

# Fostering Science Learning Quality in Frame of Ecosystem Topic through Lesson Study

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**Abstract.** Teacher plays important role to enhance learning quality. As professional teacher, there are some of competencies that should be mastered while doing structured and planned teaching. The first, a teacher should have an appropriate knowledge for taught lesson. The second, a teacher should be able to plan a flexible lesson depend on various conditions. The third, a teacher should always keep an eye to the students in the classroom for identifying how far the students learn and understand the topic. However a teacher is expected to collaborate with other teacher. One alternative to enhance teacher professionalism is by implementing Lesson study. Based on the previous study, Lesson study could foster teacher quality on applying the learning strategy. Lesson study comprises of three steps, Plan, Do and See. In Plan stage, teacher analyzed the curriculum, learning purpose and student development, including the lesson instrument made by the team teaching in ecosystem topic. In Do stage, the teacher implemented the teaching based on the lesson planned. In See stage or reflection, all of the involved stakeholder discuss the learning process that has been done and suggest for corrections. Based on the observation result, it can be concluded that overall the stages, Lesson study can foster teacher's pedagogical competencies and science learning quality in *MTs. Madani Alauddin*.

**Keywords:** Learning Quality, Team Teaching, Lesson Study, MTs. Madani Alauddin

## INTRODUCTION

Education has essential purposes not only for reaching its goal, but also for giving the positive feedback in case of lesson's topic selection, method, and instrument of evaluation. Overall, teaching and learning is the most important process due to involving the teacher to act for students' behaviour changing. The education goals must be influenced by some components. According to Muhammad Ali (2004), there are 3 categories of teaching components, these are comprise of teacher, content of lesson and student. Teacher is the key person in the classroom who can lead the students on to the lesson goal. Teacher is the most importing person who get involve to students activity rather the other school personil. In students point of view, tecacher is the one who has authority in academic and non academic fields.

Science is a kind of knowledge which is need logical reasoning to understand the concept, thus it needs a deeper understanding on learning science. Science learning outcome will never be maximum if the teacher only use teacher centred learning or direct instruction. The students need to actively involve on the learning process. However, teacher's ability on planning the learning method with its instrument are very possible to enhance the success of teaching and learning process. From this case, a quality of teacher is extremely influence the quality of education in general and implicitly, the students' cognitive quality. In order to improve teachers' quality, workshops are required to be done. One alteranative solution in improving teacher profesionalism is *Lesson Study*. According to Sudrajat (2008), Lesson study is teachers' collaborative and sustainable work within the lesson stages designed to achieve the lesson objective, doing the lesson, obseving the lesson, and doing reflection to discuss the learning process that have been done as an evaluation for the next teaching and learning process.

The main focus of lesson study is students' activity in the classroom within assumption that it is related to teacher's activity in the teaching process. *Lesson study* is needed to be implemented in Indonesia due to the workshops or trainings for teacher's quality improvement is generally about giving the understanding of the lesson, while the learning method its self is separated from the lesson. Lesson study that had been implemented as a guidance model for undergraduate student was approved can improve the ability on applying the learning strategy (Rustono, 2007).

This study will be conducted to answer the following research question: how does the improvement of science learning quality in frame of Ecosystem subject through the Lesson study. The result of the study will be gained descriptively based on the observation during the learning process.

## METHOD

School based Lesson study had been conducted in Mts. Madani Alauddin. Generally, the steps of Lesson study comprises in to 3 steps, **Plan, Do and See**. On **Plan** stage, the teacher do some studies to arrange the curriculum in line with lesson's objectives and student's development goal comprises of lesson plan for ecosystem topic which is made by the team teaching.

**Do** stage is conducting the learning process based on the lesson plan. At the same phase in **Do** stage, teacher also observed the learning process, in this case there were three observers involved, one lecturer of Biology education department FMIPA UNM, one teacher of Physics MA Madani Alauddin and another one was Science teacher of MTs Madani Alauddin. While doing the observation, the observers were focus on students' behavior rather than teaching activity.

**See** stage or reflection is the last phase on the lesson study where all the involved stake holders and teachers discuss the learning process which had been done and evaluating the things that need to be fixed and also planning solution for the next lesson.

## RESULT AND DISCUSSION

Based on the Lesson Study which had been conducted in grade VIIa MTs. Madani Alauddin, it could be explained each of the lesson study stages that were comprised of *Plan, Do* and *See*.

On **Do** stage, team teaching that consisted of a Biology lecturer of FMIPA UNM and three people of Science teachers from MTs. Madani Alauddin were collaborate each other to planned the lesson instruments on ecosystem topic, comprised of Lesson plan, worksheet, learning media and evaluation of students' learning outcomes. In this stage, direct instruction was conducted in 32 the research subjects of grade VIIa MTs. Madani Alauddin. The process leaded by Science teacher of MTs. Madani Alauddin who was also a part of team teaching.



**Figure 1:** Ecosystem observation around the school

The planned-learning activity in the classroom made the students involve actively in the learning process. The students were divided in to five groups which were consisted of 6-7 members. The teacher started the learning process by giving some questions to recall the students' knowledge and to lead the students on direct observation of ecosystem around the school environment. They were very enthusiastic to found out the ecosystem components, biotic and abiotic.

The given worksheet could lead the students actively collaborate with their group. It had shown by their enthusiasm on discussing the topic or finding out the ecosystem components. The students were also directed to make the report of their observation result. They were facilitated for some equipment on doing their work for instance cartoon papers and marbles to arrange those all creatively as the presentation medium. In the last stage of the lesson, each group presented their observation result in front of the classroom. The reward was given to the best group, and the students were more enthusiastic from the crowded clapping hands of the audiences. It has influenced the students to deliver their findings on flexible ways. And the last but not at least, the teacher gave assignment to reinforce the students for the lesson topic.



**Figure 2:** The student presents his finding in front of the classroom

All of the stages of the learning process observed by the team teaching. The observation focused on students' activity during the learning process. the results wrote on observation sheet that has been prepared before. After the teaching and learning conducted, then continued to **See** stage (reflection).

On **See** stage, each of the science teachers acted as modeling and observer, and also supported by the lecturer of Biology department FMIPA UNM delivered all things about the learning process. Those were about the positive and negative things during the lesson. They also discussed the solution for the things that need to be fixed.

Based on documentation and reflection results, the students were actively involved in the learning process. They had understood about the ecosystem component in term of their answer while be given the evaluation task. The fixed thing was the using of tome during the teaching and learning process. For time managing, teacher should not instructed all of the groups to present their findings but it would be enough for faster one, and the other groups might have a chance to give additional comments.

## CONCLUSION

This study concluded that the lesson study could improve teacher pedagogic ability and teacher quality during teaching and learning process in ecosystem subject matter for Science at MTs. Madani Alauddin.

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