

The Effect of Ethnoscience Based Contextual Learning Toward Students' Learning Activity

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Abstract

The 21st century of learning refers to the development of students' activeness. One of the effort to improve is the students activeness accompanied with contextual learning based ethnoscience that affect the activity of students' learning. The purpose of this study was to determine the effect of the implementation of contextual learning based etnosains on the students' learning activity. The location of the study was SDN Kauman and SD N 5 Mulyoharjo, Jepara. The type of the study was a mixed method, with *embedded experimental models* design. The total sample in this study were 61 students. The data were done by using test method, observations, questionnaires, and documentation. The result of this study is the profile of the contextual learning on the activeness of students. There is a significant effect of contextual learning based ethnoscience on the students' learning activeness. The students' learning activeness is categorized as high category with the percentage of 91.09% for SD N Kauman and 89% for SD N 5 Mulyoharjo. The conclusion of this study is that the contextual learning based ethnoscience has significant effect on the students' learning activeness.

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INTRODUCTION

Contextual learning is an educational process which is holistic and aims to motivate students to be able to understand the meaning of topic learned by relating the material into the context of daily life (personal, social, and cultural context) so that students have the knowledge/skills which is flexibly applied to one case or problem/other related context of problem (Kemendikbud, 2013). Contextual learning is a concept of learning where the teacher presents a real world situations into the classroom and encourage students to draw connections between the knowledge possessed by the application in their lives as members of the family and society. Therefore, the provision of education in Indonesia should be centered on the student and not merely rote but students are required to be active in acquiring knowledge so that learning can be more meaningful, such as the application of contextual learning based ethnosience.

Research conducted by Vali, et al. (2015) proposed that the development of science teaching design based on local wisdom can develop positive character and achievement in the elementary school. Research conducted by Hairida (2017) found that learning by using colloidal SETS teaching methods and local wisdom based is effective to enhance the entrepreneurial spirit and the conceptual understanding of the students. The results of the analysis of several journals found in some schools, especially in science subjects, students learn science as only as a product, memorizing the concepts, theories and laws.

The nature of science as a process, an attitude, and application become less concern in the learning. Therefore, students still regard science as less contextual knowledge and not meaningful. This perception has resulted in the low interest of students to learn science and they become inactive in the learning. Regardless to this matter, it requires takes teachers role in presenting lessons that can provide the circumstances which is more contextual and meaningful.

21st century learning in Indonesia is still experiencing major problems, mainly related to the low quality of education. The low quality of science learning outcomes of students in accordance to the assesment results of PISA and TIMSS which showed that the learning process of science in Indonesia has ignored the acquisition of ownership of scientific literacy of the learners (Uus, et al. 2011).

The results of observation sconducted in the public elementary school in the district of Jepara showed thatthe learning applied was less interesting, teacher centered learning, students activities in the learning was less visible, the learning was done only with lecture modes and demonstrations. Students were rarely given the opportunity to give an opinion in solving the problem given by the teacher, the learning fails to apply a contextual approach of learning should be associated with the environmental conditions and real event experienced by students in order that the students can easily understand the material. Learning cannot be separated from the explanation of the teacher, however, if the method is continuously carried out, students will not be active in the learning. In fact, they will only listen to the lecture without directly experience the case which resulted in the less meaningful learning. Based on these problems, teachers should be able to conducta contextual learning based ethnosience, which associatethe learning with the local culture.

Based on the research results of Sugiarta, et al. (2013) showed that the application of the contextual learning approach can enhance the activity of elementary school students of grade IV in learning science. Research conducted by Suryawati, et al. (2010) also supported that the contextual learning framework has successfully enhance students' skills in problem solving and scientific attitude. Ethnosiencec based contextual learning can increase student activity.

Research by Cristian Damayanti (2017), Kevin & Sudarmin (2015), Wahyu (2015), Khoerunnisa, et al. (2016), Arfianawati, et al. (2016), Dewi, et al. (2017), and Pamungkas, et al. (2017) showed that the science teaching model integrated with ethnosience which is

developed can be fit to be use in the learning process, improve the learning outcomes and the critical thinking skills of students. Science learning based on ethnosience can improve student learning outcomes.

Research by Lia, et al. (2016), Ariningtyas, et al. (2017) showed that the implementation of students worksheet with ethnosience can students understandly aboutt the content and it was effectively applied in the learning. According to the research result of Miranita, et al. (2017), showed that the results of the reconstruction of learning based local wisdom has good conservation value. According to the research conducted by Yuliana (2017) showed that learning based ethnosience can improve the ability of scientific thinking on the local culture. Ethnosience based learning is good to use in learning and can improve thinking about local culture.

The research conducted by Setiawan, et al. (2017) Dewi, et al. (2017) showed that the development of local wisdom based natural science modul can improve the scientific literacy of students. Research conducted by Danang, et al. (2018) found that the learning video based ethnosience can enhance the understanding of the concept of the integrated science. Research conducted by Sarie, et al. (2016) showed that contextual teaching learning approach can improve the multiple intelligence and learning outcomes of the students. The development of ethnosience based learning can improve students' mastery of concepts.

Research conducted by Sambada (2012) showed that contextual learning has play an important role in solving problems of physics. According to the research of Mulyani (2013), Mu'min, et al. (2015), Mim & Wardani (2015), Jim & Fakayun (2015), Sunarsihet, et al. (2017), Fadillah, et al. (2017) showed that contextual learning can improve the mastery of concepts, critical thinking skills, and student achievement. According to the research conducted by Brendyani (2015) showed that the cooperative learning model assisted with students' worksheet has effectively improve the understanding of the concept. According to the research conducted by

Rahayu, et al. (2013) showed that contextual learning was effective to be use in teaching writing. Effective contextual learning can solve science problems and can improve understanding of concepts.

Based on the results of research conducted, therefore, it is necessary to conduct learning which can be attributed to students' daily environment through the contextual learning in order to cultivate students' activity, create a more meaningful learning, and can be used to introduce the culture of the area where the students are living which is in accordance to the characteristics of the students.

METHODS

This study is a qualitative research to determine the level of learning activity of students after experiencing contextual learning based on ethnosience.

The population in this study were all elementary school students in Jepara district. Since there are many centers of carving in this research, the subject of research compared to other districts in Jepara. The samples used in this study were the 4th grade students of SDN Kauman, 32 students and students of SD 5 Mulyoharjo, 29 students. The sampling technique was random sampling.

The steps and procedures in this study consisted of three steps namely planning, implementation, and conclusions or data analysis.

Research which has purpose to measure a phenomenon shall use the research instrument. According to Sugiyono (2011), the research instrument is a tool used to measure the natural and social phenomena being observed. The instrument used in this study is observation.

The analysis technique of the qualitative data consisted of data reduction, data presentation, conclusion and verification. The reduction of data was obtained from the results of the documentation which was reduced by summarizing, selecting, and focusing on the data in accordance to the purpose of the study. The presentation of data was done after conducting

data reduction. The data obtained from the documentation was presented in the form of notes, narrative descriptions, tables, charts, graphs, flowcharts, and so forth. The data that has been reduced and presented, then was used draw conclusions.

RESULTS AND DISCUSSION

Student Activity

The data of the characteristics of students' activity was obtained from the observation sheet made by the observer to determine the student's activity during the learning process. The items of each indicator analysis of the students' activity was written in the observation sheet. There were 11 items of indicators of student activity in the observation sheet which was created into 5 aspects of students' learning activeness with the acquisition of a maximum score of 3 for each component and a score of 1 for the lowest score. Aspect is I students' enthusiasm, aspect II student-teacher interaction, aspect III teamwork, aspect IV students activeness in the teamwork, and aspect V students' participation in summing up the results of discussions. The average value of each aspect is presented in Table 1.

Table 1. The Average Value of Students' Learning Activeness

School	Aspects of learning activeness					Average value
	I	II	III	IV	V	
SDN Kauman	85	86.3	85	94	83	87
SDN 5 Mulyoharjo	77	75	79	86	82	80

The average of the students' learning activeness of SD N Kauman was higher than the average value of students' learning activeness of SDN 5 Mulyoharjo. It was happened due to the students' enthusiasm in learning, students' interaction with the teacher, teamwork, and the participation of students of SDN Kauman was higher than students of SDN 5 Mulyoharjo. The curiosity of students of SDN Kauman on sculpture was higher than that of the curiosity of students of SDN 5 Mulyoharjo, therefore, the students' learning activeness can increase significantly. The results of this study is consistent with the result of Pulungan (2016) which stated

that the activity of students increased after using the model of contextual learning. The average value of student activity is presented in Figure 1.

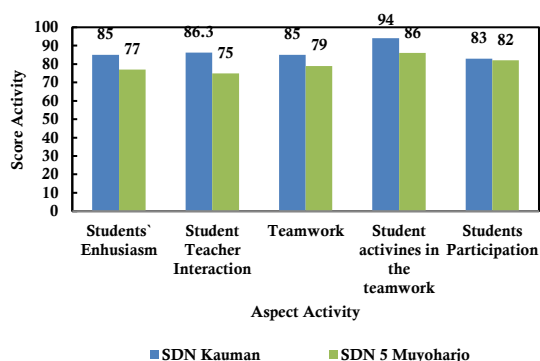


Figure 1. The Average Value of Students Activeness

Based on Figure 2, it can be described the results of analysis of students activeness in each school with the caption of SDN Kauman as research subjects 1 (SP 1) and SDN 5 Mulyoharjo as research subjects 2 (SP 2).

1. Students Enthusiasm

SP 1 in the indicator of students enthusiasm showed an increase from the learning 1 to 3. During the learning process, students pay attention to the explanation of the teacher, students did not do other works, spontaneous work when given the task although there were few students who were less active in the learning process. It happened since the students were less understand the material so that they have less enthusiasm in the learning.

SP 2 in the indicators of students enthusiasm showed an increased from learning 1 to learning 3. During the learning process, students consider to pay attention on the teacher explanations, students did not do other works, spontaneous work when given the task although there were few students who were less active in the learning, this is due to the students' lack of understanding of the material so that they have less enthusiasm the in learning.

The enthusiasm of students at both schools included in the category of high. Based on the aspect of enthusiasm appears that the activeness

of students of SDN Kauman is higher with the score of 85, whereas, the value for the aspect of enthusiasm of students of SDN 5 Mulyoharjo is 77. The result of this study is consistent with the results of the research conducted by Arsana, et al., (2013) which stated that students learning activeness increase after the application of the contextual learning approach. The difference values obtained by SDN Kauman and SDN 5 Mulyoharjo is due to the location of the school. SDN Kauman is located farther than the center of carving industry compared to SDN 5 Mulyoharjo which has lower enthusiasm of students on carving industry. The students enthusiasm in this school become lower since the students at SDN 5 Mulyoharjo are already get used to the environmental conditions that surrounded by carving industry, so that they have less enthusiasm on it. The value of enthusiasm of students of SDN Kauman was higher since they are not accustomed to carving industry so that students become more enthusiastic and active in the learning and more enthusiastic in doing the task of the teacher.

2. Student interaction with the teacher

In this indicator SP 1 have been trying to ask to the teacher if the students were less able to understand the material or the assigned task and answered questions from the teacher even though sometimes the answer is less accurate. In this case, SP 1 was utilizing the teacher as a resource and as a facilitator. There were few students who were less active in this indicator, in the first lesson.

In this indicator SP 2 was already trying to ask to the teacher if the students were less able to understand the material or the assigned task and answered the questions from the teacher even though sometimes the answer was less accurate. In this case, the students were already using the teacher as a resource and as a facilitator. However, there were few students who tend to be less active in the learning, particularly in the first learning.

The results of student interaction with the teachers at SDN Kauman and SDN 5 Mulyoharjo were in high category. The aspects of

student interaction with teachers in SDN Kauman reached a score of 86.3, whereas, the value of the aspect of interaction of students and teachers in SD N 5 Mulyoharjo reached a value of 75. The values of student interaction with the teachers in SDN Kauman was higher than the value of the interaction of students and teachers in SDN 5 Mulyoharjo. This happened since the curiosity of students in SDN Kauman was higher than the curiosity of students of SDN5 Mulyoharjo, so that students were more active in asking and answering questions from the teacher. Students of both SDN Kauman and SDN 5 Mulyoharjo have been utilizing teacher as facilitator.

3. Teamwork

In the teamwork aspect, SP 1 has been helping a friend in the group who met problems. Students also have been asked for help from a friend if they found some problems or difficulties, however, there were also some students who only sit and quiet when having difficulties with the task. That happened since some of these students have not fully understand the material or less familiar with the task and did not want to ask to the teacher or other friends. Some students also have matched their responses in one group and the division of tasks within the group.

In the teamwork, SP 2 has been helping a friend in the group who find problems or difficulties. Students also asked for help from a friend if they have a problem, however, there were also some students who just stay quiet. This hapened since some of these students have not fully understand the material or less familiar with the task and did not want to ask to the teacher or other friends. Most students also matchedtheir responses in one group and the division of tasks within the group.

The aspects of teamwork in SDN Kauman and SDN 5 Mulyoharjo is in the category of high. The value obtained from the aspect of teamwork in SDN Kauman reached of 85, whereas, the value of the aspect of teamwork in SDN 5 Mulyoharjo reached of 79. The value of aspects of teamwork in SDN Kauman was higher than the value of the aspect of teamwork in SD N 5

Mulyoharjo. This happened since the students in SD N Kauman was very active compared to students in SDN 5 Mulyoharjo in communicating with friends in their group so that the task given by the teacher become easier for them due to good cooperation in the group.

4. Students activeness in the Group

SP 1 has already very active to express opinions in the learning 2 and 3, whereas, the learning 1, there were still many students who were less active in the group discussion. In addition, students also have tried to respond to the friends in the group, as well as did the task group and explained the results of their work.

SP 2 has already been active to express their opinions in the learning 2 and 3, however, in the learning 1, there were still many students who were less active. In addition, students have also tried to respond to the friends in the group, as well as did the task group and explained the results of their work.

The results of students' activeness in the group in SDN Kauman and SDN 5 Mulyoharjo is in high category. The result the values on the aspect of students activeness in the group reached a value of 94 for SDN Kauman, whereas, the value of aspects of student activeness in the group in SDN 5 Mulyoharjo reached to 86. The value on aspects of student activeness in the group of SDN Kauman was higher than the value of the activeness of students in the group of SDN 5 Mulyoharjo. This happened since the students were very active in expressing their opinions in a group, and very active in responding to the friends in their group. The reason for students of SDN Kauman to become more active in the aspects of activeness in the group is due to their high curiosity about carving industry compared to the curiosity of students of SDN 5 Mulyoharjo.

5. The Student Participation in Summarizing the Result of Discussion

SP 1 has made conclusion together. In the learning 1, students were having less respond to the questions/conclusions of friends since they did not fully understand the material, however, for learning 2 and 3, many students have respond

to the conclusions of a friend. Students also enhance the conclusion stated by their friends and appreciate other friends' opinion.

SP 2 has made conclusion together. In the learning 1, students were having less respond to the questions/ conclusions of their friends since they did not fully understand the material, however, for learning 2 and 3, many students have given respond to the conclusions of a friend. Students also enhance the conclusions of other friends and appreciate their opinion.

The participation of students in concluding the results of the discussion in SDN Kauman and SD N 5 Mulyoharjo is in the category of high. The value of the aspect of students' participation in making conclusion in SDN Kauman was of 83, whereas, for SDN 5 Mulyoharjo reach a value of 82. The value on aspects of students participation in concluding the result of discussion in SDN Kauman was almost equal to the value in SD N 5 Mulyoharjo. This happened since students were active in responding to questions/conclusions of friends.

The following analysis of activeness of students in each school can be seen in the Figure 2.

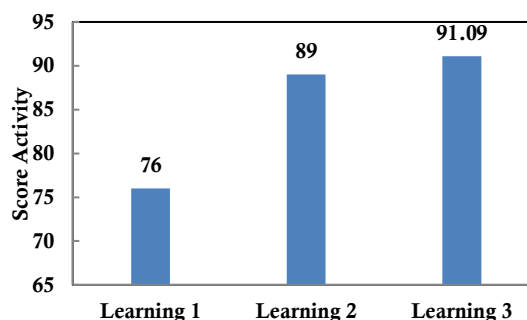


Figure 2. The Results of Analysis of Students Activeness of SD N Kauman

Based on Figure 3 the scores obtained from the activeness of students in SD N Kauman in the learning 1 to learning 3 has indicated an increase in the activeness of students. This result is in accordance to the research result of Marwoto (2017) which stated that the student activeness increased after using the contextual learning model. The increase was affected by the application of contextual learning in the learning

material which is associated with the real life situation around the students. The association of the material to the environment around the student is by determining the relationship style and motion in the process of wood carving in Jepara. It make the students become more active and understand the material clearly. Figure 3 is the result of the analysis of students activeness of SDN 5 Mulyoharjo.

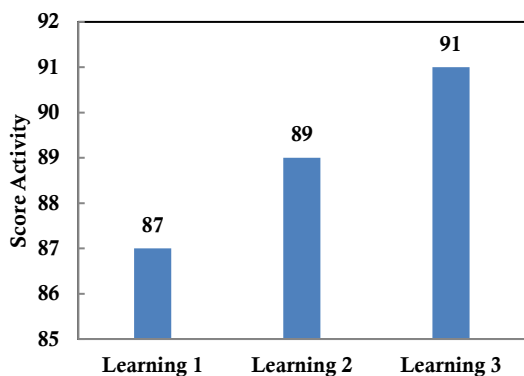


Figure 3. The Analysis of Students Activeness of SD N 5 Mulyoharjo

Based on Figure 4, the score obtained from the students activeness in SDN 5 Mulyoharjo in the learning 1 to earning 3 has indicated an increase in the learning activeness. This results are consistent with the results of research by Fahmiati (2014) which stated that the contextual learning can improve the students learning activeness. The increase also happened in SDN Kauman which is affected by the application of contextual learning in which in the learning, the material is associated with the real life situation around the students. Such as determining the relationship of style and motion in the process of wood carving in Jepara. It made the students become more active in the learning.

CONCLUSION

The results of this study is the contextual learning profile of the student activeness in the learning pprocess. There is a significant effect of contextual learning based etnosains on the students' learning activeness. The students' learning activeness is in the high category with

the percentage of 91.09% for SDN Kauman and 89% for SDN 5 Mulyoharjo. Based on these results, it can be concluded that contextual learning based on ethnoscience has given significant affect on the students' learning activeness.

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