

Field Experience Program through a Lesson Study-Based Team Teaching in Biology Education Master's Program Universitas Negeri Makassar

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Abstract. Field Experience Program is a course in Biology Education Study Program at the Graduate School of Universitas Negeri Makassar. The program offers a one semester opportunity for graduate students to practice their pedagogical skills through the Team Teaching Method with a lesson study pattern. The program aims (1) to enhance pedagogical skills and (2) to provide provisions through factual experiences to develop themselves as professional educators. The three main stages of lesson study had been implemented, namely (1) Planning stage (Plan), in which the lesson plans, worksheets, evaluation instruments, and the teaching media were prepared, (2) Implementation stage (Do), in which the teaching teams taught in General Biology course, and (3) Reflection stage (See), in which the teaching team discuss the positive and negative aspects of the implemented teaching and learning process. The result of observations during the learning process, including the observation notes and reflection notes were subjected to a descriptive analysis. The result of the study advocated that the implementation of Field Experience Program through a lesson study-based team teaching method can enhance scientific process skills, as well as enhancing collaborative teaching practice of graduate students on Biology Education Master's Program, Universitas Negeri Makassar.

1. Introduction

Professionalism in teaching is a major factor that determines the successful achievement of national education goals. One of the component of the teaching professionalism is the mastery of the basic skills for teaching, which is the skills to transfer knowledge, attitude, and value to students during the learning process. Furthermore, mastery of teaching material is also an important component for the success of the teaching and learning process.

Efforts in enhancing teachers' professionalism, particularly the mastery of basic skills, still need to be improved. The urge to enhance teachers' professionalism is supported by a study conducted to assess the number of professional teachers in schools. It shows that the total number of teachers who are considered eligible for teaching is still low, as it only reaches 45%, 23.3%, and 15.4% in elementary school, junior high school, and senior high school, respectively [1]. Most of the assessed teachers were not considered as professional teachers as they still have a low level of problem solving skills.

Furthermore, the teachers were also incapable in doing effective analysis, evaluation, and decision making.

In order to prepare prospective professional teachers, the educational institutions need to apply an effective teaching method to prepare the student teachers with the skills they need to be a professional educator. Pedagogies in teachers' education need to provide an intensive and focus experience for student teachers to experiment with various teaching and learning aspects and learn from the experience [2, 3, 4].

Educational institution can produce more professional teachers though the implementation of Lesson Study as a pattern of professional development for educator through a series of collaborative learning. Lesson Study is a form of professional development that is widely applied and favoured by Japanese educators [5]. It was first developed by a basic education teacher in Japan, Makoto Yoshida. Japan's success in developing Lesson Studies began to be followed by other countries, including America and Indonesia. In Indonesia, the Lesson Study began to be socialized in 2006 and has been used as a model in improving student learning processes [6].

As a pattern of improving the quality of learning and professionalism of educator, Lesson Study provides opportunities for teachers to design and implement a student centered learning. During the implementation of Lesson Study, the teacher collaboratively plan, implement, and revise the teaching and learning process. Firstly, they analyse the curriculum and then formulate the learning objectives. Secondly, they design the learning scenario in order to achieve the previously determined goals. Thirdly, they implement and observe the learning process. Then, they reflect and discuss the implemented teaching. Finally, they utilized the result of reflection to plan the next meeting [7].

Implementation of Lesson Study is supported by three main pillars of activities, namely Plan, Do, and See. Plan, aims to a design student-centered learning. In this case, students are expected to participate actively during the learning process, so that the learning objectives can be successfully achieved. Do, is the implementation of the previously planned learning. In this stage, students are expected to actively participate in the learning activities provided by teachers. See, is the reflection phase of the previously implemented teaching activities. During this stage, the positive and negative aspects of the teaching practice is discussed [8].

There are several benefits of implementing Lesson Study for teacher professional development, as it enables the teacher to (1) obtain a better understanding of how students learn and teachers teach, (2) obtaining certain teaching strategies that can be used by other teachers outside the Lesson Study participants, (3) improve learning through collaborative inquiry, and (4) to build a pedagogical knowledge, in which a teacher can draw knowledge from other teachers. In general, the implementation of Lesson Study for prospective educators is expected to be effective in improving their ability to deliver subject matter in a way that can be easily understood by students. In the realm of science education, the implementation of Lesson Study is expected to improve the ability of teachers to carry out learning that is efficient to help students (1) in improving reasoning and critical thinking while asking question, (2) in formulating, testing, explaining, or rejecting hypothesis, (3) in communicating scientific explanations; and (4) in developing scientific inquiry, which are the goal of science education [9].

Considering the potential benefits of Lesson Study in answering the urge to improve teachers' professional development, this study is conducted to assess how is the implementation of Team Teaching Method with Lesson Study Pattern during a Field Experience Program can help prospective educators in improving their pedagogical skills.

2. Method

The research is a descriptive study which was conducted in the academic year of 2018/2019. It aims to (1) enhance prospective educators' pedagogical skills and to (2) provide a factual experience as a professional educator through a one semester of Field Experience Program which implement a Team-Teaching method with a Lesson Study pattern.

Participant of the study were postgraduate students of Biology Study Program, Universitas Negeri Makassar. A total of six teaching team participated in this study. The team teaching method with lesson study pattern were implemented through three main phases, namely Plan, Do, and See. At the Plan stage, the teaching team developed a design of the learning process by analysing the curriculum, developing learning tools, and conducting simulation to assess the positive and negative aspects of the lesson plan before its actual application in the teaching and learning process. Several important points to be considered during the simulation, including the relevance of teaching materials with the characteristics of students, learning methods / approaches, and learning media. In addition, the suitability of evaluation and the learning process were also considered. As the result of simulation, the previously prepared learning plan was subjected to initial revision, including the lesson plan, teaching media, reading materials, assessment instruments, and learning observation sheet.

At the Do stage, the teaching teams participating in the program implemented the previously planned learning scenario. While the team teaching delivered the teaching and learning process, their fellow teachers observed the teaching and learning process by using an observation sheet that had been prepared to assess the feasibility of the planned learning stages and to assess the activities of students during the learning process.

At the See stage, the teaching team, observers, and supervisors held reflective discussions about the learning that had been carried out. In this case, the model teacher presents a reflection from his perspective as a teacher, followed by the presentation of the observers regarding the positive and negative aspects of the implemented lesson plans and student activities. Thus, after this stage, the team teaching will gain insight regarding positives practice of their teaching and also insight on what practise that still need to be improved.

The implementation of the Plan, Do, and See pattern was carried out six times to accommodate the learning of six teaching teams during the Field Experience Program, guided by two lecturers as supervisors. In each cycle, one team acts as the teacher, and five other teams act as observers. The instruments in this study were observation sheets, reflection sheets, and the teacher's final report. All stages of the Lesson Study was also documented as a source of data regarding the feasibility of the Lesson Study.

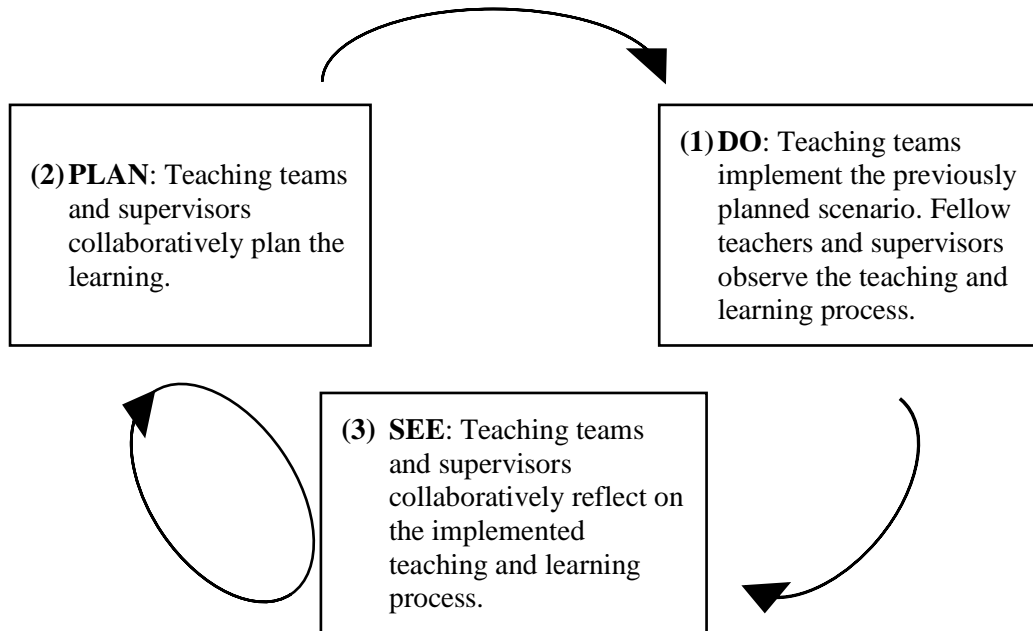


Figure 1. Phases of Lesson Study

3. Result and Discussion 22.11

The Field Experience Program which implement a Team-Teaching method with Lesson Study Pattern was carried out through three main stages, namely the Plan, Do and See. The results of applying these three stages are as follows:

1. Plan

The planning phase aims to design a student-centered learning in order that they can actively participate during the learning process. The planning process is collaboratively carried out by the teaching team. It can be carried out for several meetings for a maximum result. Before designing the learning tools, problem analysis and curriculum analysis were first carried out. Several problems encountered as the result of problem analysis including several topics of biology is deemed incomprehensible by several students, the instructional media provided is insufficient to support students learning, and the learning methods that do not correspond to the characteristics of the material. Collaboratively, team teaching tried to find out solution to tackle the encountered problems. The solutions were produced in the form of teaching tools, which includes the learning plans, learning media, student worksheets, and assessment instruments. The prepared learning tools were then subjected to a simulation, so improvements can be made before actual teaching implementation. The results of the learning simulation show a number of things that still need to be improved, including: (1) less detailed explanations of important material concepts, (2) the absence of final conclusions explained at the end of learning, (3) learning media (powerpoint) is difficult to be read as the font size is too small. Based on the simulation results, the teaching team receives suggestions in order to improve the quality of teaching scenarios and learning tools.

2. Do

Do is the implementation stage of learning which aims to implement the previously designed learning scenario. The teaching team carry out learning in accordance with the tools and learning

scenarios that have been prepared. During the implementation of learning, observers then observe the ongoing learning process based on the points of observation on the observation sheet. During the implementation phase, five observers assessed the feasibility of the initial activities which included apperception and explanation of learning objectives, core activities, mastery of the material by the teaching team, applied learning strategies, maximum use of media and learning resources, student responses, learning outcomes, and the implementation of the final learning activities.

3. See

See is the reflection stage which is carried out on the same day, immediately after the learning process. At this stage, the teaching team, supervisors, and observers reflect on the implementation of the learning scenario, how the teaching team manages learning, and how the activities of the students during the learning process. The two main things examined in the reflection phase are (1) what teaching practices have been well implemented and have positive effects on the learning process and (2) what practices have not been well implemented, nor give the expected effect. At this stage, the teaching team is given the first opportunity to explain the practices that are considered necessary to be maintained, practices that need to be improved, difficulties / problems faced during the learning process, and planned solutions to be implemented in the next teaching. Furthermore, the opportunity for reflection was given to observers and supervisors, so that they can provide suggestions to improve the learning process. Accordingly, the overall input obtained regarding the implementation of learning has been comprehensive, both from the teacher's perspective and from the observer's point of view.

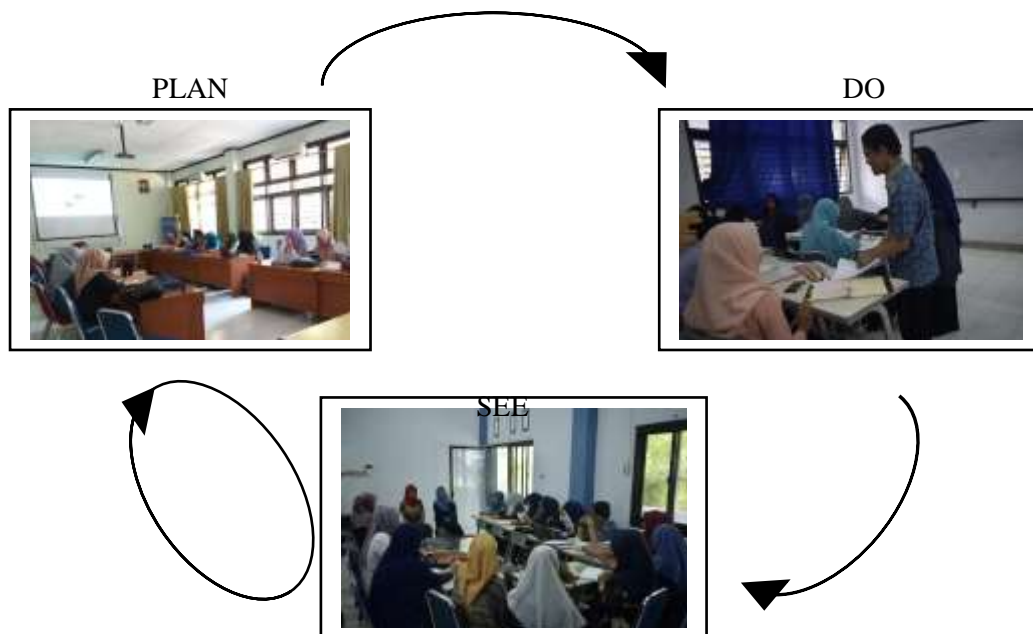


Figure 2. Implementation of Lesson Study

The implementation of the Team Teaching method with the Lesson Study pattern by six teaching team groups has provided opportunities for each teaching team to learn from their experience as a teacher and as an observer. Thus, the advantages and disadvantages of the first teaching team can also be a lesson for other teams. Based on the results of the reflective discussion conducted by the first teaching

team, it was found that giving mnemonic during the learning process successfully helped students to understand the material easily. This was observed from the ability of students to answer questions from the teaching team, which reflects their understanding of the material that had been taught. Nevertheless, the use of learning videos by the first teaching team has not been maximized, the presentation of the material has not been well structured, and there was no information provided for students to prepare for the next meeting.

The results of the reflective discussion of the second teaching team showed that the second teaching team had used learning media well, but the use of students' worksheet had not run optimally as there were students who still looked passive in their groups. Meanwhile, the results of the reflective discussion of the third teaching team show that the learning steps can lead to effective interactions with students.

The reflective discussion of the fourth teaching team shows that classroom management can be carried out thoroughly, but time management still needs to be improved. Another thing that is considered important for improvement is material that is less associated with everyday life. In the fifth group, the subject matter has been delivered in order and accompanied by examples of daily life. Thus, the students can easily understand the learning material. The results of the reflective discussion of the sixth teaching team showed that the material was also delivered in order. Furthermore, the use of microphones by the sixth group has appeared to be beneficial in making the teacher's voice be heard more clearly, causing the students' attention to be focused on teacher's explanation.

Based on the analysis of the reflective discussion which was explained in the final report of each teaching team, it was found that there were improvements in the implementation of learning from the first teaching team to the sixth teaching team. The improvement is evident in the fifth and sixth teaching team that can carry out the learning process in a more structured manner, by utilizing good learning media, and using examples related to daily life. This is because the fifth and sixth teaching team have acted as observers in the initial learning process, so that they can take lessons from the weaknesses and strengths of the teaching teams they observed earlier. The improvement in the implementation of the learning process was due to the application of the Teaching Lesson Study Teaching Team which provided a forum for prospective educators to (1) practice teaching, (2) plan collaborative learning with fellow teachers, and (3) reflect on the implemented learning process. These three things provide a factual and meaningful experience for prospective educators to develop themselves as professional teachers. The three activities are the characteristics of active learning that is associated with successful professional development for educators in increasing knowledge and skills in the implementation and management of learning [10, 4].

4. Conclusion

The implementation of Team-Teaching method with Lesson Study pattern in this study has been successful in enhancing scientific process skills, as well as enhancing collaborative teaching practice of graduate students on Biology Education Master's Program, Universitas Negeri Makassar.

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