Implementation Outdoor Practice-Based Learning to Concept Understanding On Plant Morphology and Plants Ecology In FKIP Lancang Kuning University

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Abstract

The purpose of the research is to identify the effect of using outdoor learning based on practical towards conceptual understanding in Morphology and Ecology Plants in FKIP Lancang Kuning University. Design of the research was pretest-posttest control groups design. The mean of N-Gain in the control class was 0.64 (medium category) and experimental class was 0.75 (high category) morphology plant class. The mean of N-Gain in the control class was 0.44 (medium category) and experimental class was 0.72 (high category) Ecology Plants class. Concluded the research is significant effect of using autdoor learning based on practical towards conceptual understanding.

Keywords: Outdoor learning, practical, conceptual understanding, plants morphology, plant ecology

1. Introduction

[1] Permendiknas 22 of 2006 on the Content Standards gives the sense that the Natural Sciences (IPA) deals with how to find out about a systematic nature, so that IPA not only mastery of knowledge in the form of a collection of facts, concepts, or principles but also a a process of discovery. Science education is expected to be a vehicle for students to learn about themselves and the environment, as well as prospects for further development in applying it in everyday life. The learning process emphasizes providing direct experiences to develop competency in order to explore and understand the universe around scientifically. Science education is directed to inquire and doing so can help learners to gain a deeper understanding of the nature around.

Currently implementation of learning courses, especially Biology plant morphology second half FKIP Unilak still dominated by a class of conditions that are still focused on the professor as the main source of knowledge. Lectures are still the main choice in teaching, while the process has not been regular science developed in the learning process. Activities of students in teaching and learning activities are lacking, students only receive the knowledge derived from the lecturer alone. students still at least once engage in activities that involve the skills and ability to think, when the implementation of lessons to class lecturers give lectures and discussions of matter using the help of the media power point.

This monotonous learning process that causes students to be passive, unmotivated and low interest in the subject morphology. As a further consequence the achievement of students to be not optimal, the UTS and UAS are often not yet reached the standard set value when the contract lectures, so should get the value is in accordance with their respective capabilities.
Strategies to increase student activity is often a problem for the lecturers. Teaching and learning process to run smoothly and can achieve the goal of learning, faculty should determine the approach and methods to be used prior to the learning process. Selection of an approach of course adapted to the learning objectives and the nature of matter which is the object of learning.

One of the subjects that the right to approach natural around is the subject of plant morphology and ecology of plants that can be done outside the classroom and the environment, because of the characteristics of this course is perfect when the student was clayey and observe the plants through the natural surroundings. JAS learning approach is one of innovation and learning approaches for the study of biology and other sciences are characterized by utilizing surrounding environments and simulation as a learning resource through scientific work, and followed the implementation of learning centered on the learner. Learning is an active activity learners to build understanding or meaning. This shows that the JAS learning approach provide flexibility for learners to build and develop ideas that emerged after the study ended. On the other hand the JAS learning approach appears explicitly that the onus is on students learning and teachers have a responsibility to create a situation that encourages initiative, motivation and responsibility of students for lifelong learning. [1] Mulyani, (2008) JAS approach chosen as learning approaches that are considered able to create a productive student daninovatif is the following reasons;

a. So far the implementation of educational / learning biology is still dominated by a class of conditions that still focuses on the students and professors who are good only as the main source of knowledge, lectures and discussions are still the main choice of lecturers in teaching, science has not been the usual process developed in the learning process. Learning is focused on learning outcomes rather than activities to master the process. To it is necessary to choose an approach that is more empowering students. A learning approach that does not require students to memorize facts, but to encourage students construct facts diaperoleh knowledge based on the concept or principle of biology through the exploration and investigation process. JAS prioritize student learning

b. Approach learns from experience and findsthem by exploiting the physical environment, social and cultural surroundings.

c. Curriculumthat thestudent resultsin the form ofa combination ofcognitive, affectiveandpsychomotordemands an activity ofstudent learning thatemphasizes thephysical, mental, intellectualandemotional.

Based onthe above background, it has carried out research on 'Application of Natural Based Approach To Practice On the Concept ders tanding Morphology of Plants and Plant Ecology FKIPLancangKuning. The purpose of this study was to determine the effect Application of Natural Interest-Based Approach To Practice On the Concept understanding Morphology of Plants and plant ecology.

2. Methods

In this study used is a quasi-experimental research (quasi). Is a kind of quasi-experimental comparison is to compare the effect of a treatment (treatment) on an object (experimental group) and see a large treatment effect compared with the controls. This quasi-experimental study using
This study was performed in Pekanbaru UNILAK FKIP academic year 2014/2015, data collection was conducted in April. The study population was all students of the second semester consisting of two parallel classes. Samples were taken two classes with census techniques. Parameters in this study are: 1. Concept Understanding, 2. Students Activity, 3. Lecturer Activity. The research instrument is Syllabus, lesson Plan of plant morphology and plants ecology, test objective, observation Lecturers and students, guide practice. Research Procedure; phase preparation Joint research lecturers who taught in the second semester class uses application-based approach to natural cruising around the lab at the University of Lancang Kuning, phasemplementation lecturer first give a pretest before the start of lectures to both classes both experimental class and control class. Lecturers conducting lectures about natural cruising approach based on Kela seksperimen lab and then professor conducting lectures in class control with lectures, discussions and question and answer. After the learning process ends later Lecturers give posttest on these two classes, both experimental and control classes. phasereport data obtained from the pretest and posttest were analyzed using t-test statistic for parametric, if the data were normally distributed or homogen and U-Mann Whitney for nonparametik (if the data is not normally distributed or not homogen).

Data analysis techniques can be used N-gain, normality, homogeneity, and t-test.

\[ N - Gain = \frac{\text{posttestscores} - \text{pretestscores}}{\text{ideal score} - \text{pretestscores}} \times 100\% \]  

Test of normality \[ KS = \left[ Fn_{(Y-1)} - Fo_{(Y)} \right] \]

Homogenitas test \[ L = \frac{(N-k)\sum n_i(\overline{V_i}-\overline{V})^2}{(k-1)\sum \sum (\overline{V}_{ij}-\overline{V})^2} \]

T test \[ t = \frac{\overline{x}_1 - \overline{x}_2}{\sqrt{s_1^2 + s_2^2}} \]

3. Results And Discussion

Results N-gain Based on research datathat has been carried out on 02 March-May 4, 2015 in class IIA and class IIB and VIA and VIB acquired N-gain data summary as follows:

<table>
<thead>
<tr>
<th>No</th>
<th>Kelas</th>
<th>n</th>
<th>ideal</th>
<th>Results</th>
<th>Mean</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>IIA</td>
<td>25</td>
<td>1,00</td>
<td>0,40</td>
<td>0,75</td>
<td>high</td>
</tr>
<tr>
<td>2</td>
<td>IIB</td>
<td>25</td>
<td>1,00</td>
<td>0,25</td>
<td>0,64</td>
<td>medium</td>
</tr>
<tr>
<td>3</td>
<td>VIA</td>
<td>25</td>
<td>1,00</td>
<td>0,42</td>
<td>0,72</td>
<td>high</td>
</tr>
<tr>
<td>4</td>
<td>VIB</td>
<td>25</td>
<td>1,00</td>
<td>-0,06</td>
<td>0,44</td>
<td>medium</td>
</tr>
</tbody>
</table>

Based on Table 1 shows the minimum value of N-gain class IIA is 0.40 while the 0.25 class and class IIB VIA and VIB ie 0.42 -0.06. Results of the N-gain maximum value kelas IIA is
0.90 while the 0.89 class IIB. While the maximum value 0.89 VIA and VIB class is 0.50. The mean N-gain class IIA is 0.75 and the class class IIB 0.64 while the 0.72 and 0.44 VIB. Here is an N-gain data from student in class IIA and class IIB and VIA and VIB illustrated with line diagram:

Figure 1. Diagrams of N-gain per Student Class IIA and class IIB

Figure 2. Diagrams of N-Gain per student Class Experiment (VIA) and Control (VIB)

Data N-gain class IIA and class IIB and VIA and VIB then analyzed by normalitas test, homogenitas and comparative hypothesis testing. If the data were normalitas distributed and had homogenitas variant. But if the data is not normally distributed and homogeneous, the non-parametric statistics were used, one of them by using the U -Mann-Whitney test. Data distribution normality test used Kolmogorov-Smirnov (KS-21). Data normality test results of N-gain class IIA and class IIB and VIA and VIB are presented in the following table:
Table 2. Result Normalitas test N-gain

<table>
<thead>
<tr>
<th>Kelas</th>
<th>Asymp. Sig (2-tailed)</th>
<th>α</th>
<th>Keputusan</th>
<th>Keterangan</th>
</tr>
</thead>
<tbody>
<tr>
<td>IIA</td>
<td>0.896</td>
<td>0,05</td>
<td>Terima H₀</td>
<td>Normal</td>
</tr>
<tr>
<td>IIB</td>
<td>0.644</td>
<td>0,05</td>
<td>Terima H₀</td>
<td>Normal</td>
</tr>
<tr>
<td>VIA</td>
<td>0.886</td>
<td>0,05</td>
<td>Terima H₀</td>
<td>Normal</td>
</tr>
<tr>
<td>VIB</td>
<td>0.945</td>
<td>0,05</td>
<td>Terima H₀</td>
<td>Normal</td>
</tr>
</tbody>
</table>

Based on the results can be seen in Table 2 normalitas test N-gain on grade class IIA and IIB and VIA and VIBdengan significant level (α) 0,05diperoleh Asymp value. Sig (2-tailed) for class IIA is 0.896>0.05 and Asymp value. Sig (2-tailed) for class IIB is 0.644>0.05, while the VIA class is 0.88 and VIB class is 0.94>0.05 sehingga pada each class obtained thanks H₀ decision which means that the came from data are normally distributed population.

Furthermore, the data homogeneity test N-gain. Homogeneity test is useful to determine the homogeneity of variance data. Analysis of the test data homogeneity using Levene test Test. Results of homogeneity test class IIA and class IIB and VIA and VIB can be seen in the table below:

Table 3. Result Homogenitastest N-gain

<table>
<thead>
<tr>
<th>Jenis data</th>
<th>Based on trimmed mean</th>
<th>α</th>
<th>Keputusan</th>
<th>Keterangan</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-gain (II)</td>
<td>0,515</td>
<td>0,05</td>
<td>Terima H₀</td>
<td>Homogen</td>
</tr>
<tr>
<td>N-Gain (VI)</td>
<td>0,938</td>
<td>0,05</td>
<td>Terima H₀</td>
<td>Homogen</td>
</tr>
</tbody>
</table>

Based on Table 3 can be seen homogeneity test results Based on the value of the table trimmed mean pada Levene test 0.515 and 0.938>0.05 earned decision is received H₀, meaning that the data of N-gain class IIA and class IIB and VIA and VIB variants derived from homogeneous. Once known N-gain the data were normally distributed and had homogeneous variant, it can be taken a decision to carry out a comparative test of hypothesis to determine differences in N-gain class IIA and class IIB and VIA and VIB using t-test 2 Independent Samples. T-test results Data N-gain can be seen in Table 4;

Table 4. Result t-test N-gain

<table>
<thead>
<tr>
<th>Jenis data</th>
<th>Sig (2-tailed)</th>
<th>α</th>
<th>Keputusan</th>
<th>Keterangan</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-gain (II)</td>
<td>0,000</td>
<td>0,05</td>
<td>Tolak H₀</td>
<td>Berbeda signifikan</td>
</tr>
<tr>
<td>N-Gain (VI)</td>
<td>0,000</td>
<td>0,05</td>
<td>Tolak H₀</td>
<td>Berbeda signifikan</td>
</tr>
</tbody>
</table>

Based on the obtained value Table 4.12 Sig. (2-tailed) N-gain data on grade and class IIA and IIB and VIA VIB adalah 0.000 <0.05 with the decision reject H₀, which means there is a difference between the N-gain class IIA and class IIB and VIA and VIB. An increase in N-gain results showed an increase in learning outcomes in material morphology and ecology of plants. N-gain value class that uses a natural approach to cruising around more than in the conventional classroom.
4. Discussion

Based on the pretest results that have been tested using normality test and homogeneity test t-test, showed that in class IIA and class IIB and VIA and VIB there is no significant difference, which means students at grade class IIA and IIB and VIA and VIB have knowledge the same starting material in the material morphology and ecology of plants. This can be seen in Table 4.1.Berdasarkan normality and homogeneity test of the pretest the data obtained normal distribution and homogeneous decision. Then do the independent t-test 2-sample the decision obtained by the received H0, which means there is no difference between pretest grade class IIA and IIB and VIA and VIB.

Based on the results posttestpada learning process by using a lab-based learning approach JAS in class IIA and VIA class can be seen an increase in learning outcomes than the control class lectures and discussions only on IIB and VIB was learning takes place there is no significant improvement.

Based on the analysis of N-gain values in Table 4 shows an increase in learning achievement in material morphology of plants and plant ecology class values and class IIA VIA h higher than the value of the class IIB and VIB.Sesuai with research that has doresultstudies suggest that learning achievement biology on material plant morphology and ecology of plants that use natural cruising around compared with experimental class is higher than the control class. This shows that pendekatan natural cruising around effectively applied in plant morphology and plants ecology.

Learning is an activity of teaching and learning activities. Activity is a very important principle in the learning process. Activities to be performed by students in an effort to improve students' learning activities. According [4] Sardiman (2012) study is done, do to change behavior, so there is no learning activities if no aktivitas. Result learning is the results achieved by students who have followed the teaching and learning process. The result is basically something that is obtained from an activity, while learning is a process that results in a change in individuals, the changes in behavior, both aspects of the knowledge, skills, and attitude aspects [5] (Ibrahim, 2001).

5. Conclusion

Based on the research that has been done in the second half and VI FKIP Biology, University of Lancang Kuning, it can be concluded that there are significant natural cruising around-based approach to the mastery of concepts practicum student in the course of plant morphology and ecology of plants between experimental control class to class, it is dapat dilihat dari hasil N-gain experiment class IIA is 0.72 including high category and N-gain control class IIB is 0.47 including the medium category.

While the experimental class is 0.69dan VIA VIB control class that is 0.26 low category. Result t-test N-gain show the singificant difference. The mean N-Gain at 0.47 kontrol adalah class (medium category) and the experimental class was 0.72 (higher category) for the plant morphology. Mean N-Gain on 0.26 low category control adalah class and the experimental class was 0.69 (medium category) for the course of plant ecology.
6. References