Analysis of Interaction Jigsaw Learning Process on Geometry Material

Imam Pakhrurrozi[*]; Imam Sujadi; Ikrar Pramudya

Department of Mathematics Education, Sebelas Maret University, Indonesia
Email: imamfahri123@gmail.com

Abstract

This study aims to determine the interaction between teachers and students that occur in the process of learning Mathematics with jigsaw model in junior high school in Surakarta using FIAC (Flanders Interaction Analysis Condition) analysis. This study includes qualitative descriptive research. The subjects of this study are teachers and students of 8th grade of junior high school in Surakarta and students' learning achievement sheets. The object of research is the interaction of teachers and students in the learning of mathematics, including the sense of receiving, giving praise, how teacher teaches the material, how the teacher directs the students, how the teacher gives criticism, student responses, student speech initiative and the level of silence or crowd. Data collection methods used in this study are observation, interviews, and documentation. Data obtained in the form of qualitative data in the form of observation results of teacher and student interaction, interview transcript and documentation of teaching and learning activities. The data obtained were analyzed by FIAC. The result of the research shows that jigsaw learning process is: 1) the interaction between teacher and student in the learning of mathematics is multi direction. The research results are confirmed by the value of Teacher Response Ratio (RRG) that is equal to 44.48% and the value of Student Initiative Ratio (RIS) of 43.47%; 2) The learning done by the teacher is successful. The success of multi-direction learning is evidenced by the average score of the student achievement test of 78.30. The value is categorized into either category.

Keywords: Interaction; Jigsaw Learning; FIAC

Introduction

That a social interaction can occur if it meets two conditions namely the existence of social contacts and communication (Soekanto., 2012). Social interaction process according to Herbert Blummer is when people act on something based on the meaning that something has for human (Ridgers et al., 2009). Based on this it can be seen that the interaction in the classroom will occur well, if the contact and communication made by teachers and students easily understood by both parties. Contacts and communications made from opening to closing the learning process. Students will respond to any action taken by teachers or by fellow students. The lesson is intended to develop skills in the objectives of each particular subject area of study. Based on the purpose of learning is expected that students can develop social skills both in interaction with fellow students and interaction to teachers.

Cooperative learning is an alternative solution to increase the interaction between students and teachers. Cooperative learning teaches students to learn to work together in a team, learn to be responsible, and learn to respect the opinions of others. This is in line with Johnson and Holubec's that Cooperative learning yields increased efforts among students, more positive interpersonal relationships, and improved mental health when compared to purely individualistic learning (Attle., 2007). Cooperative learning enhances efforts among students, more positive interpersonal relationships, and improved mental health when compared to individualistic learning. On the other hand cooperative learning model is a learning involving groups where students work in collaboration to achieve common goals (Eggen & Kaucha., 1996). Cooperative learning model is a model of learning that is currently widely used to realize student-centered learning activities, especially to overcome the problems found by teachers in enabling students who can not cooperate with others and who do not care about others.

One of the cooperative learning models is Jigsaw, Jigsaw learning method breaks away from the traditional structure based on memorization (Chu., 2014). It introduces students to the logic of scientific research, as well as developing their capacity for continuing learning. Jigsaw type cooperative learning model more motivates students to work together to find something, grow mutual sense of team work, process information and improve communication skills. Therefore, in this study aims to reveal the social interaction that occurs in the model of learning Jigsaw model.

Methodology

The type of research used is descriptive qualitative research about the interaction between teachers and students in learning mathematics. The place of this research is in Surakarta. The Subjects in this study were teachers and students of grade 8th junior high school in Surakarta. The subjects were chosen using purposive sampling technique. Data collection methods used were observation, documentation, and interview. Participative observations can be classified into four, namely passive participation, moderate participation, frank and disguised observation, and complete observation (Sugiyono., 2014).

The research instruments used are FIAC observation sheets. The observation sheets in this study were conducted by observing the interaction between teachers and students during mathematics learning based on FIAC indicator. The collected data was analyzed by FIAC analysis from Flander (Gall., 2003).

Result and Discussion

Based on the results of the analysis interaction in classroom (Table 1) at the first, second and third meeting. It can be seen that the percentage of teachers in motivating students experienced a significant increase in the second meeting, which amounted to 8.42%. Compared with the first observation of only 0.83%. In the third observation, the percentage of teachers in motivating students again fell by 4.75% to 3.67%. This shows that at each meeting the percentage of motivation given by the teacher is not always the same, depending on the situation and conditions at the time of learning.

The category of praise during the learning, the first observation is known to give the highest praise compared to the second and third observations. Giving praise on the first observation is 6.7%. While on the second and third observations ranged in 3%. Giving more praise to the first observation, because the first observation is the beginning of the preparation of the assessment of reading, so that teachers more often give praise so that students would be motivated to move forward. The first observation, percentage of teachers in receiving student ideas was higher at 7.5% compared to the second and third observations 3.15% and 3.67%.

Table 1 Data analysis of interaction in class

Category	Observation		
	1	2	3
Motivation	0,83%	8,42%	3,67%
Praise	6,7%	3,15%	3,67%
Acceptance of student ideas	7,5%	3,15%	3,67%
Asking	10,8%	12,6%	17,43
Teach	9,17%	9,5%	3,67%
Directing	14,16%	11,57%	15,59%
Criticizing	7,5%	1,05%	1,83%
Student Response	21,7%	25,26%	26,60%
Student Initiative	18,3%	17,89%	20,18
Silent/ Crowded	3,3%	7,3%	3,66%

`   The category of inquiries, the percentage of teachers from the first to third observations experienced a tiered increase. At the first observation, the percentage of teachers in giving question to the students is lower that is equal to 10.8% compared to the second percentage value of observation that is 12.67% and the third observation 17,43%. This shows that in teacher learning activities often do question and answer with students. In the first observation, the percentage of teachers in teaching materials the highest is 9.17% compared with the second observation that is 9.5% and experienced a drastic decrease in the third meeting that is 3.67%. As for the category of directing, the first observation the percentage of teachers in giving direction and command to students higher is 14.16% compared with the second observation that is 11.57% and increased in the third observation that is 15.59%. In the first observation, the percentage of teachers in criticizing and justifying students' opinions was higher at 7.5% compared with the second and third observations, which were 1.05% and 1.83%, respectively.

Based on the results of the analysis of the activities undertaken by students, it is known that the percentage of student activity on the first observation in giving response to the teacher lower by 21.7% compared to the second observation that is 25.26% and the highest on the third observation is 26.60 %. This indicates that the responses that students show to teachers remain consistent, as evidenced by the percentage of student response values that show almost equivalent values. While the percentage value of students in expressing their initiative on the first observation is higher that is 18.3% compared to the second observation that is 17.83% and the highest on the third observation that is 20.18%. This percentage indicates that student initiatives in speech tend to be high and almost equal from one to three meetings. Then the value of percentage of crowd or silence on the first observation is lower at 3.3% compared to the percentage value on the second observation that is 7.3% and the third observation 3.66%.

Table 2 Data analysis of teacher and student interaction variables

Variabel	Observation			Average
	1	2	3	
Teacher Speaks	56,7%	49,47%	49,54%	51,90%
Students Speaks	40%	43%	46,78%	43,31%
Silence	3,3%	7,36%	3,67%	4,77%
Teacher Response	40,9%	53,84%	38,70%	44,48%
Student Initiative	45,83%	41,46%	43,13%	43,47%
Direct Response	91,9%	90,9%	98,9%	93,9%
Change of Conten	40%	44,21%	42,20%	42,13%

Table 2 shows that the interpretation of teacher speech variables (GB) is 51.90%, the value is derived from the value of teacher speech variables on the first observation that is equal to 56.7% plus the value of teacher variables speak on the second observation that is equal to 49.47% and at the third observation 49.54%, then divided by three. Teacher activity in speaking at first observation is higher than second and third observation. That is, on the first observation teachers are more often spoken than at the second and third observations.

Interpretation of students' speech variable (SB) is 43.31%, the value is derived from the teacher's speaking variable value at the first observation that is 40% plus the teacher's speaking variable value on the second observation that is 43.15% and the third observation is 46,78% then divided into three. In the second observation, the students' speech activity increased by 3.15% from the first observation, while in the third observation, the students talk increased by 3.63% from the second observation. This means that students are more actively speaking at the third observation than in the first and second observations. Interpretation of the silence variable is 4.77%, the value of the silence variable at the first observation is 3.3%, and the value of the silence variable at the second observation is 7.38% and the third observation is 3.67%.

The interaction between teachers and students in mathematics learning is multi-direction. Multi-way interaction means teachers and students mutually responding in interacting even students one with other students also have the opportunity to interaction that does not deviate from the learning materials.

This is confirmed by the value of Teacher Response Ratio (RRG) of 44.48% and the value of Student Initiative Ratios (RIS) of 43.47%. The Ratio of Teacher Response Ratio (RRG) indicates that teachers are responsive in addressing student ideas and initiatives, while the Student Initiative Ratio (RIS) score indicates that the proportion of student talk in responding to teachers and expressing ideas is very high.

In the learning process, teachers are very concerned about the situation and the atmosphere in the classroom. Teachers always give attention to students who are sick or students who are less eager in learning, that is by giving motivation to them. based on the results of interviews with teachers, when students feel bored with learning, teachers always hold special tricks to make the students back the spirit by making the atmosphere of learning process fun for students one of them is by holding a game.

According to teachers, teaching in lower classes should apply the principle of "playing while learning". As a result, in learning the students seem happy and enthusiastic to follow the lesson, this can be seen from the average student response score of 24.25% The value appears that students are quite active in learning. This is identified from the attitude of students who always give response to the teacher's orders and always scramble if told his teacher to answer math problems. Mathematics learning at junior high school Surakarta is quite successful. This is evidenced by the average score of mathematics test obtained by the students of 78.30. The value is categorized into either category.

Conclusion

Based on the description. conclusions in this study is, first Pattern of interaction that occurs in learning reading and Interaction that occurs between teachers and students in learning to read and write the beginning is multi-directional. Multi-way interaction means teachers and students mutually responding in interacting even students one with other students also have the opportunity to interaction that does not deviate from the learning materials. The statement is reinforced by the value of Teacher Response Ratio (RRG) of 44.48% and the value of Student Initiative Ratio (RIS) of 43.47%. The Ratio of Teacher Response Ratio (RRG) indicates that teachers are responsive in addressing student ideas and

initiatives, while the Student Initiative Ratio (RIS) score indicates that the proportion of student talk in responding to teachers and expressing ideas/ initiatives is very high. Using the Jigsaw learning model it appears that the teacher controls the class, with more direction. Secondly, Mathematics learning in 8th grade in junior high school 3th Surakarta is quite successful. The statement is evidenced by the average score of student achievement test of 78.30 The value is categorized into either category.

Suggestion

For teacher: in the learning process teachers should pay attention to the interaction on the students. So that the process of transfer of knowledge to students more leverage.

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