

The Implementation of A scientific Approach Based Contextual Teaching and Learning Model to Increase the Student Learning Competence at SDN 22 Kuranji Padang

Nur Afni ¹, Lufri ²

¹Postgraduate Student of Biology Education Program,
State University of Padang

²Lecturer of Master Degree of Biology Education Program,
State University of Padang



Abstract - The learning materials of IPA are closely related to the process of contextual teaching and learning so far SDN 22 Kuranji Padang has not applied the learning contextual teaching and learning model, so the competence of the students was still low because they were not directly involved in the learning process. The purpose of the research was to know the improvement of the student's cognitive competence in learning IPA by implementing a contextual teaching and learning model with scientific approach. The subjects of the study were the students of Grade IV. A at SDN 22 Kuranji Padang in the 2018/2019 academic year consisting of 20 students. This type of research was a Classroom Action Research. The research was conducted in two cycles. Each cycle included planning, acting, observing and reflecting stages. The instrument used was students' test, camera recordings, and field notes. The data of the research were analyzed in a descriptive qualitative method. The research finding showed that the implementation of contextual teaching and learning model with scientific approach could increase the student cognitive competence from pre cycle to cycle II. The percentage of the cognitive competence in pre cycle was 64,91%, cycle I was 74,60, and cycle II was 83,25%. Thus, it can be concluded that through implementing a contextual teaching and learning model with scientific approach, it can improve the student cognitive competence of Grade IV in learning IPA at SDN 22 Kuranji Padang.

Keywords - *Implementation CTL Model, Scientific Approach, Research Was Class Action Research (CAR).*

I. INTRODUCTION

Based on the Elementary / MI Basic Competency and Competency Standards in the Minister of National Education Regulation No. 22 of 2006 concerning the standard content for primary and secondary education units that the Basic Science Competency and Competency Standards in SD / MI are minimum standards nationally must be achieved by students and become a reference in curriculum development in each education unit achieving basic Competency and Competency Standards based on the empowerment of students to build capacity, work

scientifically, and own knowledge facilitated by the teacher. One of the changes made by the government is the change in curriculum, namely the Education Unit Level Curriculum (KTSP) to the 2013 Curriculum.

2013 curriculum emphasizes on teachers to educate students to be active and enjoy learning through the scientific approach. The scientific approach is believed to be an approach to the development and development of students' cognitive, affective, and psychomotor. Scientific approach according to the Minister of Education and Culture No. 81 A Year 2013 Appendix IV concerning the standard

of the educational process is to build knowledge of the environment (Siswanto, 2012: 53). Through theory of learning science can provide students with an understanding to link between concepts and their application to the environment while practice can develop scientific attitudes and enrich experiences and actively engage in seeking information. In addition, middle states that the scientific approach consists of 5 main learning practices namely observing, asking questions, gathering information, associating and communicating. The scientific approach developed in the 2013 curriculum is very much in line with the goals of science learning, namely that students are able to connect between theory and practice.

The 2013 curriculum has been implemented in the learning process at SDN 22 Kuranji Padang. The author as a teacher at SDN 22 Kuranji Padang has tried to improve the student learning competence in various ways, including: using various teaching methods guided by teacher books, giving practice after each lesson, and give assignments to read and summarize the material to be studied at the next meeting. In fact, the student cognitive competencies still low under the KKM, which is 70. The average value of Semester 1 Daily Evaluation for the students of Grade IV at SDN 22 Kuranji Padang is 60.4 and has not met the specified achievement criteria. This is due to the ability of learning competencies that have not been optimal, both the competence of cognitive, affective, and psychomotor. In the cognitive competence the ability of the students to remember or memorize is quite good, but the ability to understand, apply, analyze, and evaluate has not been able to answer it. The learning outcomes of the science students related to cognitive competence have not been satisfactory.

The application of innovative learning models and the use of interesting media are expected to increase the activity of students. One of the learning models that can be used in science subjects is the Contextual Teaching and Learning (CTL) model. According to Warsiti in Trianto (2007) states that the CTL model is a conception that helps teachers to associate the real world and motivate students to make connections between knowledge and its application in everyday life. For this reason, researchers tried to apply the CTL model with a scientific approach to improve student learning outcomes.

In contextual classrooms, the teacher's job is to help students achieve their goals. That is, teachers are more concerned with strategies than giving information. The task of the teacher is managing the class as a team that works

together to find something new for students (Sardiman, 2011)

The scientific approach was first introduced in America in the late 19th century, as an emphasis on formalistic laboratory approaches that led to scientific facts (Hadson, 1996). This scientific approach makes it easy for teachers or curriculum developers to improve the learning process into steps or stages in detail that focus instruction for students in carrying out learning activities (Varelass et al, 2008). The scientific approach is believed to be the golden bridge of development and development of student's attitudes, skills and knowledge (Yulianti, 2016). The advantages of the scientific approach (Anggi, 2017) are: (1) The learning process is more student centered, (wieman et al, 2015b; Imam, 2016; Susantini et al, 2016); (2) steps for systematic learning, (3) Providing opportunities for teachers to be more creative and to encourage students to be active with various learning resources; (4) Learning steps involve science process skills in constructing concepts (5) The learning process involves potential knowledge process in stimulating the development of the intellect, especially the high-level thinking skills of students (Yulianti, 2016) (6) Scientific approach can also develop the character of students.

Martinis (2003), called it competency as a basic ability that can be done by students in the stages of knowledge, skill, and attitude. Dimyanti (1994) says, evaluation of learning outcomes is a process to measure the level of ability of students in determining the learning value of students through both assessment and measurement of learning outcomes.

Referring to the problem above, learning process should be changed to be more enjoyable for students. According to Slavin (in Sirait & Putri, 2013), learning process which involves students is an effort to build and develop students' activeness, creativity and interest in learning situation. In this case, it needs the use of an innovative learning model so that students can construct their own knowledge. They should be considered as teach subject that should find out and construct their own knowledge so that the concept understanding is actualized

Based on the explanation above, teacher needs to choose an appropriate learning model to use in the classroom. There are many types of model learning which can improve students' learning activities. However, teacher should adjust it with characteristics of students and learning materials. Therefore, for this research, "Contextual teaching and learning" The scientific approach model is chosen because it

is appropriate with characteristic of students' learning styles. the appropriate learning model used by teacher can influence students' learning style so that it will improve students' success in learning process. Problems of students' lack of concept understanding and passiveness in learning process will be solved by using this type of contextual learning model. So, by using this learning model, it is expected that students can enjoy learning process and it can improve their understanding about learning materials they teach (Huda, 2013). Based on the background described, the author is interested in conducting classroom action research with the title: **"The Implementation of A Scientific Approach based Contextual Teaching and Learning Model to Increase The Student Learning Competence of Grade IV at SDN 22 Kuranji Padang "**.

II. RESEARCH METHOD

This type of research was Class Action Research (CAR). Classroom Action Research aims to improve teacher performance so that student competence increases. This research was carried out at the place of teaching of the author, SDN 22 Kuranji Padang.

The subjects of this research were 20 students of Grade IV A at SDN 22 Kuranji Padang, consisting of 10 male and 10 female. The research was conducted in the second semester of the 2018/2019 academic year, with the research stages consisting of pre-cycle, cycle I, and cycle II.

The research procedure started from the initial reflection or pre-cycle activities, and then continued with the first cycle which consists of 4 stages: planning, action, observation, and reflection. Then proceed with cycle II which still has the same steps as cycle 1. The Collection technique Primary data sourced from the students, obtained through tests, in the form of learning outcomes. The value of learning outcomes was obtained from the final learning test for each research cycle. The secondary data was data obtained from observations made by observers.

The analysis technique used was a quantitative analysis. The cognitive competence data came from the student learning outcomes, in the form of written tests. The written tests were taken from the results of daily assessments carried out after each research cycle. The quality of the questions for the written test was tested for validity, reliability of the questions and the power of the different questions.

III. FINDING AND DISCUSSION

A. FINDING

Each cycle consisted of 3 meetings. The topic of learning material in cycle I was the understanding of style and motion. Meanwhile, in cycle II, the topic of learning material was a change in style and motion. At the end of each cycle, there was a test on the topic of learning material for students. After each cycle was complete, there was a reflection about the learning process in that cycle.

Before conducting the study using the contextual teaching and learning model with a scientific approach assisted by the LKPD, this research was initiated by the pre-cycle using the method of discussion and question and answer.

1. Pre-cycle

In the pre-cycle, the results of students' cognitive competencies were still low. That was only 64.91% (not good).

2. Cycle I

The learning process in the first cycle was conducted in 3 meetings. After my cycle is complete, the exam was given to students. The learning process in each cycle consisted of several stages, as follows.

a. Planning

Preliminary research in learning activities is not to overcome the problems faced in the student learning achievement because the student learning competences are appropriate with the achievement of Minimum Learning Completeness Criteria (KKM). The following are the scenarios planned in the learning process.

- 1) Prepare the learning syllabus.
- 2) Make lesson plans for each meeting.
- 3) Prepare the LKPD that characterizes learning by using a scientific approach
- 4). Preparing the students' learning outcomes test questions in the form of a written test at the end of the first cycle to measure students' knowledge and mastery of the material provided. The question has been tested on fourth grade students on April 1, 2019. The results of the test trials were processed using the Anates application.

b. Action

The learning process began with initial activities, such as giving perceptions and motivation to students. Then, convey the learning objectives of the material studied. Next, study the material using the contextual teaching and learning model with a scientific approach assisted by the LKPD. Finally, close the learning process by drawing material conclusions and delivering the next learning material for the next meeting.

c. Observation

Observation carried out during the learning process take place using the students' affective and psychomotor competence observation sheets' meanwhile, the assessment of the student cognitive competencies was carried out after 3 meetings in cycle 1.

d. Reflection

This was done after the learning process completed at each meeting. Problems during the learning process in cycle 1 were followed up to be corrected in the next cycle.

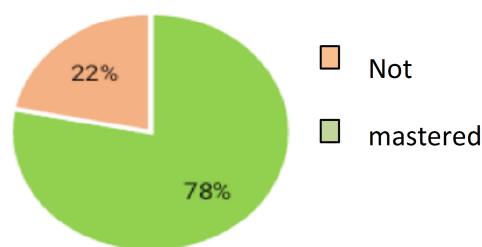
a. The Results of student cognitive competence

The percentage of the student mastery in cognitive competence can be seen in Table 1 below.

Table 1. Percentage of student mastery in cognitive competence in cycle 1

	Total	Percentage (%)
Students who score above KKM (70)	15	75%
Students who score under the KKM (70)	5	25%

Table 1 shows that the percentage of the student mastery in cognitive competence in the first cycle is still low, which is 75% (sufficient). The results of students' cognitive competence can also be illustrated in graph 1 below.

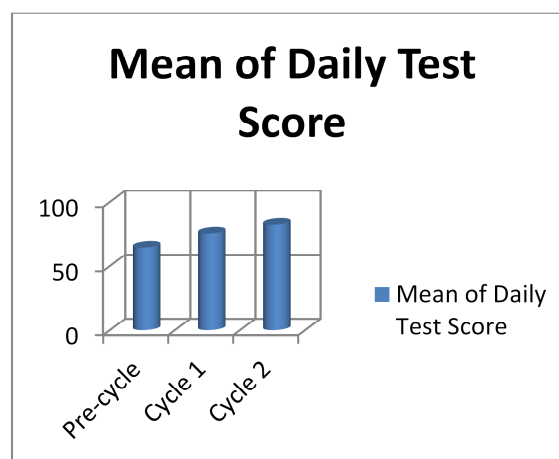


Graph 1. The Percentage of the Student Mastery on Cognitive Competence in Cycle I.

The results of the student cognitive competence in pre-cycle, cycle I and cycle II

b. Result of Students' Cognitive Competence in Pre-cycle, Cycle I and Cycle II

Student cognitive competence increased from pre-cycle, cycle I and cycle II. Therefore, the percentage of the student mastery in cognitive competence can be seen in table 2 below:



Graph 2. Mean of Daily Test Score

Table 2. The Comparison of the student cognitive competence in pre-cycle, cycle I, and cycle II

The Percentage of the student mastery		
Pre-cycle	Cycle I	Cycle II
64,91%	74,60%	83,25%

B. DISCUSSION

In the above research findings, it is known that student cognitive competence can be improved by applying the contextual teaching and learning model with a scientific

approach learning IPA. The student cognitive competence increases in each cycle. This is in line with Anisah Huril Ain (2013), which states that the strength of contextual teaching and learning models can improve student cognitive competences in achieving learning goals.

In the student learning competence cycle is still low, students' cognitive mastery is 64.91%. The learning process on pre-cycle still uses the lecture and question and answer method so that students are bored. It is clear from student activities during the learning process, such as not being serious in learning, disturbing friends, and talking with friends To improve this condition, it is necessary to vary the learning model applied by the teacher. One of them is the model of contextual teaching and learning where students learn material more pleasantly. In the end it is expected that student learning competencies can increase.

In the first cycle the mean score of the students is 74, 60 and the percentage of mastery is 75%. This means that it has not achieved the expected mastery of 80%. This is because the application of contextual teaching and learning models is not optimal. The students are not used to using this learning model. In addition, they did not understand the learning material well because of the lack of reading material.

In the second cycle the mean score of the students was 83.25%. This means that cycle II has exceeded the expected mastery. This indicates that learning using the learning model of contextual teaching and learning with a scientific approach is running optimally.

IV. CONCLUSION

The application of the Contextual Teaching and Learning model can improve the cognitive competence of students in learning IPA of Grade IV at SD Negeri 22 Kuranji Padang. The percentage of pre-cycle completeness was 64.91%, cycle I was 74.60%, and cycle II was 83.25%. The increasing of the average mastery percentage of students' cognitive competence from cycle I to cycle II it is in good category

ACKNOWLEDGEMENT

Thanks to Prof. Dr. Lufri, M.Sc as the author's advisor and gives her motivation in writing this article.

REFERENCES

- [1] Anggi, L. R. 2017. Pendekatan Saintifik (*Scientific Approach*) dalam Pembelajaran Tematik Terpadu Kurikulum 2013 Versi 2016. *JTIEE*, 1 (1): 59-77.
- [2] Dimiyati. 2006. Belajar dan Pembelajaran. Jakarta: PT. Rineka Cipta.
- [3] Huda, M. 2013. *Model-model Pengajaran dan Pembelajaran*. Yogyakarta: Pustaka Pelajar.
- [4] Hudson, R.A. 1996. *Sociolinguistics*. Second Edition. Cambrige: Cambrige University Press.
- [5] Martinis. 2003. Strategi Pembelajaran Berbasis Kompetensi. Jakarta: Gaung Persada Press
- [6] Sadirman, A.M. 2011. Interaksi dan Motivasi Belajar Mengajar. Jakarta: Rajawali Pres
- [7] Susantini, E., Ulfi, F., Muji, S. P., & Suryanti. 2016. *Developing Educational Video to Improve the Use of Scientific Approach in Cooperative Learning*. Journal of Baltic Science Education, 15 (6): 725-737.
- [8] Varelas, M and Ford M. 2008. *The Saientific Method and Saientific Inquiry: Tensions in Teaching and Learning*. Wiley Inter Science.
- [9] Wieman, C., & Sarah, G. 2015a. *Taking A Scientific Approach to Science Education, Part 1-Research. Microbe*, 10 (4): 152-156.
- [10] Yulianti, D. 2016. *Problem-Based Learning Model Used to Scientific Approach Based Worksheet for Physics to Develop Senior High School Students Characters*. The 3rd International Conference on Mathematics, Science and Education, 1 (1): 1-5.
- [11] Trianto, (2007). *Model-model Pembelajaran ilnovatif berorientasi konstruktivistik*. Prestasi Pustaka: Jakarta