



IMPROVING STUDENTS' INTERPERSONAL INTELLIGENCE THROUGH OUTDOOR ACTIVITIES IN LEARNING PLANT MORPHOLOGY : A QUASI EXPERIMENT

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Abstract

This research is motivated by learning that is still done in the classroom only, students feel bored in the classroom for the sake of achieving learning goals, besides that there is still an assumption that interpersonal intelligence of students of biology education is still low, as evidenced by students' inability to interact or socialize quickly with others, lack of social care for others (individualists). The purpose of this study was to analyze the Interpersonal Intelligence of Biology Education Study Program students through Outdoor Activities. The population were all students in semester 2 of Biology Education Study Program FKIP UNIKU in the 2017/2018 academic year as many as 104 students. Samples taken by purposive sampling were 1 experimental class totaling 24 students. The research method used is weak experiment with research design using The One-Group Pretest-Posttest Design. The data obtained were analyzed using the t test. In addition, the N-gain value was also analyzed, in the experimental class N-gain value was in the medium category. Thus H_1 is accepted, meaning that there is a significant effect of outdoor activities on student interpersonal intelligence in plant morphology courses.

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INTRODUCTION

Learning does not have to be done in the classroom only; students do not feel confined in the room just to achieve the learning goals, because through biology learning it is expected to be a vehicle for students to learn about themselves and the environment, and the prospects for further use in applying it in daily life. The learning process should emphasize providing direct experience to develop student competencies in order to be able to explore and understand the natural environment scientifically (Dadang, 2010). Biology education is directed towards inquiry and action so that it can help students to gain a deeper understanding of the environment.

Education is not only a way to gain knowledge, but education is an effort to improve understanding, attitudes and skills as well as students' self-development (Fadriwati, 2017). One of the abilities that must be developed in students is the ability to observe and understand the intentions, motivations and feelings of others. Be sensitive to other people's facial expressions, sounds and body movements and are able to respond effectively to communication. This ability or competency is also able to enter into others, understand the world of others, understand the views, attitudes of others and generally can lead groups. This ability is known as the term interpersonal intelligence according to Howard Gardner (Lazear, 2004). The interpersonal intelligence of students in the biology education program in the view of some people is said to be still low, as seen from the lack of ability of students to interact well and socialize quickly with each other. This intelligence is expected to be improved through the outdoor activities learning process.

Outdoor activities are one way to improve student learning capacity. Students can learn more deeply through the objects they face than if they study in a class that has many limitations. Furthermore, learning outside the classroom can help students to apply their knowledge. In addition, Outdoor activities are more challenging for students and bridging the theory between books and the reality in the

field. The quality of learning in real situations will provide increased learning capacity through learning objects and building better social and personal skills. Outdoor activities can be carried out at any time in accordance with the program design made by the lecturer (Ernawati, 2017).

Based on the background above, the researcher is intend to provide solutions to these problems through the use of learning approaches that further facilitate student interpersonal intelligence through outdoor activities. So the researcher is interested in conducting further research with the title "*Students' Interpersonal Intelligence through Outdoor Activities*". The results of this study are expected to be useful to increase the repertoire of knowledge about the use of learning approaches, especially outdoor activities in an effort to improve students' interpersonal intelligence and be a source of study material and considerations for similar research. For students the results of this study can provide experience in behaving and dealing with other people and the environment by using outdoor activities. For the University, this research can improve the quality of education at the University through the use of various methods and approaches in the teaching and learning process.

METHODS

The research method used in this study was an experiment with the research design of the One-Group Pretest-Posttest Design (Fraenkel, 2007). In this study only the experimental class was given treatment to assess the effect of the treatment, without being compared with control class. The design of the research design is as follows:

Tabel 1. The One-Group Pretest-Posttest Design

O	X	O
Pretest	Treatment	Posttest

The population in this study was all students of the Biology Education study program, Kuningan University, totaling 104

students. The sample used in this study was taken by purposive sampling as many as 1 class, namely the second semester of the students of the Biology Education Study Program FKIP Kuningan University with a total of 24 students who were taking a course in Plant Morphology.

The instruments used were observation sheets and questionnaires that contained indicators to measure the interpersonal intelligence. The questionnaires were given in the beginning and the end of learning. Questionnaires are used to measure the students' responses towards Plant Morphology learning through outdoor activities. The data were analyzed using statistical test, the steps included scoring for pretest and posttest, the questionnaires of interpersonal intelligence, calculating N-gain, analyzing data using *Software Statistical Package for Social Science (SPSS) for Windows versi 16.0*.

Data collection techniques used in this study were direct research techniques with observation sheets and indirectly using questionnaires. To reveal data on interpersonal intelligence, students use observation sheets and questionnaires arranged in accordance with the reference operational variable definitions. The instrument of data collection uses the Guttman scale which is a cumulative scale. On the Guttman scale some statements are hierarchically sorted to see a certain attitude from someone. The research instrument developed with the form of forced choice, which contains statements and respondents (in this case students) are given a statement then students answer each statement by giving a check mark in the "yes" column for answers yes or "no" for no answer. In addition to the questionnaire, this study also used an observation sheet to observe students' interpersonal intelligence while they were in the field.

RESULTS AND DISCUSSION

B The results of the study will be presented sequentially as follows (1) differences in the results of students' Interpersonal Intelligence between the pretest and the posttest on learning Plant Morphology through Outdoor

Activities, (2) increasing students' Interpersonal Intelligence learning Plant Morphology through Outdoor Activities, (3) students' responses towards learning of Plant Morphology through Outdoor Activities.

The results of the validity and reliability test of the instrument get the data described in Table 2.

Table 2. The result of validity and reliability test.

No	Statistical test	Score	Conclusion
1.	Validity test	0.75	High
2.	Reliability	0.68	High

The results of the trial analysis which included the validity test showed the value of 0.75 means that all questionnaires have high validity. The reliability test results showed a value of 0.68 which means that overall the interpersonal intelligence questionnaire has high category reliability. Based on the results of the validity and reliability test, it can be concluded that the interpersonal intelligence questionnaire can be used as an instrument in future study.

4.1 Differences in Students' Interpersonal Intelligence Results between pretest and posttest on learning Plant Morphology through Outdoor Activities

To find out how the Interpersonal Intelligence of students in learning Morphology of Plants Through Outdoor Activities, testing was conducted on the results of the pretest and posttest. The following in Table 3 presents the results of the average pretest and posttest of the experimental class.

Table 3. The result of *pretest*, *posttest* means and gain index of interpersonal intelligence

Class	Number of students	Interpersonal Intelligence		Gain Index
		Mean of	Mean of	
		<i>Pretest</i>	<i>Posttest</i>	
Experiment class	24	22.58 (80.6)	24.67 (88.1)	0.39

Table 3 shows pretest and posttest means of experiment class about 22.58 or if it is converted to around 80.6. After the treatment using outdoor activities, the students were given the posttest see students interpersonal intelligence. The result of the posttest score is 24.67 or around 88.1.

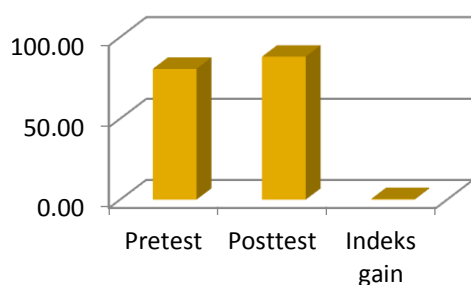


Figure 1. Pre test, post test mean and gain index

From the results of statistical testing, the data obtained are normally distributed and homogeneous, so the hypothesis testing is done by testing the parametric statistical test t one sample (one sample t-test). The test results with the t test of complete interpersonal intelligence can be seen in Table 5.

Table 5. Result of t-test on interpersonal intelligence

Data Source	Mean score	Significant	α	Conclusion
Post test	24.67 (88.1)	0.005	0.05	accept H_1

Based on Table 5 it can be seen that the results of the t test show a significance of $0.005 < \alpha$ ($\alpha = 0.05$), so it can be concluded that there is a significant effect of outdoor activities on student interpersonal intelligence in plant morphology courses.

The results of the recap of each indicator of interpersonal intelligence will be presented in Table 6.

Table 6. The recapitulation of students' interpersonal intelligence

Sosial Insight	Social Sensitivity	Social Communication
32	28.6	39.3

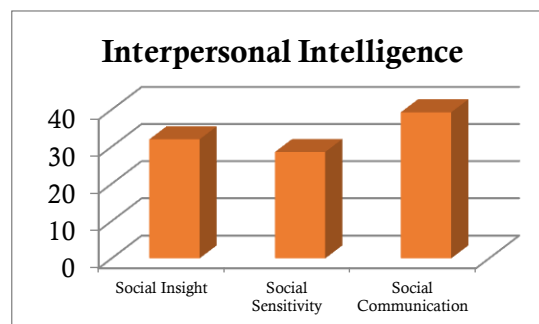


Figure 2. Recapitulation of students' interpersonal intelligence

Based on the recapitulation table of interpersonal intelligence for each indicator. We can see that outdoor activities learning has a positive influence on interpersonal intelligence, both in terms of social sensitivity, social insight and social communication, because: 1) Through these outdoor activities students can interact directly with each other more flexible than when they were in class, even though there was a sharing of study groups. 2) Students can learn more deeply through the objects they face than if they study in a class that has many limitations. 3) Outdoor activities create a new atmosphere and environment to channel human needs in interacting with nature and fellow humans (Dadang, 2010).

Outdoor activities are proven to facilitate the improvement of interpersonal intelligence, because through learning outside students have more opportunities to communicate with others, without boundaries that bind them as when learning in the classroom (Denise, 2014). This interpersonal intelligence needs to be developed because very important in life with the group good friends at school, parents, teacher, and society in general. On Basically humans cannot be alone, many activities in a child's life relating to other people, so by having interpersonal intelligence the height of a person

is not easily excluded socially (Adawiyah, 2018).

4.2 Increasing Interpersonal Intelligence through the Application of Outdoor Activities

To find out the increase in the results of interpersonal intelligence in the experimental class as a whole based on the Pretest and Posttest results, it is calculated using the N-gain formula and then classified. The recapitulation of the results of the N-gain calculation is described in table 7.

Table 7. The result of N-gain test

Class	Score	Category
Experiment	0.39	Medium

From table 4.7 above, it can be seen that the N-gain value obtained in the experimental class as a whole is 0.39 in the medium category, meaning Outdoor activities learning in Plant Morphology learning can improve student interpersonal intelligence by 0.39 with the medium category.

Furthermore, a normality and homogeneity test was conducted towards the gain value of students' naturalist intelligence. Normality and homogeneity tests are used as prerequisites for the next statistical test.

From the results of statistical testing, the data obtained are normally distributed and homogeneous, so the hypothesis testing is done by testing the parametric statistical test t one sample (one sample t-test). The t test was conducted to determine the level of significance of improvement in student interpersonal intelligence, the results of the t test showed a significance of $0.005 < \alpha$ ($\alpha = 0.05$), so it can be concluded that there was an increase in students' interpersonal intelligence after outdoor activities in plant morphology.

Interpersonal intelligence is the ability of students to perceive and distinguish the moods, intentions, motivations and desires of others, and be able to respond appropriately to the moods, temperaments, motivations and desires of others (Rohman, 2015). Students who have high interpersonal intelligence can feel what

others feel, capture the intentions and motivations of other people to act something, and are able to provide the right response so that other people feel comfortable (Lazear, 2004).

The concept of activity outside the classroom is an approach using outdoor life that provides many opportunities for students to acquire and master various forms of basic skills, attitudes and appreciation for various things that are outside the classroom (Pratiwi, 2018).

In addition to the questionnaire analysis, interpersonal intelligence was also analyzed using an instrument in the form of an observation sheet. Based on the observation sheet when students are in the field, it appears that their social activities are more prominent than when they are in the classroom. In each group they look more communicative among their peers, prosocial attitudes are clearly seen in those who enjoy the togetherness in the field. This breaks people's assumptions that biology education students are less able to socialize or interact with others, rather rigid and so on. Precisely based on the results of observations in the field, using outdoor activities students look more enjoy in an atmosphere of togetherness.

4.1.3 Student Response to Outdoor Activities and Interpersonal Intelligence

At the end of the lesson a questionnaire was given to the experimental class students as a whole to find out the responses or responses of students to Outdoor activities in learning plant morphology. Questionnaires made include 5 indicators which were then developed into several statements about outdoor activities and interpersonal intelligence.

The percentage recapitulation of student responses to outdoor activities in plant morphology learning is shown in Figure 4.3.

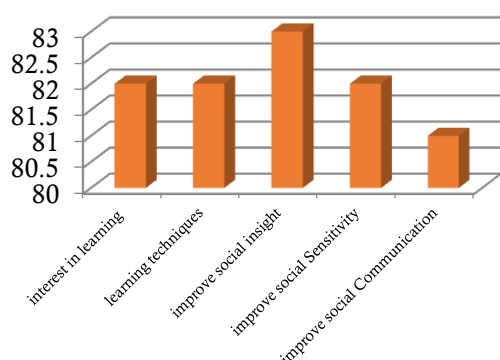


Figure 3. Results of student response to outdoor activities

Based on Figure 4.3, it can be seen that almost all indicators show a positive response from students. For indicators of interest in learning shows 80% of students who answered yes and 20% who answered no, meaning that most students feel interested in outdoor activities in learning plant morphology. For indicators to help students improve social insight, 78% of students stated that outdoor activities in learning plant morphology can help improve social sensitivity. For indicators to improve social communication, 80% of students stated that outdoor activities in plant morphology learning can improve student social communication. So that from the overall response of the students it can be concluded that almost all students give a positive response to outdoor activities and interpersonal intelligence in learning plant morphology. Interpersonal intelligence shows ability someone to be sensitive to other people's feelings. They tend to understand and interact with other people so it's easy to socialize with the environment around him (Najamuddin, 2015).

CONCLUSION

Based on the results of the study, obtained several conclusions, namely: 1) The results of observations and questionnaire tests showed that the three indicators of Interpersonal intelligence were included in the high category. This means that there is a significant effect of outdoor activities on student interpersonal intelligence. 2) Positive influence is also indicated by the results of the N-Gain

test, namely the difference in the results of pretest and posttest, including the medium category (0.39). 3) Positive responses were also given by students towards outdoor activities and student interpersonal intelligence.

Based on the findings of the research, the following are some suggestions for completing this study, including: 1) During learning, good time management between each stage of Outdoor Activities learning is needed and at the end of the activity, It needs to strengthen the concepts and principles of activities in Outdoor Activities and also interpersonal intelligence. 2) When determining the place for learning, it should be adjusted to the learning material to be discussed so that it is right on target. 3) Positive responses of students to learning Outdoor Activities on the concept of leaves provide opportunities for the use of learning Outdoor Activities in learning biology in other concepts. 4) Research carried out by other researchers is needed as input in this study. This is due to the possibility of differences in knowledge, how to teach and experience will influence the results of the study.

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