Influence of Contextual Learning Model and Learning Motivation in the Ability to Solve the Comparison Story

Sri Hartati[*]; Rukayah; Slamet Subiyantor

University of Sebelas Maret, Indonesia
Email: srihartati677@gmail.com

Abstract

This study aims to determine the effect of Contexstual Teaching and Learning (CTL) learning model and learning motivation to the ability to solve the comparison stories. This research is a quasi-experimental research using 2 x 2 factorial design. The population specified in this research is all students of grade V located Elementary school in Boyolali of academic year 2016/2017 which amounted to 599. Sampling was done by multistage cluster random technique sampling. Data collection techniques with tests to measure the ability to solve comparative story problems. In addition, there are standardized tests to sort out student learning motivation. Validity test uses expert judgment and Product Moment Correlation, reliability with Cronbach Alpha Coefficient, and balance test with t-test by SPSS. Ability test of Normality test uses statistical test shapiro wilk and homogeneity test using levene test. For data analysis with technique of two way variance analysis (Anava) cell is not same, then conducted further test pascaanava with Scheffe method. The results of this study indicate that there is a difference in the ability to solve comparative story problems on CTL learning between groups of students who have high learning motivation with low-motivated students.

Keywords: CTL learning model; Learning motivation, Comparison stories

Introduction

The process of education in teaching and learning activities at Elementary School is implemented based on curriculum. One of the curriculum that is still used today, the curriculum is the Education Unit Level Curriculum (KTSP). This curriculum is an education operational curriculum developed and implemented in each educational unit in Indonesia. The juridical KTSP is mandated by Regulation no. 20 of 2003 on National Education System and Government Regulation of the Republic of Indonesia no. 19 of 2005 on National Education Standards. Preparation of KTSP by schools begins in 2007/2008 by referring to the Content Standards (SI) and Graduate Competency Standards (SKL) for primary and secondary education as published through the Regulation of the Minister of National Education

respectively. No. 22 of 2006 and No. 23 of 2006, as well as KTSP Development Guide is issued by the National Education Standards Agency (BSNP).

Implementation of curriculum KTSP in the learning activities AT the classroom needs attention from the teacher. The reality, there is something wrong with the education process because before school children are nimble, always learn what he wants with joy, using everything around him, building his own knowledge and understanding through real-life experiences. After school, the children are forced to learn by the teacher, the atmosphere is tense, often not meaningful, the students learn something does not interest them, and the higher the class of students, the less initiative and the courage to ask express their opinion, Depdikbud (2008: 301-303).

Daryanto and Raharjo (2012: 240) state that the subjects of mathematics are required for all students from elementary school to equip them with logical, analytical, systematical, critical, creative thinking and cooperative skills. In learning mathematics to students, if the teacher still use conventional learning model or paradigm of old learning in the sense of communication in learning mathematics tend to take one direction generally from teacher to student, more dominant teacher of learning hence monotone tendency that cause student to feel saturated and tortured. Therefore in learning mathematics to the students, teachers should prefer learning model in accordance with the purpose of learning, conformity with learning materials, the level of student development, the ability of teachers in managing learning and optimize the existing learning resources.

Amir and Risnawati (2016: 80-81) describe Dienes's theory that in the teaching mathematics emphasizes understanding, so children are expected to learn more interesting. However in reality, there are children who love mathematics only at the beginning, they are acquainted with thee simple mathematic, the higher of the school the more "difficult" the mathematics learned. The mathematics was perceived as difficult, complicated, numerous, and deep in science so less the interested in learning mathematics. Though, mathematics is one of the paths to clear, precise, and meticulous thinking which underlies all science, even the rise of a country depends on the progress of mathematics.

The results of interviews with teachers of grade V in Boyolali stated that the problem is the students find difficulties in learning mathematics especially when solving the story. Most teachers have not used innovative learning models in mathematics learning. This is consistent with Susanto's opinion (2015: 192) that routine activities occur in classes using conventional learning models is students listen to the teacher's explanation in giving examples and solve problems on the board, then ask students to work alone in textbooks or student worksheets (LKS) that have been provided. The consequence of these activities when students are given different problems with the practice questions, they have difficulty or make mistakes in completing tasks. It indicates that the students only memorize the procedure of completion but the ability of students can be said less.

Based on preliminary observation at Youth Eucation and Sports Office in Boyolali of Planning and Reporting Field Division of Primary School conducted on Thursday, November 3, 2016. It is obtained information that in Boyolali District academic year 2013/1014 average grade UAS class V semester 2 mathematics subject has not reached the expected KKM. It can be seen that the value of UAS 62.50 ftom KKM expected 65.00. The academic year 2014/15 UAS value increased 63.00 from KKM expected 65.00. The academic year 2015/2016 averages UAS semester 2 math subjects 65.50 from KKM expected 70.00.

Based on the circumstances in the field, the problem that is felt by students in learning mathematics is solving the story, one of them is about the comparison material. Nafi'an (2011) in his research states the problem that often feet by students in learning mathematics is solving the story. Shamsudin (2007: 141) explains that the story is a matter of mathematics compiled in the form of stories involving the operation of addition, subtraction, division, and multiplication. The story does not necessary

contain the four learning operations to be achieved as indicated. The teachers have gained knowledge about the learning models but have not used such innovative learning models in mathematics learning. Preparation of math stories using verbal language and generally associated with daily activities. The ability to solve the story problem must be done by using the right learning model (Daryanto., 2014: 240). The Selection of learning model should pay attention to the learning purpose, the suitability of learning materials, the level of development of learners, the ability of teachers in managing learning and optimizing the existing learning resources. If it is not fulfilled then the mastery of the mathematics subject matter is not maximal.

Based on the above data, it can be concluded that many students who have difficulty in understanding the material about the story, especially comparison material of 2015/ 2016 academic year. How a teacher can communicate effectively with their students who always wonder about the reasons of something, and the relationship of what they learned (Depdidinas., 2008: 287). Then the learning of comparative story material needs to be done by using innovative learning model so the students' ability in solving the problem can be absorbed maximally. Piaget in Dimyati (2002: 13) explains that knowledge is shaped by the individual, because the individual is constantly interacting with the changing environment so the intellect more develop. Dimyati (1999: 297) states that learning is a programmed teacher activity in instructional design to make students learn actively, emphasizing the provision of learning resources. Then, contextual learning model can be applied to grade V at elementary school in all of Boyolali District. It is based on the goal that the CTL system is an educational process that aims to help students see meaning in academic material by linking it to the contents of daily life, that are the context of personal, social, and cultural life. The main principles of CTL learning are: 1) Constructivism (Constructivism) human must build that knowledge to give meaning through real experience; 2) Questioning that students's knowledge begins with asking questions as a tool to extract information or learning resources that are related to real life; 3) Finding (Inquiri) students find knowledge and skills according to their respective experience; 4) Community learning (Learning Community) to familiarize students to work together and take advantage of learning resources from friends learn. 5) Modeling learning by modeling an example that students can imitate, 6) Reflection (Reflection) thinking about what has just happened or just been learned as an enrichment or revision of previous knowledge; and 7) Authentic Assessment is the collection of actual data and information on the quality of the learning process and result (Rusman., 2003: 193-198).

Learning difficulties causes the ability to achieve learning results are low. According to Arifin (2013: 300) the results of learning can be seen from the students's ability after following the learning process. The factors that influence the learning results according to Anitah (2007: 2-7) are factors of students such as motivation, attention, and health. Factors from outside the student self is the physical environment such as learning tools, teachers, friends and non-physical learning. it can be a classroom atmosphere, social environment, family, and strategies that used. Because of the differences in students' learning motivation, there is a possibility that a learning model is good for high motivated students and low motivated students.

Aunurrahman (2010: 114) explains that motivation is a driving force for a person to have the energy or power to do something with passion. Motivation as a force capable of transforming energy in a person in the form of real activity to achieve certain goals. Therefore, in accordance with the opinion (Sugiyono., 2012: 39) in this study used the motivation to learn as a moderator variable is the variable that affects (strengthen and weaken) the relationship between CTL learning model to the ability to solve the comparison story.

The hypothesis of this study is the difference in the ability to solve the comparison story on CTL learning between students who have high learning motivation with low learning motivation.

Methodology

This research is a quasi-experimental research using 2 x 2 factorial design to know the influence of two independent variables and one dependent variable. Poulation in this research is all students of Grade V Elementary school in Boyolali District academic year 2016/2017. Sampling is done by selected multistage cluster sampling of 1 pilot study unit, 2 elementary experimental groups, and 2 elementary control groups.

Data collection techniques used in this study is a test technique to measure the ability to solve comparison story and questionnaires to measure student learning motivation. Testing the validity of the matter uses the assesment of expert judgment and product Moment, and reliability test with Koefifien Alpha Cronbach with the help of SPSS. The balance test uses t-test with the help of SPSS. Normality test uses statistical test shapiro wilk and homogeneity test using levene test. As for data analysis with technique of variance analysis of two way (Anava) cell is not same, then conducted further test with Scheffe method.

Result

Before the researcher performs hypothesis test on the ability to solve the story problem by using contextual learning model, first it is done prasyrat test, which includes normality test and homogeneity test. Normality test used to determine whether the sample is taken from the normal population. Normality testing is done with Shapiro Wilk test statistic used because the data of each class $\leq$ 50. H0 accepted or normal distributed data if obtained probability value> significant level ($\alpha = 0,05$).

Table 1 Normality test

Group	Probability	Conclusion
Experiment-low	.389	Normal
Experiment – High	.471	Normal
Control – low	.278	Normal
Control – High	212	Normal

Based on Table 1, the results obtained is shown that both the experimental group and the control group came from the normal distributed population. Homogeneity test is used to find out that the two groups have the same variance.

Table 2 Homogeneity test

F	df1	df2	P	Conclusion
1.618	3	111	0.189	Homogen

Result of homogeneity test calculation uses levene statistic obtained value of F arithmetic equal to 1,618 with probability value 0,189. The probability value is 0.189, which means the four cell groups are homogeneous. To test the hypothesis uses two way variance analysis with unequal cells is presented in Table 3.

Table 3 The variance analysis of two different cell way

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Decision
model (A)	7532.369	1	7532.369	154.660	.000	Rejected
Motivation (B)	600.226	1	600.226	12.324	.001	Rejected
model* motivation (AB)	.006	1	.006	.000	.991	Accepted
Error	5405.993	111	48.703			
Total	696205.000	115				
Corrected Total	14677.965	114				

After the test results of two-way variance analysis with unequal cells, the next step is to conduct a double comparison test. A double comparison test is performed to calculate the average difference between the columns and the rows that each cell exists.

Table 4 The avarage ability to solve the comparison story

Learning model (A)	Learning motivation (B)		Marginal avarage
	High learning motivation (B1)	Low learning motivation (B2)	
CTL (A1)	89.3	74.3	87.6
Konventional (A2)	71.3	66.2	69.9
Marginal avarage	78.2	74.1	

Table 5 Cell comparasion in the same of column and rows

A	B	Difference of avarage	Probability	Conclusion
Ctl – High Learning Motivation	Ctl – Low Learning Motivation	5.06	0.023	H0 rejected
Konventional –High Learning Motivation	Konventional – Low Learning Motivation		0.008	H0 rejected
Ctl – High Learning Motivation	Konventional – High Learning Motivation	17.96	0.000	H0 rejected
Ctl - Motivasi Belajar Rendah	Konventional – Low Learning Motivation	17.99	0.000	H0 rejected

Discussion

1. Due to the value of Fobs test the interaction hypothesis between the learning model and ability to solve the problem of comparison story is 154,660 greater than Fsig of 0.000 (Fobs> Fsig) at the level of 0.05 significance. Thus, H0A is rejected there is a difference in the ability to solve the comparison story between students that are taught by CTL and conventional learning model. The result of the average calculation ability to solve the story in the students who are taught with the learning model of CTL is 87.6 while the students are taught with the conventional model is 69.6. This means students that are taught by CTL learning models the ability to solve comparative story problems better than students that are taught by conventional learning models.

2. Due to the value of Fobs hypothesis test the interaction of columns and rows between learning motivation and the ability to solve the problem of comparison story of 12.324 is greater than Fsig of 0.001 (Fobs> Fsig) at the 0.05 significance level. Thus, H0B rejected there is a difference in the ability to solve the comparison stories between students who have high and low learning motivation. The calculation results obtained that the students who have high learning motivation has an average value of 78.2 while students who have low learning motivation has a mean value of 74.1 which means that students who have high learning motivation ability to solve the comparison story is better than students who have Low Learning Motivation.

3. Due to the value of Fobs test the interaction hypothesis between the columns and rows that is between the learning model and the learning motivation to the ability to solve the problem of comparison story of 0.000 smaller than Fsig of 0.991 (Fobs <Fsig) at the 0.05 significance level. Thus, H0AB is accepted, this means there is no interaction between learning models and learning motivation to the ability to solve comparison story. To know the interaction between learning model and learning motivation, it is necessary to do *post anava*. The absence of interaction does not matter because any learning model is used by highly motivated students that always superior to those with low motivation. The results of this study indicate that in addition to learning models, learning motivation also affects the success of learning. Students who have high motivation to learn if given CTL treatment will be better again because it improves the ability to solve the comparison story.

The result of this research is the difference of ability to solve the comparison story in CTL learning between student group who have high learning motivation with group of students who have low learning motivation. The average value of students on CTL learning has a high learning motivation of 89.3 while students on CTL learning who have low learning motivation of 74.3.

Conclusion

The results of experimental studies that have been implemented in Boyolali district, obtained data ability to solve the story problem, the comparison of students who get CTL learning and conventional with a review of the learning motivation. The conclusions of this study are:

There is a difference in the effect between CTL and conventional learning model on the ability to solve comparative story problem, students who get CTL learning better than who get conventional learning. There is a difference of influence between students who have high learning motivation with students who have low learning motivation, the ability to solve the problem of comparative story students who have high learning motivation better than who have low learning motivation. There is not interaction between learning model and learning motivation. The absence of interaction does not matter because any learning model used by highly motivated students always superior to those with low motivation. The results of this study indicate that in addition to learning models, learning motivation also affects the

success of learning. Students who have high motivation to learn. If they are given CTL treatment, it will be better because it improves the ability to solve the comparison story.

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