JPE 6 (3) (2017)

Journal of Primary Education

http://journal.unnes.ac.id/sju/index.php/jpe

The Difference of Ability to Ask, Scientific Attitude, Motivation Before and After Following Contextual Teaching and Learning Model

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Article Info

History Articles
Received:
November 2017
Accepted:
December 2017
Published:
December 2017

Keywords:
ability to ask, scientific attitude, motivation, CTL

Abstract

The learning model used by teachers in the classroom based on the result of the researcher's initial observation is still conventional, the student's inquiring ability is low, the students' scientific attitude is not maximal and the student's motivation is low. Teachers need to use innovative learning models that are suitable and are PAIKEM. The purpose of this study is to know and analyze the ability to ask, scientific attitude, and motivation of students before and after following the model of learning CTL. The research method is quasi experimental quantitative with one group pretest and posttest design technique. Techniques and instruments of data collection is an observation technique with questioning ability observation instrument and psychometric scale measurement of scientific attitude and psychology scale of student motivation. Data analysis technique using non parametric statistical test. The results showed that the ability to ask students before and after follow the model of learning CTL is not experiencing a significant positive difference whereas scientific attitude and student motivation experienced a significant positive difference. This is reinforced by the results of hypothesis test 1 that is not accepted because the value of α = 0, 066 above the value of α = 5%. In addition, the results of hypothesis 2 and 3 are α values below α = 5%.

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p-ISSN 2252-6404
e-ISSN 2502-4515

INTRODUCTION

Constitution No. 20 in 2003 and Permendikbud No. 22 in 2016 explained that the learning principles used in teaching and learning activities in the classroom centered on students and teachers as facilitators. The results of observations and initial interviews in several elementary schools and some elementary school teachers in Sub district Wirosari District Grobogan obtained some facts among which is the learning activities are still using conventional learning model that is dominated by teachers with lectures in the classroom. Ideally, good learning should be guided by Constitution No. 20 in 2003 which is PAIKEM and student-centered.

The second fact is that conventional learning dominated by teachers with lectures cause students not to have the opportunity to develop their own potential one of them is the ability to ask students. This is supported by the facts in the field showing that on average there are only 3 people from 28 students (11%) in SD Negeri 3 Tanjungrejo (KTSP) and 4 from 24 students (17%) in SD Negeri 1 Kalirejo (Curriculum 2013) in an active class to ask their teachers in high class, especially in class IV. The results of Cahyani, Nurjaya, & Sriasih (2015) showed that students' inquiring ability is still low.

Chin (2002) also suggests that in order to be able to ask students questions, teachers can stimulate students by making students ask questions. Chin & Osborne (2008) state that students studying science if they ask many questions will benefit the ability to ask questions. Bowker (2010) argues that by training students to initiate questions, it will help students understand how answers to these questions are connected, related, and contextual. If questioning is not conducted, questions involving deep-thinking strategies are not visible so it is crucial to raise the mindset of students to be more active (Chin, 2004).

Third, the scientific attitude of elementary students less than the maximum. This was reinforced by the results of initial observations of researchers in the field, especially in SD Negeri 1 Kalirejo found that there are 8 of 24 students (33%) have not collected on time tasks when the teacher gives independent duties. When students were re-asked by the teacher verbally with the same question in the previous assignment, the students were unable to answer the question according to the answers they wrote as many as 11 out of 24 students (46%) who had already collected all the tasks.

Researchers also found that from 24 students only 5 students (21%) who read the learning materials first before the teacher delivered the material taught that day. The student's open attitude in the percentage class is about 67% or just 16 out of 24 students. The students' diligent attitude amounts to 16 out of 24 students (67%) and the student's meticulous attitude is 18 out of 24 students (75%).

Based on various facts obtained, the scientific attitude that contains character education is very necessary to be formed and maximized in the process of teaching and learning activities in the classroom. Gusmentari (2014) explains that the cultivation of scientific attitudes by teachers is to provide opportunities for students to demonstrate their scientific attitudes including curiosity, objective attitude towards data /facts, open mindedness, critical thinking, and cooperative attitude. The statement was reinforced by Kirch (2007) which states that a scientific attitude is formed when students engage in interaction with classmates, teachers (mediators) as well as with the surrounding community.

The fourth fact, the researchers found that the motivation of students in following the lesson in the low class. It can be seen from the results of the researcher's initial observation that shows that there are 10 of 24 students (42%) who really diligently follow the lesson. A total of 4 out of 24 students (17%) who are tenacious face learning difficulties they experience in the classroom and they always try to ask if they do not know. There are 7 out of 24 students (29%) who have passion and desire succeed. There are 11 out of 24 students (45%) who take careful study in class, while 33% are already self-employed in learning.

Based on the teacher's information, it happens because the teacher uses more lectures

when the teaching and learning activities process so that the child becomes less motivated to follow the class lesson. Deci, Ryan, & Koestner (2001) and Palmer (2005) explain that in essence the student's motivation brings benefits and values that strengthen students themselves. Therefore, students are more actively involved in future learning activities to seek satisfaction and success. Based on the description, ideally it is required teacher innovation in terms of changing the learning model used in the process of teaching and learning activities in the classroom.

There are several models of learning that can stimulate as well as hone the ability to ask students, foster student's scientific attitude and also can increase student motivation in learning. However, among the learning models that are suitable to overcome these problems is the model of learning CTL. The model was coined by Johnson (2002) which mentions that the learning model of CTL is a teaching system that matches the brain that produces meaning by linking the academic content to the context of the student's daily life. The implementation of the learning model with seven components includes contructivism, inquiry, questioning, learning community, modeling, reflection, and authentic assessment.

The model was chosen because it supports PAIKEM that is in line with national education objectives. The concept of this learning model is constructivist so that learning in the classroom will be more meaningful. Activity mengkontruksikan this knowledge makes students have to ask a lot so the ability to ask students trained by itself. When the ability is trained, it can grow a high curiosity, open attitude, and others that belong to a scientific attitude that contains the values of character education in it. In addition, learning activities in the learning model of CTL make learning more interesting and fun for students and can increase students' motivation to learn (Nur, 2003).

The argument is reinforced by studies of the CTL learning model which results H_1 received and H_1 rejected. The H_1 accepted study was conducted by Sanjayanti, Sadia, and Pujani (2013) whose results indicate that the CTL model of character education shows a positive difference to the conjugation of creative thinking and scientific attitudes rather than the conventional learning model.

Based on the explanation that has been described, the researcher want to do research that aims to know and analyze the difference of questioning ability, scientific attitude, and student's motivation before and after follow the learning model of CTL.

METHODS

The research design uses quasi experimental design with one group pretest and posttest design technique. Population and sample in this research is all student of class IV SD Negeri 1 Kalirejo Sub District Wirosari District Grobogan consisting of 24 people. The dependent variable of this research is the ability to ask questions, scientific attitude, and student motivation.

Data collecting techniques in the study using observation techniques and psychological scale measurement tools that include the scale of scientific attitudes and the scale of student motivation. Instrument of observation in this research in the form of guidance to do observation about student question ability in the form of Likert scale and psychology scale instrument in this research is given to respondent to collect data about scientific attitude and student motivation. The instruments are tested with validity and reliability tests.

RESULTS AND DISCUSSION

The results showed that students' ability to ask questions thoroughly before and after following the CTL learning model was different. This difference is evident from the percentage of students' inquiring ability that includes indicators asking questions to the teacher, asking questions using appropriate and understandable language, the relevance and frequency of students in asking when pretest is 52, 50% (enough) and when posttest to 57% (enough). It shows that students' questioning ability before and after following

CTL learning model did not experience significant category change although there is difference of percentage when pretest or posttest can be seen in table 1 below

Tabel 1. Average Ability to Ask, Scientific Attitude, and Student Motivation

Data	Ability to ask		Scientific attitude		Student motivation	
	Average	Description	Average	Description	Average	Description
Pretest	52,50	Enough	73,85	Good	56,10	Medium
Posttest	57	Enough	88,27	Very good	77,35	High

Based on table 1 above, it can be seen that the scientific attitude of students before and after following the CTL learning model for all students in all meetings experienced a positive difference. The difference is seen from the total percentage of students' scientific attitudes that include indicators of curiosity, honesty, cooperation, openness to thought and diligent and thorough notes at the time of pretest is 73, 85% which means good category and when the posttest becomes 88, 27% which fall into very good category. It shows that the students' scientific attitude before and after following the CTL learning model experienced significant category change from good category to excellent.

On the other hand, students' motivation before being given treatment (pretest) and after being treated by CTL (posttest) learning model for all students in all meetings also experienced a positive difference. The difference is seen from the percentage of motivation of all students that includes indicators of desire and desire succeed, diligent in learning, tenacious in the face of learning difficulties, independent in learning, and interest and keen attention in learning at the time of pretest is 56, 10% moderate motivation and when posttest to 77, 35% are included in high motivation category. It shows that the motivation of the students before and after following the CTL learning model experienced a significant category change from the category of motivation being a high motivation category.

Discussion

1. The Difference of Student's Asking Ability Before and After Following Contextual Teaching and Learning (CTL) Model

Based on the results of research on the ability to ask students, then when viewed from the process of learning activities at the time of giving treatment model of learning CTL in particular the learning component of the learning phase and the researcher community found some facts. The facts are that when the teacher stimulates the students to ask questions during the question and answer session it turns out that on average there are only 3-4 people out of 24 students (13% -17%) at all meetings who ask the teacher. When the teacher asks the cause of the students did not ask, then the student's answer is not yet because the students find it difficult to find the right sentence to ask questions and the students claimed no idea to ask the teacher an average of about 2-4 people from 24 students (8% -17%) at all meetings. Not only that, there is an average of nearly 9-12 people out of 24 students (37% -50%) of students at all meetings who do not want to ask because they feel embarrassed and worried about being laughed at if the question is not good. This is overcome by the teacher by guiding students to make questions in writing and allow students to discuss with friends so that students get enlightenment to compile the sentence question, but the step is still not effective because students are still embarrassed to read the questions he made.

The results are supported by his theory Walsh (2011) which says that students do not ask questions to the teacher because students are afraid of being ignorant and laughed at by friends. Not only that, the results of research by Widodo, Yeti, and Cucu (2006) also show that the ability to ask questions to elementary students is still lacking. Grosser and Glombard (2008) in his research say that the cultural environment in which a student grows will be a major factor contributing to student's questioning ability. The reasons for lack of ability to ask students one of

them is the fear of being considered stupid, it's hard to find a suitable word to make the sentence asked, no idea (Hariyadi, 2014).

2. The Difference of Student's Scientific Attitude Before and After Following Contextual Teaching and Learning (CTL) Model

The results showed that students' scientific attitude experienced differences before and after following the CTL learning model. This means that the students' scientific attitude (curiosity, honesty, cooperation, open minds and ideas, diligent, and conscientious) that contain the values of character education can maximize and become better in the process of learning in the classroom through the model of learning CTL. This happens because of the learning activities such as the activities of kontruktivisme and inkuiri in the component model of learning CTL.

The activities of constructivism in this learning model stimulate students to construct their own knowledge and give meaning through the real experiences they have experienced themselves in the daily life of Johnson (2002). So, in the process of constructing the knowledge, the fourth grade students of SDN 1 Kalirejo are invited by the teacher to dig back the initial knowledge they possess and interpret the real experiences they have experienced with stimulated questions so that students are stimulated to respond and express their opinions. These activities include part of a scientific attitude that is open to thoughts and ideas (Andrian, 2010). Kontruktivisme is a learning activity based on the understanding that the knowledge obtained comes from within the students themselves by building knowledge based on the knowledge they have through action and interaction with the environment so that students can exchange experiences as well as help check understanding of the concept of previous students (Rudiyanto, 2008). Based on that, the teaching practice in the field shows that the fourth graders of SDN 1 Kalirejo construct their knowledge by cooperating between teachers and students as well as between students and students to exchange experiences during KBM in class.

The exchange of experience is done by all students of grade IV SDN 1 Kalirejo by giving information to friends who are invited to exchange experiences honestly and openly and among others to ask questions about the experience what they want to know from their friends. These attitudes are part of a scientific attitude (Andrian, 2010). The description is also supported by the data of the research result using psychology scale of students' scientific attitude specially found in indicator 1, 2, 3, 4 which result show that curiosity attitude, honest, cooperation, and open to mind and idea owned by student overall before being treated is good while after being given treatment model of learning CTL is very good.

The process of implementing the inquiry component done by the students is finding their own knowledge and skills through the inquiry cycle stages (Sihono, 2004). Implementing these stages requires an attitude of curiosity, openness, honesty, cooperation, diligence and meticulous. These attitudes are essentially part of a scientific attitude closely related to how students act in solving problems when they pass through the inquiry cycle (Yasar, 2009).

The implementation of the inquiry cycle in the field consists of several stages including the students are given stimulus questions by the teacher as an orientation to stimulate students to formulate the problem so that the fourth graders of SDN 1 Kalirejo are curious to find the right problem formulation on the stimulus of these questions. Teachers facilitate students to find problem formulas by conducting discussions in the class forming discussion groups. Furthermore, with the guidance of teacher students determine the temporary answer to the formulation of problems that have been established together through group discussion activities. Then all the groups collect the data and information needed.

Students with teacher guidance match temporary answers to solving the previously discovered problem formulas with the results of the data and information obtained by the students then summarize the findings in their respective discussion groups. Each group represents one of

its members to present their group's findings in turn by reporting the results obtained for what they are. Then, all students are asked to respond, express their opinions, and be asked to conclude each conclusion that has been presented each group. Teachers straighten out the conclusions of answers put forward by all students so that students gain new knowledge.

It is also supported by research data of students' scientific attitude in the field. The result of the research on students 'scientific attitude was taken by using psychology scale of students' scientific attitude, especially in indicators 1, 2, 3, 4, 5, and 6 which showed that curiosity, honesty, cooperation, open to mind and ideas, diligent and meticulous that the students as a whole before being given treatment is good, while when after being treated treatment CTL learning model is very good. Based on previous exposure, it can be concluded that the component of kontruktivisme and inkuiry in CTL learning model has been proven to maximize students' scientific attitude to be better than before.

The results of this study support the Hudson and Whisler (2012) studies which conclude that there is a positive difference in the CTL learning model by teachers (practitioners) to students in the classroom. Later, it was reinforced by Glynn & Winter (2004) whose research results show that the CTL learning model can make students' activity different than before learning with the CTL learning model through collaborative interaction between teacher and student. Both components of learning in the CTL learning model has indirectly also embodied the character education education in the function and objectives of education in Law Number 20 Year 2003.

3. The Differences of Student Motivation Before and After Following Learning Contextual Teaching and Learning (CTL) Model

The results showed that the motivation of students before and after following the learning model of CTL experienced a difference in the positive direction. It means that students' motivation in the KBM process in the classroom becomes higher when using CTL learning model. This happens because of some learning components in CTL learning model conducted by fourth grade students of SDN 1 Kalirejo in the class such as activities of kontruktivisme, inquiry, questioning, community learning, and modeling Johnson (2002). Components in the implementation makes learning in the classroom more interesting and fun for students and can increase student motivation to learn (Nur, 2003).

It also appears in the learning activities in the fourth grade of SDN 1 Kalirejo on each of the learning components. The first component is kontruktivisme. So for the process of constructing the knowledge, the students of grade IV SDN 1 Kalirejo are invited by the teacher to dig back the initial knowledge they have and have a real experience they have experienced with the stimulus question so that students are aroused to respond and express their opinion about the stimulus.

When the teaching and learning activities process in the classroom, students construct their initial knowledge by collaborating between teachers and students as well as between students and students to exchange experiences. The activity is done by all class students by giving information to friends who are invited to exchange experiences honestly and openly and between one another to question and answer about what experiences want to know from their friends. It also stimulates students' desire and desire to succeed in constructing their knowledge to gain new knowledge. It is also supported by data of research result of student's motivation in field which taken with psychology scale of student motivation specially in indicator 1 which result show that desire and desire of student succeed as a whole before being given treatment is good, while after being given treatment model of learning CTL is very good.

Inquiry activities are carried out by students when the teaching and learning activities process takes place by discovering their own knowledge and skills through the inquiry cycle stages (Sihono, 2004). The fourth grade student of SDN 1 Kalirejo perform the stages facilitated by the teacher. First, the students do orientation activities with some stimulus provided by the

teacher, then followed the formulation of problems undertaken by the students followed by the activity of finding answers temporarily to the formulation of problems obtained previously in a resilient manner. Then, students perform data collection activities and required information and students to match the data and information obtained with the answers while the students thought based on their experience with diligent and last students with the desire and desire succeeded in doing activities concluded the findings earlier. The exposure is also supported by research data of students 'motivation in the field taken by using the psychology scale of students' motivation specially found in indicators 1, 2, and 3 which the result shows that the desire and desire succeed, the attitude of diligence, and the tenacious attitude in facing learning difficulties students as a whole before being given treatment is good, while after being treated by CTL learning model is very good.

Component activity of CTL learning model next is ask and society learn. In the activity of inquiring, between teacher and student as well as between student and student do question and answer activity. These activities include two-way communication that makes students more active in finding answers from teachers or friends (Kunandar, 2009). If students have difficulty learning in the learning activities in the classroom, then students can take the initiative independently to ask questions to teachers or other friends to obtain a solution to learning problems experienced (Riduwan, 2012). The exposure is also supported by data of research result of student's motivation in field taken by using psychology scale of student's motivation specially in indicator 3 and 4 which result show that resilient attitude in facing learning difficulties and independent attitude in student learning as a whole before being given treatment is well, while after being treated treatment model of learning CTL is very good.

Community learning activities in the CTL learning model when the KBM process takes place in the classroom are the students learning with the discussion groups established by the teacher. The formation of these groups aims to make students accustomed to learning with a group discussion system. The activity in practice requires the cooperation of all members of the discussion group (tolerance, mutual trust, not discriminating friends, helping each other, sharing duties, togetherness, and questioning) (Kunandar, 2009).

In the learning activities in the classroom, students interact with other students in the discussion group. It means that between students with each other can help each other to face the learning difficulties experienced by other students in the discussion group. Not only that, student discussion activities also require student interest and attention to the group discussion activities conducted smoothly (Riduwan, 2012). The explanation is supported by data of research result of student motivation in field. The data of the students 'motivation research are taken by using the psychology scale of students' motivation, especially those found in indicators 3 and 5, the result shows that the tenacious attitude in facing learning difficulties and the interest and the sharpness of attention in whole student learning before being given treatment is good, the treatment of CTL learning model is excellent.

On the other hand, modeling activities in the learning model of CTL in the implementation of students perform the learning process by demonstrating an example or model that can be imitated by students. This modeling activity can be performed by a representative person designated by the teacher to be a model of something based on the experience he or she knows. The learning activities that require modeling in the process of learning in the class one example is the interview. The activity is practiced by the teacher as a model who becomes an interviewer with one of the students who are appointed to advance to the front of the class to be a resource person while the other students pay close attention to the activity, then other students come to practice by doing activities that have been exemplified by the teacher is in the field. The explanation is supported by data of research result of student motivation in field. The result of this research is taken by using psychology scale of student's motivation specially in indicator 5

which result show that interest and sharpness of attention in student learning as a whole before being given treatment is good, while after being treated by CTL learning model is very good.

Based on the exposure of the learning components that include kontruktivisme, inquiry, questioning, learning community, and modeling contained in CTL learning model, it can be stated that the learning components in the CTL learning model has been proven to maximize the motivation that students have for the better again than before. In addition, it is also reinforced by the research Satriani, Emilia, and Gunawan (2012) which shows that the model of learning CTL positively affect the ability to write recount and student motivation. Hudson and Whisler (2012) also concluded that there was a positive difference in the learning model of CTL by teachers (practitioners) to students in the classroom. Later, it was reinforced by Glynn & Winter (2004) whose research results show that the learning model of CTL makes students' activeness experience a positive difference through collaborative interaction between teacher and student. Activities on the CTL component indirectly also have realized PAIKEM system in accordance with the objectives education of Indonesia in Law Number 20 Year 2003.

CONCLUSION

The conclusion of this research is the ability to ask no difference before and after following the model of learning CTL or the first hypothesis is rejected because the value of $\alpha = 0.066$ which is above the value of $\alpha = 5\%$. The scientific attitude of the students before and after following the CTL learning model experiences a difference or the second hypothesis is accepted because the value of $\alpha = 0{,}000$ and is below the value of $\alpha = 5\%$. The motivation of the students before and after following the CTL learning model is different or the third hypothesis is accepted because the value of $\alpha = 0{,}000$ is below $\alpha = 5\%$.

Based on the conclusion can be explained that the ability to ask students did not experience a significant difference. Students' scientific attitude becomes more optimal when KBM with CTL learning model. Likewise with the motivation of students who become better than before and into the high category after being treated by CTL learning model.

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