

Improving student collaboration skills: the influence of the STAD learning model

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Abstract- This study aims to see positive changes in skills in collaboration with students through the STAD learning model. Taking this theme is because students are still weak in collaboration in class so that it inhibits the transfer of information from the teacher or with other students. This study uses a posttest only control group design. Comparing two research classes at three meetings so that they will show the development of student collaboration skills. Data collection techniques were carried out by using a cooperation skill observation sheet. Data analysis using independent sample t-test. The results showed that there was a change in the skills of student collaboration from the first meeting to the third meeting. The test results of the independent sample t-test showed $0.001 < 0.005$, which means that there was a significant effect of the STAD learning model on student collaboration skills. Skills increase from the first meeting to the third meeting is 37%. So it can be said that STAD is able to change the skills of collaborating with students. This means that STAD is very effective in dealing with student problems related to difficulties in collaborating in class.

Index Terms- STAD, Collaboration skill

I. INTRODUCTION

Collaborative skills have a very important role for students because students who have these skills will have a positive impact on communication skills (Barneva, et al, 2017), increasing learning achievement in schools (Ronfelt, et al, 2015), making individuals stronger (Johnson, et al, 2010), and develop mutually beneficial social relations (Usman, 2018). So cooperation skills are a must for every student. When students have cooperative skills, students will be able to solve complex problems when compared to working alone (Barneva, et al, 2017). Collaborative skills can be formed if trained in daily life (Balmer, et al, 2016).

Efforts to form collaborative skills can be done through social studies learning. IPS education has an important goal in developing students' attitudes, knowledge and skills (Jarolimex, 1977). Social studies learning in the classroom always directs students to have these competencies. Through social studies learning, students will learn to live and work in small groups (Johnson, et al, 2010), mutual respect, respect, learn to control themselves, share information and experiences with others (Jarolimex, 1977). Through collaboration in social studies classes, students will have an effort to achieve common goals, positive interpersonal relationships, and psychological health (Johnson, et al, 2010).

The development of student collaboration skills in this study is based on 4 pillars of UNESCO's education, namely learning to know, learning to do, learning to be, learning to live together. Directing students to be able to collaborate in groups becomes a focus in skill development because students still show less cooperative skills at previous meetings. The effort to overcome the problem was experimented with the STAD learning model. STAD is a learning model that emphasizes the process Student Team Learning (Huda, 2013). The group learning process will direct students to work together because the important point of collaboration is organized involvement to solve a problem (Hinyard, et al, 2018).

In previous studies, it discussed the influence of STAD on social skills, especially student collaboration. Tiantong & Teemuangsai (2013), states that through the STAD model, students really enjoy working with moodle in achieving group achievements. In line with Tiantong, Bektiarso, Yuliyanti, Subiki, (2017) research which describes that social skills problems that exist in the classroom such as students do not want to collaborate and collaborate with group friends and tend to group only. So the model is STAD considered appropriate for improving social skills in the form of cooperation, tolerance, accepting diversity, and developing social skills (Arends, 2008). Through the learning model STAD students experience changes in skills. Students learn to understand the meaning of togetherness, collaborate and collaborate as shown by the achievements of the work division, and socialize with each other in groups that are able to change students in a better direction. The essence of the learning process itself according to Morgan is that there are permanent behavioral changes as a result of experience (Suprijono, 2017).

Slavin's view (1995) suggests two reasons for using the model STAD. First, some of the results of the study prove that the use of type cooperative learning STAD can improve student learning outcomes while increasing the ability of social relations, fostering an attitude of accepting shortcomings of self and others, and increasing self-esteem. Second, cooperative learning type STAD can realize students' needs in learning thinking, solving problems, and integrating knowledge with skills (Harahap, 2013).

STAD is a learning model that emphasizes the process Student Team Learning, which is learning based on the principle that students must be able to be responsible when learning together on their own learning or learning group members. The basic concept of the student learning team includes individual responsibility, group awards, and opportunities for equal success (Huda, 2013, p. 115). The success of applying the STAD model must be supported by the optimal role of the teacher. Through the role of a good teacher, it is expected that students can learn groups and work together to help learn from one member to another (Slavin, 2017).

II. THEORITICAL FRAMEWORK

2.1 Student Team Achievement Division (STAD)

STAD is one of cooperative learning model developed by Robert Slavin. STAD is considered the most simple and easily understood cooperative approach (Arends, 2008). STAD consists of 5 main components which include class presentations, teams, quizzes, individual progress scores and team / group award recognition (Slavin, 2005).

Material Presentation Stage. In the early stages of using the method STAD, the teacher starts by presenting indicators and providing motivation to students. The next step, the teacher performs apperception in order to remind students so that students connect between the material to be presented with the knowledge they already have. The next step, the teacher presents new academic information to students. Information presentation is led by the teacher and carried out through audiovisual displays.

Stage of Group Activities. In this second stage, the teacher has divided students into small groups of four or five people. The division is based on several things, namely 1) who are considered high, medium, and low achievers, 2) where possible, the team can consist of a mixture of race, culture, and gender. At this stage it means that cooperative learning, especially STAD teaches about meaning in social life or community.

The main function of group activities is to ensure that all group members have fully learned and the specific goal is to prepare group members to face individuals / quizzes with the best skills. At this stage, learning often involves discussing shared problems, comparing answers, and correcting any misunderstandings between group members. Every student receives worksheets and integrates in his group and works together, shares duties, and helps each other so that all members in the group are able to understand the material that has been delivered by the teacher. Then one worksheet is collected which is considered as the result of group performance. The teacher in this case acts as a facilitator and motivator of activities in each group.

Teams or groups are important aspects of type learning STAD. The most important thing is emphasized, making group members the best for their team. The team provides support group for members to get academic performance. At this time there is a relationship between groups, a sense of self-esteem, and acceptance of members of groups with different backgrounds. At this stage there is interaction in one group.

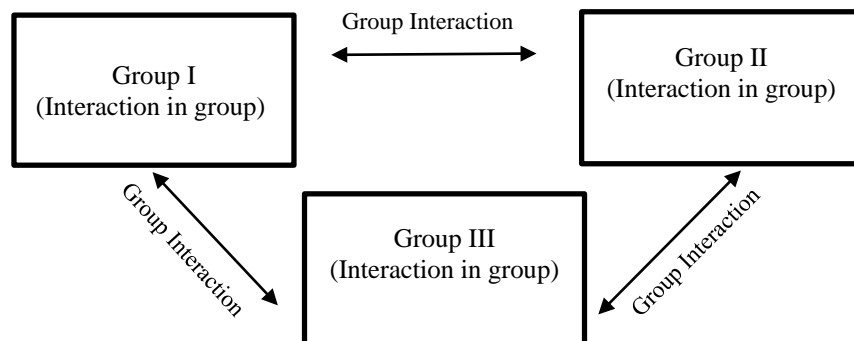


Figure 1
Interaction during the group activities

Stage Individual / Quiz Test. At this stage an individual test of learning outcomes is carried out with the aim to determine the extent of the learning success that has been achieved by students in understanding the material discussed earlier. Tests or quizzes can be carried out at the end of the second, third, or fourth meeting. In the quiz the work of students is thoroughly assessed about the material learned during group learning. Other members in one group are not allowed to help.

The stage of calculating the individual development score. Each student can contribute to giving maximum points through this stage. Each student will be given an initial score, which is obtained from the value of the evaluation or the final semester odd assessment. Based on these initial values, each student has the same opportunity to give a maximum score.

Table 1
 Guidelines for Giving Scores for Individual Learning Outcomes Development

Test	Score
Value more than 10 points below the initial score	5
Value of 10 to 1 point below the initial score	10
Initial score up to 10 points above	20
More than 10 points above the initial score	30
Perfect score (not based on initial score)	30

(Isjoni, 2013)

Stage of group awards. At this stage it is the team recognition stage that is giving awards to the three best groups. Awards refer to the value of the average score categorized in good groups, great groups, and super groups. The criteria used in awarding the group are 1) groups with an average score of 15 as a good group, 2) groups score an average of 20 as a great group, 3) groups score an average of 25 as a super group.

Table 2
 Group Assessment

Score	Predicate
15	Good
20	Great
25	Super

(Isjoni, 2013)

2.2 Collaborative Skills

Humans are social beings who in their life need each other. To achieve a common goal, people need to build cooperation so that the achievement of results is more effective. Collaborative skills (Cooperative skills) according to Johnson and Johnson (2009) are the ability of students to behave cooperatively with other people in the group in completing joint tasks. Collaborative skills are one of the important skills possessed by students. Anita Lie (2005), states that cooperation is a very important thing and is needed in human survival. If it is associated with the learning process in school, it can be said that without cooperation between students, the process of forming social relations skills both with peers and the school environment will not be formed.

Cooperation occurs between students with each other and is assisted by the teacher. According to Huda (2011), that when students work together to complete a group task, they provide encouragement, advice, and information to their group friends who need help. In the process the teacher as a facilitator directs students to work together to achieve common goals. Referring to this opinion, it can be seen that during the discussion process in the class, interactions occur in the form of cooperation to complete common goals. This process directs students in forming social skills.

III. METHOD

This research is an experimental research using posttest only control group design. The use of the design is based on several factors. First, the forwarding of posttest in both the experimental and control classes. Second, giving treatment to the experimental class and the control class. The treatment in the experimental class used the learning model STAD and the control class using the direct learning model. The design can be described as follows.

Group	Treatment	Posttest
R	X	O ₂
R		O ₄

Figure 2

Posttest Only Control Group Design

(Campbell & Stanley, 1968)

The sample in this study was 48 students in Al Fatich Junior High School Surabaya, East Java, Indonesia which were divided into 2 classes namely the experimental class and the control class. The data collection technique of collaboration skills is observation using a collaborative observation sheet instrument. Data analysis techniques using independent sample t-test.

IV. RESULT AND DISCUSSION

The step taken by the researcher before taking data in the research class is to test the validity of the research instrument. The observation sheet skill instrument shows an average of 3.35 with good or valid criteria. At the stage of research or field data collection,

research is going well. The implementation in the experimental class was 90.82% and in the control class 87.08%. The criteria for conducting research with these values can be said to be very good.

The results of observations of student collaboration skills in the class are divided into 3 meetings. At each meeting showed a significant increase in the experimental class when compared to the control class. The data, can be seen based on the following table.

Table 3
Average Results of Collaborative Skills

Class	Meeting 1	Meeting 2	Meetings 3	Percentage Increase
Experiments	2.90	3.08	3.23	37%
Control	2.71	2.83	2.87	16%

Data on the development of the collaboration shows changes in the experimental class and the control class. In the experimental class changes occur more significantly when compared to the control class. The increase in collaboration skills in the experimental class was 37% and in the control class an increase of 16%. At the first meeting, the value of cooperative skills showed a not significant difference. This means that at the first meeting, students only experienced small changes in collaboration skills. At the second meeting, the change in student collaboration skills grew but it did not show significant changes. At the third meeting, significant changes occurred in student collaboration skills

The increase in collaboration skills in research can be seen based on the following graph.

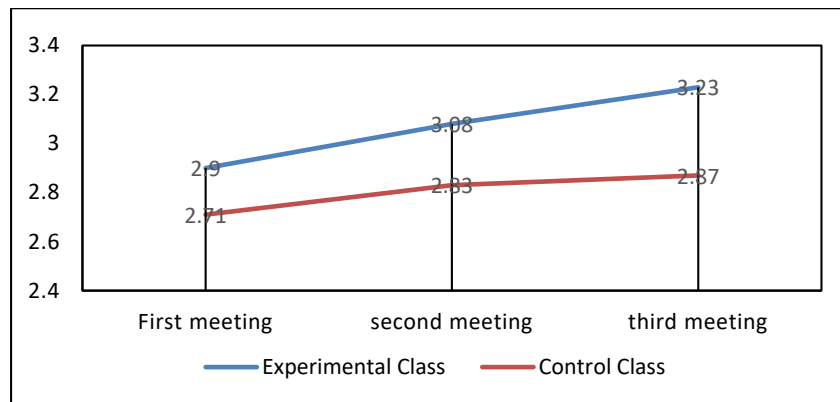


Figure 2
Graph of development of cooperation skills

In the picture, it shows that the increase in collaboration skills in the experimental class is higher and sustainable. Whereas in the control class, changes occur at the second meeting, and the third meeting tends to be lower. Both research data were then tested using an independent sample t-test to determine whether or not there were differences in skills produced from the model STAD and direct learning.

Before conducting the t test, the data must be normally distributed and homogeneous. Data normality testing using the Shapiro-Wilk test. The results of the normality test are as follows.

Table 4
Tests of Normality

	Group	Statistic	Shapiro-Wilk	
			df	Sig.
Collaboration	experiment	.913	20	.073
	control	.953	28	.237

a. Lilliefors Significance Correction

The results of the normality test show > 0.05 , which means that the data are normally distributed. The next step is to test the variance homogeneity. Test data for variance homogeneity as follows.

Table 5
Test of Homogeneity of Variances

Collaboration			
Levene Statistic	df1	df2	Sig.
.737	1	46	.395

The results of variance homogeneity test show numbers > 0.05 , which means homogeneous data. Both parametric test conditions are met, then the independent sample t-test is used. The results of the test are independent sample t-test as follows.

Table 6
Test for Independent Sample t-test Collaborative Skills
t-test for Equality of Means

Mean		t	df	Sig. (2-tailed)
Experiment	Control			
3,23	2,89	3,599	46	0,001

Statistical calculations using SPSS 24 show Sig. (2-tailed) $0.001 < 0.05$. This means that there are significant differences between the experimental class and the control class after being given treatment. These differences indicate that there is a significant effect of the STAD learning model on student collaboration skills.

Significant differences in the experimental class and control class were due to team work and quizzes on the STAD model. Students tend to be more willing to achieve so that they work together as well as possible so that they give big points to the group. There was no difference between high achievers and high achieving students in the STAD group. Students learn mutual respect, mutual respect with other friends in accordance with the pillars of education UNESCO learning to know, learning to do, learning to be, learning to life together. Understanding differences to work together to achieve group achievements. That makes STAD better than the direct learning model.

V. CONCLUSION

The selection of the right learning model will increase students' motivation to make them able to work together to achieve academic achievement. Based on learners to life together in peace, students respect each other in their social life, in accordance with the objectives of social studies. STAD has a significant effect on student collaboration skills. These skills can be formed gradually with the guidance of the teacher. Giving stimulus continuously to students becomes an important factor to guide students to be able to work in groups. Group achievement is the reason students can collaborate well through the STAD learning model. So it can be said that STAD is very effective in improving student collaboration skills.

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