The Effect Of Inquiry Learning Toward 5th Grade Students' Understanding On Sciences Based On Motivation In Padang

Desty Ayu Anastasha[1], Yanti Fitria, Irdamurni[2]

Abstract: This study aims to explain (1) Differences in understanding the concept of science students who taught using Inquiry Strategy with students who were taught using Conventional Strategy on science learning in class V SD, (2) Differences understanding of science concept between high motivation students with Low motivation on science learning in class V SD, and (3) Differences of interaction between learning strategy with motivation in influencing understanding of science concept in class V SD Gugus 1 Kecamatan Padang Barat. The population consisted of all the fifth grade students at Kecamatan Padang Barat in the school year 2016/2017. The sample size was 60 students. The data in this study consisted of (1) the data on the students' learning motivation, (2) the data on comprehension of science. The data were analyzed using descriptive statistics and 2x2 factorial Anova. From the results of this research, it can be concluded that (1) (there was a difference on concept of science understanding between students' taught by using Inquiry learning and those who were taught by using conventional technique), (2) there was different on sciences understanding between high motivation and low motivation students and (3) there was no significant interaction between teaching approach and motivation influencing concept of sciences understanding.

Keywords: Inquiry Strategy, Motivation, Understanding Of Science.

Conflict of Interest Disclosures:
The authors declare that they have no significant competing financial, professional or personal interests that might have influenced the performance or presentation of the work described in this manuscript.

Introduction

The path of formal education is the most easily observed activity of success. This is because formal education is done by official institutions and its evaluation is clear. However, there is still the possibility of various problems that always increase from year to year. One of the key problems in Indonesia Education today is the low quality of formal education. Many people ask what is wrong with the actual implementation of education in Indonesia. As quoted from Sidiknas (2013), The Education for All Development Index (EDI) shows Indonesia ranked 64 out of 120 countries in 2012.

The Government has undertaken various efforts such as the development of national and local curricula, improving teacher competence through various certification training, procurement of books and instructional tools, procurement and improvement of education infrastructure(.Budimansyah, 2012). Nevertheless, less attention has been paid to the education process. The education process itself can not be easily separated from the learning activities in the classroom. Teachers need new creativity and ideas to develop ways of presenting the subject matter in school.

In addition to learning strategies, motivation factors are very important in determining the effectiveness of learning. Motivation is gives of direction and purpose to achieve goals. Learning requires constantly high motivation from the students. Hamalik (2008) states, that the motivation of students in every learning activity is instrumental to improve learning outcomes in certain subjects. Students who are highly motivated in learning will likely gain high results as well, meaning that the higher the motivation, the stronger the effort, the higher the learning outcomes achieved. The lower the students' learning motivation the lower the student learning outcomes.

Method

The population in this study is all students of class V SD group I West Padang subdistrict Padang city registered in the even semester in 2016/2017 consisting of 9 schools. Population number in this research was 231 students. The experimental design used in this research was factorial design, ie by observing the existence of the moderator variable affecting the treatment of independent variables on the dependent variable result (2 x 2 factorial design), (Yusuf, 2013:191). This design also concerns the possibility of moderating variables affecting the treatment (independent variable / independent) to the result (dependent variable / bound). In accordance with the research design, the research used two classes, namely an experimental class and a control class. The experimental class was a class deliberately a treated by Inquiry strategy, while the control class used the conventional strategy. The variables in this research consist of (1) an independent variable that is learning strategy, (2) a dependent variable that is understanding of science concepts, and (3) a moderator variable that is motivation. The design of this study can be described as in the following table 1.

Table 1. Factorial Design Research Design

		Strategy	
		Inquiry (A_1)	Convensional (A_2)
Motivation	High (B_1)	(B_1, A_1)	(B_1, A_2)
	Low (B_2)	(B_2, A_1)	(B_2, A_2)
		(B_1, A_1)+ (B_2, A_1)	(B_1, A_2) +(B_2, A_2)

The Instrument used in this research was test result sheets. The data in this study was obtained from these test result sheets.

Results and Discussion

Results

A. Normality tes for data

The normality test aims to see if the data of the learning outcomes of both sampling classes were normally distributed or not. To test the normality, the Lilliefors test was used. After calculation of data in both sample classes, a value of L_0 and $L\_((n, \alpha))$ was with a obtained level significant of 0.05.

Table 2. Test Results Normality Data from Test Results Student Learning

Kelas sampel	N	L_0	L_t	Conclusion	Distribution
Experiment	30	0,068	0,17	$L_0 < L_{tabel}$	Normal
sample	30	0,09	0,16	$L_0 < L_{tabel}$	Normal

Tabel 3. Test Results Normality Data from Motivation

Experimental class	N	L_0	L_t	Conclusion	Distribution
High motivation	17	0,226	0,227	$L_0 < L_{tabel}$	Normal
Low motivation	13	0,1186	0,242	$L_0 < L_{tabel}$	Normal

B. Homogeneity Test of Variance

The homogeneity test of variance aims to check of the data of the experimental class test and control class have a homogeneous variance. The homogeneity test used the F test.

The data calculation of the two sample classes, namely the experimental class and the control class are, as follows:

F = (Largest Variance) / (Smallest Variance) = 166,541 / 100,9 = 1.65

For F (= 0.05) (30,30) = 1.90

The computation of data from the experimental class based on motivation for the high and low groups is as follows:

F = (Largest Variance) / (Smallest Variance) = 237,6044 / 189,1818 = 1,25

For F (= 0.05) (17,13) = 2.64

Discussion

This research was carried out in class V SDN 23 Ujung Gurun and 22 Ujung Gurun. Based on the results of hypothesis testing it can be explained as follows:

1. There is a difference in understanding the concept of science students taught using inquiry strategy with understanding the concept of science students taught using strategy in class V SD Gugus I Kecamatan Padang Barat.

The first hypothesis in this study was to see whether or not there was a difference in understanding the concept of science between students taught using inquiry strategy with students who are taught using the conventional strategy. Based on data obtained from the analysis, there is a difference in understanding of science concept of students who are taught using inquiry strategy with understanding of science concept of students who taught using conventional strategy. This can be seen in the student's final test given to the experimental class and control class. Where the average understanding of concepts in the experimental class (inquiry) is 70.5 while in the control class (conventional) the average is 60.45. The research hypothesis was accepted, because there is a difference between understanding in the science concept of experimental class students and understanding science concept of control class.

According to Simsek (2010: 2) "inquiry may be more effective in helping students to acquire scientific process skills. When involved in the investigation, students explain objects and events, ask questions, build

explanations, tempt them explanations of current scientific knowledge, and share their ideas with others. Students identify assumptions, think critically, think logically, and consider alternative explanations. In this way, students actively develop their understanding of science by combining scientific knowledge with reasoning".

2. There is a Difference of Understanding of Student Science Concept Based on Motivation in Class V SD Gugus I Kecamatan Padang Barat

Based on data from the analysis, there is a difference in understanding of science between students who were taught using Inquiry strategy based on motivation. This can be seen in the student's final test given to the experimental class. In the process of learning in the experimental class, it appears that highly motivated students are more active to ask questions and come forward compared to low motivation students. Understanding the concept of science in the two classes can be seen in a comprehension test of the concept of science that students do individually. It can be seen that the average understanding of the concept of science class in the experiment group high motivation is 76.35 and low motivation group 74.5. The difference understanding in the concept of science between high motivation and low motivation is only 1.85.

According to Lee (in Tuan, 2005:547)" finds factors that influence students' learning motivation in learning sciences, these are: students' interpretation of the task, success or failure of students to make progress in scientific understanding, 'Objectives in the classroom, and student affective orientation to science learning. In line with Tuan (2005: 563) that Students are motivated to learn science for getting value in science learning. Learning science is important because it can be used in everyday life. In addition, according to Mr. (2005: 563) Research shows that inquiry can increase the motivation of all students to the science".

3. There is no interaction between learning strategy with motivation in influence understanding the concept of science class VSDN students Padang Barat.

Testing the third hypothesis in this study is to see whether or not the interaction between learning strategies with motivation is influencing the understanding of science concept of class V SD Gugus I, Padang Barat District. Based on the analysis of data obtained, there is no interaction between learning strategies with motivation in influencing the understanding of science concept of class V SD Gugus I, Padang Barat District. This can be seen in the student's final test given to the student.

Conclusion

Based on the results of research that has been put forward, it can be concluded:

1. There is a difference in understanding of science concepts of students who are taught with Inquiry Strategy with understanding of science concept of students taught by conventional learning in class V SD Gugus I, this can be obtained from the calculation of F value = 12,474 and F Table = 4,01. Students studying science obtain higher scorsif they are taught using the inquiry method.
2. There is a difference in understanding of science concepts of students who have high learning motivation taught by Inkuiri Strategy with understanding science concept of students who have high learning motivation taught by conventional learning. Based on learning motivation in class V SD Gugus I Kecamatan Padang Barat. The result of calculation analysis is F value = 20,449 and FTabel = 4.01. With a significance level of 5% then $F\_count > F\ t$, H0 means the hypothesis is rejected and the research hypothesis is accepted. Students taught science eith the inquiry method are more highhly motivated then students taught using convensional method.
3. There is no significant interaction between the type of learning strategy with the students' motivation to understanding the concept of science class V SD Gugus I, Padang Barat .The result of calculation analysis is obtained Fcount = 0,049 and FTable = 4.01. From the calculation results obtained conclusion f arithmetic <f table then accept Ho.

References

Anggareni. (2013). Implementasi Strategi Pembelajaran Inkuiri terhadap

Kemampuan Berpikir Kritis dan Pemahaman siswa. E-jurnal

Gulo, W. (2002). Metode Penelitian. Jakarta: PT. Grasindo

Hamalik, Oemar. 2007. Proses Belajar Mengajar. Jakarta : Bumi Aksara

Ridwan (2008). Aplikasi Statistika dan Metode Penelitian untuk Administrasi &

Manajemen. Bandung: Dewa Ruchi.

Simsek, Pinar. (2010). The Effects Of Inquiry-Based Learning On Elementary Students' Conceptual Understanding Of Matter, Scientific Process Skills And Science Attitudes. Elsevier Ltd. Procedia Social and Behavioral Sciences 2. Turkey. doi:10.1016/j.sbspro.2010.03.170

Sulistyorini, Sri. 2006. Model Pembelajaran IPA Sekolah Dasar dan

Penerapannya dalam KSTP. Yogyakarta: Tiara Wacana.

Tuan, Hsiao Lin. (2005). Investigating The Effectiveness Of Inquiry Instruction On

The Motivation Ofdifferent Learning Styles Students. International Journal

of Science and Mathematics Education. National Science Council. Taiwan.

Wina Sanjaya (2008), Strategi Pembelajaran Berorientasi Standar Proses

Pendidikan, Jakarta, Kencan a (2009), Strategi Pembelajaran Berorientasi Standar Proses Pendidikan, Jakarta: Kencana.