The Relevance of Practicum Implementation on Student Interests, Understanding and Learning Outcomes in The Land Surveying Subject, Civil Engineering Department, Universitas Negeri Semarang

Nurul Yuhanafia[*], Aris Widodo, Listiyono Budi, Eko Nugroho Julianto

Civil Engineering Education Program, Civil Engineering Department, Faculty of Engineering, Universitas Negeri Semarang, Semarang, Indonesia
[*]*Email: nurulyuhanafia@mail.unnes.ac.id*

ABSTRACT

Each learning process can be done with various methods and with various objectives. One of the objectives of applying certain methods is to facilitate the implementation of learning and problem solving. Learning process has aim to equip students with the ability to adapt to the demands of work in the field. To achieve that aim, an appropriate learning method is needed. One of the learning methods that can be applied is the practical application in the learning process. This study aims to determine the effect of the practicum implementation in the learning process related to interest, understanding, and learning outcomes results in the Land Surveying Subject at the Civil Engineering Department, Universitas Negeri Semarang. The methods that used in this study are descriptive statistical analysis methods and inferential statistical analysis methods. The population in this study were 69 students who took the Land Surveying Subject. The results of the normality test, homogeneity test, and linearity test concluded that the data obtained passed the statistical prerequisite test. Based on the results of the Pearson Product Moment Correlation Hypothesis Test, the r-count value is 0.674. The results showed that there was an increase in students' understanding and interest of 107.67%. This was obtained based on a comparison of the average scores between students who took part in learning with practicum compared to the average score of the learning outcomes of students who took part in learning without practicum. Therefore, it can be concluded that there is a fairly strong influence between practicum implementation on interest, understanding and student learning outcomes in the Land Surveying Subject at the Civil Engineering Department, Universitas Negeri Semarang.

Keywords: Practicum Implementation, Learning Interest and Understanding, Learning Outcomes.

1. INTRODUCTION

The college learning process is different from high school. Different learning models can certainly affect student understanding. Higher education implements an adult education pattern for students. Students are required to be responsible and learn independently [1]. Teaching and learning interaction are in the students themselves, while the function of the lecturer is only as a facilitator.

Conventional or lecture methods tend to emphasize lecturer activities in the delivery of learning in class while students are passive in learning activities [2]. This does not make students active in learning. That's make

teaching and learning activities will feel boring. This will have a negative impact on students' understanding of the material. Lecturers must choose learning methods that can improve student learning outcomes [3].

Students need adaptation time to be able to follow the learning properly. In addition, it is necessary to have learning methods that can support and facilitate students in understanding learning well and obtaining satisfactory results. One of the learning processes that can increase the level of student understanding is the implementation of practicum courses. Practicum can be interpreted as a series of activities that allow students to apply skills or refresh something [4].

The practicum method is a support for the learning process to find certain principles or explain the principles developed [5]. Practicum is a teaching method by practicing directly to test or prove a theory being studied. Practicum cannot be separated from technical learning because techniques come from facts and activities that are arranged in a structured manner. Through practicum, the presentation of learning is carried out in a real way in the field [6-7]. Students are given learning conditions that can develop thinking skills and creativity optimally so that student learning achievement increases better through increased student understanding [8-9].

Practicum learning is expected to increase learning completeness, interest and understanding of students. Student learning completeness can be seen from the acquisition of a satisfactory final score [10]. Besides that, theory of the subject must be balanced with practice so that students can position themselves in direct situations in the field. On the other hand, practice that's not based on theory causes work that's not in accordance with the required procedures. Therefore, practice and theory must be balanced so that students have a better understanding.

Land Surveying Subject is one of the subjects in the Civil Engineering Education study program that discusses about needed of survey data for construction purposes [11]. Land surveying course needs practicum so that students can imagine the situation in the field. In addition, the practicum will provide an overview of direct work in the field. A lot of direct experience will be gained by students when students carry out practicums.

Land surveying course in the Civil Engineering Education study program is carried out for 2 semesters. The first semester is theoretical learning while the next semester applies practicum in its learning. This research aims to prove the statement about the relevance of practicum implementation on student interest, understanding and learning outcomes in the Land Surveying Subject on the Civil Engineering Education.

2. METHODOLOGY

This type of research is associative, which aims to determine the relevance between two or more variables. The research method used in this study is descriptive qualitative and quantitative. Qualitative descriptive research used in this research is intended to obtain information regarding the relevance of practicum with comprehensively lecture theory and understanding of land surveying subject students.

Population in this research are students of Civil Engineering Education taking Land Surveying Subject with a total of 69 people. The data collection technique was carried out using a questionnaire, interviews, and student grades.

Data analysis used descriptive statistics and inferential statistics with independent sample t-test. Descriptive analysis is used to describe the data without making further conclusions, whereas inferential correlation statistical analysis used to draw conclusions and make decisions based on the analysis. There are two variables in this research namely independent (X) and dependent variables (Y). That analysis has been done to connect about two variables, X (independent variable) and Y (dependent variable) [12]. The independent variable is Land Surveying Subject, and the dependent model is student's interest and understanding of subject. Meanwhile, to find out the effect of practicum on student final results, it is done by making comparisons with student learning outcomes in the previous semester.

The data analysis technique uses triangulation (data collection techniques that combine various existing data and sources). Response questionnaire test students use the Guttmann scale with analysis using this formula:

$$[1]$$

P   = Percentage of score sought
R   = Numbers of answers given by students
N   = Total Max Scores

The collected data from final exam scores on learning theory compared with final exam scores from learning that has been equipped with practicum. Furthermore, a comparison is made by asking the question about difference between the values from the theoretical values before and after the practicum. Testing the difference in values is only done on the average of the two values, and for this purpose a technique called t-test.

Relevance about practicum effect on student interest was conducted after the data passed statistical prerequisite test such as normality test, homogeneity test and linearity test [13]. Normality test used to determine that data used in this research has a normal distribution or not. The homogeneity test used to determine about homogeneous or same variance about the data used [14,15]. The linearity test used to determine about significant linear relationship about data variable on this research. The significant value of the data must be > 0.05 on normality test, homogeneity test and linearity test.

After the research data passed normality, homogeneity, and linearity test, then the hypothesis test can be done. Hypothesis test is a branch of Inferential Statistics which is used to statistically test the truth of a statement and draw conclusions whether to accept or reject the statement.

H1 hypothesis accepted if significance value is <0.05. Relationship between independent and dependent variable can see from the r-count value. The r-count value

range is between 0.00 and 1.00. The greater of the r-count value indicates a strong relationship between the variables.

The hypothesis in this study is: H1 = there is an effect of learning with practicum on students' interest and understanding in the Land Surveying Course, and H0 = there is no effect from practicum on students' interest and understanding.

3. RESULTS AND DISCUSSION

Understanding students based on grades in the Land Surveying subject can be seen on students who get an A value of 53.62%, AB value with a percentage of 33.33%, B value is 13.04% and BC value is 0%. The value increased significantly compared to the value in the previous semester, before the practicum was held. The variation in the scores obtained by students was 14.43% for students who received an A score, 28.17% of students received an AB score, 38.63% of students received a B grade and 18.77% of students received a BC score.

Relevance of practicum activities with lecture theory in Land Surveying Subject can be seen in the practicum "Measure of Basic Framework Mapping with Polygon Method" obtain a percentage of 96.08%, it means that practicum is very relevant with "Detail Topographic Mapping" theory. Practicum "Cross and Long Section Measure with a Waterpass" obtain a percentage of 97.12%, is very relevant to "Elevation Measure" theory.

3.1. Inferential Statistical Analysis - Statistical Prerequisite Test

Inferential statistics uses statistical techniques to extrapolate information from a smaller sample to make predictions and draw conclusions about a larger population. The main goal of inferential statistics is to provide information about the entire population using sample data to make the conclusions drawn as accurate and reliable as possible. The results of the statistical prerequisite test for the questionnaire data obtained the following results:

3.1.1. Normality Test

Based on the Kolmogorov-Smirnov Normality Test, the significance value obtained is 0.106. This value is more than 0.05, so it can conclude that the data is normally distributed.

3.1.2. Homogeneity Test

Based on homogeneity test with Levene Test, the significance value obtained is 0.712. This value is more than 0.05, so it can conclude that the data is homogeneous.

3.1.3. Linearity Test

The linearity test gets 0,888 of significance value and that value more than 0.05. That can be conclude that a linear relationship between the independent and dependent variable.

3.2. Inferential Statistical Analysis - Hypothesis Test (Pearson Product Moment Correlation Test)

Inferential Statistical Analysis is used to ensure the hypothesis is accepted. The hypothesis in this study is: H1 = there is an effect of learning with practicum on students' interest and understanding in the Land Surveying Course, and H0 = there is no effect from practicum on students' interest and understanding. H1 hypothesis is accepted if the significance value is <0.05. Based on the Pearson Product Moment Correlation Test, the significance value obtained is 0.012. That can be concluded that the hypothesis H0 is rejected and H1 is accepted. In addition, the r-count value is 0.674. This value indicates a strong relationship between the independent and dependent variables.

4. CONCLUSIONS

From the description and analysis of the results, it can be concluded that the application of the practicum method in the Land Surveying Subject has a relevance and effect on interest, theoretical understanding and learning outcomes. Students more easily understand the material that has been practiced compared to theory which is only taught by the lecture method. Overall, the analysis results showed that the practicum has a significant relationship and influence on increasing student grades and understanding.

This is shown by a comparison of the average value of students who have attended practical learning with those who have only attended theoretical learning in the Land Measurement subject experienced an increase of 107.67%. In addition, the results of the hypothesis test produce an r-count value of 0.674. This value indicates that the correlation between the independent and dependent variables is strong.

AUTHORS' CONTRIBUTIONS

NY write the manuscript, collection the research data and make analysis. AW participated on the draft of manuscript and collection data. LB participated in the analysis design and statistical analysis. ENJ participated in draft of the manuscript and correction.

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