

Contextual Learning: Implementation and Challenges for Science Teacher in Private Middle School

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Abstract

This purposes of this study are to: (1) describe the implementation of contextual learning by science teacher in Salatiga Private Middle School, (2) analyze the challenges of science teacher in Salatiga Private Middle School in implementing contextual learning. The study employed qualitative research in which the sample was 4 teacher of private middle school of Salatiga. The data obtained from the observation and questionnaire instruments constructed from six criteria. The criteria of contextual learning are: 1) constructivism, 2) asking, 3) finding, 4) learning community, 5) modeling, 6) reflection. Data analysis from the research that has been conducted is by processing data descriptively. The research shows that the implementation of contextual learning in every Private Middle School of Salatiga for science subject are on the good category (score interval: $2,82 \leq \text{score} < 3,37$). The highest accomplishment from the whole indicator of contextual learning from finding aspect with score 3,00 (good category). Teacher's challenges in implementing contextual learning, in general, are the limited facility to apply scientific method through practicing or experimenting in the laboratory, lack of opportunities for teachers in developing contextual-based media, and lack of assistance provided by the teacher in the aspects of a learning community, constructivism, and finding.

Keywords: Contextual Learning, Science Teacher, Private Middle School

INTRODUCTION

The approach in learning has become a base and teachers perspective in teaching. The approach in science subject is becoming the base for constructing the learning process. Learning is a chain of the learning activity that has been planned and designed from learning approach (Dick & Carey, 2001; Gagne, 2005). The learning process in science subject also needs learning based on activities to increase student's skill. Those processes certainly become an effort that must be done by the teacher by providing a learning environment system that enhances the abilities and competencies that will be achieved.

Learning management requires the use of some components of learning in an organized manner by taking into account the learning objectives, learning materials, learning strategies and methods, learning media/teaching aids, and including learning approaches. Priyambodo (2017) explained that learning strategy is systematic and systemic steps that been used by lecturers to creating a learning environment that allow the learning process and achieving the determined competence. Learning model becomes the conceptual framework and learning operational that have a name, characteristic, logical order, settings,

and culture. Teaching methods are the technique used by teachers to handle one learning activity which includes lectures, question and answer, and discussion.

Model and strategy to teaching technique have an important role in increasing student achievements. Tosun and Taskesenligil (2011) said that student achievements can increase because strategy and motivation that teacher gives while learning process. In addition to increasing enthusiasm and interest of the students, teaching variety also helps the teacher in conveying the message in every subject that it can be easily understood. Applying the learning approach in school, teachers can make the learning atmosphere that attractive while utilizing learning approach that creative, innovative, and varies so that learning can take place by optimizing and oriented towards learning achievement.

The developments of learning theory bring consequences toward teacher to increase their role and achievement, also to practice students' autonomy in their study. Students' autonomy in learning also has to support by teaching strategy oriented to scientific work so students can design and apply scientific concepts (Topaloglu, 2015; Zion, 2008). Considering the effective teaching and

learning process determined by the teacher competence and role. The teacher that has competence will be able to create a fun learning environment also can manage the class optimally. Teachers' role and competence in the learning process is really important in designing learning environment based on real life that increasing students' curiosity and thinking process according to the context of the material learned (Thoron and Myers, 2012).

Teachers' role in understanding learning theory initiated by another researcher is expected to give stimulus toward the students to increase students' attention in learning. The hope is that the goals and process of education can be achieved effectively and efficiently. According to Sardiman (2011) that the learning process requires effort to change behavior. Efforts are made as a form of achievement of performance and satisfaction with the students.

According to Kotler in Isnaini *et al.* (2016) explains that there are two indicators of satisfaction in the teaching process, those are: 1) expectations that are built based on student perceptions, 2) performance related to each component of teacher achievement. In this study, the aspect of implementing contextual learning by the teacher will be analyzed in relation to the teaching process provided by the teacher.

Furthermore, the teaching process that will be done will be related to the learning theories adopted by science teachers. Therefore, efforts in the application and understanding of learning theories are needed as a step to improve students' learning outcomes. Based on the background above, this study aims to describe the contextual learning conducted by the teacher in science subjects and observe students activities in learning through the implementation of contextual learning in science subjects.

METHOD

This type of research is a qualitative descriptive study. The approach in this study was carried out through a behavioral approach, which was by looking at the behavioral aspects of the objects observed then analyzed. The object in this study is the process of implementing learning theory conducted by science teachers in science subjects. The implementation of learning theory is a process of implementation of learning that is coordinated with the variation of teaching conducted by the teacher.

This study analyzes the data obtained in the form of documentation, behavior, and words. The research was carried out in Private Middle Schools in Salatiga. The population is 7 teacher whereas the research sample was teacher

in 8th grade of Private Middle School in Salatiga. The sample was taken by purposive sampling technique, involved by 4 science teacher. Data collection techniques used were through non-test with questionnaire and observation instruments. Measuring the contextual learning activity taken place and after the activation process was completed.

In this study, science teachers as the main informer to get information

about the learning theory adopted. The main data that will be analyzed is obtained through the results of interviews and observations conducted by researchers on science subjects related to contextual learning. The criteria for contextual learning according to Nurhadi (2003) are: 1) constructivism, 2) asking, 3) Finding, 4) learning community, 5) modeling, 6) reflection.

Table 1. Contextual Learning Indicator

| Criteria | Indicator |
|--------------------|--|
| Asking | <ol style="list-style-type: none"> 1. Raising student motivation to learn 2. Stimulate students' curiosity about something 3. The teacher provides stimulus to students through brainstorming activities |
| Modeling | <ol style="list-style-type: none"> 4. The teacher provides learning by connecting it with previous material 1. The teachers' way to facilitate students learning style 2. In explaining, teacher gives example, scheme, pictures, and video 3. Celebration that is built by teacher inductively 4. Celebration that is built by teacher deductively 5. The teacher explains abstract material to concrete 6. Using analogous material in explaining |
| Learning Community | <ol style="list-style-type: none"> 1. The teacher directs students to help their groupmate 2. The teacher manages students in discussion group 3. Students grouping in the discussion based on their academic ability |
| Constructivism | <ol style="list-style-type: none"> 1. Provide real experience toward the students 2. The teacher makes students worksheet for discussion 3. The teacher giving students freedom in giving their opinion based on their interests |
| Finding | <ol style="list-style-type: none"> 1. Learning process goes on through scientific activities (demonstrations, simulations, experiments) 2. The students get involved in scientific activities through activities that formulating some problems until concluding |
| Reflection | <ol style="list-style-type: none"> 1. The teacher connects the material with new knowledge also the application in daily life 2. The teachers do an evaluation in learning (conclusion, small test, reward) |

Techniques for the data collection that used are observation and interview. The instrument for data collection validated before by content and construct to qualify the validity of the

instrument. Interviews and observations of the implementation of science learning by teachers and students were held at 4 private middle school on Salatiga (SMP A, SMP B, SMP C, and

SMP D). Other supporting instruments that been used are tape recorder also a camera for documentation. Data analysis from the research conducted is by processing the data descriptively. Activity in data analyzing is data reduction, data display, and conclusion drawing/verification. The results of the analysis and conversion of the observation sheet values were carried out by classification and categories through descriptive analysis techniques with the determination of average ideal criteria and ideal standard deviation (Arikunto, 2015).

Tabel 2. Ideal Average Classification and Standard Deviation

| Interval | Category |
|----------------------|-----------|
| $x > 3,37$ | Very good |
| $2,82 \leq x < 3,37$ | Good |
| $2,27 \leq x < 2,82$ | Adequate |
| $x < 2,27$ | Not good |

RESULTS AND DISCUSSION

The implementation of contextual learning in science subjects as a whole from each school shows quite diverse results. Contextual learning includes six main indicators, which are: 1) constructivism, 2) asking, 3) finding, 4) learning community, 5) modeling, 6) reflection. The highest achievement of all indicators of contextual learning is finding with a score of 3.00. This means that the indicator finding that the teacher has done already optimal in science subjects. Furthermore, the achievement

of the indicator asking that is a score of 2.97, while the lowest score is on the learning community indicator with a score of 2.75 (category good enough). Overall, the achievement of the score on the implementation of contextual learning in each indicator does not have a significant difference. This means that contextual learning by science teachers in junior high schools from Salatiga is quite good.

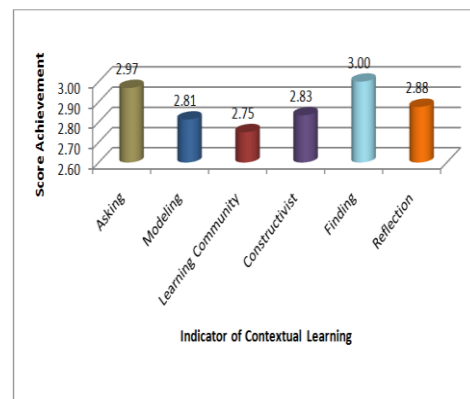


Figure 1. Contextual Learning Implementation

Based on Figure 2, the results of constructivist learning in terms of indicators are quite diverse from each school. The ability of SMP D subject teachers to construct knowledge reaches the highest score with a score of 3.25 (good category) and the ability to design findings for students with a score of 3.25 (good category). Next, the ability to stimulate students to ask to have the highest achievement was science teacher from SMP A with a score of 3.13 (good category). The modeling category that

achieved the highest score was SMP A with a score of 2.92.

The next one, teacher ability in managing students in learning community that has the highest score is from SMP C and SMP B with the same score 2,83 (good category). Reflection activity achieved with the maximum score by SMP D and SMP A with score 3,00 (good category). Based on the data, contextual learning reviewed per indicator shows differences in teacher characteristic and teaching style. Even applying the same contextual learning, science teachers have different characteristics and advantages according to each learning plan. Teachers also have to adjust with the students need. It means teachers try to facilitate all students' potentials so the learning process can reach all students even though having a different background.

Implementation of contextual learning in SMP B is more stands out than other private schools. But, in general, implementation of contextual learning in every private middle school in Salatiga on science subject is in good category (score interval: $2,82 \leq \text{score} < 3,37$). The difference in the achievement of contextual learning is influenced by several factors including facilities and infrastructure to carry out experiment-oriented learning, especially, the learning process in SMP D and 4 still

having limitation to do inquiry-based learning (finding). Because inquiry-based learning requires a systematic thinking process that uses scientific methods.

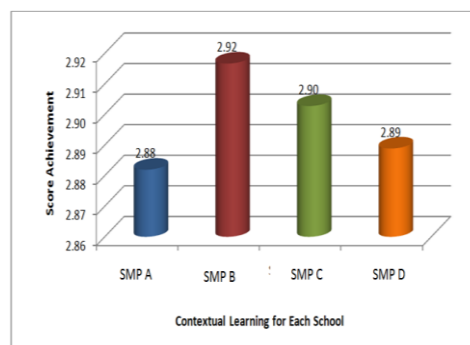


Figure 3. Contextual Learning for Each School

The Description of Interview Resultswill be explore as follows;

1. SMP A

Science teachers' perspective on education, in general, is the need for adjustments between the conditions of the school and the curriculum widely, so that the implementation of learning can adjust students' abilities. Teachers already attempted to design science learning through active learning. Teachers usually use constructivist learning, for example with the Discovery Learning model. The implementation of the approach used by the teacher is already considered good enough.

The problem faced by teachers is the condition of students who come from different backgrounds, in terms of academic ability and family economic

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background, which is generally from the middle to lower. Apparently, this condition greatly affects students in attending lessons in school. There are even students who have not been fully able to follow and understand the material being studied. However, through high responsibility, teachers still educate students even though it requires extra effort to assist students who are having difficulties in learning. The teacher also feels challenged so they always reflecting on every teaching that has been given.

Specifically, teachers explain the students' problems, namely students that like sleep in class and not having a spirit in learning. Teachers are searching for the factor and background that affect students' motivation in learning. Many students come from a family that not giving much attention to their children and they lose their motivation when learning in school. Through learning, the teacher always improve themselves through variation in teaching. Teacher utilizes laboratories equipment and pictures to catch students' attention in learning.

2. SMP B

From the results of interviews conducted by the teacher explained that education is important not only in school but also in the environment where students and families live. Therefore

education plays a role in processing someone to be better. Teachers having motivation in teaching is to change schools and students to be better because teachers are alumni who have studied at the school. The teacher said that he saw that children had different characteristics with each other's uniqueness. Therefore, the teacher believes that the child's ability to become a talent and also a calling to always explore for their potential. The teaching role of the teacher is to developing potential possessed by students. The teacher argues that teaching is not only a job demand but to involve in the process of educating children to be better.

The approach used by teachers in science learning is a scientific approach. The teacher often engages students to learn directly from the environment in order to gain knowledge. Furthermore, the teacher also designs through a variety of models. Teachers often apply the TGT cooperative learning model (Teams Games Tournament). The teacher considers that through that learning model can make students more active. Student activity can be seen through joint discussion activities. The impact of the application of learning approaches and models can improve students' cognitive learning outcomes. The obstacle that is often faced by teachers in learning is making the

students focus during the learning process. It is because students tend to play when learning takes place. Therefore, the teacher must have a strategy or aids in the form of media in order to redirect the focus of students. Technically, the teacher's difficulty in applying scientific-based learning models requires students' time to understand the process of implementing the learning model. The teacher must provide direction on the beginning of learning process and continue to familiarize students in the implementation of the learning model. In addition, to habituate the students, the teacher also carries out the learning model to completion. Teachers also often use teaching aids such as the torso and web-based learning media (schoolology applications). It aims to provide access to material and discussion forums for students so that students have many learning resources.

3. SMP C

Science subjects at SMP C have applied contextual learning in their teaching. The teacher explains that the process of stimulating students to ask questions is an important part so that students have enthusiasm in the science subjects. Most students feel that science subject as a difficult subject. Therefore the teacher wants to change students' perspective of science and make science

learning fun. The teacher plans a learning process that directs students to be able to communicate in the learning community.

The teacher considers that when students are able to work together with other people, students will get more optimal learning outcomes. It is because students can obtain knowledge from others through discussion so that the learning material learned can be more concrete to be discussed. Furthermore, the process of finding becomes an equally important part to systematically train students' thinking processes. The teacher uses a learning process oriented to the scientific method. Students are directed to be able to find their own science concepts that are learned so that they do not just remember the material. The teacher prepares simple experiment activities or other experiments in student worksheets that include activities to formulate problems, make hypotheses, test hypotheses, analyze, conclude and communicate. The scientific method in learning will build and compile new knowledge for the students. The experience gained will give meaning to the development of students' knowledge. Therefore, the real experience gained by students through problem-solving activities, finding something useful will be able to construct students' knowledge.

4. SMP D

The teacher explained that education is the basis for the formation of character and academic abilities of children. The teacher has motivation in teaching, and it is used to provide maximum teaching so that the knowledge given to students can be well understood. The diverse condition of students in terms of academic ability and family background, makes the learning process must pay attention to the characteristics of students. The teacher tries to stimulate the students' knowledge.

The teacher uses an approach that is in accordance with the demands of the Curriculum 2013, the scientific approach. The scientific approach trains students to be able to construct knowledge through the process of finding new ideas. The difficulties faced by teachers are the limited availability of tools and materials in the science laboratory. The teacher must plan learning that is also adjusted to the conditions of the school. By looking at the problems of students who are passive in learning, teachers continue to think about planning and designing learning that is oriented to the knowledge possessed by students. This is an effort to encourage students to be active in learning.

Constructivism approach gives students a chance to find scientific concept by themselves through real experience. Active learning activity builds by constructivism learning will affect students' retention potency. Research result shows that contextual approach can increase students' activity in class. Students look active in asking and having enthusiasm for learning science. Majid (2008) said that the contextual approach can activate students' creativity and curiosity. Therefore, contextual learning closely related to learning by doing, develop students' creativity and curiosity.

During the research, students seem to be interested in giving idea and opinion about science concept and its application in daily life. Science teacher at SMP A Salatiga has fully used an approach that leads to students centered, it's just that when teaching happens, some students having difficulties to following the class because of the background of students which come from families that are not good enough so that they have difficulties to follow the planned learning activities. When parents are deciding or helping their children decide on a school, they are faced with the choice between a traditional program where the child is physically in school, a virtual program where the classes are given completely

online, or a combination of both (Rauh, 2011).

Moreover, the school is open to all students, as long as the student has a strong desire to learn. The teacher makes every effort to facilitate the students in learning according to their abilities. However, on the other hand, the teacher meets several students who are classified as slow in learning (slow learner) so that the teacher must approach the students individually because of their characteristics. Through the interaction between environments, students able to implement the skills of the scientific process to solve better everyday problems. Realistic, authentic, challenging, and contextualistic exercises or tasks were more effective for students and can build new knowledge or strengthen existing knowledge (Crawford, 2001).

Meanwhile, science teachers at SMP C apply contextual learning as one of the solutions in integrating student knowledge and experience. The difficulty of students to understand the argument or formula becomes a problem encountered by the teacher. The teacher has to explain using specific to the general thinking patterns in explaining concepts related to physics. Student involvement is very important because students can construct their own knowledge and at the same time train

students' thinking skills. Another finding is, when the teacher uses a contextual approach, students can find their own learning style to understand the concept of science. Students become accustomed to learning to find something that feels useful to themselves or others. Investigations and discoveries made by students help them to learn about real-life contexts with academic material being studied (Johnson, 2007). Sometimes the teacher finds the opinion from the students is very simple even not in accordance with the context of the material, but the teacher still respects the opinions of students and used as a base for learning and coaching.

Science teacher in SMP D builds contextual learning through a support system that provides learning support so that students have the opportunity to understand science concepts optimally. The condition of students who are also classified as slow learners makes the teacher try to foster student motivation. The teacher strives to provide learning opportunities through active student involvement. The teacher also utilizes learning resources in the school environment so that students can directly learn with science objects. For example, experiments with learning ecosystems and populations, experimentally identifying food ingredients at home, Pascal's legal

principles, identification of materials that can conduct electric current and etc. Even the teacher also carried out experimental methods in the laboratory. Although the science laboratory conditions are inadequate in terms of equipment and materials, the teacher continues to carry out simple practicum. The learning process that leads to practicum activities can introduce the concept of science while training science process skills, the activities of scientific methods, creative thinking and the ability to solve problems (Dewi *et al.*, 2017; Wallace *et al.*, 2003).

Furthermore, the implementation of contextual learning by science teachers in SMP B emphasized the effort to build a learning community. The teacher gives the game through questions that are relevant to the subject matter. Some questions given by the teacher aims to test students' knowledge. Learning that is oriented to the learning community will provide experience to students through communication with others. The results of discussions with a group of friends, between groups and teachers will shape students' understanding of the material being studied. In addition to that, cooperation in groups will build communication between group members. The active involvement of students through group communication will give students broad

opportunities to provide arguments without feeling afraid of misrepresenting their opinions. Argumentation has numerous functions in science classes, such as ensuring understanding of the epistemology of scientific knowledge (Lazarou *et al.*, 2016; Özdem *et al.*, 2017; Öztürk, 2019). Whatever the teachers do, they have to understand the underlying principle of learning. The educators should realize when a method of teaching is introduced they must be selective to make sure that the new technology or the new method will be able to help the students in their learning process (Kamaruddin *et al.*, 2011).

CONCLUSION

Based on the data obtained and analysis of results, it can be concluded that the implementation of contextual learning in every Private Middle Schools from Salatiga in Sciences: (1) is in the good category (value interval: $2.82 \leq \text{score} < 3.37$) with highest achievement of all indicators of contextual learning aspects of finding with a score of 3.00 (good category), (2) general challenges of teachers in implementing contextual learning, include the limited facilities to apply scientific methods through practical activities or experiments in the laboratory, the lack of opportunities for teachers to develop contextually based media, and the lack of assistance

provided by the teacher in the aspect of learning society, constructivism, and finding.

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