Classification Learning Effectiveness of Living with Contextual Teaching and Learning (CTL) and Cooperative Learning (CL) Type Group Investigation (GI)

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Article Info

Abstract

The result of questionnaire given to 256 students of class VII of SMP Negeri 37 Semarang obtained information that motivation, scientific attitude, and cognitive learning result is still low. One of the teaching models can be used to solve these problems is the CTL and CL GI type models, because it links knowledge to real-world situations and emphasizes maximum student engagement. The purpose of this study is to analyze the effectiveness of classification of living creatures with CTL and CL type GI model of motivation, scientific attitude, response and student cognitive learning outcomes. The research design is Pretes-Posttest Control Group Design. Motivation, student response is analyzed by likert scale. Mastery Test is used to analyze the completeness of cognitive learning outcomes. One-way anova test is used to test three average differences. The results showed that motivation and scientific attitude are in good category. The calculation of experimental class 1 and experiment 2 respectively which stated by KKM is 84,38% and 81,25%. F count> F table (16.086> 3.094), then Ho is rejected, so it can be concluded that there is a difference between the average postes value of experiment class 1, experiment class 2, and control. Learning CTL and CL type GI received a very positive and positive response.

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INTRODUCTION

Education should be more oriented to the readiness of students in facing competition to the global era. Students should be accustomed to have learning by understanding what is going on around them. In addition, students are also directed to obtain the real-world issues related to their roles and responsibilities as learners, relatives and also citizens as well.

The results of questionnaire that given to 256 students of class VII SMP Negeri 37 Semarang obtained information that 62.5% of students expressed have not satisfied with science learning. The percentage of students who have not been motivated during science learning is 68.75%. Students tend to be crowded by themselves as long as the science lesson, not paying attention to the lessons, incomplete records, and unpunctuality in collecting homework / assignments is approximately 75.87%, so that cause less effort and interest to the students in science studying.

Based on the above problem, one of the causes is the model that applied by the teacher. The observations within this time being showing that the teachers are reluctant to have practicum process in the laboratory. The learning for more contextual practicum considered as complicated implementation. Within this time being students tend to be given theories only without being directed to find their own ideas. That is why the students are not satisfied with science lesson and have less motivation to learn. Low motivation makes low learning outcomes. The result of cognitive learning towards the material classification of living creatures is only 60% of the comprehensive KKM (75).

The science learning alternatives that raised in this research are Contextual Teaching and Learning (CTL) model and Cooperative Learning (CL) type Group Investigation (GI). Learning CTL emphasizes on the learning that relate knowledge and real-world situations (Muslich, 2009: 41), whereas the GI type CL model emphasizes students' maximum involvement, togetherness, and mutual beneficial relationships (Slavin 2015: 215). The

purposes of this study were: (1) To analyze the effectiveness of classification of living creatures with CTL and CL type GI models on students' motivation, scientific attitude, and cognitive learning outcomes; (2) Analyze students' responses to the classification of living creatures with CTL model and CL of GI models.

METHODS

The design used Pretes-Posttest Control Group Design (Sugiyono, 2013: 112). The population of this study is the students of class VII in SMP N 37 Semarang at first semester of academic year of 2015/2016 which amounted to 256 students. The sample used class VII D (32 students) and class VII E (32 students).

The free variables in this research are models of CTL and CL type of GI (experimental class) and expository model (control class). The fixed variable in this research are student's motivation, scientific attitude, student's cognitive learning result, and student's response.

RESULTS AND DISCUSSION

Student Motivation

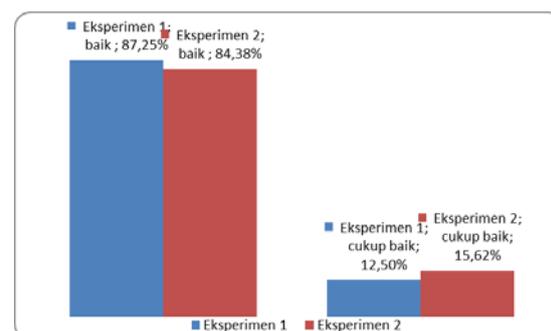The percentage of class experiment 1 and experiment 2 shown at Figure 1.

Figure 1. Student Motivation

Based on the figures, so the learning of classification of living creatures with models of CTL and CL type GI are effective for the motivation. Percentage of motivation value of class experiment 1 and experiment 2 were 87,50% and 84,38% in good criteria.

Scientific Attitude

Percentage of class experiment 1 and experiment 2 shown in Figure 2.
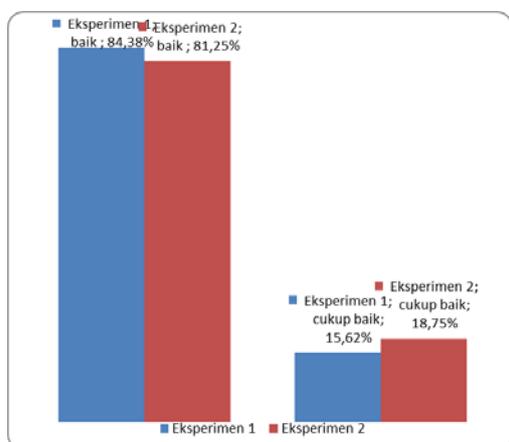
Figure 2. Scientific Attitude

Based on these images, the learning of the classification of living things with models of CTL and CL of GI type is effective for scientific attitude. Percentage value of scientific attitude of experiment class 1 and experiment 2 are 84,38% and 81,25% in good category.

Cognitive Learning Outcomes

Comprehension Test of Cognitive Learning Outcomes (KKM = 75)

The classical comprehension table of experiment class 1, experiment 2, and control is shown in Table 1.

Table 1. Classical Comprehension Experiment Class 1, Experiment 2, and Control

Class	Mean	Completely		Iincomplete	
		Total	Percentage	Total	Percentage
Experiment 1		27	84,38%	5	15,63%
Experiment 2		26	81,25%	6	18,75%
Control		18	56,25%	14	43,75%

Anova One Way Test

One of the requirements to perform one way anova test if the data have the same variance (homogeneous). The output of the calculation result is presented in Table 2.

Tabel 2. One Way Anova Test Results

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	930,583	2	465,292	5,231	,007
Within Groups	8272,406	93	88,951		
Total	9202,990	95			

Based on Table 2 Since F arithmetic> F table (5,231> 3,094), so Ho is rejected, so it can be concluded that there are some differences among of the average postes value of experiment class 1, experiment 2 class, and control.

Student Response

College student response is given after the questionnaire distribution. Percentages of each category shown in Figure 3.
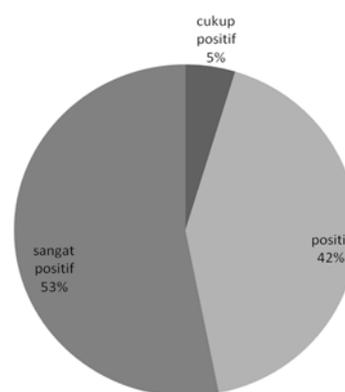
Figure 3. Student Response after learning

The student's response gets the predetermined success indicator. That learning made a very positive and positive response is equal to 95%.

Learning Motivation

The observed motivation consists of four (4) dimensions, namely responsibility, achievement, self-development, and

independence. Student responsibilities during the learning process that use CTL and CL models type of GI are ranked to good level. The students' responsibilities are trained by inviting students to finish the task of living things identification. The task finishing in CTL learning is aided by teaching materials, whereas GI type of CL learning by some internet literature searching, presentation slides, and relevant books. According to Sukmawati (2015), the development of BiologyTeaching Materials based on CTL was able to make the learning of high school students effective.

Achievement as one aspect of motivation, indicated by the feedback during the learning process. In CTL learning, students are motivated to answer questions of LKS 2 about fungi identification to contextual teaching materials. Students within learning the GI type of CL can give a lot of questions about the names of flowers when they are in the Bugel Park location.

The teacher's attention to the dimensions achievement of self-development in CTl learning and GI type of CL is really emphasized. Students in CTL learning are provided with skills in using microscopes when students observe monera and protista in activity 1. On GI, some skillful students are finding many scientific articles that can be accounted for when they surfing the internet or cyberspace. The teacher recommends some site extensions that can be visited, such as: .go; , gov; .AC ID; the .sch; id; and others. GI type of CL learning equips students with science skills (Ibrahim, et al., 2000); (Noor & Wilujeng, 2015).

An efforts to cultivate self-reliance in CTL classes are provided by stimulating to be more brave in identifying invertebrate and vertebrate animals. Sometimes students are afraid when they see worms, frogs, lizards and mice directly. Therefore it needs to be trained by giving challenges in reality. In GI type of CL Class is by giving challenge to the students to interview with flowers and plants sellers in Bugel Park so that be able to arrange key determination. A visit to the park is expected to increase awareness of the environment. This is also expressed by

Ngabekti as well. (2006); that GI is able to make closer to the natural surroundings.

Scientific Attitude

The learning with CTL model and GI type of CL in field encourages students in identifying for investigation activity and makes the key of determination. This research finds that the CTL model and GI type of CL is effective toward scientific attitude. In the same opinion with Istiqomah et al. (2016), that the GI learning model was more effective to grow student's scientific attitude. Observed scientific attitudes consisted of curiosity, critical, diligent, honest, cooperation, and discipline.

Curiosity is shown in the CTL class by students' questions about the types of fungi that humans can consume in learning fungal identification. In GI type of CL class, curiosity is shown by the students' questions about the functions of the monera and protista kingdom members. Meanwhile, the results of Suhendar's observation et al. (2016); Suwono (2012), explained that the GI type of CL model could improve the ability to speak in asking and answering. The curiosity was usually indicated by students' questions arised.

Critical attitudes of CTL students and GI type of CL are observed by the answering ability of students in analyzing the answers of activity sheets according to the reality that watched and observed by students. besides that, is also able to draw conclusion with the identification of living things activity that have been done. Pratinuari, et al. (2013), CTL learning was able to make students became more critical. It was stated by Alimah (2014) as well, exploration activitiy in the natural roaming model was able to improve critical thinking skills because in the learning process by applying that model was preceded by observations activity toward the natural environment around students.

The student's diligent attitude in CTL learning can be seen when students must repeatedly take straw soaking water to observe protista. Sometimes students can immediately observe the movements of the ciliate, but also some groups fail to find the searched

microorganism. In this case the diligence attitude is trained and grown to the children. The attitude of diligence in the GI type of CL class when identifying the body parts of living things is aided by any literature as well. Also emphasized by Sapari et al. (2014), in the Investigation Group model students were demanded to be more diligent in the process of group divising, material, accessing, completing material, discussion and presentation, repackaging, evaluating.

Honesty attitude in CTL learning and GI type of CL is seen when research result is being reported as the form of LKS as they are. Students are being open to the identification results that presented by the form of activity reports. Learning CL type GI could increase the goodness of mind, sensitivity, and tolerance (Ibrahim et al., 2001: 19).

Discipline attitude in the CTL and GI type of CL classes appear when students collect LKS assignments according to the time limit. Discipline attitude needs to be accustomed since studying at school. By spirit of discipline, our nation will be more progressed and prosperous.

CTL learning requires students to share the tasks with bringing tools and equipment and materials for the purpose of identifying fungi, plantae, and animalia. GI type of CL learning also teaches cooperation attitude among of the teams when finishing identification tasks within through relevant learning resources. Singaram et al. (2011); Sudarmin & Azizah (2016), learning CTL and GI CL models stimulate students who work in heterogeneous group to be able to interact among to others. Meanwhile, in Permana's opinion (2016); Wasmana (2016), GI type of CL was able to develop tolerance attitude in having relationship with human beings in order to have social skills.

Cognitive Learning Outcomes

The learning of CTL and GI type of CL is also mentioned as effective way toward students' cognitive learning outcomes. In general, CTL and GI type of CL learnings have been successful in improving students' cognitive learning outcomes. In the same opinion with

Malinda & Rahayuningsih (2017), that CTL learning had a significant influence at learning score. This because of CTL learning, students identify directly the material brought. As for the material that was impossibly brought aided within through contextual teaching materials. Meanwhile, GI learning, students were aided by literature in internet and slide presentations from teachers. In learning the GI type of CL, students did direct investigations in Bugel Park, the center of selling ornamental plants in the Peterongan area of Semarang. These two models both stimulated students to construct their own knowledge, so knowledge was being as long term memory.

Learning CTL and GI type of CL principled on the philosophy of constructivism (Muslich, 2009: 44); Mitchell et al. (2008); Tsoi (2004). CTL and GI both classified into constructivism stream like Discovery Learning (Jalil, 2016). This component emphasizes on active self-understanding, creative and productive that built based on prior knowledge and meaningful learning experiences. Students constructed their own knowledge through the experience of identification and key making of determination of plants and animals. Hasnawati (2006), revealed that the CTL and GI type of CL's approach was based on the philosophy of constructivism learning, namely students actively constructing their own knowledge. The teacher was no longer as the only one resource in learning and activity and had turned to be students as a center of learning activity.

Student Response

The learning of classification of living things with CTL and GI type of CL models is effective toward student response. It because of that learning makes a very positive response result and positive response in 95%. In the questionnaire students expresses challenged, interest, like, and interested in learning classification of living things with CTL or GI type of CL. Study of Oh & Shin's (2002); Johar (2009); Muqorrobin & Budiyono (2014); Warsiti (2011), reported that the application of CTL and GI type of CL models showed a more positive

attitude toward the learning process. In addition, students stated that CTL learning was able to present real object during the learning process of classification of living things, so that they found easiness in studying the classification of living things.

CONCLUSION

The learning of classification of living things with CTL and GI types of CL models is effective toward students' motivation, scientific attitude, and cognitive learning outcome. The learning of classification of living things with the CTL model and GI type of CL has a very positive and positive response.

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