

## **GROUP PROCESS APPROACH IN MATHEMATICS LEARNING**

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### **Abstract:**

Group process approach (GPA) is the teacher's effort in grouping the students into some groups by considering the individual itself that build enjoyable atmosphere. GPA is often used by the teacher in learning, even in mathematics learning. Mathematics learning is the teacher's effort in helping the students in order they can learn numeric and operational procedure that is used in solving problem about numeric based on their need and interest. The purpose of this research is (1) to describe management of the class with GPA (2) to describe kinds of mathematics learning approach that use GPA. This research is descriptive research. Data collection method that is used is interview, documentation and observation. From the result of the research, we can conclude that there are six elements in GPA: purpose of the research, responsibility, group construction, the rule in group, communication, the correlation between members of the group. Mathematics learning approach that uses GPA is contextual approach.

Keyword: *approach, group process, mathematics learning.*

### **I. Introduction**

Group process approach (GPA) is the teacher's effort in grouping the students into some groups by considering the individual itself that build enjoyable atmosphere. In this approach, the role of the teacher is to push the development and the cooperation in group. Management of class with group process needs teacher's ability to create the condition that enable groups develop into productive groups (Ahmad, 2004). Class management is used by the teacher to maintain the effectiveness of class organization. The primary role of a teacher is to create and maintain solidarity, productivity, and the result of class groups.

In GPA, the important point is the process during learning in groups. They can discuss each other; smart students will share with the students that have low ability. The students will feel more comfortable because they learn with their friends which have the same age with their own learning style. In this situation, they will feel comfort without any pressure. Maintaining the effectiveness of the class that enables the solidarity among each learner is the advantage of GPA. The lack of this approach is there might be intimidation that happened; the strong will intimidate the weak (Ahmad, 2004). It means that only some of the students who

do the assignment. GPA is often used by the teacher in learning process, even in mathematics learning. Mathematics learning is the conscious effort of a teacher to help his/her students in order they can learn numeric and operational procedure that is used to solve numerical problem based on their need and interest.

In learning process in class, teacher must be able to create and activate the learners in teaching and learning process. In this context, the role of teacher is as a facilitator. Teacher does not act as a teacher but he/she only accompany during group discussion. If there is any group that faces difficulty, the role of the teacher is to give guidance; so they can find the answer of the problem that they face.

Learning process will happen if there is interaction between teacher and students and between the students itself. By doing learning, the student is hoped they can develop their ability in logical reasoning and ability in thinking critically. Thus kind of ability can be developed through mathematics learning because mathematics has structure and high correlation among the concept that enable them to think rationally. In this case, mathematics is regard as a tool in achieving certain goal.

Learning objectives of mathematics is to build the students characteristic critically and creatively. The accentuation in mathematics learning is not only train the ability and factual memory but also the comprehension of concept. It is not only focus on how to solve the problem but also why that kind of problem must be solve with certain way. In the implementation, it should be adapted with students thinking level. There are some approach in mathematics learning, those are: a) constructivism approach b) contextual approach c) solving problem approach d) realistic approach.

Trianto (2008), constructivism, the philosophy of contextual learning, said that knowledge is built little by little then the result is developed through context with no limits. Knowledge is not a set of facts, concept, rule that is ready to take and remember. Human need to construct and apply the knowledge in concrete experience. The students need to be used to solve problem, find something that is important for their need, and interact with idea. The students must construct their knowledge by themself. Essence of constructivism theory is the notion that said

students should find and transform certain complex information into other situation, then if they want, they can have it for themselves.

Contextual Teaching Learning (CTL) is learning concept that help teacher in correlating between material and lesson which is taught with concrete situation and push the students to correlate between their own knowledge with the application in their daily life (Kunandar, 2007). It is supported by Nurhadi (2003) that defined contextual learning as teaching and learning process where the teacher bring concrete condition into the class. Teaching and learning process happen naturally through work and experience activities. It means that the students learn from the getting knowledge, experience, and know their daily characters that later can be implemented in their daily activity.

Problem solving is a process, way or act in solving problem. The term problem in here means every single thing that contains hesitant, uncertainty or difficulty that must be solved. Hunsaker said that problem solving is a process that intent to omit the difference between the real result and the result that we hope. Problem solving is intellectual and mental process in finding and solving problems based on the data and accurate information; so the conclusion that is taken will be accurate (Hamalik, 1994).

Realistic mathematics learning is the utilization of environment that uses to expedite the mathematics learning process. Realistic here means every single thing that real and concrete which can be observe and comprehend by the students through imagine. Environment here means the school, family and social environment where the students interact.

## **II. Research Method**

This research was implemented in students of mathematics program University of Muhammadiyah Jember. Kind of the research that was used was descriptive that aimed to describe the phenomena existed in the society, whether it is natural phenomena or made. This research also focused on describing and interpreting the correlation of some variables, opinion, process, cause and effect, or tendency. In this research, the researcher tent to observe the Mathematics learning process by using GPA.

Method that was used in this research was interview, documentation and observation as the instrument of the research. The data analysis was conducted during and after the process of taking data. The data was analyzed by using flow model of Milles and Huberman (1992) which consist of (a) data reduction, (b) data presentation, (c) conclusion.

The validity of data was the important point in research. Technique that was used to check the validity of data was (a) triangulation (b) diligence observation and (c) colleague investigation (Moleong, 2012)

### **III. Result and Discussion**

#### ***Result of the research***

The Class management through Group Process Approach

There are six aspects that need to be considered in the GPA class management:

1. Learning objective

Learning objective is the most important aspect in learning process. Both, teacher and students, have to understand the goal of learning, in which, their understanding will affect the student's activity in the class.

2. Responsibility

The objective of learning will be achieved if all members of groups have the same responsibility to achieve the success together. Thus, all members of groups will do their task carefully.

3. Grouping

Grouping also affects the group's discussion, which influence the group's member to distribute their ideas in the discussion. Good contribution of group member will create a harmonious interaction through each member of groups. Teacher should not group them based on their race, ethnic or even based on their ability. In this point, each group should consist of low, intermediate and advance students.

4. Rule of group

During implementation learning process should be a rule that need to be obeyed by the member of groups. Thus, the member of groups can do their

job with high responsibility. In this point, teacher's role is to monitor the rules that exist in the groups.

5. Communication

By the existence of communication, there will be interaction between each learner that enables effective group learning process. The role of the teacher is to give chance the member of group to interact and discuss with the member of the other groups.

6. Relation between each member

Harmonic relation is important in achieving learning goal. There are some requirements to create harmonic relation, that is: (1) each member of group has a good relation (2) the responsibility of each group member to their task (3) each group member give contribution to the task. The relation between each member of group will appear if they need each other.

So, we can conclude that the application of class management that uses GPA should pay attention some function that is as follow:

- (1) Teacher is able to reveal the learning purpose that should be achieved
- (2) Teacher is able to make sure that each group member have responsibility in reaching the success of group
- (3) Teacher is able to arrange group that is heterogen to create harmonic atmosphere. The teacher also should able to control the rule that exist to make sure that each member of group do their task
- (4) Teacher help the students to solve the problem
- (5) Teacher is able to create the ability to communicate between the member
- (6) Teacher is able to keep the relation between the member of groups

### ***Mathematics Learning Approach***

Learning approach is a concept or procedure that is used in discussing learning material to achieve learning goal. Learning approach is defined as a way to create the atmosphere that enable the students learn. There are some approaches in mathematics learning, that is:

#### ***Constructivism Approach***

Constructivism approach is learning process that explains how knowledge construct in students' thought. Knowledge is developed actively by the students itself but not received passively by the students around them. It means that learning is the result of students' effort, so it is not only the process transferring knowledge from the teacher to the learners. The students no longer hold the traditional learning concept where the teacher only pours or transfers knowledge to students without any prior effort from the students themselves.

The main principles of constructivism learning are:

1. emphasis on the social nature of learning; the students learn by interacting with teachers or friends,
2. the nearest development zone; a good concept of learning is if the concept is close to students,
3. The cognitive apprenticeship; the learners acquire knowledge gradually in interacting with experts, and
4. mediated learning; given complex, difficult, and reality task, then given assistance.

### *Contextual approach*

Contextual learning is a concept of learning that helps teachers incorporate the lesson content to the real world. There are two key statement that help define contextual learning, namely: (a) thinking that searching for the meaning / significance in an environment where a person is, and (b) thinking that searching for meaning through related, reasonable, and beneficial research.

Contextual learning has six characteristics as proposed, namely:

1. Meaningful Learning; perceived learning is associated with the life of the real world or that students understand the benefits of learning content,
2. The application of knowledge; students understand what is learned and applied in the present life or future,
3. The high-level thinking; critical and creative students in collecting data, understanding an issue and solving problems,
4. The curriculum is developed based on the standard, the learning content related to the standard of local, national, development of science and technology

5. create a community of learning (study groups)
6. responsive to culture; teachers understand and appreciate the values, beliefs, and habits of students, as well as the order of the school and classroom community order, and
7. authentic assessment; the use of assessment strategies will reflect learning outcomes.

### *Problem Solving*

Problem-solving approach is the approach used in studying a science with the intention of changing the actual state into a state that we ought to pay attention to solving systematic procedure .

The characteristics of problem-solving approach , namely :

1. begun with problems that are not routine
2. has different settlement
3. to be able to solve a problem, one must have a lot of experience.

### *Realistic Mathematics Learning*

Realistic Mathematics Learning is basically the use of environment and realities that students understand to facilitate the learning process of mathematics, so as to achieve the purpose of mathematics education better. Reality means real or concrete things that students can observe or understand by imagining, while environment is the environment where students are; either schools, families or communities. Environment in this case is called everyday life .

Characteristics of realistic mathematics learning are

- a. using contextual problems
- b. using a variety of models
- c. students' contributions
- d. interactive
- e. linkages

### *Discussion*

This study aims to describe classroom management by using approach of group process and describes approach of mathematical learning that uses group process approach.

The first problem in this research is how the management class with group process approach. In a classroom management of a group process approach it contains six elements, namely: (a) learning objectives. In lessons, learning objectives is a very important element. Teachers and students should be aware of the learning objectives that will be achieved. (B) responsibility. The learning objectives will be achieved if all the group members have the same responsibilities. If each member of the group feel that the success of the group is a shared responsibility, each member of the group will carry out the group task well. (C) the formation of the group. The task of the teacher in the formation of the group is to divide the students in the group regardless of race, ethnicity, religion and level of student ability. In this case, there must be students who have either low, medium or high ability in a group. (D) the rules of the group. In the implementation of group learning, there must be rules of the group that must be obeyed by every member of the group. Members of the group who break the rules should be punished. Thus, the group members will carry out their duties with responsibility. (E) communications. The task of the teacher is to foster interaction and communication that provides the opportunity for each member of the group to express their opinions and values the opinions of the other group members. (F) the relationship between group members. A harmonious relationship is indispensable in achieving the learning objectives.

The second problem in this study is “what Mathematics learning approach uses a group process approach?” Based on the learning steps on the Mathematics Learning approach, the answer is mathematics learning approach using group process approach is a contextual approach, which in contextual learning teacher must create a community of learning (study groups).

#### **IV. Conclusion**



Based on the results of research and discussion, as has been described in previous chapters, it can be concluded as follows:

1. in classroom management in a group process approach it contains six elements, namely: (a) learning objectives. (B) responsibility. (C) the formation of the group. (D) the rules of the group. (E) communications. (F) the relationship between group members.
2. based on the learning steps of learning on mathematics learning approach, it is known that mathematics learning approach that uses a group process approach is a contextual approach.

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