activities of class VIII in students studying Economic SMPN SMPN 30 Satap Manrimisi Lompo.

Prosedure

Based on these activities, classroom action research which involves a few steps. Stages of classroom action research are carried out in 2 cycles, Steps by steps are:

1. Planning This stage of the process is observation, discussion and interviews with teachers and students, preparing lesson plans, preparing tools and materials for learning models, preparing research instruments such as pre-test and post-test questions, observation sheets, questionnaires and notes.
2. Implementation stage. During the teaching learning process, the researcher observed the students' activities by an explanation of learning materials, learning objectives, the syntax of learning model, forming groups, implementation of learning models, post-test. In this activity, group on which jigsaw method was implemented, and rules was done by the teacher. Four basic groups each of which consisted of five people was formed. A presentation about economic learning they would be responsible.
3. Observation stage (observation) during the model implementation process takes place. observation was done to both the researcher and an observer during the teaching learning process by observing the whole activities in the class and filling the observation format. The indicator was if the researcher and students got minimum 70% from the result of the observation form.
4. Reflection stage. This stage was done to see the weaknesses and the strengths in each cycle by checked the test and the class observation.

The study use the results of action cycle 1 as a consideration for the action on cycle 2, in the hope that the results of action cycle 2 can achieve the success criteria of action. the jigsaw model was conducted by the teachers during two weeks with the expectation that they were successful in doing the treatment. Researchers are assisted two teachers of economics participated and 1 (one) peer researcher. Tthis study involved the teachers of economics to conduct the experiment was to avoid the subjectivity of research results.

Data Analysis

In this learning product, the researcher used needs and wants concept of the economic man by asking the students to mentioned some needs man and find the meaning make by the group of students to collect the data. There was the indicator used to analyze the data gained from the test: If at least 70% of students' values can reach 60 or more for the test.

In this learning process, the observation was done to know the students' activity based on the problems faced by the students by observing the whole activities in the class and by filling the observation sheets. The indicator that was used to analyze the learning was: If 70% or more of students were actively involved in teaching it means the target is fulfilled. If more than 70% of students are actively involved in teaching and learning activities, it can be categorized as a good level. In this activities, aspects that reflect the learning activities of economic, such as:

1. Students read the material economic
2. Participate in group discussions.
3. Ask about material that is not yet understood.
4. Answering a question the teacher or a friend.
5. Students working on a give taks (Natawijaya, 2005)

Data this study obtained from the rating scale shaped observation is quantitative data, that reflect the learning activities in accordance with subject economics prescribed will then be analyzed to determine the percentage of the students activities value. In this study, the performance indicators obtained from documentation, observation, and the test results with the value achievement (KKM) was 70%. The indicator of this research is there were improving activity of students by subject economics which can be seen from the previous learning before implemented cooperative learning in the form of Jigsaw. Activities that reflect the learning activities of economics, including: 1). Students read the material economics, 2). Participate in group discussions, 3). Answering a question the teacher or a friend, 4). Students working on a give taks.

III. Research Result and Discussion

This research was conducted in SMPN 30 Satap Manrimisi Lompo, Maros District, South Sulawesi, Indonesia. Application of in students activities the economic learning cycle I and cycle II aims to improve activities. The results obtained during the students activities in economics learning by cooperative jigsaw learning models in the first cycle and second cycle are as follows: Firstly, the teacher still found some problems

and weaknesses in the cycle I, but it can be corrected in the cycle II. Observation result of student activities that have been implemented shown in the following table 1:

Table 1. Student Learning Activities Process in Process Learning Class VIII SMPN 30 Satap Manrimisi Lompo on Cycle I and Cycle II

Aspects of the Observed	Cycle I		Percentage	Cycle II		Percentage
	Meeting 1	Meeting 2		Meeting 1	Meeting 2	
Students read the material economic	45	65	55	80	95	87,5
Students participate in group discussions	40	70	55	85	90	87,5
Students ask about material that is not yet understood	55	60	57,5	75	95	85
Students answering a question the teacher or a friend	50	55	62,5	70	85	77,5
Students working on a give taks	35	80	57,5	85	95	90
Total			57,5	Total		85,5

Sources: Primary data were processed

Base on the Table 1 shows that every indicator of students' activity gets increased in a significant percentage of the cycle, cycle I, cycle II. Value percentage is calculated from the number of students entering category sometimes and often do indicators of activeness. Students who read material economic on cycle I meeting 1 and meeting 2 improve by 45% to 65%. Students who participated in the group discussion Cycle I meeting 1 by 40% and improve 70% meeting 2. Students were asked about the material that have not understood on Cycle I of meeting 1 and meeting 2 improve by 55% to 60% with value avarage 85%. Students who answering a question the teacher or a friend Cycle I meeting 1 for 50% and improve 55% on Meeting 2. Students working on a give taks cycle I meeting 1 and meeting 2 improve by 35% to 80%.

While activities in cycle II. Students who read material economic on cycle ii meeting 1 and meeting 2 improve by 80% to 95%. Students who participated in the group discussion Cycle ii meeting 1 by 85% and improve 90% meeting 2. Students were asked about the material that have not understood on Cycle II of meeting 1 and meeting 2 improve by 75% to 60% with value avarage 95%. Students who answering a question the teacher or a friend Cycle II meeting 1 for 70% and improve 85% on Meeting 2. Students working on a give taks cycle II meeting 1 and meeting 2 improve by 85% to 95%.

Students activities in the second cycle was higher than in the first cycle, the second cycle of students activities improve, such as acitivities read the material economic, participate in group discussions, ask about material that is not yet understood, answering a question the teacher or a friend and working on a give taks. From the results research obtained, that the data obtained from the results of observation showed there has been an improve in the students' learning activities in value avarage Cycle I at 57,5% and Cycle II improve by 85,5%. This finding supported by result resarch (Hadi et al. 2018; Resnawita et al. 2018; Hidayah et al. 2016; Cagatay & Demircioglu, 2013); Basyah et al. 2017; Yu, 2017) that implementation of jigsaw models can improve student learning outcomes by the increase in the average value of students. In the other hand Resnawita et al. (2018) finding that learning outcomes that of students with low learning interests taught by cooperative learning model Jigsaw type wa better than student learning outcomes that have low learning interest in classes taught by conventional approach. However, this findings also refute previous Renol HS et al. (2017) Renol HS et al. (2017) found that the economic learning using problem-based learning model with prezi aid obtains learning outcome better than that using jigsaw type of cooperative learning model with prezi aid.

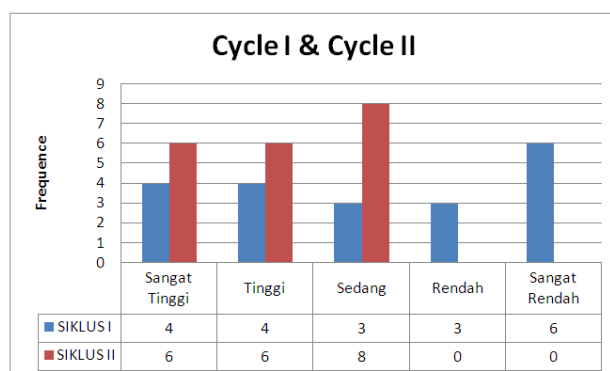


Figure1. Student Learning Outcome Class VIII SMPN 30 Satap Manrimisi Lompo Cycle I and Cycle II

From the results of the analysis in diagram 1, show the frequency distribution and percentage applying cooperative learning in learning process, jigsaw model of with economic learning outcomes has increased from cycle I to cycle II. Therefore, Jigsaw learning as a cooperative learning method by economic learning, according to the results of this studies, can improve academic skills, a group work skill, behavior in learning, the creation of an atmosphere of interaction and cooperation between the students and teachers, improve motivation to learn and students result learning. This finding supported by (McHale, 2002); Kam-wing, 2004; Slavin, 1990) that Jigsaw learning as a cooperative learning method can maintaining a group work skill, skills towards emotions, coping with aggressive coping with stress skills. Futhermore, This finding supported by (McHale, 2002); Kam-wing, 2004; Slavin, 1990) that Jigsaw learning as a cooperative learning method can maintaining a group work skill, skills towards emotions, coping with aggressive coping with stress skills, enhances the motivation and performance of students, develops their social skills for group work, encourage group members to help one another with a group task (Slavin, 1990). While, (Cohen, 1998; Slavin, 2011; Johnson et al., 1986) argue that cooperative learning leads to positive outcomes such as higher achievement, more positive attitudes toward the subject, higher self-esteem, greater acceptance of differences among peers, greater persistence and retention.

IV. Conclusion

Overall, this study outcome suggests that: *First*, through the Jigsaw model learning as a cooperative approach to learning goal is achieved simultaneously with development of other soft skills. The jigsaw technique can its enhancement of the learning outcome and the the students' interest in economic learning, the creation of an atmosphere of interaction and cooperation between the students and teachers, so as elimination of stress in classrooms. *Second*, the results learning in class VIII SMPN 30 Satap Manrimisi Lombo also showed that the students result learning was low before implementing of cooperative learning in the form of jigsaw on the cycle I, there are indicators of the activeness, there are only partially active students in the learning process and most of the students do not ever do them. However, after implementing of cooperative learning in the form of jigsaw in the classroom on the cycle II, the students activity it has increased in from each indicator in cycle which has been done. Thus, result of students learning are increased through implementing of cooperative learning in the form of jigsaw in two cycle which has been done. The findings and learning outcome by cooperative learning jigsaw model is recommended for teachers to teaching economic learning to students in the school. Teachers have a key role in selecting and the implementation of classroom learning appropriate by learning strategies. On the other hand, education an important role in developed the ability, knowledge and skillful for the individual to appropriate result with goals.

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