11. The Effect of Environmental Teaching Method and The Level of Natural Intelligence on The Environmental View of The Students Behavior

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The Effect of Environmental Teaching Method and The Level of Natural Intelligence on The Environmental View of The Students Behavior

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Abstract. The research objectives are to find the effect of environmental teaching method and natural intelligence on environmental view of the student's behavior. The sample of the research is the fourth year students of public elementary school Bangka IV, Bogor with as many as 52 students taken as the cluster randomized sampling. The research applies 2x2 factorial design. The research results reveal that (1) Environmental view of the student's behavior between the students taught through discussion starter story and those taught through fieldtrip strategy is not significantly different. (2) The students with high natural intelligence and the students who are taught through discussion starter story have similarly good results to the students who are taught trough fieldtrip strategy in relation to environmental view of the student's behavior. (3) The discussion starter story has more significant effect on the students with low natural intelligence compared to fieldtrip strategy in building environmental view of the student's behavior. (4) There is an interaction effect between the teaching method and natural intelligence in relation to environmental view of the student's behavior. Therefore, there is an effect of environmental teaching method and natural intelligence on the environmental view of the student's behavior

1. Introduction

Simon [1] said that all behavioral actions include selecting activities "certain actions, whether consciously or not. Most behavior has properties aim and goal oriented. This resulted in the integration of aiming in behavior patterns. Knowledge has a role in the formation of behavior that in determining the consequences of which are attached to alternative strategies. It is the task of knowledge to choose from a whole group of consequences". The possible consequences are associated with each strategy. Through Simon's opinion show that knowledge plays a role in choosing behavior that is based on the possible consequences.

The basic concepts of behavior, there are multiple streams / view / (understand). This ideology is the idea of holism and behaviorism. Understanding holism stressed that the behavior was intended (purposive) which means those aspects of intrinsic (intentions, determination) from within the individual is an important determinant for the birth particular behavior even in the absence of stimulation (stimulation) that comes from the environment (naturalistic). The views behavioristic emphasized that the patterns of behavior that can be formed through a process of refraction and confirmation (reinforcement) with a conditioned stimulus (conditioning) in the environment (enviromentalistic). This resulted in a (behavior change is very likely to occur. In the context of education should have two basic views are considered as being complementary (mutually complementary). From the above opinion can be concluded that the behavior is an activity of choosing a particular action is affected by the consequences of behavior, goals, encouragement (motive), the internal factors of individuals and the environment [2]

Environment are all things, conditions, circumstances and influences in space occupied and affect living things, including human life[3]. This is supported by Soemarwoto who explained that the environment is occupied space a living creature along with nonliving and living rope in it[4].

Environmentally sound behavior is the behavior or human actions consciously to the environment with attitudes based on responsibility. Environmentally sound behavior is the opposite of a frontier mentality. According Chiras [5] the environmental damage caused by human activity frontier mentality. The hallmark of the human frontier mentality is (1) minded that natural resources are not unlimited (2) minded that humans are not part of nature, and (3) natural-minded that there are to be controlled and used in meeting human needs. Thus the human being environmentally sound always seeks to change attitudes and his life in order to achieve better environmental conditions.

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According to Sternberg [6]: "intelligence is the ability to adapt the new situation by using the tools of thought according to its purpose." More Sternberg said that the intelligence includes the ability of men to three components, namely: (1) Intelligence componential, ie the ability to think, plan and monitor cognitive processes, (2) Intelligence experiential, ie the ability to formulate new ideas to solve problems, and (3) Intelligence contextual, ie the ability to adapt in response to an opportunity or a chance for optimism.

In the development of the concept of intelligence there is a change of a single concept to the intelligence compound. Multiple intelligence was developed by Gardner who initially claimed that human intelligence has seven dimensions of semi-autonomous, namely: (1) linguistic, (2) music, (3) mathematical logic, (4) visual-spatial, (5) physical kinesthetic, (6) social interpersonal and (7) intrapersonal. According to Gardner's multiple intelligences is more humane and more reliable because this theory more adequately reflects the behavior of human intelligence [2].

In further developments of Gardner's theory of multiple intelligence, experiences are the addition of a new intelligence, the naturalist intelligence. According to Gardner someone who has a high naturalist is someone who demonstrate proficiency in recognizing and classifying many species of flora and fauna in its environment. In the real world, a naturalist have proficiency in gardening, working on a beautiful garden, keep animals and have more attention in saving the environment. A naturalist typically has shown his talent since childhood. According to Rose C[7] a person who has a high naturalistic intelligence is a person who likes to keep animals, can recognize and name many types of plants, has an interest and a good knowledge of how the body works, be able to read the signs of the weather, have • an interest in the issue of global environmental issues, and believes that the preservation of natural resources and sustainable growth is a must.

De Porter et al., [8]says that someone who has a high naturalistic intelligence always think in reference of nature. It can be seen from the ability to see relationships and patterns in the natural world, identifying and interacting with a process. The opinions above are supported by Armstrong T[9] states that children who are competent in the naturalist intelligence is a nature lover. These children prefer to collect rocks or flowers rather than cooped up in school or home working on writing assignments. If given a school assignment that involves flowers or plants are also animals, children will be motivated to be better.

Method discussion starter story is a method of learning by educators giving or presenting stories relating to the subject matter first, and then the participants can proceed to discuss the content of the story or subject matter contained in the story [10].

From the above it can be concluded that the method of discussion starter story is a learning procedure by presenting a story that embodies concepts of learning and is continued to discuss the concepts that contained in the story in more depth beginners.

According to Bahri and Zain[11], field visits or field trips method is a way of teaching carried out by inviting students to a particular place or object outside the school to study or investigate an animal husbandry, agriculture, natural environment and so on. This learning method can make school subjects more relevant to the realities and needs of the community. In addition, through this method can stimulate the creativity of students. The opinions above are also supported by Sriyono [12] states that through the methods of field visits or field trips children can get to know the reality of people's lives, capable of observing, researching and studying an object outside of school.

For more Elser states that site visits can provide a lot of real experience for humans. Kids can do research directly on the environment plantations, animal husbandry, agriculture or national parks [13]. A field visit may provide activities for children to gather leaf or plant specimens, looking for traces of wild animals, observing the process of erosion and other.

2. Method

Research conducted at the State Elementary School Bangka IV Bogor. The activity of the research ranging from research planning to data analysis was length over twelve months, from July 2015 to July 2016. The method used in this research is an experimental study with a 2 x 2 factorial design study is depicted in the following design.

Figure 1. Design Research

Story Discussion Starter t K	(Discussion Starter Story)	(Field Visit Technique)
High	A1B1	A1B2
Low	A2B1	A2B2

Information

A1B1: The group of students is high natural intelligence that is taught by the method of discussion starter story.

A1B2: The group of students is high natural intelligence that are taught with methods of field visits.

A2B1: Group of students who low naturalist intelligence who taught the method of discussion starter story.

A2B1: Group of students who low naturalist intelligence who taught with methods of field visits

Sampling for this study was done by using cluster random sampling (random group). Selection of cluster sampling is the selection of samples where the sample is chosen randomly not individuals but

groups that have relatively similar characteristics[14]. Sampling through several stages. The first, from 17 public elementary school in the district of South Bogor and one of school children randomly selected is elementary Bangka IV School . Second, from four classes were randomly selected two classes for each treatment. The number of students from each class were chosen is 47 students. Third, both classes of all students selected were then given instrument naturalist to find students who have high levels of high and low naturalist intelligence. Fourth, in both classes are determined group of students who have a high level of intelligence naturalists and students who have a low level of naturalist intelligence. Determination of the student group by taking 27% of students who have a high level of naturalist intelligence and 27% of students who have a low level of naturalist intelligence. From the results obtained, it was found that the number of samples of the two treatments each class of 26 students, 13 students obtained with a high level of intelligence naturalist and 13 students with low levels of naturalist intelligence

3. Result And Discussion

Before testing the hypothesis, test the hypothesis prerequisites that include tests of normality and homogeneity tests were each using Kolmogorov-Smirnov (KS) to test for normality and Levine test for homogeneity of variance test. Calculations with the help of Statistical Product and Service Solutions (SPSS).

1. Normality test
    Test of each group found that all groups (6 groups) has a normal distribution of data because the probability value is greater than 0.05.
2. Homogeneity of Variance Test
    Tests conducted by the homogeneity of variance Levine test using SPSS. Through Levine test concluded that the data from the study group site visits and discussion starters methods stories come from populations having variances homogeneous.

3. Assumptions Test
    The results of the data analysis calculation with Analysis of Variance (ANOVA) two lanes of variable environmental behavior can be seen in the following table

Table 1. Results of Variance Analysis Environmental Behavior

Source Variance	Total Square	dk	RJK	F count	F table	
					0.05	0.01
Naturalist Intelligence	517,213	1	517,231	19,950**	4,048	7,218
Learning Methods	0,308	1	0,308	0,012"5	4,048	7,218
Naturalist Intelligence –	200,077	1	200,077	7,717**	4,048	7,218
Learning Methods In Group				-	-	-
	1244,462	48	25,926			
Total			-	-	-	-
	248156,000	52				
Total Correction	1962,077	51	-	-	-	-

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Information
**   Very significant
ns   Non-significant
dk   Degrees of freedom
RJK   Average Number Squares

The testing with Analysis of Variance (ANOVA) shows that there are two paths of interaction between learning method and naturalist, the test continued with Multiple Comparisons test to find out which group is significantly superior.

The first hypothesis, there is a difference environmentally friendly behavior among students taught with methods of story starters discussion with students taught with methods of field visits. From the calculation result of that, there was no difference in behavior environmentally sound development in students taught with methods discussion starter story or the methods of field visits. If seen from the fact, it suggests both methods equally good and appropriate to be given to the fourth grade primary school students, in the matter of environmental knowledge. It can also be seen from the average (mean) to score the data discussion starter story is 68.88 and the mean score of the data field visits are 68, 73. These two values mean much better than the average of 58 theoretical.

Both methods of learning, good stories and discussion starters are very appropriate field trips given to children aged 8-13 years, because in this age of the child has a critical personal characteristics, realistically, many curious and love to learn. In addition, in that age children have more attention to things that are practical and concrete in daily life. Both methods of learning above provide space as well as experience in children so as to know the world and fostering a sense of simply believing in ourselves, tolerance between living beings and the love for the environment.

The second hypothesis, there is a difference environmentally friendly behavior among students taught using stories beginners discussion with students taught with methods of field visits, the students who have high naturalist intelligence.

Based on the analysis of data obtained that, the students who have high naturalistic intelligence there is no difference between the environmentally sound behavior taught students with learning methods as well as the discussion starter story learning methods of field visits. It can also be seen on the acquisition of the average (mean) score of the second data learning methods are almost the same. The average for the scores of data stories beginners discussion was 70.08 and the average score of the data field visits is 73.85. Both mean value is much better than the average theoretical of 58. From the results of this analysis showed that the students who have high naturalistic intelligence, both the learning method above is appropriate to increase environmentally sound behavior.

A person who has high intelligence is a naturalist who demonstrate proficiency in recognizing and classifying many species of flora and fauna in their life. People are also showing an interest and knowledge of the environment and the view that nature conservation is a must. A child who has a very high intelligence, naturalists like the learning process in the open because of the mindset of the child is always in reference nature. The learning method is very appropriate field trips given to students who have a high naturalist intelligence and interest due in accordance with the spirit of the child who has an instinct and a strong attachment to nature. Through learning methods in the field of children's high naturalist intelligence can be further improved its environmental friendly behavior.

Methods also good discussion starter story and appropriate given to children who have a high naturalistic intelligence because through stories on the theme of the environment, the environmental sensitivity of children will be further developed. Children who have a high naturalist intelligence can easily grasp and understand a moral message about the environment contained in the story. Through stories, understanding and appreciation of the experience (penetrave into) the child can be further improved so as to improve the environmental behavior of children.

The third hypothesis, there is a difference environmentally friendly behavior among students taught with discussion starters stories and the method of field trips : the students who have low naturalist intelligence. Based on the analysis of data obtained, the students who have Low naturalist intelligence there is a difference in behavior between the given environmental friendly way of learning

stories and discussion starters with methods of field visits. By looking at the mean scores of students grouped data by the method of discussion starter story 67.69 and the mean student score data group by methods of field visits by 63.62 it is certain to students who have a low naturalist intelligence is better taught by the method of story starters discussion instead of the field visit in the establishment of environmentally sound behavior.

Students who have low naturalist lacks sensitivity and concern for the environment, so it is less precise when given the learning methods of field visits. This is because when a field naturalist low intelligence students are less able to absorb the messages or concepts existing environment. Consequently when in the field students will be more play and joke rather than learn.

Methods more appropriate discussion starter story given to students who are low because the naturalist intelligence through stories can foster interest someone about something, can educate the mind and foster a love of one's neighbor as well as on the environment. The stories on the theme of environment was able to form a child's positive behavior towards the environment. This was shown in this study that children who have given naturalist low with environmental knowledge through discussion starter story method can be enhanced sound behavior environment so obtained an average score data at 67.69 which is far above the average theoretical at 58.

The fourth hypothesis, there is an interaction effect between teaching methods and naturalist to environmentally sound behavior. Based on the analysis of variance result that, there is an interaction effect between teaching methods and naturalist to environmentally sound behavior. Based on the analysis, it can be explained that in order to achieve the expected results in the learning process environment it is necessary to do the selection of teaching methods tailored to the naturalist intelligence level of students. In the present study found the fact that for children who have a high naturalistic intelligence learning methods starters story discussions and field trips well to do. For students have low naturalist intelligence learning methods discussion starter story is more appropriate than the method of learning given field visits.

4. Conclusion

There is an interaction effect between the teaching method and natural intelligence in relation to environmental view of the student's behavior. Therefore, there is an effect of environmental teaching method and natural intelligence on the environmental view of the student's behavior

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