ENCOURAGING THE STUDENTS’ PARTICIPATION IN SCIENTIFIC LEARNING

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Abstract
The lack of student participation is one of the problems in mathematics. Many students are still less active or more silent listening to what informed by the teacher. Even though the students’ participation is very important to maintain two-way communication between students and teachers so that active learning, creative and fun can be created.

Keywords: encouraging the participation, scientific learning

INTRODUCTION
Education is spearheading the reciprocation of a country. With a good education, the state is able to give birth to sons and daughters of the future generation capable of bringing progress of various aspects. Many efforts were done by the government to improve the quality of education in Indonesia, including the improvement of the quality of the learning process.

When we see, the process of learning which involves the participation of students does not optimum. Even though the fact that the implementation of the 2013 curriculum has entered the third year of implementation. Teachers should already implement, or at least tried to apply a scientific approach in learning. If teachers are already applying the scientific approach in learning, the students’ participation should take place in an optimum level that can be started from the beginning until the end of the learning process.

Indeed, this learning approach requires students to fully move from stage to observe, ask, try, processing, presenting, concluded and creating teaching materials provided by the teacher. Method of observing require students to be able to make sense of the learning process through observation of materials given by the teacher. In asking step, teachers can encourage students to pay attention in learning. Through the steps of reason, students are required to perform logical and systematic process based on insights that were previously obtained. In a move to try and cultivate students are expected to be able to conduct experiments related to learning materials studied. While at present the steps the students are expected to communicate the results of his study to another, for example through a presentation. Likewise for concluding step and create, students are required to be able to generalize the material that has been learned.

Empirical facts show that in the third year of implementation 2013 curriculum, the learning activities do not take place as expected. It can be seen from the lack of student participation in the stages that exist in scientific learning. In the activity observed there are still many students who do not perform activities of observation. At the stage asking, they look busy, do not pay attention to the teacher who provided the impetus to learn consequently re-learning centered on the teacher (Teacher centered learning). When in the early stages: stage observing the students are not involved in the student activities because they do not know any data or information that has been presented. As a result, they faced some difficulties in processing the data. It also happened in presenting, there are many students who are passive, and most of students do not deliver results. In responding to the results presentation, only a few students are active.

So how should encourage students to participate actively in scientific learning? What should be done so that teachers assist students in the learning stages of scientific observe, ask, try, processing, presenting, concluded and create? This study will address the above problems.

DISCUSSION
Students Participation in Learning Process
Based on KBBI online participation means as joining in an event. If it is associated with learning, student participation in learning is defined as participation in the learning process. Here are presented some definitions according to some experts. Dancer & Kanvounias dalam Rocca (2010) define “Participation can be seen as an active engagement process which can be sorted into five categories: preparation, contribution to discussion, group skills, communication skills, and attendance”.

The definition above explains that participation can be seen as a process of active engagement that can be translated into five categories, namely: preparation, participation in discussions, group skills, communication skills and presence.

Further described by Fritschner that participation is an activity during the learning process that consists of several activities, starting from the simplest, namely the students only attend without doing anything to the vigorous activity students perform oral presentation.

Burchfield & Sappington defines participation as a response to students who do voluntarily without being asked. Participation can also be interpreted various forms of students' questions and comments. It is argued by Fassinger (1995). Wade further argued that the ideal class discussion is when almost all students participate and are interested, to learn to listen to other comments and give suggestions.

Margono (2014) explained that the participation of learning means that students taking part in the learning process in the classroom or outside the classroom. When the students took part in the study, they tried to create, communicate, and even innovate. Students prepare questions to be creative in form, refutation, or opinions. They also communicate to the other students in the group if the idea deserves to be delivered in class discussions. Furthermore, this study revealed that participation would be able to determine learning outcomes. High participation will also make learning outcomes be improved. Learning participation is also a component of the assessment. Often the students’ participation assessed on attendance, many ask questions, provide answers and rebuttals and participation as a moderator or the minutes of the discussion.

From the definition above, it can be concluded that students' participation is the participation of students in learning, ranging from attendance, participation in group activities, involvement in discussions, communicate through oral presentations or ask a question, leave a comment to the responses of friends volunteered without being asked by anyone.

In the process, learning requires the active participation of students. This is done so that the learning does not take place in one direction only from the teacher, but in two directions, namely the active participation of students and the role of the teacher as facilitator of learning. With the students’ participation, it is expected to be more lively classroom conditions so that the quality of learning will increase. With the participation of students' learning motivation of students is expected to increase. Students will be more motivated because they feel to be a part of learning.

In addition, with the participation, the students' communication skills are expected to rise. Dancer & Kamvounias in Rocca (2010:188) said that “Students who participate also show improvement in their communication skills”.

Most of what occurred during this class that students’ participation is only in some parts of learning. This happens because in the learning process rarely involves the students as a whole. Students are only considered as an object lesson. They just simply present, listening to the teacher explanation, noting to do, do the occasional work on the problems as exemplified and ordered teachers. Students usually only participated in a few minutes of the many hours of lessons are provided by teachers. As a result, the absorption of learning material will run is not maximal.
For teachers who are already implementing student centered learning, the activity is usually dominated by some students. Students who are smarter and more active learning dominate. Other students simply follow the pattern of student learning are smart and active. The task is done mostly by smart students. Students who are more active tend to dominate learning requires students to discuss. Students were quiet and less intelligent likely not get a place to able to participate in learning. But this is better than the students who are only active in some parts of the learning process, which is instructed by the teacher.

According Rocca 2010 there are several other factors that affect student participation in learning. Some of these factors include:

a. Learning methods

The learning method is supposed to make students participate in learning. Some of the methods that can be used to encourage students to participate in learning are by using props. As research conducted by Winarti, 2014 that the use of props paper that made it interesting terraced increased student participation. The learning strategy “Everyone is a Teacher Here” is another learning strategy to increase the participation of student learning. This is consistent with the results of research conducted by Ratnasari, 2014 learned that participation has increased 92.86% through strategies “Everyone is a Teacher Here”. The other learning strategies that enhance student participation in mathematics learning is “Keep On Learning” with Structured work. In accordance with the results of research Kumalasari 2012 that the increase in student participation in mathematics learning by using “Keep On Learning” with Structured work can be seen from the improvement of each indicator, student participation in asking questions to the teacher or group presentations increased from 5.41% to 37.84 %, of students who answered the question or do the problems in front of the class before the procedure 13.51% and 56.76% after the action, students in expressing their opinions in the percentage rose from 2.7% to 24.32%, the percentage of students in drawing conclusions up from 5.41% and 51.35%.

From the above description, it can give an outline of that method of student-centered learning can make students participate more than teacher-centered learning. Supposedly scientific learning in the implementation of this K13 can also improve the participation of student learning for learning's emphasis on student activity ranging from stage to observe, to question, reason, process data and present. But the reality is not so. As described above, that the activity observed, there are still many students who do not perform activities of observation. At the stage of looking busy students ask themselves, do not pay attention to the teacher who provided the impetus to learn consequently re-learning centered on the teacher (Teacher centered learning). When in the early stages: stage observing the students are not involved, in the student activities automated reasoning, they cannot involved because they do not know any data or information that has been presented. It is as a result of their difficulty in processing the data. It is also in the present step, that there are many among students who are passive, most students do not deliver results. In giving response of the presentation, there are only a few students who play an active role.

b. The number of students in the classroom

The number of students in the class thought to affect student participation in learning. Small class size, in terms of numbers of students considered making greater student participation. This makes sense, because when students are in small groups they will be easier to communicate with someone else so it is easier to discuss. When commenting on students' responses also friends will be more daring. Conversely in large class sizes tend to be hampered communications student, as a result of student participation in the discussion tends to be low.

To overcome the problem of large class size is usually the class is divided into small groups to provide learning facilities to students. When students are given the facility to talk to each other, hopes the group's activities will also increase, students can provide feedback and answer, questions or rebuttal, which in turn can increase student participation.
c. The seating arrangement

Seating arrangements will also affect the level of student participation. If the seat is made in the form of row or column sketches, it would tend to reduce access for students to be able to communicate with someone else. As a result of student participation will be low. The row or column seating arrangement will also provide opportunities for students who are in the rear position not to participate in learning. They may tend to speak for themselves with friends, playing hand phone or write things out of context of learning. Seating is arranged like the letter U or a semi-circular considered will promote student participation. Because when students sit facing the teacher will be easier to control students in learning. Teachers will be easier to pay attention to the students one by one. In addition, students are also easier to interact and communicate with other students.

d. Teacher Roles

There are some rules that allegedly teachers in learning can increase student participation. Some rules that include involving students in the assessment require students to participate in a question, require students to present the results of discussions in front of the class, making inferences or doing task.

Berdine, 1986 and Smith, 1992 suggests that the presence or absence of student participation depends on how much involvement they are to calculate their final scores. It's wise if teacher daily engage them to participate and to provide an assessment of the results of their work. How did they get involved in providing an assessment of their work every day through journals, tasks with the assessment rubric, or may arrange with the teacher assessment rubric. In preparation of an assessment rubric by teachers with students will be able to increase the participation of student learning. Students will feel appreciated when they are involved in the preparation of an assessment rubric, so that they will feel compelled to have a learning process. As a result, they will have the motivation to be able to achieve the expected learning goals.

Rules second teacher is to require students to participate in learning. This force is done by requiring students to participate in learning even though they do not volunteer. Rules require students to actively participate in this study can be done by students trained to always present their work every time they complete the task. With the presentation of this task, it is expected that students who are active not only presentation but also other students. Other students could participate by asking questions, comments or refutation.

Encouraging Student Participation in Scientific Learning

Supposedly scientific learning in the implementation of K13 can increase the participation of student learning for learning's emphasis on student activity ranging from stage to observe, to question, reason, process data and present. But the reality is not so. As described above, that the activity observed there are still many students who do not perform activities of observation. At the stage of looking busy students ask themselves, do not pay attention to the teacher who provided the impetus to learn consequently re-learning centered on the teacher (Teacher centered learning). When in the early stages: stage observing the students are not involved in the student activities automated reasoning cannot because they do not know any data or information that has been presented. It is as a result of their difficulty in processing the data. So also in the present step are many among students who are passive, most students do not deliver results. In responding to the results presentation, there are only a few student who play an active role.

To solve this problem, there are several things that can be done with reference to the theory put forward by Rocca above to be applied in scientific learning. Here are details of scientific learning stages:

a. Observing

Observe is an activity actually interpreting the learning process. This stage is used in order to introduce students to the links between learning material with real life. To encourage students to participate in this stage, the teacher can create a rule to require all students to
make observations of the observed objects. To control it, teachers can make the observation sheet that can be used to record student activities during the process of observing.

b. Asking
The Ministry of Education and Culture explained that the function of asking is to encourage and inspire students to actively learn and develop questions of and for it self. According to Rocca, that in order to encourage students to ask the teacher can require all students to ask questions at least one question for each student. For students who have a low level of confidence, the teacher can suggest to them to write a question on a card. So students can ask broader.

c. Reasoning
Reasoning is a process of systematic and logical thinking in accordance with empirical facts obtained. To ensure the participation of students at this stage the teacher can provide learning materials and position of them to act as a mediator in learning. To simplify this process, teachers can arrange students in the seating arrangement in form of letter U or a semi-circle as suggested by Rocca.

d. Trying
In order to obtain the appropriate learning outcomes, students had to conduct experiments in accordance with the content material. To encourage student participation in the stages of trying to have the teacher can apply learning by groups. As mentioned that the large class sizes tend to be hampered communications student, as a result of student participation in the discussion tends to be low. With group learning, it is hoped students will be able to easily and flexibly communicate with her so that participation increases.

e. Delivering Result
Presenting the results is the stage that tends not interested students in scientific learning. Some students will shy away when asked to present their work. Yet this is an important stage. Rule teachers can encourage students to participate in delivering results. Rules require students to actively participate in this study can be done by students trained to always present their work every time they complete the task. With the presentation of this task, it is expected that students who are active not only presentation but also other students. Other students could participate by asking questions, comments or refutation.

CONCLUSIONS
How to encourage the participation in learning scientific study is theoretical. This theory needs to be studied and implemented directly in the field. The results of the implementation of this theory will be able to enrich the development of scientific learning in the framework of the implementation of the curriculum in 2013.

REFERENCES