THE EFFECTIVENESS OF INTEGRATED LEARNING MODEL TO IMPROVE THE STUDENTS COMPETENCE AT ELEMENTARY SCHOOL

Risda Amini✉, Mai Sri Lena

PGSD, Universitas Negeri Padang, Indonesia

Article Info

Abstract

The demand of curriculum in 2006, learning in elementary school is implemented a thematically so that students are able to think critically, creatively, and have a scientific character. Preliminary surveys indicated that the problems by elementary school teachers was difficult to conduct the thematic learning, so that students were less active. Many students who had difficulty in learning and answering questions in textbooks that have been available online. There were still many students who have not mastered learning. The low competence of the students was the caused by several problems, the learning is not fun, not interesting, and yet challenging for the students, so the students find it difficult to learn the theme in the textbooks. Teachers have not used the method of learning in accordance with the theme and facilities supporting the learning process. One way to facilitate students in learning is through integrated learning models. This research aims to determine the effectiveness of the integrated learning model for improving the students' competence. The research used a quasi-experimental method with pretest-posttest group control design. Subjects of this research were third grade students at elementary school (SDN 64) in Payakumbuh. Data were collected using observation sheets, the achievement test, skills assessment sheets, questionnaires. The results showed that integrated learning model was effective to improving the students' competence, in terms of (1) the mastery of learning had been achieved by most students, (2) there was an improvement of students' competence, (3) average of students' learning outcomes of experiment class was higher than control class, (4) the average of students skills in conducting experiment were good.

✉Corresponding author:
Risda Amini
PGSD, Universitas Negeri Padang
Jln. Hamka, Air Tawar, Padang, 25131 Indonesia
Email: risdamini@yahoo.co.id

INTRODUCTION

Regulation No. 20/2003 on Indonesian National Education System states that education serves to develop the ability and character as well as civilization of the nation's dignity in the context of the intellectual life of the nation. Education aims to develop the potential of every learner to become an educated man who is faithful and devoted to Almighty, healthy, knowledgeable, creative, and independent. Education that can support the future development is education that can develop the potential of students so that they are able to solve their problems. Therefore, education should touch the inner potential and the potential competence of learners.

One interesting innovation leads to the change in teacher centered to student centered that is indicated by the implementation of innovative teaching models-progressive that develops learners' knowledge concretely and independently. Innovations in the teaching models are done to facilitate the teacher's teaching performance in the classroom. Regulation of Minister of Education No. 22/2006 explains that learning process for elementary students at lower grades (first, second, third grade) is carried out with a thematic approach.

The phenomenon in the field shows that there are still many weaknesses the implementation of thematic learning. Based on the observation and interview with the teachers in some elementary schools in Payakumbuh, many teachers did not understand in implementing thematic learning. They did not know how to integrate the theme into some fields of study (subjects). Therefore, a need of a learning model that can help elementary school teachers to manifest learning that appropriate to the characteristics of students. The integrated learning model is expected to help teachers in creating learning process better and more meaningfull.

One way to help students in learning is to use model of integrated learning. Freudenberg (2010) states integrated learning is combining various aspects namely attitudes, knowledge and skills. Integrated learning provides opportunity for students to develop thinking skills, process skills, and scientific attitude. Integrated learning use the theme to relate some of the course contents with students real-life experience, so it can provide a meaningful experience for them. House (2004) states that the integrated learning model can motivate students to learn and develop scientific character. Scientific character

marked by high curiosity, ability to solve problems, think systematically and objectively. Teachers should be able to identify the basic competencies that can be learned students when using the integrated learning model. In integrated learning, students understand the concept that they learn through direct experience and connect it with other coceptss that they have experienced. In integrated learning students are encouraged to work in groups and learn from the results of his own experience. The implementation of integrated learning simplify teacher in selecting teaching model appropriate to students competency.

In general, integrated learning principally focused on developing students' abilities optimally, therefore it requires students to be active in the learning process. Through the integrated learning students can engage in the learning process, it can strengthen the students ability about the lesson that they learned. Integrated learning as a learning model aims to provide a meaningful experience to students. In addition in integrated learning students will understand the concept they learn through direct experience and connect it to other concept they've experienced through central theme. The purpose of the theme is not only to master the concept of subjects but the concept of related subjects and as a tool to study and explore the topic or theme. Compared with conventional learning, the Freudenberg (2010) argue that integrated learning seems to be more emphasis on the involvement of children in the learning process or directing the child actively involved in the learning process and decision-making. This integrated learning model is more emphased on the application of the cocepts of learning by doing.

Chen (2012) describes an integrated learning is an application of a learning strategy based on an integrated curriculum approach that aims to create the learning process relevant and meaningful for children. Further. Papanastasiou & Zembylas (2004) described that in an integrated learning model is based on the inquiry, involves students in planning, exploration and brainstorming. Competence of students is measured by the results of learning activities, including the cognitive, affective and psychomotor. Furthermore, Bosco (2014) states that measuring of student competency can be

distinguished by a successions of student activities in learning. The problem in this research is formulated as follows: How is the effectiveness of integrated learning model to improve student competence?

METHODS

This was an quasi-experimental research used two classes that have the number of students and learning competencies are almost the same. The research carried out in third grade students of SDN 64 in Payakumbuh. The first group is called the experiment class, using integrated learning, a second group called control class, using conventional learning. The learning process was conducted once a week for three hours of lesson. The tes was used as an instrument of this research. To determine the construct validity and realibility of the test, the test was tried out to the student out of the sample. Besides, also used expert judment to determine the conten validity of the tes. Data were analysed by calculating the average score normalized gain of pre-test and post-test scores (Hake, 1999). Data in the students' abilities: solving problems, and presents the results were analyzed by calculating the average of the scores of ability and compares with the scoring category.

RESULTS AND DISCUSSION

The prior knowledge of students

The result of the test of students' prior knowledge showed that students with the high prior knowledge in class taught by integrated learning model were taken by 50% of the number of students who got high prior knowledge among the groups. This means that six groups were taken as a sample for experiment group with high prior knowledge as well as six groups from low prior knowledge. The result of analysis of students with high prior knowledge from experiment class was known that mean = 69.83, SD = 3.60. This means that the average score of students in experiment class with high prior knowledge included in the moderate category. While the results of the data analysis of test scores of students who received a low prior knowledge known mean = 59, SD = 2.50. This means that the average score of students in the experimental group who obtained low prior knowledge test scores included in the sufficient category.

Students learning achievement of 14 students in the control class included to sufficient category. While two students whose score between 56 and 65, 11 students between 66-80, and one student who got score between 81 to 100. It was known that the average score of the students' achievement in control

class was 68.1, meaning students achievement on control group using thematic integrated with conventional learning was good.

The effectiveness of the integrated learning model

Before calculating the effectiveness of the model, an analysis of the pre-test and post-test for Electrical Energy theme were done. Data analysis aims to determine the effectiveness of the integrated learning model in integrated learning at primary school. The effectiveness of the implementation of the integrated learning model in terms of (1) improving of the concept mastery of student, (2) differences in student results and classroom control, (3) the ability of the students in doing experiment.

Improving the Concepts Mastery of Student

The improvement of integrated concepts mastery of students could be obtained by calculating the average score of normalized gain ($<g>$) of pre-test and post-test scores (Hake, 1999). Based on the analysis, it was found that an average score of $<g>$ for the experiment class, student mastery of concept was 0.31, meaning the improvement of students integrated conseps mastery could be grouped to moderate category. For the Electrical Energy theme, the average score of $<g>$ was 0.33, and the average score $<g>$ was 0.29 to the magnetic circuit. The improvement of students' integrated concept mastery for theme of Electrical Energy in experiment class was moderate category while the control class was categorized as low.

Table 1. The average of concept mastery

Material	The average of pre-test	The average of Post-test	The average of score $<g>$ (%)	Category
Experiment class	56.68	71.86	33	moderate
Control class	54.06	76.40	29	low

The increasing of students cocepts mastery in experiment class was higher than the control class. the $<g>$ was 33% for the experimental class (medium category). This is in accordance with Freudenberg (2010) which states that learners who are taught using integrated learning model had higher concept mastery than using other models.

Differences in Student Results and Classroom Control

Before analyzing the data to know the difference of average score of learning result of experiment class and control class, firstly done normality test of data distribution and homogeneity test of data. The result of normality test of data distribution shows that the pre-test and post-test data of experimental class and control class students are normally distributed. The result of homogeneity test of the data shows that the pre-test data of the experimental class and control class are homogeneous, as well as the post-test data. After the average difference test on student learning result data obtained the result that the average pre-test score of experiment class students and control class did not differ significantly. The mean difference in post-test score scores indicates that the mean post-test scores of experimental class and control class students differ significantly (Table 2). The average student's learning outcomes of the experimental class is higher than the control class.

Table 2. Average differences test of student competence of experiment class and control class

Test group	Treatment group	Average	Std. Dev		Decisio n	
Pre-test	Experiment	56.68	4,9		18	Not sign
	Control	54.06	5,8	9		
Post-test	Experiment	76.40	3,2		4 5	Sign
	Control	71.86	4,4	7		

Note: t table = 2,000

Students' Ability in Conducting Experiment

In teaching and learning process of the natural science subject, teacher evaluates the process that aimed to find out students psicomotor ability in doing experiment. The evaluation of the process includes the ability to: (1) create a problem, (2) conducting experiments, (3) present the results of the experiment. The average score of students' ability in integrated learning was presented in Table 3.

Refering to Table 2 and category ratings it can be concluded that students' ability in: (1) mastering of the integrated coceptss categorized as good, (2) creating problems categorized as good, (3) doing experiment categorized as exelent, and (4) presenting the result of the experiment included to excellent category.

Table 3. The Students' Ability

No.	Ability	Average	Standard Deviation
1	Make problem	69.86	9.47
2	Doing practicum	81.25	4.90
3	Presenting the results of the experiment	80.18	6.19

Discussion

Increasing of students' integrated learning concept mastery in experiment class was moderate category. However, integrated concept mastery of student in experiment class was higher than in control classs both in pre-test and post-test. It showed that the theme of Electrical Energy was difficult to understand by the students if the students did not conduct an experiment. There some factors that lead to difficulty face by students such as limited laboratory equipment as well as broad material. It can be seen that elementary school students were motivated to learn by doing experiment. This is in accordance with Gnanakan (2013) states that conducting experiment in integrated learning makes learning more meaningful, thereby it increases students' mastery of coceptss they learned.

Based on data analysis it was found the students ability in consruction sproblem was exelent, presenting and comunicating the result of the experiment were good. Furthermore, students ability to analyse the problems was sufficient. It was likely caused by lack of students' prior knowledge. The ability to analyse the problem, construct and evaluate the solution are part of problem solving ability.

CONCLUSION

The results showed that the application of the integrated learning model can enhance students' coceptss mastery and generic skills of students. The effectiveness of the implementation of intefrated learning model in terms of (1) the mastery of learning had been achieved by most students, (2) there was an improvement of students' competence, (3) average of students' learning outcomes of experiment class was higher

than control class, (4) the average of students skills in conducting experiment were good.

This study found that increasing of integrated cocepts mastery of students in experiment class was moderate category while in control class was low category. There was a significant difference between the average score of students' integrated cocepts mastery in the experimental class and control class. The average score of students' integrated cocepts mastery in the experimental class was higher than the control class. Integrated cocepts mastery of students in the experiment class was good as well as skills in the experimentalthe students ability in conducting experiment. The ability in conducting experiment consits of creating problems, consructing solutions, examining solutions, presenting the results as well as communicating the results of experiment.

REFERENCES

Bosco, AM, Ferns, S. (2014). Embedding of Authentic assessment in Work-Integrated Learning Curriculum. *Asia-Pacific Journal of Cooperative Education,*15(4).

Chen, Y. T. 2012. The effect of thematic video-based instruction on learning and student's motivation. *International Journal of Physical Sciences,* 7, 957-965.

Freudenberg, B., Mark Brimble, Victoria Vyvyan (2010). The Penny Drops: Work Integrated Learning Can Improve Students' Learning? *e-Journal of Business Education and Scholarship of Teaching,* 4(1), 42-61.

Hake, R. R. 1998. *Analyzing change∕Gain score.* Departement of Physics Indiana University.

Gnanakan, Ken. 2013. The Integrated Learning Experience. *William Carey International Development Journal,* 2(1).

House, J.D. (2004). Cognitive-Motivational Characteristics and Science Achievement of Adolescent Students: Result from the TIMSS 1995 and TIMSS 1999 Assessment. *International Journal of Instruction Media.*

Papanastasiou, EC & Zembylas, M. 2004). Differential Effects of Science Attitudes and Science Achievement in Australia, Cyprus, and the USA. *International Journal of Science education,* 26(3), 259-280.