

The Influence of Project Based Learning Model in Thematic Learning by Using Scientific Approach on the Elementary School Students

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Abstract—The purpose of this study was to examine the effect of Project Based Learning model in thematic learning by using a scientific approach to the knowledge, skills and students' environmental care attitudes on the elementary school students in IV grade Bengkulu. This research was quantitative research. The method used in this study is the quasi-experimental method. The design used was the matching only pretest-posttest control group design. The population in this study were all of IV grade students of elementary schools in Bengkulu. The data analysis techniques used was quantitative analysis techniques by using the Mann Whitney-u test. The hypothesis test results obtained for the ability of the knowledge, skills and attitudes of $0,000 < \text{sig } 0,025$. The research concluded that there was an effect of the Project Based Learning model in thematic learning by using a scientific approach to the knowledge of students' environmental care attitudes of IV grade elementary school students in Bengkulu.

Keywords—PjBL model; thematic learning; scientific approach; environmental knowledge

I. INTRODUCTION

The education system in Indonesia now applies the 2013 curriculum to each education unit. This curriculum applies integrative thematic learning with a scientific approach. The integrative thematic learning is an integrated learning that uses themes to link multiple subjects so as to provide meaningful experiences for students [1]. At the elementary school level, the main goal is to shape and develop the character of students. One of the characters developed is an attitude of caring for the environment. The development of environmental care attitudes should be packaged in thematic learning using the Project Based Learning (PjBL) model. The PjBL model in learning focuses on students to complete a project. The advantages of this model include: (1) encouraging students to develop and practice communication skills and (2) involving students to learn to take information and demonstrate their knowledge and then implement it with the real world [2].

The real conditions that occur now that the elementary school students have less concern for the environment. There is paper waste, used plastic food packaging, used drink bottles, straws are scattered around the school. Whereas the school has prepared some trash bins based on its types, but the students

still do the same thing. This shows that the students have lack of the knowledge, skills and environmental care attitudes.

The development of environmental care attitudes can also be done through Environmental Education (PLH) in learning process in schools. By applying thematic learning using a scientific approach with environmental themes, it is expected to have a real impact on the development of students' care attitudes for the environment. The environmental education does not only provide the knowledge about the environment, but it also increases awareness of the environment and its concern for environmental conditions [3].

Based on the background of the problem, this study aims to develop a Project Based Learning model in thematic learning by using a scientific approach to students' knowledge, skills and environmental care attitudes. Through this model, it is expected to develop the attitudes of students' concern for the surrounding environment.

II. RESEARCH METHODS

The method used in this study was an experimental method using a quasi-experimental design. This study used two groups of research subjects, namely the experimental group that uses the PjBL model in thematic learning using the scientific approach, and the control group which is given a learning model of Problem Based Learning. The population in this study were all of the elementary school students in Bengkulu. The sample of this study was the IV grade students of elementary school (SDN) 81 Kota Bengkulu, SDN 7 Kabupaten Rejang Lebong, SDN 16 Kabupaten Bengkulu Utara, SDN 05 Kabupaten Lebong, SDN 27 Kabupaten Bengkulu Tengah dan SDN 013 Kabupaten Seluma as the experimental class, and the IV grade students of elementary school (SDN) 3 Bengkulu, SDN 35 Kota Bengkulu, SDN 66 Kabupaten Seluma, SDN 68 Kabupaten Bengkulu Tengah, SDN 09 Kabupaten Bengkulu Utara, SDN 08 Kabupaten Rejang Lebong dan SDN 01 Kabupaten Lebong as the control class.

The instruments used in this study were test sheets, observation sheets and questionnaires. The data obtained was analyzed by using the t-test which aims to see whether there is

influence of the students' knowledge, attitudes and skills between the experimental class and the control class.

students' comprehension skills are presented in the following table.

III. RESULT AND DISCUSSION

A. The Description of the Knowledge by Applying the PjBL Model in Thematic Learning Using a Scientific Approach

In this study, the data on the ability of the students' knowledge was obtained through tests. The data resulting from

TABLE I. DESCRIPTION OF THE DATA ON THE ABILITY OF THE ELEMENTARY SCHOOL STUDENTS' KNOWLEDGE IN IV GRADE

| | | Statistics | | | |
|----------------|---------|--------------------------------------|---------------------------------------|---------------------------------|----------------------------------|
| | | <i>Pretest of Experimental Class</i> | <i>Posttest of Experimental Class</i> | <i>Pretest of Control Class</i> | <i>Posttest of Control Class</i> |
| N | Valid | 132 | 132 | 99 | 98 |
| | Missing | 0 | 0 | 33 | 34 |
| Mean | | 41.6288 | 73.7879 | 47.9697 | 60.9694 |
| Std. Deviation | | 14.67844 | 14.71253 | 12.72267 | 12.07063 |
| Variance | | 215.457 | 216.458 | 161.866 | 145.700 |
| Minimum | | 10.00 | 30.00 | 20.00 | 35.00 |
| Maximum | | 70.00 | 95.00 | 75.00 | 85.00 |
| Sum | | 5495.00 | 9740.00 | 4749.00 | 5975.00 |

Furthermore, the data was analyzed to find out whether there was an effect of the PjBL model learning in thematic learning using a scientific approach to the ability of the elementary school students' knowledge in IV grade Bengkulu. The prerequisite test results indicated that the data was not normal and not homogeneous. Then, the hypothesis was tested by using the Mann Whitney-u test. The results obtained that the score was 0,000 <sig 0,025. So, it can be concluded that there was an influence of the PjBL model in thematic learning by using a scientific approach to the ability of the elementary school students' in IV grade Bengkulu.

and not homogeneous. Then, the hypothesis was tested by using the Mann Whitney-u test. The results obtained that the score was 0,000 <sig 0,025. So, it can be concluded that there was an effect of the PjBL model in thematic learning by using a scientific approach to the skills of the elementary school students' in IV grade Bengkulu.

B. The Description of Skills by Applying the PjBL Model in Thematic Learning Using a Scientific Approach.

In this study, the data on the ability of students' skills was obtained through the observation. The data on the ability of students' skills is presented in the following table.

C. The Description of the Attitudinal Abilities by Applying the PjBL Model in Thematic Learning Used a Scientific Approach

In this study, the ability of students' attitudes data was obtained through questionnaires. The data on the ability of students' attitudes was presented in the following table.

TABLE II. THE DESCRIPTIONS OF THE ELEMENTARY SCHOOL STUDENTS' SKILLS DATA IN IV GRADE

| Statistics | | | |
|-------------------|---------|---------------------------|----------------------|
| | | <i>Experimental Class</i> | <i>Control Class</i> |
| N | Valid | 150 | 109 |
| | Missing | 0 | 41 |
| Mean | | 76.4467 | 88.2064 |
| Std. Deviation | | 18.98473 | 12.65560 |
| Variance | | 360.420 | 160.164 |
| Minimum | | 43.75 | 62.50 |
| Maximum | | 100.00 | 100.00 |
| Sum | | 11467.00 | 9614.50 |

Furthermore, the data was analyzed to find out whether there was an effect of the PjBL learning model in thematic learning by using a scientific approach to the skills of the elementary school students' in IV grade Bengkulu. The prerequisite test results indicated that the data was not normal

TABLE III. THE DESCRIPTION TABLE OF ATTITUDES DATA OF THE ELEMENTARY SCHOOL STUDENTS' IN IV GRADE BENGKULU

| Statistics | | | |
|-------------------|---------|---------------------------|----------------------|
| | | <i>Experimental Class</i> | <i>Control Class</i> |
| N | Valid | 150 | 108 |
| | Missing | 0 | 42 |
| Mean | | 79.1000 | 87.2222 |
| Std. Deviation | | 16.39559 | 10.55323 |
| Variance | | 268.815 | 111.371 |
| Minimum | | 40.00 | 60.00 |
| Maximum | | 100.00 | 100.00 |
| Sum | | 11865.00 | 9420.00 |

Furthermore, the data was analyzed to determine whether there was an effect of the PjBL learning model in thematic learning by using a scientific approach to the attitudes of the elementary school students' in IV grade Bengkulu. The prerequisite test results indicated that the data was not normal and not homogeneous. Then, the hypothesis was tested by using the Mann Whitney-u test. The results obtained that the score was 0,000 <sig 0,025. So, it can be concluded that there

was an effect of the PjBL model in thematic learning by using a scientific approach to the attitudes of the elementary school students' in IV grade Bengkulu.

The implementation of the Project Based Learning model in thematic learning by using scientific approach in this study used the theme of caring for living things. It was related to some subjects such as Civics, Indonesian Language, Science and SBdP. The indicators on civic (Pkn) subject concerned about human rights and obligations to the environment. An indicator of Bahasa Indonesia subject was to explain the contents of the text. The indicator for science subjects was to distinguish organic and non-organic waste and its benefits. The indicator for SBdP subjects was to make works from used materials.

In this learning, there were two projects that were carried out by students, namely making compost from organic waste and making works using non-organic waste. The students looked enthusiastic and active in learning. The students followed all the procedures described by the teacher in working on the project. As the result, the students made compost from organic wastes such as wood twigs, dried leaves, and animal waste. Furthermore, the students also managed to make several works using plastic waste, used bottles, and paper waste.

This learning model has developed the elementary school students' knowledge, skills and environmental care attitudes. This was supported by several advantages possessed by thematic learning, namely: (1) Providing enjoyable experiences, and teaching and learning activities that were relevant to the level of development and needs of children. (2) Developing children's thinking skills in accordance with the problems faced. (3) Grow social skills in working together, so that they have an attitude of tolerance, communication and responsiveness to the other ideas, in the sense of respect for the other ideas. And (3) Presenting pragmatic activities in accordance with the problems often encountered in the child's environment [4]. In addition, PjBL is a learning model that emphasizes student-centered learning in a project [2]. Whereas according to Sani the PjBL model is a teaching and learning strategy that involves students to work on a project that is useful for solving community or environmental problems [5].

The characteristics of the PjBL model according to Buck Institute For Education in Ngalim [6] are as follows: (1) students make decisions and make frameworks, (2) there are problems that are not determined in advance, (3) students design the process to design results, (4) students are responsible for gathering and processing information, (5) evaluating continuously, (6) students regularly look back on what they are doing, (7) the final product is in the form of quality evaluation, and (8) the class has an atmosphere that is tolerate mistakes and changes.

IV. CONCLUSION

Based on the findings and analysis of the data in this study, it can be concluded that there was an effect of PjBL in thematic learning by using a scientific approach to the knowledge, skills and environmental care attitudes of the elementary school students' in IV grade Bengkulu. Because the PjBL model in thematic learning by using a scientific approach provides better results compared to Problem based learning, the PjBL model in thematic learning using a scientific approach can be considered as an alternative learning model in an effort to improve the students' knowledge, skills and environmental care attitudes to the learning thematic in elementary school.

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