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Application Of *PAIKEM GEMBROT* Learning Model to Improve Fifth Graders' Science Learning Motivation

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Abstract

This study aims to determine students' learning motivation on the use of the PAIKEM GEMBROT model. This research conducted at public elementary school located in Pekanbaru. This study uses a quantitative approach due to the data collected is in the form of numbers which are then analyzed by statistics. By the problem under the study, this research is an experimental research using the pre-experiment type of one group pretest-posttest design. The subjects in this study were fifth graders' students from a Public Elementary School with a total of 30 students. The instrument in this study used a questionnaire. The results showed that the pretest score obtained a score of 35% than expected. This means that students' learning motivation in science is still very low. After the use of the *PAIKEM GEMBROT* model, the Posttest was conducted with the score obtained 69.41% than expected. This means that students' learning motivation in science is high. Based on the N Gain analysis, the influence of the *PAIKEM GEMBROT* model on student learning motivation was 52.94% with the medium category.

Keyword: *Learning motivation, science learning motivation, PAIKEM GEMBROT*

1. INTRODUCTION

One of the successes of education in the classroom level is that a teacher is able to build students' learning motivation which is characterized by active, innovative, creative and fun participation in learning. This is in line with the statement expressed by Sanjaya (2010) that students may only be able to study well when there is a pleasant atmosphere, feel safe and free from fear. So motivation in learning is important to obtain optimal learning results. If students can be motivated to learn, then the difficulties in the subject matter and the learning process that is followed can be overcome, so students will live it with enjoy and relax. Motivation to learn is internal and external encouragement to students who are learning to make changes in behavior, generally with several indicators or supporting elements (Uno, 2016). The ability of students in learning science has not been developed optimally. This is seen, when students work on questions often ask questions,

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because of their ignorance in answering the questions given.

Science is broadly related to how to find out about nature systematically so that, it is not only the mastery of a collection of knowledge in the form of facts, concepts, or principles. but also a process of discovery. Science education is expected to be a vehicle for students to learn about themselves and the natural environment, as well as the prospects for further development in applying it in everyday life (Nurjanah, 2013).

Learning models that can increase students' learning motivation are active, innovative, creative, effective, fun, happy and weighted learning models (PAIKEM Gembrot). Ahmadi and Amri (2011) stated that the PAIKEM GEMBROT model can facilitate and motivate students to recognize, accept, absorb, and understand the interrelationships or relationships between concepts, knowledge, values or actions contained in several indicators and basic competencies.

Previous research on the PAIKEM Gembrot learning model was conducted by students of economics education at the Faculty of Teacher Training and Education in Sriwijaya University 2015, with the title: the effect of applying the Paikem Gembrot learning model to students' learning motivation in social science subjects. Previous research has focused on the different effects of applying the Paikem gembrot model and the thematic learning model of students' learning motivation. while in this study trying to see an increase in the Gembrot PAIKEM learning model of students' learning motivation. Based on this background, researchers conducted research under the title "the application of the paikem gembrot model to increase student motivation".

2. CONTEXTS AND LITERATURE REVIEW

a. The Essence of Science Learning in Public Elementary School

Sciences or often referred to as Science seeks to arouse human interest in order to want to increase intelligence and understanding of nature in its entirety, filled with endless secrets. BSNP (2011) states that science is related to how to find out about nature systematically, so that science is not only mastering a collection of knowledge in the form of facts, concepts, or principles, but also a process of discovery. According to Hendro Darmojo stated that "Science is rational and objective knowledge of the universe with all its contents" (Samatowa, 2010).

Science is one of the main subjects in the education curriculum in Indonesia, including at the elementary school level. Susanto (2013) explains Sciences relate to understanding the universe through proper observations of targets, and using procedures, and explained with reasoning so as to get a conclusion. In the BSNP (2006), that "Science is related to how to find out about nature systematically so that not only the mastery of a collection of knowledge in the form of facts, concepts, or principles but also a process of discovery". From the description of the definition of science, it can be concluded that natural science is learning based on principles,

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processes that can foster students' scientific attitudes toward science concepts through simple observation, discussion, and inquiry.

b. PAIKEM GEMBROT Learning Model

History of the *PAIKEM GEMBROT* model reported by Indonesian education world leaders is actually not an idea, but a Managing Basic Education (MBE) program. This learning model aims to improve the quality and efficiency of basic education management in the context of government decentralization. *PAIKEM GEMBROT* is a program that is expected to improve the quality of learning. The program encourages the development and dissemination of good practices and other ideas at the district or city level. The *PAIKEM GEMBROT* learning model does not only involve teacher creation in teaching but also teacher innovation in managing students, managing the allocation of learning time, student conditions, and the environment of the Ahmadi and Amri community (2011).

Mone (in Trianto, 2007) suggested that the learning model *PAIKEM GEMBROT* is an integrated learning model that uses the theme of linking several subjects so that it can provide meaningful experiences to students. Based on the description above, it can be concluded that the *PAIKEM GEMBROT* learning model is a model that links the material of several subjects in one theme with a variety of learning experiences for students so that learning becomes meaningful. *PAIKEM GEMBROT* learning model is learning that is designed based on themes. In the discussion, the theme was reviewed from various subjects. Subroto and Herawati (2003) argues that the *PAIKEM GEMBROT* learning model is learning that uses certain themes to link some of the contents of subjects with students' real-life experiences so that they can provide meaningful experiences for students.

Indrawati (2009) states that "The strengths of the Gembrot PAIKEM learning model are: (1) it can enhance collaboration between teachers in related fields of study; (2) learning is more fun; (3) learning in real situations and in more meaningful contexts. " Furthermore, according to Yustisia (2008), the advantages of the Gembrot PAIKEM learning model are: 1) makes it easy to focus on one particular theme; (2) students are able to learn knowledge and develop various basic competencies between the contents of the subjects in the same theme; (3) a deeper and memorable understanding of the subject matter; (4) basic competencies can be better developed by linking other subjects with students' personal experiences; (5) the benefits and meaning of learning can be felt more because the material is presented in the context of a clear theme; (6) students are more passionate about learning because they can communicate in real situations, to develop abilities in a subject and at the same time be able to learn other subjects; (7) teachers can save time because subjects that are presented in *PAIKEM GEMBROT* can be prepared at once and given in two or three meetings while the remaining time

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can be used for remedial activities, stabilization or enrichment of the material.

c. Science Learning Motivation

Sardiman (2014) states that motivation to learn is the overall driving force in students that gives rise to the learning activity, gives direction to learning activity so that learning objective is achieved. Wahyuni (2009) mentions that learning motivation is the tendency of students to find meaningful and valuable learning activities so that they get the benefit from these learning activities. Based on this understanding, it can be concluded that motivation to learn is the driving force or activator that is in students to carry out learning activities to achieve a learning goal.

3. METHOD OF THE RESEARCH

This type of research used in this study was an experiment with a pre-experimental method which is the dependent variable not fully-approved by the independent variable. This is because we do research with one group that can be done with a control group. We used a group pretest posttest design. Samples were given a questionnaire about learning motivation before and after the learning experience using PAIKEM GEMBROT. The subjects of this study were 30th grade B students consisting of 18 male students and 12 female students. To determine the experimental class in this study using a simple sample taking and sampling in taking sample members from participation is done randomly regardless of the strata in the population, carried out if members of the population are considered homogeneous. Simple random sampling can be done by lottery (Sugiyono, 2017).

Research using the PAIKEM GEMBROT meeting was conducted in 4 meetings, where each meeting consisted of three hours of study (3x35 minutes). Before conducting research, researchers first create a research instrument of learning motivation questionnaires, lesson plans, LKPD, and evaluation questions. Learning motivation questionnaire is based on indicators of learning motivation according to Uno (2016) then validated through two glasses, namely Expert Assessment then evaluations to class VA students and then processed using SPSS version 20 and Microsoft Excel 2010. The research results obtained in this study were found by indicator evidence and student learning motivation questionnaire scores between before (pretest) and after (posttest) given approval (treatment) to apply the consideration of the PEMBEM GEMBROT model.

4. RESEARCH RESULTS

1. Description of Research Results

Based on research data know before using the *PAIKEM GEMBROT* mdel (pretest) show that the empirical mean (mean value based on the field) is lower than the hypotherical mean (mean value based on theoritical) that is 43.40 < 77.5. This means that the level of student motivation is low. But after being treated using the *PAIKEM GEMBROT* model that the empirical mean is higher than the hypotherical

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mean of 86.10 > 77.5. This also means that in general the learning model used affects the increase in students' motivation.

a. Preliminary Test Analysis (Pretest)

The preliminary test data (pretest) is obtained from the questionnaire given to students to be answered consisted of 31 statement items from 6 indicators can be seen in table 1.

Table 1. Pretest Indicator Scores

No	Indicator	Number of Items	Factual Score	Ideal score	Average	Percentage	Category
1	There is a desire and urge to succeed	4	195	480	6.50	40.63%	Low
2	There are an encouragement and need for learning	4	152	480	5.07	31.67%	Very low
3	There are hopes and aspirations for the future	4	156	480	5.20	32.50%	Very low
4	There is an appreciation in learning	6	237	720	7.90	32.92%	Very low
5	There are interesting activities in the learning process	9	366	1080	12.20	33.89%	Very low
6	There is a conducive learning relationship	4	196	480	6.53	40.83%	Low
	Total	31	1302	3720	43.40	35.00%	Very low

From table, it can be seen that the score on indicator 1 is 195 or 40.63% of the expected, the score on indicator 2 is 152 or 31.67% of the expected, the score on indicator 3 is 156 or 32.50% of the expected, and the score on indicator 4 is 237 or 32.92%. In indicator 5, the score of 366 or 33.89% is expected. In indicator 6 a score of 196 or 40.83% is obtained from the expected one. So, the highest indicator of learning motivation is an indicator of a conducive learning relationship with a value of 40.83% and the lowest indicator is an indicator of encouragement and need for learning with a value of 31.67%.

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b. Final Test Analysis (Posttest)

The data of posttest consists of 31 statement items from 6 indicators can be seen in table 2.

Table 2. Posttest Indicator Scores

No	Indicator	Number Items	Factual Score	Ideal score	Average	Percentage	Category
1	There is the desire and urge to succeed	4	345	480	11.50	71.88%	High
2	There are an encouragement and need for learning	4	318	480	10.60	66.25%	High
3	There are hopes and aspirations for the future	4	317	480	10.57	66.04%	High
4	There is an appreciation in learning	6	492	720	16.40	68.33%	High
5	There are interesting activities in the learning process	9	754	1080	25.13	69.81%	High
6	There is a conducive learning relationship	4	356	480	11.87	74.17%	High
	Total	31	2582	3720	86.07	69.41%	High

From it can be seen that the score on indicator 1 is 345 or 71.88% of the expected, the score on indicator 2 is 318 or 66.25% of the expected, the score on indicator 3 is 317 or 66.04% of the expected , and the score on indicator 4 is 492 or 68.33%. In indicator 5 the score is 754 or 69.81% than expected. In indicator 6 a score of 356 or 74.17% is expected. So the highest indicator of learning motivation is an indicator of a conducive learning relationship with a value of 74.17% and the lowest indicator is an indicator of the existence of hopes and future ambitions with a value of 66.04%.

c. Comparison of Pretest and Posttest Data

This study is analyzed by using one group pretest-posttest design, which is looking at the results of the pretest and posttest. The results of the pretest and posttest can be seen in table.

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Table 3. Students' Motivation Before and After Implementation of *PAIKEM GEMBROT*

Category	Score	Before		After	
		F	%	F	%
Very High	100.75≤X	0	0%	0	0%
High	85.25≤X<100.75	0	0%	16	53.33%
Medium	69.75≤X<85.25	0	0%	14	46.67%
Low	54.25≤X<69.75	1	3.33%	0	0%
Very Low	54.25>X	29	96.67%	0	0%
Σ		30	100%	30	100%

Based on table 3, it is known that on average children have increased learning motivation after using the *PAIKEM GEMBROT* model. Wherefrom the previous 3.33% of students were in a low category and 96.67% were in the very low category. After using the *PAIKEM GEMBROT* model 53.33% of students are in the high category and 46.67% of the students are in the medium category.

d. Prerequisite test

Before analyzing the one-group pretest-posttest design technique through the IBM SPSS Ver.20 program, a prerequisite test is first carried out. This test includes a normality test, linearity test, and homogeneity test. The purpose of this test is to find out whether the conditions for testing hypotheses using the t-test can give results that can answer the hypothesis, with the intention that the conclusions obtained do not deviate from the truth that must be obtained.

Based on the normality test of pretest and posttest data with IBM SPSS Ver.20 and based on the Kolmogorov-Smirnov test by observing the numbers in the signification column (Sig), that is 0.151 and 0.079 bigger than 0.05 (0.151> 0.05 and 0.079> 0.05). Based on this, it can be concluded that for pretest and posttest data normally distributed at a significance level of 0.05, all variables are statistically normally distributed and deserve to be used as research data.

Based on linearity testing of data, data analysis produces an F value of 2.987 with a significance of 0.034. Because P <0.05 with a variable significance value of 5% or 0.05. Then, it can be concluded that the line between the pretest and posttest data on student learning motivation has a linear relationship, because the significance results are 0.034 <0.05 so that the two variables can be said to be linear.

Based on the results of the homogeneity test analysis, the Asymp value is obtained. Sig is 0.953 and 0.320, because P> 0.05 (0.953> 0.05 and 0.320> 0.05) then the data obtained from the pretest and posttest data is homogeneous.

e. Hypothesis Testing

Hypothesis testing aims to find out if the data are following the hypothesis

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and the purpose of the study is to determine whether or not there is an increase in the *PAIKEM GEMBROT* model on the learning motivation of fifth graders' in Pekanbaru Public Elementary School. For this reason, the following hypothesis is made:

Ho: There is no increase in the *PAIKEM GEMBROT* model on the learning motivation of fifth graders.

Ha: There is an increase in the *PAIKEM GEMBROT* model on the learning motivation of fifth graders.

The assumption test results show that the data collected meets the requirements for analysis. Then a t-test was conducted to determine the differences in students' learning motivation before and after the application of the *PAIKEM GEMBROT* model in this study. Based on the calculation of the t-test using the help of the IBM SPSS Ver.20 program, the following results can be obtained:

Table 4. T-Test Testing Results

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	*Std. Deviation*	*Std. Error Mean*	*Lower*	*Upper*	*T*	*df*	*Sig. (2-tailed)*
Pair 1	*Pretest - Posstest*	*-42.66667*	*6.98932*	*1.27607*	*-45.27652*	*-40.05681*	*-33.436*	*29*	*.000*

The hypothesis test applied in this study is the Two-parties Test. According to Sugiyono (2017), a two-parties test is used if the null hypothesis reads "equal to" and the Alternative Hypothesis reads "not the same as". In testing the two sides, the price of t count is absolute so that it is not seen as positive or negative. In this study, the t_{count}= 33,436 with sig (2-tailed) = 0,000 <0,05, it can be concluded that there was a significant increase in the *PAIKEM GEMBROT* model on the learning motivation of fifth graders' in Pekanbaru Elementary School.

To find out the hypothesis is accepted or rejected based on IBM SPSS Ver.20 data can be seen from the comparison of the results of t_{count} with t_{table} value, namely the results of t test calculations, it can be seen that the result of t_{count} 33.436 is greater than t table = 2.045 with df, that is:

With df = 29, then the price of tcount = 33.436 can be seen greater than t_{table} = 2.045. Thus Ho = rejected and Ha = accepted. This means that in this study there is an increase in the *PAIKEM GEMBROT* model on the learning motivation of fifth graders' in Elementary School.

f. Improvement of *PAIKEM GEMBROT* Model on Learning Motivation in grade V (five) B students in Elementary School.

To find out how much improvement the *PAIKEM GEMBROT* model has on

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students, how to calculate the gain formula according to David E. Meltzer (Herlanti, 2006) as follows:

To see the classification of normalized N-Gain values can be seen in the following table:

Table 5. Gain categories normalized

Gain normalized	Rating Category
G < 30%	Low
30% < G < 70%	Medium
G > 70%	High

Based on the above formula it can be concluded that the increase given by the *PAIKEM GEMBROT* model on the learning motivation of fifth graders' students in Public Elementary School is 52.94%, where the normalized gain category is in the medium category 30% <52.94% <70%.

5. CONCLUSION

Based on the data analysis regarding the application of the *PAIKEM GEMBROT* model to improve the science learning motivation of fifth-grade students in Public Elementary School, it can be concluded that Motivation for science learning science fifth graders' students in Elementary School before the application of the *PAIKEM GEMBROT* model is in the very low category, which is 35% of the expected meaning that students lack desire and desire to succeed, students lack encouragement and need for learning, students lack hopes and future ambitions, students lack appreciation in learning, learning activities that are less attractive to students, and student learning environments that are not conducive.

Motivation to science learning fifth grade students in Public Elementary School after the application of the *PAIKEM GEMBROT* model is in the very high category of 69.41% of the expected meaning that students have desires and desires to succeed, students get encouragement and needs in learning, students have hopes and ideals the future, students get appreciation in learning, interesting learning activities for students, and student learning environments that are classified as conducive.

There are increases in science learning motivation in fifth graders' Public Elementary School. This can be seen from the calculation of N-Gain which is 52.94%, meaning that the *PAIKEM GEMBROT* model is effective in increasing children's learning motivation.

Research conducted by Utami, Basyir, and Fitriyanti (2015) shows the *PAIKEM GEMBROT* model has an influence on students' motivation because it can facilitate and motivation students to recognize, absorb and understand the interrelationship or relationship between concepts.

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