

## The Influence of the Student Team Achievement Division Model on Communication Skills in Economics Subjects

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### Abstract

This study reviewed the effects of the Student Team Achievement Divisions (STAD) cooperative learning strategies model compared to the traditional method of communication skills in economic subjects among secondary school students in Aceh. The study aims to identify the relationship between attitude change and communication skills that are influenced by family income. Besides, this research also investigates the relationship between communication skills with student achievement in the economic subject. The quasi-experimental designs with a pre-test and post-test used to collect data in this study. After fourteen weeks of treatment for the experimental group, both groups performed the Post-Test. The findings of the T-test showed a significant difference in student communication skills in economic subjects between the experimental group and the control group. The method of data analysis used analysis of variance (ANOVA) showed performance was higher on the post-test experimental group compared to the control group. This finding indicates that the use of the STAD cooperative learning strategies model during the review period can increase student achievement in the economic subject. The implications of this study show that the STAD Cooperative Learning model can be a model for teaching and learning in economics to improve communication skills among students in Aceh.

**KEYWORDS:** Cooperative Learning, STAD, Communication Skills, Academic Achievement, Economic Subjects.

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### 1. Introduction

Communication skills are not required to add in training programs for professionals, but it needs to be in the school curriculum. Educator competence is considered the link between communication skills and student interaction. Positive students assess their teachers who encourage involvement and discussions in classes (Paswan & Young, 2002; Ismail et al., 2017). Rai (2007), Norman (2005) advanced that STAD is one

cooperative learning strategy that boosts not only collaboration and but also independent learning at the same time. This strategy is very applicable and adaptable to different levels of students since classes are organized based on heterogeneous groupings. It is also ensured that students should have accelerated learning since STAD converges on the precepts that students work together to learn and at the same time would be responsible for their learning.

Some theories and researches had been fostered to promote cooperative learning strategies in the classroom. Wyk (2010), who used STAD to determine the economic literacy levels of students. In a school context, communication is a process of how teachers share their experiences with their students and vice versa. Every teacher has his or her knowledge and experiences. When teachers deliver their knowledge and share their experiences with their students, this process is defined as communication. In the process of exchanging experiences and knowledge between both

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teachers and students, they can create a sense of meaning amongst them. In terms of communicating at school, both teachers and students have their own sets of experiences and knowledge to share. Hence, when they communicate, they are expressing each other's experiences and knowledge and with that, they can develop a sense of meaning from the exchange.

Students also appreciate interactive methods which focus on them (Abrantes et al., 2007; Amiruddin et al., 2020), and would often want to and need to ask and state their doubts on what they have learned, analyzed, and compare the response of one to the other (Thorpe, 2001). If students have a strong and open bond with their teachers, they will have the initiative to invest and get more involved in the learning process, hence creating a more positive view on teachers and the learning methods.

An educator, method, and the learning environment are seen as the most effective if students are involved proactively in the teaching and learning process (Peltier et al., 2005; Sumarwati et al., 2020). Researchers have found that students' involvements are the most effective due to pedagogical interaction and communication between students and their peers including teachers (Hay et al., 2004). In this research, pedagogical factors are vital in creating a productive learning environment, thus enabling a better academic achievement, if the environment of the classroom actively involves potential students to stimulate self-development and regulatory learning (Young, 2005).

The interaction and communication skills between the relationship of students and teachers are needed to achieve the involvement of students and their interest in the learning process (Hay et al., 2004; Faranda & Clark, 2004). Empirical research has shown that positive pedagogical interaction and communication provides an effective learning environment that can help improve learning outcomes (Paswan & Young, 2002; Hay et al., 2004; Cornelius-White, 2007; Peltier et al., 2003; Cardoso et al., 2011) as students are more likely to choose a more interactive learning method and student-focused (Abrantes et al., 2007).

Students' communication supports and encourages them to achieve a higher cognitive level and to find a personal meaning of learning (Dempsey et al., 2001). This communication can happen in or out of the classroom, through the traditional or Jigsaw method (Abrantes et al., 2007; Hay et al., 2004; Peltier, et al., 2003). Several writers have suggested that students' communication, be it through a formal structure or spontaneous, can enrich the learning outcome through communication, resulting in students getting a better learning comprehension and more committed to resuming learning (Hay et al., 2004). This study reviewed the effects of the STAD cooperative learning strategies model compared to the traditional method of

communication skills in economic subjects among secondary school students in Aceh. The study also aims to identify the relationship between changes in communication skills of students in economic subjects which are influenced by family income. Besides, this study is to evaluate the student's perceptions of the teaching and learning process in the economic subject

The STAD-type Cooperative Model was developed by Robert Slavin and his colleagues at Johns Hopkins University. According to Slavin (2013), STAD is one of the simplest cooperative learning models, and most widely used model in cooperative learning. In cooperative learning with the STAD model, students are placed in study groups with different academic abilities, so that in each group there are students with high, medium, and low achievements or variations in gender, racial and ethnic groups, or other social groups. The teacher makes activity plans and delivers teaching materials to each group. The teacher gives the direction to do the task and determine the time allocated. Students work in groups to improve the learning materials either through discussion or looking for additional materials and so on. Each student helps other members in the group to ensure group success. At the end of the learning, group members take a test or quiz or make individual presentations. The scores obtained by each group member are added up to get the group score. One model that is suitable to be applied to economics learning is the Student Team Achievement Division (STAD) type of cooperative learning model. The STAD type of cooperative learning model is one of the simplest cooperative methods, easy to implement and best model for the introduction for the teachers who are new to use the approach in the teaching and learning process.

The Jigsaw II and STAD methods have different characteristics. According to Rattanatumma . T (2013); Jolliffe (2005) Jigsaw method requires the involvement of all students in gathering information about the titles of the discussion. This method requires the formation of two groups, namely the home group and the expert group. The home group is the basic group formed to gather the information of the members of this house group are broken down to form an expert group. In the expert group, each student will discuss the certain subtitle to prepare the assignment given to the home group. It gives each member in the home group an opportunity to contribute ideas to produce a group assignment. Based on the description above, it can be concluded that the Jigsaw, TGT and STAD learning methods have different effects on learning achievement. TGT cooperative learning method, the orientation is to increase learning motivation and interaction between fellow students. This academic style game can run every week or based on the needs of the title studied. The principle is almost the same as for STAD, but individual exams, quizzes and presentations



using questionnaires as the means of obtaining information. The questionnaires used are based on the instrument done by Azwani (2012) with the title of The Effect of STAD Model on Values of Patriotism, Attitude, and Student's Communication Skills in History subject. This instrument has been modified by researches based on the subject taken by the respondents. The communication skills instrument presents the question of communication skills in economic learning practiced by students. Students are required to fill out this questionnaire which is on communication skills practiced by students during economic classes in school. This Communication Skill is measured through a set of questionnaires. This set of questionnaires consists of nine questions. There are four items in terms of verbal/oral communication and five items to measure non-verbal communication aspects.

The questionnaires for this study are in the form of a Likert scale. This scale contains a series of statements on factors that influence student's communication skills. For each statement, respondents are required to give their statements on the items that prepared according to the Likert scale which is '1' Strongly Disagree, '2' Disagree, '3' Uncertain, '4' Agree and '5' Strongly Agree. A pilot study conducted, to determine the validity and reliability of instruments. Based on the analysis, the Cronbach Alpha value is 0.848. This finding shows that the items in this study reliable and valid. The student's communication skills instrument refers to some social behavior of students in establishing relationships between students such as giving out ideas, suggestions, exchanging thoughts, verbal and non-verbal communication, or physical cues. Non-verbal communication in this study is interaction. Interaction refers to the process of communication by various parties by supporting, helping, and giving feedback through interdependence between members of the group. For instance, members who are good at helping less knowledgeable members.

### 3. Results

Descriptive analysis and inferential analysis of Post Tests are conducted on dependent variables, namely communication skills, in economic subjects. Furthermore, an analysis of open-ended questions regarding the student's perception of learning strategy is also shown.

#### 3.1 Mean value for the experimental group and controlled group

Table 1 shows Pre Test levels for all variables of the study are at a low and average level for both the Controlled and Experimental Group.

Table 2 shows for Post Test, there is an increase recorded for all variables of study for both groups. It is also found that there is a better increase of mean value for the Experimental Group compared to the mean value increase for the Controlled Group. In essence, it is found that for the Post Test, the variable of communication skills is high for Experimental Group, and at an average level for the economic subject. Meanwhile, for the Post Test of Controlled Group, there were none of the variables that recorded a high level of result.

#### 3.2 Mean difference for student's communication skills in an economy subject

Descriptive statistical data have shown that there is a mean value difference recorded for all variables of study where the mean value for Experimental Group are higher in the Post-test. Inferential statistical analysis is then followed to test out whether the mentioned mean value is significant or otherwise. A T-Test is used to compare the mean value for all variables of the study, namely communication skills, students' attitude towards the economy, and students' achievement in economic subjects.

Table 3 shows T-Test results on dependent variables of communication skills in the economic subject for the Post-test. There is a significant mean difference for student's communication skills in Economy subject  $t(29) = 5.23, p=0.05$ .

Table 4 shows the mean value score for dependent study variables of students' communication skills in the economic subject for the Post Test of both Controlled Group and Experimental Group. The mean value score and the standard deviation of both groups are used to determine the size of impact based on Cohen's method (Cohen, 1988). Wolf (1986) stated that generally, any Cohen's d value that is greater than 0.25 indicates a significant learning effect. Cohen's d value for the variable of students' communication skills is 0.289. This shows that the effect of the Jigsaw II model in Cooperative Learning is significant.

#### 3.3 Contribution of students' communication skills on the economy in the economic subject towards achievement before being exposed to the cooperative learning of STAD model

Regression tests were conducted to identify whether there is an independent variable contribution to the dependent variable (Chua, 2006; Mokhtar, 1994; Coakes et al, 2010). In this research, multiple regression analysis was carried out to predict the influence of some independent variables (predictors) on dependent variables (criteria).

In this study, researchers are looking at the extent of how the variable of communication skills and attitudes

Dependent Variable	Method	N	Mean Test	Pre Standard Deviation	Level
Communication Skills	Controlled	30	2.47	0.57	Low
	Experimental	30	2.70	0.41	Low

Table 1 - Pre Test for Controlled and Experimental Group.

Dependent Variable	Method	N	Mean Test	Post Standard Deviation	Level
Communication Skills	Controlled	30	3.40	0.70	Average
	Experimental	30	4.10	0.50	High

Table 2 - Post Test for Controlled and Experimental Group.

Dependent Variable	Df	T	P	Result
Communication skill	29.00	5.23	0.00	A significant difference in mean

Table 3 - t-test Results for Post Test.

Dependent Variable	Controlled	(N = 30)	Experimental	(N = 30)	Cohen's d Size of Impact
	Mean Score	Standard Deviation	Mean Score	Standard Deviation	
Communication skills	3.40	0.70	4.10	0.50	0.289

Table 4 -Mean Value of Dependent Study Variable and Size of Impact for Post-Test.

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	Df	Sig	Statistic	Df	Sig
Communication skills	.100	60	.200*	.954	60	.023

Table 5 - Normality Test.

Variables	B	Beta(β)	T-value	Sig-t	R <sup>2</sup>	Contribution(%)
Communication skills	1.757	0.093	0.709	0.481	0.009	0.09
R Doubled	0.357					
R The power of two	0.127					
R Modified The Power of Two	0.097					
Standard Error	9.117					

Table 6 - Multiple Regression Analysis for Independent Variables that Affect Students' Achievement in Economic Subject (pre-treatment).

Source	Total of the Power of Two	Degree of Freedom	The Mean of the Power of Two	F-Value	Level of significance (p)
Regression	690.936	2	345.468	4.156	0.021
Residual	4737.797	57	83.119		
Total	5428.733	59			

Table 7 - Variance Analysis

towards achievement before being exposed to the cooperative learning of the Jigsaw II model. Tables 6 and 7, displays multiple regression coefficients involving two independent variables on dependent variables which is student achievement. Two related independent variables are showing a correlation and insignificant contribution ( $p < 0.05$ ) towards the total variant of student's achievement.

The main predictor and the achievement of students in the economic subject before the cooperative learning strategy of the STAD model conducted are to inculcate a positive attitude towards the economy through the course of economic subjects ( $\beta=0.332$ ,  $t=2.678$  dan  $p=0.010$ ) and contributes to a total of 11.00 percent. This situation shows that when the score of positive attitude towards the economy through the course of economic subjects increased one unit, hence, the student's achievement increases by 0.332 unit. This finding shows that the positive attitude towards the economy through the course of economic subjects before treatment was conducted by 11.00 percent to the achievement of students in economic subjects among the students who undergo the cooperative learning strategy of the STAD model. The second predictor is communication skills issue negatively affects 0.09 percent towards students' achievement level among students who are involved in the economic course of the subject before treatment was conducted ( $\beta=0.093$ ,  $t=-0.709$  dan  $p=0.009$ ). This shows that when the score of colleagues' communication skills issues increases by one unit, students' achievement would decrease by 0.093 units. Thus, if communication skills issues between colleagues increases, then the achievement among students who are involved in the course will decrease.

Based on the table above, the criteria of variables in this research post-test achievement, while the predictor variable is the dimension of communication skills and attitude towards the economy. The results obtained in

the table explain the predictor's attitude towards the economy does not contribute significantly towards students' achievement for all respondents among students. The findings of the study have shown that the dimension of attitude towards the economy is the dominant predictor compared to communication skills. Therefore, there is no significant contribution between the variables of communication skills and attitude towards the economy, on the achievement in economic subjects according to the respondents among students as a whole is accepted. Findings have shown that both variables are insignificant contributors to the achievement of economic subjects.

3.4 Relationship between attitude change and students' communication skills in the economic subject that is influenced by family income

To determine the attitude change and students' communication skills in the economic subject are influenced by family income for Post Test, the Pearson correlation test is used. Correlation test has shown that there is no significant relationship between attitude change and students' communication skills in the economic subject that are influenced by family income. Significant relationship with a low correlation level is communication skills ( $r = -0.65$ ,  $p=0.623$  and attitudes towards the economy ( $r=-0.39$ ,  $p=0.770$ ).

In viewing the relationship between income and communication skills with the attitude towards the economy, it can be concluded that attitude change and students' communication skills in the economic subject are not influenced by family income.

3.5 Relationship between communication skills with students' achievement in the economic subject

To observe the relationship between communication skills with students' achievement in the economic subject for Post Test, the Pearson correlation test is

Variables	Family	Income
	(r)	Sig.(p)
Communication skills	- 0.65	0.623
Attitude towards the economy	- 0.39	0.770

\*Correlation at a confidence level of 0.05

Table 8 - The correlation of attitude change and communication skills with family income.

The relationship between variables	R	P	N
Communication skills and academic achievement	.300	.020	60

\*Correlation at a confidence level of 0.05

Table 9 - The correlation between communication skills and academic achievement.

used. Correlation test has shown that there is a significant relationship between communication skills with students' academic achievement in the economic subject, even though the number is relatively low ( $r = .300$ ,  $p > .020$ ). Hence, there is no significant relationship between communication skills and students' academic achievement is invalid. In viewing the relationship between communication skills and students' academic achievement, it can be concluded that the changes in communication skills can influence students' academic achievement.

#### 4. Discussion and Conclusions

The purpose of this research is to observe the effectiveness of STAD model for cooperative learning activities and direct orders in promoting effective communication skills for secondary school students, a positive attitude towards the economy as well as improving students' academic performance. Short term interventions have been implemented to encourage communication skills. In STAD cooperative learning, the opportunity to cooperate and interact with classmates is higher compared to traditional learning. The effects of this can cause students to receive responses that can enhance their understanding during the learning process. Students assist in the learning process of other students by sharing information, discussion, and teaching what they have understood and encourage them to achieve a better result. This study has found that students who are taught with the STAD cooperative learning method can demonstrate and enhance communication skills among students. Students' communication skills can be demonstrated in the study that was conducted. The communication interaction between classmates in class can indirectly be shown when students communicate with each other to solve current learning difficulties within the group. The unique aspect of teaching and learning in this research is the cooperative group structure which allows students to learn and practice communication skills within an interdependent group. This structure provides an opportunity for students to engage in social interaction, positive interdependence, and mutual trust. The cooperation in a group given by students can be instilled with the necessary support from peers for each student, not only to learn the steps to identify the social communication identity but to also use skills in various situations.

The generalization of communication skills across the environment has been programmed in three ways. First, the overall generalization of communication skills acts as a dependent variable. Skills have been taught in a day and students are requested to carry out communication skills learning the following day. Secondly, a mediational strategy has been established to encourage

the generalization of social learning communication skills. Thirdly, are the students expected to engage in a problem-solving activity with their groupmates who served as an encouragement to promote social communication habits among students. However, the results show that STAD cooperative learning activities and direct orders are effective in enhancing the social communication skills of secondary school students. The main findings in this study are that the approach of Jigsaw II cooperative learning is more effective, better compared to the traditional learning in overall students' communication skills. The first finding, in the areas of equal participation and accountability, STAD cooperative learning is found to be more effective than traditional learning in enhancing students' communication skills.

In line with the previous research, the results support the statement that students can be taught communication skills (Mathur & Rutherford, 1994; Gomleksiz, 2007; Sachs et al, 2003). Students can benefit from the approach of Jigsaw II cooperative learning which includes cooperative learning, interdependent, individual responsibility and group accountability, face-to-face interactions, the development of interpersonal social skills, and group processing.

The findings are encouraging where the nature of positive dependency to share is what should have been practiced by students to increase their knowledge to be used through discussions. They refer to multiple references and in the event of confusion and misunderstanding, they can ask each other for certainty. This skill is necessary and important in a problem-solving process. This research is in line with empirical research (Paswan & Young, 2002; Hay et al, 2004; Cornelius White, 2007; Peltier et al, 2007; Cardoso et al, 2011; Basyah, N. A., et al, 2018) that shows that pedagogical interaction and positive communication provide effective learning that can improve the outcome learning as students are likely to choose more interactive teaching methods and student-focused (Abrantes, Seabra & Lages, 2007; Effandi, 2003) where students should be encouraged to study in groups as any problems encountered can be helped by colleagues in the group positively.

Through face-to-face interactions, members in the group mutually encourage the success of other members of the group and this goal can be achieved when each member helps one another. In fulfilling this communication skill, students need to discuss and interact in the group through face-to-face interactions. This interaction can help ease students to discuss and help one another. Besides, students will also gain the skills to interact face-to-face to create a harmonious discussion environment, creating an enjoyable teaching and learning process. Numerous studies in western countries show that STAD cooperative learning not

only aids in enhancing students' achievement but is also effective in improving students' group achievement, communication skills with others Johnson et al. (2007) and Kagan (2006).

The main findings of cooperative skills support the assertion that numerous STAD cooperative learning models support a positive outcome derived from peer student interaction is the enhancement of interpersonal and social skills (Kagan & Kagan, 2009; Slavin, 1995). Waugh et al (2005) are also mentioned in their study, students from experimental classrooms show more positive communication skills behavior than they do in traditional classes. The basic principle of STAD cooperative learning was fully integrated into the learning method used in this study. For instance, randomly selecting individual students and assigning group role assignments (Ning, 2011). This can stimulate the group members and their accountability to obtain success for the group.

A mutual understanding is key to promoting interaction among students and successful communication. In STAD cooperative learning in groups, students feel motivated and are required to use skills: such as offering or requesting themselves to be understood by group members and also understanding others, only then the success of the group can be achieved. This can be explained in this study that cooperation in a group is very relevant and communication skills are better compared to the controlled group. According to Slavin (2011), from a development perspective, the Jigsaw II cooperative learning teaching method helps students to achieve their objectives through encouragement and facilitation by members in their groups.

Students in the STAD cooperative learning class have more opportunities to interact and communicate with each other, and they enjoy the experience as new knowledge they have acquired or learn new things about the economy. On top of that, STAD cooperative learning is heterogeneous between group members as they understand each other. The difference in circumstances has been utilized to comprehend that at each group work level in cooperative classes, peer interactions are rare in traditional classes, and understanding is mainly used as a downward process by teachers. Consequently, interaction can be practiced through interactive activities as provided in the STAD cooperative learning teaching method, where students teach and learn from one another hence creating a positive interdependence by offering help related to assignments and encouragement to contribute to each other for activities or topics which was assigned to them (Marr, 1997; Slavin, 2011).

Students' communication skills can be assessed by students in terms of how they are allowed to learn from one another, and they are also encouraged to contribute, making their interactions between other peers on the

important materials in learning (Hay et al., 2004). Previous studies have revealed that the level of communication and the high interaction of students can improve the quality and be seen as learning experiences and have a positive influence on learning outcomes (Hay et al., 2004; Peltier et al., 2003; Cardoso et al., 2011; Morsidi S et al., 2021). When teachers and students actively engage and participate in communication, knowledge building, the learning environment is seen to be more effective. Therefore, the level of learning performance will also increase. Based on the data collected from the questionnaires in this research, the researchers have developed a profile and found that the communication skills pattern, students' attitude towards the economy, and the learning style practiced by students changed after classes in 14 weeks (one semester). The cooperative learning strategy of the STAD model is a bit of a factor, and the cause of profile change, communication skills, students' attitude towards the economy, and learning styles practiced by students before and after the treatments implemented. The students have positive attitudes toward economic. They have recognized the integrative and instrumental benefits of economics. Students exposed to STAD have enhanced academic performance in economics than students employed with the traditional teaching method. It concluded that STAD is one of the contemporary strategies is more effective than the traditional teaching method of teaching economics. Positive attitudes toward the attainment of the course are learning outcomes and better academic performance in economic.

In conclusion, STAD cooperative learning in economics is well suited to students' emotional needs in providing a learning environment and giving support that encourages their motivation towards effective communication. However, for students who have no motivation to learn or go to school, teachers are responsible for making sure they have the opportunity to interact with other people and receiving the help needed in adapting to group learning activities. Teachers need to understand the personality of each student, making observations and records in STAD cooperative learning, for them to help students understand the knowledge of economics subjects.

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