

Preliminary Analysis of Problems Botanical Phanerogamae Learning in the Departement of Biology Education IAIN Kerinci

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Abstract - The purpose of this study was to find out the initial analysis of problems in the learning of phanerogamae botany in the biology education department of IAIN Kerinci. This research was conducted in March 2019. This type of research is quasi-experimental research. The population in this study is the 2nd semester students of biology education at IAIN Kerinci who are registered academically in 2018/2019. The sample in this study used two sample groups namely class II A students as the experimental class and class II B students as the control class observed from the population members who took the technique using purposive sampling technique. The instrument used is a test. Data analysis was performed using the t test. The findings showed that there were significant differences between the competency of phanerogamae botanical students in the experimental class and the control class, the competence in the experimental class was 77,72 and in the control class was 53,00. So, it was concluded that the study of botany phanerogamae with the collaboration of lecture methods, demonstrations and exercises can improve student competence in the aspect of knowledge.

Keywords - Phanerogamae Botanical Learning; Competence; Collaboration on Lecture, Demonstration and Exercise Methods.

I. INTRODUCTION

Education is the basis of the creation of a quality generation that is able to bring this country to a more advanced direction in the future. Education is a process in order to influence students to be able to adjust as well as possible to their environment and thus will cause changes in themselves that allow them to function adequately in people's lives. Teaching is in charge of directing this process so that the goals of change can be achieved as desired (Hamalik, 2011: 79).

Education that is able to support future development is education that is able to develop the potential of students, so that the concerned is able to deal with and solve life problems they face (Trianto, 2012: 1). The aim is to explain that the learning process in an educational institution should

involve students actively, including higher education institutions. As an educator, lecturers must be able to design a lecture so that they are able to develop the potential possessed by students.

Thus, students are expected to be motivated and able to mobilize all of their abilities to absorb information and process it so that it gives meaningful benefits to themselves. In the learning process, it is necessary to know the various requirements needed for the occurrence of good educational interactions, according to Lufri (2007: 62) such as; method approach, condition of facilities and infrastructure, recognize students' intellectual, psychological and biological development. Learning is all the efforts made by the lecturer so that learning processes occur in students (Sutikno, 2009: 32). Learning according to Kunandar (2010: 287), states that learning is the process of interaction between lecturers and

their environment so that behavior changes occur towards a better direction. Then according to Sagala (2010: 57), learning is an activity designed to help someone to be able to learn an existing ability or judge a new one.

The competence of college graduates is adjusted to Presidential Regulation No. 8 of 2012 concerning the Qualifications Framework which can juxtapose, equalize and integrate between the fields of education and the field of job training and work experience in the framework of granting recognition of work competencies in accordance with the structure of work in various sectors. There are levels 1 to 9 in the IQF. Bachelor degree graduates are equivalent to level 6. In the KKNI learning achievement parameters have been established which in general work ability for level 6 is determined to be able to apply, study, design, utilize science and technology and solve problems according to their fields.

To meet the learning achievement targets set out in the KKNI, the education process must go well including the lecture process. Education at tertiary institutions has compulsory subjects and elective courses. One of the compulsory subjects in the biology education department of IAIN Kerinci is botany phanerogamae, therefore students must understand the basic concepts of phanerogamae botany properly and precisely.

The IAIN Kerinci is one of the higher education institutions that has a mission to develop science and technology through scientific research and research by adhering to Islamic values. Through this mission, IAIN Kerinci is expected to produce students who have the ability to develop science and technology in real life in the community. The Biology Education Study Program is one of the study programs at Kerinci IAIN which also develops this mission through education which aims to produce educators in the field of biology studies that are professional and competitively based on science and technology and uphold Islamic values. The competencies in question include pedagogic, professional, social and personality competencies.

Based on the results of research observations, the authors conducted preliminary data collection by interviewing two lecturers of botany phanerogamae at IAIN Kerinci using interview guidelines and providing student questionnaires. Based on the results of interviews with the first lecturer, as a lecturer in phanerogamae botany at the Biology Department of Kerinci IAIN, it is known that there are still many students who have not understood the phanerogamae botanical concept correctly. These difficulties are seen in

subsequent biology lectures such as anatomy and plant physiology. To be able to achieve the learning objectives of the course, often the lecturer must repeat again discussing some of the initial phanerogamae botanical material so that students can relate it to the material to be studied. The statement of the first lecturer was also in line with what was conveyed by the students that their understanding of the botanical concept of phanerogamae was not strong enough to become the basis of the course. Students have not been able to understand the concept well, think critically and can apply the material learned in everyday life.

Based on the results of interviews conducted with the second lecturer who was also one of the lecturers of phanerogamae botany in the biology education department of IAIN Kerinci, it was known that the implementation of phanerogamae botanical lectures was conducted using lecture and discussion methods. In addition, lecturers also make the media in the form of Power Ponit, but it cannot always be presented in front of students because the tools in the form of projectors are not always available when the learning process takes place. According to the second lecturer, the discussion process during the phanerogamae botanical lecture had not yet taken place optimally. Understanding the concept of students about the concept of botany is still very superficial, students lack the knowledge base and rarely those who want to try to find references independently.

The author has conducted preliminary data collection by interviewing two lecturers of botany phanerogamae at IAIN Kerinci using interview guidelines and giving questionnaires to several students at the IAIN. The results of the student questionnaire obtained, 90% of students were interested in phanerogamae botanical courses because students felt the importance of studying phanerogamae botany and felt the benefits of studying botanical phanerogamae in everyday life. In addition, it is known that 80% of students do not have supporting references. The results of interviews with students also revealed that, students take references from the internet (web or blog) because they are easy to find and use simple language. In the questionnaire found, students also said that 70% of them were not too able to distinguish the characteristics of pinophyta and magnoliophyta plants, and 65% of students were also still having difficulty distinguishing the characteristics of monocot plants and dicotyledonous plants.

Based on the material difficulty questionnaire in the phanerogamae botanical course which was given to 60 students, 65% of students said that the material about

pinophyta was difficult, and 70% was difficult for magnoliophyta material. Students tend not to prepare conceptual understanding for the material to be discussed next. Then, in the matter of phanerogamae botany students also find it difficult to remember very many Latin names of plants that are often discussed by lecturers, as well as to identify plants, students find it difficult to express the characteristics of plants that are very diverse.

The author also conducted interviews with plant taxonomy lecturers who taught at Padang State University to find out the methods used by the lecturers so that students could easily understand the concepts in plant taxonomy material. Based on the results of interviews revealed by plant taxonomy lecturers at UNP, that the method used is the method of lecture and demonstration. Students do not do the percentage independently because they fear that there will be a misunderstanding of the concept for students if it is not demonstrated in a direct manner. In lectures on plant taxonomy, special learning models are not used because it will take a lot of time. In addition, lecturers also provide mandatory assignments each time in the form of handwritten resumes so that students have the basic concept for the next meeting material.

In addition, the low learning outcomes and mastery of phanerogamae botanical material that occurs in the IAIN Kerinci Biology Education Study Program are listed on data on student learning outcomes in the course which shows that the average semester is less than 60. This explains the level of mastery of students the material they have received is less than 60%. The low student learning outcomes are also determined by students' initial knowledge, because initial knowledge is the foundation in forming a new learning concept. That knowledge cannot be moved intact from the mind of the lecturer to the student, but is actively built by the student himself.

The initial ability and learning model are two very important things to be noticed by the teacher before starting the learning process. The initial ability of students is a prerequisite for participating in learning so that it can carry out the learning process well. According to Astuti (2015: 7), the initial ability is a learning outcome obtained before getting a higher ability. This is in accordance with the opinion of Slameto (2010: 3) that as a result of learning, changes in a person take place continuously, not static. One change that occurs will cause the next change and will be useful for life or the next learning process.

Based on these problems, and also reviewed the conditions of the initial abilities and character of students

and lecture systems in the second semester of biology education at IAIN Kerinci in 2019 school year, it is necessary to make efforts to improve the quality of the Phanerogamae Botanical lectures. One effort that can be done by lecturers to help students to be active and better understand the subject matter is to apply lecture methods, demonstrations and exercises which are the right collaboration methods to help students more easily understand, describe and practice concepts from phanerogamae botanical material.

The lecture method can be interpreted as a way of presenting lessons through narrative or verbal explanation directly to a group of students. While the demonstration method is a method of presenting lessons by demonstrating and demonstrating to students about a particular process, situation or object, whether actual or just an imitation (Vienna, 2006: 145-152). Demonstration learning can also provide many benefits by using a world prediction model for "mental simulation" (Schaal: 2019). The training method is a good way of teaching to instill certain habits, besides that it can also be used to obtain a dexterity, accuracy, opportunity, and skills (Djamarah, 2010: 95). According to Sagala (2003) Method of training (drill) or training method is a good way of teaching to instill certain habits, besides that as a means to obtain a dexterity, accuracy, opportunity and skill.

The application of this method is expected to help students communicate to convey information, such as expressing ideas, asking questions, responding to questions and improving learning outcomes. According to Sirvajah, Dkk (2019), states that education has a condition that all people who interact and teach students must undergo training effectively by having teaching methods.

The selection of collaborative methods in this study is based on previous research that has been successfully proven by research from Indah Nofiyati (2012) entitled "Efforts to Increase Student Learning Activities and Results Through Application of Variable Lecture Methods and Use of Audiovisual Media in Learning Citizenship Education in Class VIII E Students at Salatiga Stella Matutina Middle School. The results obtained by applying the lecture method varied and the use of audio-visual media increased student learning outcomes proved in pre-cycle students who completed only 25%, then increased in the first cycle with a percentage of 46.4%. The second cycle of completeness percentage increased from 46.4% to 89.3%.

In addition, there is also a previous study by Maski (2014) entitled "Collaboration of Lecture Methods,

Discussions and Exercises on Technology Development Materials to Improve Learning Achievement". Obtained results For student learning achievement that is completed individually starting from the first cycle as many as 22 students (73%) with an average value of 74, in the second cycle increased to 27 people (90%) with an average value of 87. As for learning activities students in the first cycle got an assessment of 60% increasing to 93,3% in the second cycle, it can be said that in the second cycle this improvement of learning carried out by the teacher by using collaborative lecture methods, discussion and training has succeeded in making students active in participating in learning activities.

In addition, there was also a previous study by Ingrid I-yng Tsai (2019) entitled "The effect of peer collaboration-based learning on enhancing English oral communication proficiency in MICE", whose research results showed that the experimental group as a whole had a marked increase in Their oral communication on MICE activities after PCBL, was different from the control group which had no effect in their English spoken achievement under traditional teaching methods. The results show some pedagogical implications based on student learning preferences and teacher teaching approaches and skills. Peer Collaboration Based Learning, as a Learning Cooperative, can help teachers improve students' oral communication skills in the MICE circle. Most studies focus on the benefits of cooperative language learning in improving students' reading comprehension and classroom writing skills. However, a little research explore the relationship between. Cooperative learning and traditional language-based teaching on improving students' listening and speaking skills. This study investigates the effects of Peer Collaboration-Based Learning on improving oral English in HTU Students' communication skills exclusively. The findings justify the value of the benefits of Peer Collaborative Based Learning in helping students improve their communication and verbal skills their performance in the MICE field in Taiwan.

Based on these problems, and also reviewed the conditions of the initial abilities and character of students and lecture systems in the second semester of biology education in Kerinci IAIN in 2019 school year, it is interesting to conduct a study entitled " Preliminary Analysis of Problems Botanical Phanerogamae Learning in The Departement of Biology Education IAIN Kerinci"

II. RESEARCH METODH

This research is a quasi-experimental study. The population is students in the second semester of the Biology

Education IAIN Kerinci registered in 2018/2019. For the sample in this study using two sample groups, namely class II A students as the experimental class and class II B students as the control class were observed from members of the population who were using the purposive sampling technique. The instrument used is a test. Data analysis was performed using the T test.

The data obtained in this study is the knowledge competency of students in the experimental and control classes.

3.1 Data on Student Knowledge Competence

Student knowledge competency data are presented in Table 1. below.

Table 1. Data of Students 'Knowledge Competence

Class	Average Score
Experimental	77,72
Control	53,00

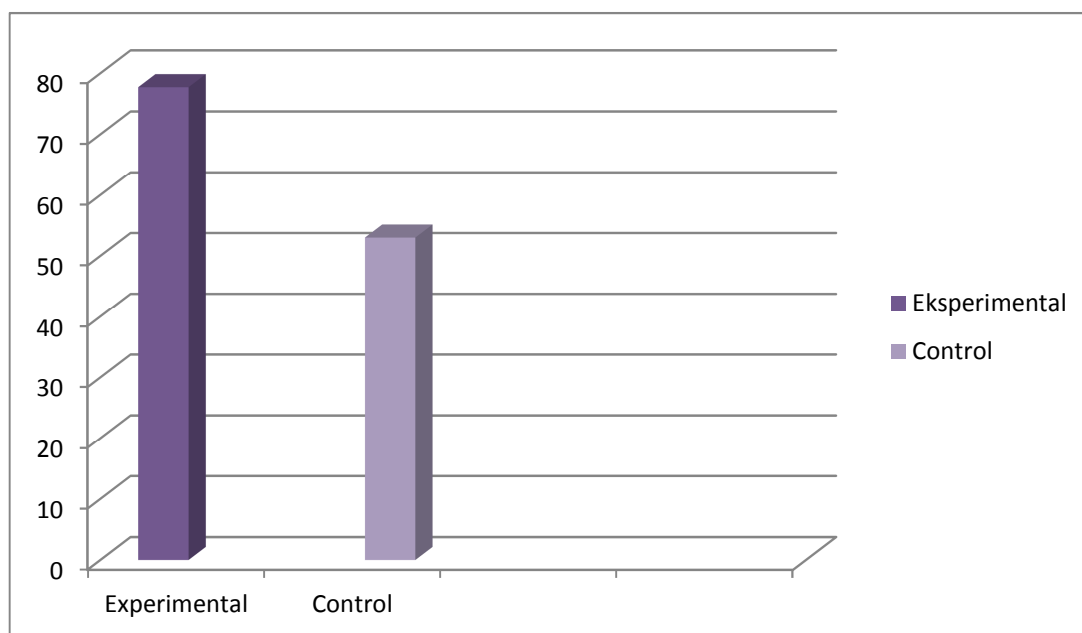
Student knowledge competency assessment is done by using test questions. Based on Table 1. And Graph 1. above, it is clear that the average score of knowledge competency students in the experimental class is higher than the control class, namely 77.72 in the experimental class and 53.00 in the control class. This shows that the realm of student competency in the experimental class that uses the lecture collaboration method, presentation and training is higher than the control class with the conventional method based on the high initial low ability. This is because collaborative lecture, demonstration and training methods are in line with Maski (2014), which states that the improvement of learning carried out by educators using collaborative lecture, demonstration and training methods has succeeded in making students active in participating in learning activities.

The application of this method can help students communicate to convey information, such as conveying ideas, asking questions, responding to questions and improving learning outcomes. Collaborative lecture methods, demonstrations and exercises are collaborative methods that combine or combine activities to describe subject matter with demonstration and training activities. This method is suitable for use in vocational schools, because it requires specificity to practice directly and continuously.

The demonstration learning method is very effective to help students find answers to many questions. Students are given the right or opportunity to ask anything that is not or is not understood. The aim is to form student carcasses to be

more active in asking questions and not just passively listen to the lecturers' explanations. With the demonstration

method it can also turn on the classroom atmosphere to be active but still reliable.



Graphic 1. Average Score of Students' Knowledge Competence

Learning activities with collaborative lecture methods, demonstrations and exercises have several main steps that begin with the preparation stage, the presentation stage and the closing stage. At the preparation stage, the lecturer first formulates the goals to be achieved. Then the lecturer determines the main points of the material to be explained, after which the lecturer prepares a tool in the learning process.

At the implementation stage an opening step is taken which determines the success of the implementation. Lecturers must believe that students understand the goals to be achieved by expressing the goals to be achieved in advance, because the aim will be to direct student activities, thereby stimulating students to be motivated to follow the learning process through the lecture method. After that, the lecturer takes an apereptic step to connect the previous subject matter with those that will be learned to prepare mentally so that students are able and able to receive the subject matter explained by the lecturer.

Next is the presentation step, the lecturer maintains eye contact with students so that they are kept in mind, because eye contact or views can mean a lecturer's self-esteem to students. Lecturers must get used to using communicative language that is easily understood by students. The lecturer

presents learning material systematically and responds quickly to student responses. Lecturers must keep the class condition conducive and exciting to study.

In the step of ending learning, the lecturer guides students to draw conclusions or summarize the lecture material that has just been delivered and discussed. The lecturer stimulates students to be able to respond to the learning material that has been delivered. After that, the lecturer conducts an evaluation to determine the ability of students to master the learning material that has just been delivered and explained. At the end of the lesson, students conclude the subject matter independently.

In the control class, the knowledge aspect competence was lower than the experimental class because in the control class using conventional methods and initial abilities. This can be seen from the results of student tests that are difficult to solve problems because lecturers do not guide, explain, demonstrate and train directly, only asking students to discuss themselves when the lecture takes place. However, not all students have the willingness to search and read material correctly, so that student learning capital is low.

This results in students needing a long time to solve problems given by other lecturers and students, students

must discuss in advance, think of answers, find meaning from several names and words, understand the problem and then look for answers to these problems so that much time is wasted, plus some answers that are out of sync with the question.

In other words, the learning process in the two sample groups, namely the experimental class and the control class, had significant differences. The experimental class using the application of collaborative lecture, demonstration and practice methods has an average value of competency aspects of knowledge better than the average value of the competency knowledge control group that uses conventional learning methods.

III. CONCLUSION

Based on the results of the study, it can be concluded that the Initial Analysis of the Problem of Phanerogamae Botanical Learning with the application of lecture methods, demonstrations and exercises significantly affects the competence of students, because it can improve the botanical competence of their phanerogamae.

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