

Improving Students' Achievement of Social Science By Using Jigsaw Cooperative Learning Model at Primary School

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Abstract: *This study was aimed at determining the students' achievement of Social Science at the Fifth Grade of State Primary School Bukittinggi, West Sumatera. This study was based on the problem that the students did not reach the standard minimum criteria score which was determined 70. The classroom action research was used in this study by using Jigsaw Cooperative Learning Model. The finding showed that there was an increase on the teachers' teaching skills and students' achievement. The average score of teachers' teaching skills in the first cycle was 2.6, the second cycle was 2.8 and the third cycle was 3.4 with a very good category. The students' score was increased steadily from 67.9% (first cycle), to 75% (cycle II) and the final 92.5% (cycle III). This suggests that the use of Jigsaw Cooperative Learning Model improved students' achievement of Social Science.*

Keywords: *Jigsaw Cooperative Learning Model, Social Science, Primary Schools*

I. Introduction

The instruction of Social Science is one of the subjects for primary school students to prepare students on adapting the society. The students are directed, guided and assisted to become good Indonesian citizens and effective citizens of the world. Therefore the instruction of Social Science is designed to build and reflect the ability of students in social life which always evolves continuously. Based on the Social Science curriculum (Department of Education, 2006) it aims as follow.

- a. Teaching the basic concepts of sociology, geography, economics, history and citizenship through pedagogical and psychological approaches;
- b. Developing the ability to think critically and creatively, inquiry, problem solving, and social skills;
- c. Building commitment and awareness of social values and humanity; and
- d. Improving the ability to cooperate and compete in a pluralistic society, both nationally and globally.

The Social Science Educational Program on primary school includes four dimensions are as follows (Supardan, 2011): (1) dimensions of knowledge; (2) dimensions of skills; (3) dimensions of values and attitudes; and (4) dimensions of action. Dimensions of knowledge are related to (a) facts; (b) concept; and (c) generalization. The fact is specific data about events, objects, people, and things that happened. Concepts are words or phrases that are grouped, categorized, and give meaning to the facts related to groups. The concept refers to a thing or a collective element labeled. The dimension of skills includes researching skills, thinking, social participation, and communication. The dimensional of values and attitudes consists of the value of substantive and procedural values. Substantive value is a belief that has been held by a person and is generally the result of instruction, not just embed or convey the information. Procedural values need to be trained among other values of freedom, tolerance, honesty, and respect for truth and respect the opinions of others. Measures the dimension of action is an important dimension of social studies because actions enable students to become active learners.

Missing on achieving the instructional objectives of Social Science can be reviewed in the terms of teachers who did not master the materials, methods and media, which means that they use conventional model. This model should not be applied again on instruction. Nowadays the teacher should have the learning model that involves the active elements, innovative, creative, effective and fun. In this lesson the teacher simply designing, and instead students should more actively on instruction. In addition, students must be in a pleasant atmosphere and they do not feel bored in participating on the instructional process. Based on the fact that the researcher found from the instruction of Social Science at primary school Birugo Bukittinggi, the teachers did not use appropriate methods and instructional media. Teachers simply used the teacher center paradigm and then the students just sat listening. Therefore the teachers' creativity in selecting and applying the instructional model will determine the process and learning outcomes. It is based on the assumption that the accuracy of teachers in choosing instructional model will affect students' learning outcomes (Jarolimek, 2002).

The instructional model above takes place at the primary school Birugo Bukittinggi which affects to the students' less enthusiastic and the average score of Social Science was low. Based on these problems the main factors was from the teachers' difficulty on designing learning strategies. To overcome the problem of students' learning difficulties, the teacher should provide easier learning and use methods that can improve learning outcomes so that students can receive, understand, and actively in joining the class. To improve the quality of learning of Social Science, it demands the teachers' creativity in developing the instructional model that enable to engage students actively and creatively in the learning process.

Jigsaw cooperative learning model is the model of learning that can be developed in Social Science to improve students' activity in the classroom. Jigsaw cooperative learning model departs from the premise "getting better together" which emphasizes on providing wider learning opportunities and a conducive atmosphere for students to acquire and develop the knowledge, attitudes and values and social skills that are useful for social life. In the cooperative learning the students not only learn and accept what is presented by the teacher but also learn from other students and help other students learn.

The research objectives in this classroom action research were 1) to improve the learning outcomes and learning activities on Social Science; and 2) to improve the teachers' teaching skills through Jigsaw Cooperative Learning Model in the Social Science at Primary School.

Jigsaw is the most flexible cooperative methods (Slavin, 2005). Jigsaw learning model is one of the variations of the Collaborative Learning model where the process of learning of each member group contribute information, experience, ideas, attitudes, opinions, abilities, and skills they have, to jointly improve the mutual understanding of all members.

According to Johnson (1991) the Jigsaw Cooperative Learning is small group learning activities, students learn and work together both individual and group. In the jigsaw cooperative learning model, there are groups of origin and expert groups. The origin group consists of group of students holding students by ability, origin, and family backgrounds are diverse. The origin group is a combination of several experts. Expert groups consist of members of different origins were assigned to study and explore specific topics and complete the tasks related to the topic and then explain to the members of the original group. The relationship between the origin groups and expert groups are described as follow.

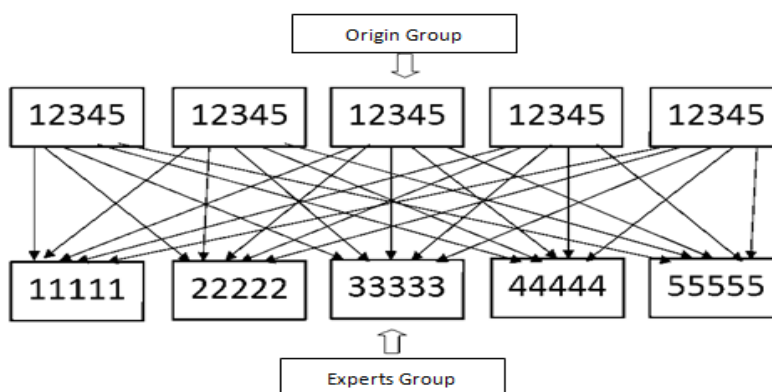


Figure: The Illustration of Jigsaw Group Model

The members of a group of different origins met with the same topic in the group of experts to discuss the material that is assigned to each member of the group and help each other to learn about their topic. When the discussion is finished, the members of the group then return to the origin group and teach their friend's group what they have earned during the meeting in the experts group. Jigsaw is designed not only to improve students' sense of responsibility independently but also charge positive interdependence (mutual giving out) to the friend's group. Furthermore, at the end of the lesson, students are given individual quiz that covers the topics that were discussed.

The key of Jigsaw is interdependent of each student to the team members who provide the necessary information with the aim to properly quiz. For the implementation of Jigsaw cooperative learning, it should structure key steps are (1) the division of tasks; (2) the provision of experts sheet; (3) discussions; and (4) held a quiz. The plan of Jigsaw cooperative learning is regulated instructional as follows (Slavin, 2005):

- Reading: students gain expert topics and read the material to obtain the information;
- Discussion of the expert group: students with the same topics meet experts to discuss the topic;
- Discussion groups: expert group back to his origin group to explain the topic;
- Quiz: students obtain individual quiz that covers all topics; and
- Awards groups: scoring group and determining the award groups.

The learning process with the cooperative model enables to stimulate and develop the students' potential optimally which consist of 4 to 6 students (Stahl, 2005). By the time the students learn in groups will develop an open learning environment together dimensions, collaborating in the personal relationship of mutual need. The atmosphere of learning is openness and democratic that will give an opportunity to students optimally to obtain information about material while training attitude and social skills as a provision in the social life (Slavin, 2005). According to Kristiawan (2013) cooperative learning model also has a contribution that can be given to the development of social skills of students, working with other students. This also helps students to develop their empathic abilities, and trying to find a solution to a problem in the group; also develops skills such as the need to accommodate the views of others. The students are also in trained how to work in groups and help each other and the students also get training about traditional group values.

In this model, the teachers are not only the sources but also acts as a facilitator, mediator and manager of instruction. At the time of learning it will grow and develop peer tutors learning patterns and learn cooperatively. In addition, cooperative learning model also fosters self-awareness and practice the skills of social values, responsibility, caring, openness, friendship and democratic spirit. Cooperation and solidarity are values that developed in this learning model, thus helping to foster social skills in everyday life.

There are some basic concepts that need to be considered and pursued by teachers in implementing cooperative learning in the classroom (Stahl, 2005). To develop learning teacher must pay attention to the basics of the conceptual model of cooperative learning are as below.

- a. Clarity formulation of learning goals
- b. Acceptance of students about the learning objectives
- c. the positive reliance
- d. Transparency in the learning interaction
- e. Individual responsibility
- f. Heterogeneous group
- g. The attitude and positive social behavior
- h. Debriefing (reflection and internalization)
- i. Satisfaction in learning.

The above concepts often appeared assumption that the implementation of cooperative learning model only has one basic concept is targeted. This assumption resulted effectiveness and productivity of these models are academically less. To implement this model teacher needs to understand how to develop learning design that allows whole basic concepts of this model are applied. Teachers need to develop the nice atmosphere to group learning and interpersonal relationships among group members. The main requirement that must be considered by teachers is how to manage students to work before starting the learning process by using cooperative learning model.

Structurally, according to Stahl (2005) the cooperative learning model has several characteristics that distinguish with other learning models, namely "(1) individual accountability; (2) social skills; (3) positive interdependence; (4) group processing and (5) face-to-face interaction". The process of cooperative learning model is based on the philosophical thought "getting better together" it means that to get something better in the study should be conducted jointly. To create togetherness in learning, teachers must design the learning program which has togetherness aspect and formulate teaching and learning activities in an active interaction not only in the classroom but also outside the classroom.

To streamline the implementation of cooperative learning model, the teacher must decide the number and size of groups of students (1) membership should be heterogeneous; (2) the material and working system will be applied to learning; (3) setting the room and the position of each group in the class; and (4) patterns and forms of evaluation tools that will be used to assess students.

Jigsaw Cooperative Learning Model was developed by Elliot Aronson and his colleagues from the University of Texas and later adapted by Slavin and his friends. Through Jigsaw, the class is divided into teams whose members consist of 5 or 6 students with heterogeneous characteristics. Academic material is presented to students in the form of text, and each student is responsible for studying a part of the academic material.

According to Aronson (2008) there are ten steps that are considered important with regard to the implementation of the jigsaw classroom technique 1) Students are divided into a 5 or 6 person jigsaw group. The group should be diverse in terms of ethnicity, gender, ability, and race; 2) One student should be appointed as the group leader. This person should initially be the most mature student in the group; 3) The day's lesson is divided into 5–6 segments (one for each member); 4) Each student is assigned one segment to learn. Each student should only have direct access to their own segment; 5) Students should be given time to read over their segment at least twice to become familiar with it. Students do not need to memorize it; 6) Temporary experts groups should be formed in which one student from each jigsaw group joins other students assigned to the same segment. Students in this expert group should be given time to discuss the main points of their segment and rehearse the presentation they are going to make to their jigsaw group; 7) Students come back to their jigsaw

group; 8) Students present their segment to the group. Other members are encouraged to ask question for clarification; 9) The teacher needs to float from group to group in order to observe the process. Intervene if any group is having trouble such as a member being dominating or disruptive. There will come a point that the group leader should handle this task. Teachers can whisper to the group leader as to how to intervene until the group leader can effectively do it themselves; and 10) A quiz on the material should be given at the end so students realize that the sessions are not just for fun and games, but that they really count.

Jigsaw cooperative learning model is an alternative that is expected to improve the quality of the Social Science learning process, mainly to train social skills and increase the ability to cooperate and compete in a pluralistic society, both nationally and globally. This model allows students to be actively involved in developing the knowledge, attitudes and skills that is open and democratic.

Application of Jigsaw cooperative learning model in teaching Social Science will produce some advantages and add value in the development of the potential of the student (1) increase the sense of responsibility of the individual; (2) grow the positive dependency; (3) allows open relationship; (4) allows the development of social skills; and (5) train students to live in society (Stahl, 2005).

Jigsaw cooperative learning model in teaching social studies focuses on several aspects are 1) the incorporation of the types of learning in groups, such as formal cooperative learning, informal cooperative learning, and cooperative learning base-on group; 2) the components of the basic in cooperation such a positive dependency, open direct interaction, individual abilities, social skills and group process; and 3) Growing routine cooperation atmosphere in the classroom, such as the implementation of cooperative learning in the learning activities.

Besides encouraging students towards the achievement, the implementation of Jigsaw is also growing enthusiasm of teachers in implementing the learning. The model fosters a dynamic learning environment, where students not only used solely learning objects but also as a tutor for other students (Slavin, 2005). This is because each member of the group has two basic responsibilities, namely (1) learn and understand the material; (2) help friend to grasp and understand as there is in him. The concept of peer tutoring is one of the characteristics of Jigsaw, which is when they learn collaboratively in an atmosphere of togetherness will grow positive interaction among students. In addition, students not only trying to understand the material but also required for optimal elicits the potential for success of the group.

One aspect to consider in implementing Jigsaw cooperative learning model is the teacher's role in designing the structure of the group that will be applied to the students. The structure of the group consists of 5 - 6 members must be heterogeneous such diversity of academic achievement, gender, ethnicity and so on. Recognition and understanding of the student and will determine the effectiveness and productivity of this model, both in the acquisition of learning and training process results in the development of students' social skills.

Based on the above conception, the implementation steps Jigsaw cooperative learning model in teaching social studies, can generally be described operations (Slavin, 2005) as below.

- 1) The first step is designing lesson plan. In this step the teacher consider and sets the learning targets to be achieved. In addition, teachers also establish attitudes and social skills that are expected to be developed and demonstrated by students during the lesson. Then the teacher forms a group of experts whose members are delegates from each of the original group. In designing the program, teachers must organize the material and assignments from each group of experts that reflects the system of small group work. It means that the material and the task is taught on expert groups and worked together in the dimensions of the working group of experts. To start the lesson, the teacher should explain the purpose and attitude as well as social skills are achieved and demonstrated the students. These needs are stated that the students understand what should be done during the learning process.
- 2) The second step, the teacher guides and directs each group of experts on particular themes so that when returning to the original group, students of the expert group could give an explanation on his friends in the original group. The teacher only explains the main points of the material so the students have sufficient insight and orientation of the material being taught. By the time the students learn in groups, teachers carry out monitoring and observing the students' learning activities based on observation sheets that have been designed previously
- 3) The third step, to observe the activities of students, teachers guide and direct the students either individually or in groups in terms of understanding the material as well as the attitude and behavior of students during learning activities. Giving praise and constructive criticism is an important aspect for teachers do when students work in groups. When students are involved in the discussions in each group, teachers periodically provide services to students either individually or in the classical
- 4) The fourth step, the teacher gives students time for each group to present their work. At the time of this class discussion the teachers act as moderator. In self-reflection, teachers still play a role as mediator and active moderator. That is, the development of ideas, suggestions and criticism of the learning process

should be pursued comes from students, then the teachers make improvements and guidance to new ideas, suggestions and criticism.

In Jigsaw cooperative learning model, the teacher must be able to link the environmental context of people's lives in an atmosphere of learning in the classroom so the students have a concept and feel the real atmosphere of the society. Thus, students are able to understand the reality of the public as early as possible which will be found later.

II. Research Design

This study was a classroom action research. Action research is a scrutiny of the learning activities in the form of an action which is deliberately raised and occurs in a class conducted jointly by teachers and peers (Arikunto, 2007). The draft of classroom action research consists of four stages (1) planning; (2) implementation; (3) observation; and (4) reflection. This study consisted of three cycles, in each cycle consisted of the stages of action research. The technique of data collection used in this study was observation, documentation, testing and field notes. The technique of data analysis used in this study was qualitative and quantitative.

III. Finding

This research was conducted in three cycles to see the skills of teachers using Jigsaw cooperative teaching and learning outcomes of the students. The result can be seen in Table 1.

Table 1

Number	Cycles	Average
1	Cycle 1	2,6
2.	Cycle 2	2,8
3.	Cycle 3	3,4

Based on Table 1 above it can be concluded that the average score of skills of teachers in the first cycle was 2.6 with good enough category, on the second cycle was 2.8 fallen into enough category and the third cycle was 3.4 with a very good category. This suggests that there was an increase in the skills of teachers that affect students' learning outcome, so the quality of learning of Social Science increases. Activity of students in the first cycle has mean = 17.55 (sufficient category), cycle II = 20.59 (good category), and the third cycle = 27.40. (very good category). It has been demonstrated that there was an increase affecting students' learning outcome, so that the quality of learning Social Science was increased as shown in Table 2.

Tabel 2

Number	Cycles	Average
1	Cycle 1	17,55
2.	Cycle 2	20,59
3.	Cycle 3	27,40

The following learning outcomes of students in the first cycle, second cycle, and third cycle is 1) average score successive start the cycle I, II and III were 71.07, 74.2 and 85.5. 2) the lowest score was 40, 45, and 60. 3) the highest score was 90, 100, and 100. 4) students who have not completed 9, 7, and 2 people. 5) students who completed were 18, 20, and 25. 6) Learning completeness percentage increased steadily from 67.9% (first cycle), being 74.07% (cycle II) and the final 92.5% (cycle III). The achievement of the results can be seen in Table 3.

Tabel 3

Number	Score	Cycle I	Cycle II	Cycle III
1	Average Score	72	74,5	85,5
2.	Lowest Score	40	45	60
3.	Highest Score	90	95	100
4.	Students did not pass	9	5	3
5.	Students passed	18	20	25
6.	Percentage Passing Score	67,9%	75%	92,5%

Based on the table above, in the first cycle it was obtained average scoring test by 72 with 67.9% completeness study. In the second cycle there was increased average score 74.5 with 75% completeness study. While the third cycle there was increased average score 85.5 with 92.5% completeness study. It showed at the third cycle 25 students completed the study scored ≥ 65 , and there was still 7.4% (2 students) who have not finished by the received score < 65 . For the third cycle, the highest score was 100 and the lowest was 43.

The average of students' activity in the first cycle was 17.55 with sufficient criteria, the average students' activity on the second cycle was 20.59 with good criteria, and the average activity of students in the third cycle was 27.40 with the criteria very well. The percentage of students' mastery learning also increased, in the first cycle reached 67.9%, in the second cycle has risen 75% and the third cycle reached 92.5%.

IV. Discussion

Based on the finding above, the use of Jigsaw Cooperative Learning Model improved students' achievement of Social Science. According to Benson (2003: 292) Implementing jigsaw strategy in the classroom makes it possible to focus on learners, and thereby the learning becomes "more interdependent than independent" and students' reluctance and anxiety to participate in the classroom activities is greatly reduced. Jigsaw makes it possible for the students to work together to complete the assignment on their own. Therefore, "each member of a team is responsible not only for learning what is taught but also for helping teammates learn, thus creating an atmosphere of achievement. Students work through the assignment until all group members successfully understand and complete it" (Cooperative Learning, Online 2008). Bafle (2008) states "when Jigsaw designed well, these tasks are challenging and engaging, and my students enjoy wrapping their minds around a problem. Since they are working in groups, no kids have to sink or swim on their own, they have the help of their peers".

Jigsaw is said to be able to increase students' learning since "a) it is less threatening for many students, b) it increases the amount of student participation in the classroom, c) it reduces the need for competitiveness and d) it reduces the teacher's dominance in the classroom" (Longman Dictionary, 1998). Consequently, jigsaw strategy can successfully reduce students' reluctance to participate in the classroom activities and help create an active learner-centered atmosphere. According to Mengduo and Xiaoling (2010) jigsaw technique is an effective way to promote student participation and enthusiasm as well as a useful technique for language learners to accomplish learning tasks in the classroom. Adhami and Marzban (2014) also found that jigsaw task is the most effective and interesting way that can be used and applied to teach reading ability in high school.

The finding of this research is supported by Gocer (2010), he found that cooperative learning and jigsaw technique were found to be more effective than conventional teaching methods. Adams (2013) also revealed that jigsaw is a very useful technique. Through the use of the technique, pupils naturally developed the interest of working with their colleagues and through that they learnt from each other and hence learnt better. They also cultivated good attitudes from each other.

Bridgerman (1981) demonstrated that children in the jigsaw classroom were better able to put themselves in other's shoe as compared to children in a traditional classroom. When compared to students in the traditional classroom, students in jigsaw classrooms showed a decrease in prejudice and stereotyping, an increase in liking of their group mates both in-group and out-group members, higher levels of self-esteem, performed better on standardized exams, greater liking of school, lower levels of absenteeism, and showed true integration in areas other than the classroom (Aronson,1990).

The use of jigsaw technique has not only benefits to the student but it has some problems as well. This view given by the respondents on the challenges in using jigsaw technique agrees with that of (Aronson, 2008). According to him, the dominant student is an obstacle to a successful Jigsaw activity. To reduce this each jigsaw group is given an appointed leader. Another obstacle in using the jigsaw technique in teaching is that of the slow student in the group as it is important that individuals with poor study skills do not present inferior reports to their group. In order to reduce this problem the technique relies on "experts" groups. Students work with other individuals from other groups working on the same segment of the report which affect the time making the time given limited.

V. Conclusion

- a. Jigsaw cooperative learning model can enhance the activity and instructional achievement of Social Science at fifth grade of primary school. The average of students' activity in the first cycle was 17.55 with sufficient criteria, the average of students' activity on the second cycle was 20.59 with good criteria, and the average activity of students in the third cycle was 27.40 with the criteria very well. The percentage of students' mastery learning also increased, in the first cycle reached 67.9%, in the second cycle has risen 75% and the third cycle reached 92.5%.
- b. Jigsaw cooperative learning model can encourage the active learning and creative as well as interactive and fun. In this model there were efforts to increase the excitement, motivation, and familiarity between teachers and students as well as students and other students.

VI. Suggestion

- a. To improve the quality of the instructional process of Social Science subjects in primary school, teachers are advised to apply the Jigsaw cooperative learning activities, so the students' achievement can be more effectively and efficiently.
- b. Teachers need to create an atmosphere of openness; democratic; and collaborative in the instruction of Social Science, so the understanding of knowledge, attitudes and social skills of students can develop optimally.
- c. It is necessary to build an active and interactive communication.

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