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THE APPLICATION OF ASSIGNMENT LEARNING GROUP METHODS THROUGH MICRO SCALE PRACTICUM TO IMPROVE ELEMENTARY SCHOOL TEACHER STUDY PROGRAM COLLEGE STUDENTS' SKILLS AND INTERESTS IN FOLLOWING SCIENCE STUDY COURSES

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Abstract. The aim of the study is to increase students' interest and skills using the Group Assignment learning method through micro-scale practicums in Science courses. The study was conducted on Chemistry study subjects. The research subjects were 209 students of Elementary Teacher Education, Pakuan University . During the learning process, observations about student cooperation during the practicum were carried out. The results of observations of each cycle are evaluated as reflection material in the next cycle to improve students' skills and interests in accordance with the set targets. Data analysis was performed descriptively quantitative. Science practicum material is material in the Chemistry Study course on a micro scale. From the results of the T-test, there are significant differences. This means that the understanding of concepts and Science Process Skills increases after prospective teacher students experience the learning process of group assignments on Chemistry Study material on a micro scale. The results of understanding concepts, the average value increased from 62.42 to 86.68 and the science process skills increased the average value from 56.19 to 87.86. 94% students responded positively, namely agreed and strongly agreed that the process of science lectures with group assignments and micro-scale practicum. This can improve science process skills and understanding of materials in science courses at PGSD students.

Keywords: micro scale practicum; learning group methods

I. INTRODUCTION

Education is the most important factor and a top priority that requires serious attention from all parties, because education is a determinant of the nation's progress in the future **[1]**. National goals and ideals, for the intellectual life of the nation is contained in the 1945 Constitution. The government together with the community continues to seek the development of education for the realization of an independent, superior and ready nation to face the globalization world **[2].**

Science education has an important role in preparing children to enter the world of their lives. Science is essentially a product and process. Science products include facts, concepts, principles, theories and law. While the science process includes ways to obtain, develop and apply knowledge that includes how to work, how to think, how to solve problems and how to behave. Therefore science is formulated systematically, mainly based on experimental observations and induction. **[3]** Science is one of the important aspects that must be mastered by students of Elementary School Teacher Education (PGSD), because it affects the learning process of Natural Sciences in elementary schools.

Werkani **[4]** suggests that the learning group method can be interpreted as a way used by two or more people in searching for or enhancing knowledge, attitude skills or abilities generally carried out that the term group work is used or summarizing the understanding where students in one group are seen as a unit alone, to achieve a certain learning objectives by mutual cooperation. Alipandie in Werkani **[4]** said that the group work method is a way of teaching that is done by the teacher by forming a group work group of several students to achieve a certain learning goals in mutual cooperation. Hisyam in Werkandi [4] says that for learning the best is to teach others. Therefore, the choice of group work methods as a learning strategy will greatly assist students in absorbing / receiving lessons.

Pratikno **[5]** concluded that group learning is a series of activities carried out logically and systematically carried out by several people by having the ability to act with unity in order to obtain behavior changes and learning to be more effective. Based on the understandings that have been outlined above, researchers concluded that group learning is a process of receiving knowledge carried out by a group of individuals who carry out an activity logically and systematically for the process of behavior change through increasing knowledge, skills, attitudes, and abilities.

In teaching and learning activities there are various approaches that can be applied to optimize the results of the teaching and learning process to be achieved. One approach that can be used especially in teaching science is the process skills approach. The process skills approach is a teaching and learning approach that leads to the development of fundamental mental, physical, and social abilities as the drivers of higher abilities in individual students **[6]**. Natural science is a series of science that is composed because of observations of natural phenomena. Chemistry studies as

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part of science study something abstract, and sometimes difficult for students to understand. To help understand the thinking process, namely the holding of practicum activities inside and outside the laboratory. According to Taufiqurman, the aim of science education is to develop learning methods through practicum methods. Practical methods can be implemented to develop science process skills. Practicum method can be one of the teaching methods that can be used. Through practical methods PGSD students are directed to find their own answers to the problems they face so that learning activities will be more meaningful. Practicum is one way to find answers to scientific problems faced by students. The experience gained will last a long time and can cause a transfer effect. So far, the practicum activities carried out are macro-scale science practicum activities. Even though it is superior, there is a weakness in macro-scale science practicum, which requires a lot of expensive and expensive materials and instruments, so it requires a large amount of money, requires alertness in experience, because it can disturb health and can cause accidents. This resulted in many teachers in their learning not doing practical activities. To overcome the problems in the implementation of macro-scale practicums Hubbi and Dasna **[7]** proposed to carry out science practicum at the micro-scale. The practicum used in this research is a micro-scale practicum with tools and materials that are used also with the existing size design and at least the working principles and methods are the same as from the equipment used in practicums. While the weakness of micro scale practicum according to Dwiyanti **[8]** is that the overall change of macro scale to micro scale can eliminate a lot of students' experience in using laboratory equipment. To overcome these weaknesses, the design of micro scale equipment is made without ignoring macro scale techniques.

Assignment learning method according to Kusumawati **[9]** is a teaching method used to guide students to solve problems by giving assignments to students, which are done in the teaching and learning process in class. The task must be completed and mastered by students in a certain period of time, then accountable to the teacher concerned. Assignments for each student or group can be the same and can also be different. So that the assignment of tasks can support the success of the learning process, then: a. Assignments must be done by students or groups of students, b. The results of this activity can be followed up with presentations by students from one group and responded by students from other groups or by the teacher concerned, b. At the end of the activity there is a conclusion obtained.

According to Fitri and Kusumaningtyas **[10]** The learning method of giving group assignments is very appropriate to be able to improve student cooperation, because in this method students can actively discuss, express ideas or ideas, and work together to solve various problems in lectures. Therefore through the method of giving group assignments to science subjects, the level of student cooperation can increase.

II. RESEARCH METHODS

This study is an exploratory study with odd semester student research subjects in the Study Program in Elementary School Teacher Education taking Sains Studies. The object of research is expected to be mastered by students in terms of cognitive, affective, and psychomotor aspects. The research was carried out in the Study Program in Elementary School Teacher Education, Teaching and Education Faculty, Pakuan University.

The independent variable of research is the form of lecture implementation, namely Chemistry Study learning with a micro-scale practicum model. The dependent variable in this study was student competence which included understanding concepts and process skills. The research instrument consisted of Lecture Program Units, micro-scale experimental procedures, student worksheets, concept mastery test sheets, questionnaires and interviews.

Research data collection is done by determining the data source, then the type of data, data collection techniques, and instruments. To see the increase in mastery of concepts and science process skills, an analysis of the results of the mastery of concepts and science process skills before and after learning on a micro scale. Comparative analysis before and after the implementation of the learning model t test. To see the lecturers 'and students' responses to the learning model, an analysis of questionnaire sheets and interviews was conducted. Analysis of laboratory skills to see cognitive, affective, and psychomotor aspects viewed from the practicum assessment format.

III. RESULTS AND DISCUSSION

This research obtained data from the assessment of mastery test material and observations on student worksheets pretest (before practicum) and post-test (after practicum) at the chemistry course with a micro scale. To see the increase in mastery of material concepts and Science Process Skills before and after group methods through micro scale practicum, the T-test was conducted on the responses of PGSD students to the group methods through micro scale practicum process developed by evaluating the results of questionnaires filled by PGSD students. PGSD students' understanding of the Chemistry Study material with a group methods through micro scale practicum was developed from questionnaires in student worksheets.

Pre-test results of concept understanding were carried out before group methods through micro scale practicum. The result are, 85 students get scores below 70; 77 students get 70-79 scores and 47 students get grades 80-85 with an average of 62.42. The mastery of the material concept post-test was carried out after students did a group methods through micro scale practicum, the results were an increase in understanding, 21 students scored below 70; 47 students got a score of 70-79; 92 students got a score of 80-85, and 49 students got the above score 85 with an average of 86.68. T-test was given to see significant changes to the process, the results of which stated that there was a change in the

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understanding of the significant concepts in PGSD students before and after group methods through micro scale practicum in the sains course.

The Science Process Skill was observed before and after the group methods through micro scale practicum, with the questionnaire for the pre-test and post-test. The developed Science Process Skill test consists of questions relating to observation, applying material concepts, interpreting or deducing results, using practical tools and materials, and practicum planning processes.

Pre-test results of concept understanding are carried out before the group methods through micro scale practicum internship. The result, 85 students get scores below 70; 77 students get 70-79 scores and 47 students get grades 80-85 with an average of 62.42. Mastery post-test for the material was carried out after students conducted group methods through micro scale practicum internship, the result was an increase in understanding, 21 students scored below 70; 47 students got a score of 70-79; 92 students got 80-85, and 49 students got the above scores 85 with an average of 86.68. T-test was carried out to see significant changes to the process carried out, the results of which stated that there was a change in the understanding of concepts that were significant to PGSD students before internship and after the internship group methods through micro scale practicum in the chemistry course.

The response of PGSD students to the group methods through micro scale practicum learning process in the Chemistry Study Course can be observed from the questionnaire. The results of the questionnaire from ten questions received the strongly agree 32%, Agree 62% and Disagree 4%. So 94% of the answers responded strongly agree, while the other 4% responded disagreeing. It means that it can be concluded that the enthusiasm and positive response of PGSD students on group methods through micro scale practicum in the Chemistry Study Course to improve Science Process Skills.

Based on results of the T-test the pre-test and post-test on the mastery of the concept and improvement of Science Process Skills showed a significant difference. It means that there is the development of Science Process Skills and the development of conceptual understanding after PGSD students was given group methods through micro scale practicum in the sains study course. The response of prospective teacher students to this learning model is very positive, if observed each statement can be revealed that the group methods through micro scale practicum developed is more economical and familiar because the practicum process is concerned with sains change process activities in the surrounding environment, less waste, guiding learning creativity , developing thinking skills, giving rise to interest in designing other similar experiments. It can be seen that the group methods through micro scale practicum in the sains study course can develop science process skills of PGSD students.

IV. CONCLUSION

From the results of the T-test, it was found that there were significant differences. This means that the understanding of the concept and Science Process Skills increases after prospective teacher students experience the practical learning process of sain study material on group methods through micro scale practicum. From the results of the average value of understanding the concept, increasing from 62.42 to 86.68 and science process skills increased the average value from 56.19 to 87.86. 94% of prospective teacher students respond positively, that is, agree and strongly agree that the sains study lecture process with a group methods through micro scale practicum can improve science process skills and understanding the materials in the study subjects for PGSD students.

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