

Implementing Contextual Teaching and Learning Approach (CTL) With the Puzzle Game to Increase the Competency of the Students Class VII 1 MTSN Koto Tengah Padang

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Abstract – The classroom action research based on the fact that the student's competence were low in the cognitive, affective and psychomotor aspects. The purpose of this research is to know the process in enhancing the students' learning competencies Class VII 1. MTsN Koto Tengah in the cognitive, affective, and psychomotor aspects through implementation CTL approach with the puzzle game. This research was carried out in three cycles. Each cycle consists of planning, implementation, observation and reflection which began with early reflection before the first cycle. The subjects of this research are the students of class VII 1 which amounted to 38 peoples. Knowledge competence data is obtained from daily test results of participants at each end of the cycle. Affective competence data is obtained by using the instrument of affective observation sheet which includes curiosity affective and responsible affective. While skill competence data obtained by using instrument observation sheet skill include skill prepare report, display report and product performance. The results of the research are enhanced competence of learners after applied CTL approach with puzzle game. The increased cognitive competences in terms of the number of learners are thorough and incomplete based on the value of daily test at the end of the cycle. The number of students who completed the task increased from cycle I to cycle III of 32%. The average value of the first cycle test is 74.08 % and the third cycle is 85.13 %. The average attitude competence has increased from cycle I to cycle III. The highest average increase was in the attitude of curiosity which was 16.45% with very good category. Then followed by an increase in the attitude of responsibility that is equal to 14.69% with very good category. The average skill has increased from cycle I to cycle III. The highest mean improvement was reported on 13.85 % (excellent category) reporting skills, followed by 12.18 % (excellent category) product performance and 6.63 % (good category) report preparation skills. The result of observation in each cycle shows that there is a significant improvement after giving the action in the learning process, so that the observation result in cycle III is in good category and very good. The researchers suggest applying the Contextual Teaching and Learning approach with puzzle game on science learning.

Keywords – The Class Action Research, CTL, Puzzle Games, Environmental of Interaction.

I. INTRODUCTION

The objectives of science subjects or IPA in junior high schools / MTs according to the Ministry of National Education (2006: 451-452) are: 1) Increasing belief in the greatness of God Almighty according to the existence, beauty, and order of His created nature. 2) Developing an understanding of various natural phenomena, concepts and principles of IPA or science subjects that are useful and applicable in everyday life. 3) Developing curiosity, positive attitude, and awareness of interrelationship between science, environment, technology and society. Undertaking scientific inquiry to foster the ability to think, act and communicate

scientifically. 5) Increasing awareness to participate in preserving the environment and natural resources. 6) Raising awareness to respect nature and all its order as one of God's creation. 7). Improving knowledge, concept, and science skills as a basis for continuing education to the next level. Another characteristic of IPA learning or science subjects is that it allows learners to acquire knowledge through data collection with experiences or observations to produce an explanation of a phenomenon occurring in nature.

Learning activities include developing the ability to ask questions, find answers, understand answers, refine the answers about what, why and how natural phenomena and

natural characteristics around them through systematic ways to be applied in the environment and technology (Ministry of National Education 2008: 28). The common problem of our science class in the school of MTsN Koto Tangah Padang is the low competence of learners. This situation requires a strategy or approaches that enable learners to follow the learning process well.

Observations made on the learning competence of learners from the cognitive domain (knowledge) in MTsN Koto Tangah in class VII 1 semester 2 academic year 2014-2015 and 2015-2016, as shown in Table 1.

Tabel 1. Average Daily Deuteronomic Value of Class VII Participants 1 FY 2014-2015 and FY 2015-2016 at MTsN Koto Tangah

No	Class	School Year	Learners reached KKM	Learners not reached KKM	% achievement
1	VII 1	2014-2015	18	20	47 %
2	VII 1	2015-2016	25	13	66 %
Average achievement of KKM					57 %

Data Source: Documentation of teachers of science class VII

The assessment for the cognitive domain or knowledge for the value of daily re-examination of students is still classified as low as 57%, and this shows the achievement of the value of KKM is still lacking. KKM in MTsN Koto Tangah is 75, and classically it should be 80% of students have reached KKM. This is due to factors that come from within the learners as well as from outside the learners themselves. Factors from within the learner include intelligence, self-discipline, motivation, responsibility, and so forth. While the factors from outside the learners themselves such as environment, teachers, methods and teaching approaches used.

Generally, the learning process conducted in MTsN Koto Tangah using conventional learning model that is lecture, question and answer and giving tasks. The learning process is still dominated by teachers and less involvement of learners. Teachers tend to use more of study approach based on textbook and less attention to student's environment. Discussions and workshops occasionally held even make learners as if to have a place to play games. Nevertheless, only a small percentage of highly skilled learners can easily understand the concepts given. They can do the exercises,

ask questions and answer any questions the teachers ask. Meanwhile, low-skilled learners tend to wait for teachers to answer or copy friends' answers. One effort that has been given to the students who have the ability to middle down is to provide guidance by asking directly where the lack of understanding of material that has been given. Each question is asked to be answered in a language that he understands, invites to discuss and be conditioned group learning. Learners are very difficult to apply the IPA to real situations because they consider IPA is a difficult lesson. As a result, they will have difficulty rediscovering and constructing their own ideas of science.

This situation resulted in low learning competence of learners. This condition will indirectly affect the student learning outcomes. This shows the gap between the realities and the conditions to be achieved. One of the purposes of Science learning is to create active learners. As Silberman (2004: 63) noted about the importance of keeping learners active from the start, "In starting any lesson, we really need to keep learners active from the start. If it is not possible the passivity of the learner will stick like cement that takes a long time to dry it out. "

Learners should be actively involved both physically and mentally during the learning process. Teachers should provide opportunities and facilitate learners to discover and apply their ideas to the concepts they are learning. Teachers in inculcating the concept of IPA or Science subjects should link more material with real problems, so that learners can easily have better understandings about the concept of science to overcome the boredom. The teacher hopes that learners can construct their own knowledge of formal IPA or Science subjects through real problems. They can interact with their friends and teachers. This strategy can keep the ideas longer in the learners' brain. Based on the above facts, we need to work on the solutions to overcome the obstacles in science learning in class VII1 MTsN Koto Tangah Padang. One of the solutions that need to be done is to optimize the learner's active participation. This is to develop the maximum potential through classroom action research. Classroom action research is a systematic, reflective study of the various actions or actions performed by the teacher, from planning to real-time classroom assessment of learning activities to improve learning conditions (Arikunto, 2006).

One of the learning approaches that can be applied by teachers in teaching science is the Contextual Teaching and Learning approach (CTL). This approach can encourage learners active role, generate learners' interest and creativity. Additionally, learning experience obtained by learners can

improve the learning competence. With such a Contextual Teaching and Learning (CTL) concept, learners find a very meaningful connection between abstract ideas and practical application in a real-world context. Learners will realize that what is learned is useful for their life someday.

According to Lufri (2010: 32), the contextual approach is a conception that helps teachers connect eye content to real-world situations and motivates learners to make connections between knowledge and application in their lives as family, citizens and labor. The contextual approach also assumes that the mind naturally seeks the meaning of context according to the real situation of one's environment, through the search for a sensible and useful relationship. Learners are able to independently use their knowledge to solve new problems and have never faced and have more responsibility towards learning along with the improvement of their experience and knowledge.

Teacher's role in applying CTL approach is to help learners achieve learning objectives. That is, teachers deal more with strategies than to give information. Teachers manage the classroom as a team working together to find something new for learners (Prahastiwi, 2012: 22). Teachers are responsible for finding the best way to convey concepts, so that all learners can use and remember longer concepts. How can a teacher communicate effectively, learners are diligent in asking about something that is not understood, teachers can open the minds of learners thinking, so they can learn various concepts and how to relate them to real life.

Contextual Teaching and Learning (CTL) approach is considered to assist teachers in improving students' learning competitiveness, if equipped with puzzle games. Puzzle, a form of game that combines pieces of images arranged in a game that ultimately form a certain pattern, which has meanings. Benefits of playing puzzles include brain sharpening, eye and hand coordination, training in reasoning, training in patience, and knowledge (Yulianti et al., 2010).

With the variation of learning media in the form of this puzzle, is expected to stimulate students to think actively in solving a problem. The world of 11-15 year old children is a world of learning. Children will find it easier to absorb knowledge when given through the game, so children can learn while playing. This is in accordance with the theory of play. Contextual Teaching and Learning Approach (CTL) is considered to assist teachers in improving students' learning competence, if equipped with puzzle games. Puzzle, a form of game that combines pieces of images arranged in a game that ultimately form a certain pattern, which has meanings.

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II. RESEARCH METHODS

The type of research used is classroom action research or in Indonesian terms called "PTK". This study aims to improve the way teachers teach and improve students' learning competence for science subjects or IPA after a continuous improvement during the research.

III. RESULT AND DISCUSSION

A. Results

1. Increased Cognitive Competence

The cognitive value of learners is known from the results of daily tests at the end of the cycle. The number of students completed in pre cycle is 22 people. In the complete cycle I of 21 people, the complete cycle II of 30 people and the complete cycle III is 33 people. Increased cognitive competence of all learners from pre cycle until the third cycle is shown on the table 2.

Table 2. Increased Cognitive Competence
from Cycle I to Cycle III

C	Cycle I			Cycle II			Cycle III		
	Σ	%	Average point	Σ	%	Average point	Σ	%	Average point
C	21	55	74,08	30	77,78	78,03	33	81,82	85,13
NC	17	44	63	19	47,5	67,5	5	12,5	70

The number of students who complete the tasks increased from the cycle I to cycle II of 24%, cycle II to cycle III of

8%. The average value of the first cycle test is 74.08 cycles II is 78.03 and the third cycle is 85.13.

The success of learners in the daily test results in this cycle shows a fairly good understanding of the material on the learners. This is influenced by the implementation of learning with CTL approach and puzzle game used. This shows that the approach can be well received by learners.

Table 3. Increased Affective Competence

from Cycle I to cycle II

No	Attitude Indicator	Average Attitude (%)		Increase (%)
		Cycle I	Cycle II	
1	Curiosity	66,45	85	18,55
2	Responsibility	64,47	77,2	12,73

The highest average increase was in the curiosity attitude of 85% with very good category. Then, followed by a responsibility of 77.2% with good category.

2. Cycle II and Cycle III

The improvement of affective learners is more visible again when executed the practice at the meeting 2 cycles III. Learners appear more excited again than cycle II. Practicum as the implementation of the CTL stage can provoke the learner's desire to find their own (inquiry) real facts through their experiments. Based on the results of affective data analysis on the cycle I and cycle II obtained fairly good category. The average increase in attitude in cycle I and cycle II can be seen in Table.

Table 4. Increasing the Affective Competence from Cycle II to cycle III

No	Attitude Indicator	Average Attitude (%)		Peningkatan (%)
		cycleII	cycle III	
1	Curiosity	85	90,13	5,13
2	Responsibility	77,2	82,89	5,7

The highest average increase was in the attitude of curiosity which was 90.13% with very good category. Then, it was followed by the attitude of responsibility that is equal to 82.89% with very good category.

a. Increased Psychomotor Competence

1. Cycle I and Cycle II

Based on the results of affective psychomotor data analysis on cycle I and cycle II obtained fairly good category. Cycle 2 of the second meeting shows the spirit of learners in preparing reports and completing the product. The average attitude increased in cycle I and cycle II can be seen in the following table.

Table5.Increased Psychomotor Competence from Cycle I to cycle II

No	Skills Indicators	Average Skills		Increase (%)
		Cycle I	Cycle II	
1	Preparing reports	76,9	83,5	6,6
2	Presentation	75,6	85,5	9,9
3	Products Performance	76,6	87,5	10,9

The highest average increase was in product performance skill which was 87,5% (very good category) followed by attitude report 85,5% (good category) and product performance that is equal to 83,5% (good category)

2. Cycle II and Cycle III

Based on the result of psychomotor data analysis on cycle II and cycle III obtained well enough categories. The average skill improvement in cycle II and cycle III can be seen in the following table.

Table11.Increased Psychomotor Competence

from Cycle II to cycle III

No	Skills Indicators	Average Skills (%)		increase (%)
		Cycle II	Cycle III	
1	Preparations	83,5	83,9	0,4
2	Presentation	85,5	89,5	4,0
3	Product Performance	87,5	88,8	1,3

The highest average increase was reported in 89,5% (excellent category) reporting skill followed by product performance skill 88,8% (very good category) and prepared report of 83,9% (good category).

IV. DISCUSSION

Based on the initial condition of learners in the learning activities, various efforts have been done to improve the learning competence of learners. Zamroni (2007) in Tampubolon (2014: 192) said that the quality of the learning process is how the initial conditions (input), namely pedagogical and professional competence through a process to produce the quality of output. This is particularly evident in the first cycle where learners as research objects (outputs) have not been accustomed to facing or accepting new research services, as well as researchers who are unfamiliar with the new approach, need adjustment and adaptation.

In learning activities with CTL approach and this puzzle game, we can see the improvement of the learners' competence from the initial conditions. Learners not only listen to the teacher while explaining the lesson, but also actively respond to the material being discussed. The link between CTL and the puzzle game is clearly visible. The learner who used to play the unnecessary, are seen enjoying the game while learning. Materials can be quickly captured by learners as they learn in a pleasant atmosphere.

The result of observation in each cycle shows that there is a significant improvement after giving the action in the learning process, so that the observation result in cycle III is in good category and very good. The results of this study are strengthened by Salvina's research (2014), on the Use of Contextual Approach-Based Lesson Study on Biology Learning to Increase Student Activity and Competence in Class VIII MTsN Lubuk Buaya Padang.

Lufri (2007: 20) also said that "The more active students develop cognitive, affective, psychomotor abilities through interacting with teachers, peers, learning materials, learning media and the environment, the richer and more meaningful of their learning experiences."

The improvement of learning competence of learners through CTL approach and puzzle game on science learning of class VII MTsN Koto Tengah Padang give positive impact to the improvement of learning competence of learners. This is because in the CTL approach, learners are invited back to nature, close to nature and environment and can apply the subject matter in everyday life. Tampubolon (2013: 212) says that learning with an environmental approach essentially brings together and integrates learners with their environment, in order to have a sense of love, care and responsibility to the environment. So that learning equips learners with various skills to be able to live and maintain the environment, and develop themselves optimally.

The result of data analysis shows that the application of CTL approach with puzzle game can improve the learning competence of all students in the cognitive, effective and psychomotor realms. This is proved by the data obtained from cycle I to cycle III during the research activity took place. Here is a discussion of each aspect that is enhanced with CTL approach with puzzle game.

1. Cognitive Competence

The success of the CTL approach with the puzzle game on cognitive competence is known from the percentage of complete daily test of learners at the end of the cycle. In the first cycle the number of students who completed 22 people (58%). The number of completed learners increases in cycle II and cycle III. That is 74% and 87%. This suggests that the application of CTL approaches and puzzle games can improve the cognitive competence of learners. One of the reasons that increase the cognitive learning outcomes gradually is that the students learn to be more actively involved in learning. Hudson (2011) says that helping students build their own knowledge can be achieved by guiding them through scenarios where they are required to actively seek content in order to achieve goals, complete a project and answer questions.

The result of direct interviews between researchers and learners shows that by doing practicum and observation directly to the field and by using a puzzle game can make them easily understand the materials being taught. Lessons become more interesting and less boring. This is in accordance with the statement of Sonmez and Lee (2003), that learning is not only to gain knowledge but also to empower capability or ability.

2. Affective Competence

The affective competencies observed in this study are curiosity and responsibility. Curiosity covers the ability to ask the teacher, the willingness to discuss with friends, the desire to have the source book and actively use the source book. As for the responsible attitude, the observations covers some important attitudes includes serious and responsible, carry out teacher instruction, solve problems and group work. Based on the result of attitude observation from pre cycle until cycle III, it is known that there is an increase of value on affective competence.

The desire to ask learners on each cycle has increased because in learning learners are guided to want to ask. Having guided and given understanding that the competence of learning will be good if actively involved in learning.

Learners are actively involved after CTL action accompanied by a puzzle game, which makes learning more fun. Asking will encourage learners to want to know something and try to find information from learning. As expressed by Sagala (2010): "Components of questioning is a CTL learning strategy that views the efforts of teachers who can encourage learners to know something, directing learners to obtain information, as well as know the development of students' thinking ability.

3. 3. Psychomotor Competence

Psychomotor score also increased. The purpose of the assessment is to know whether or not each learning indicator is determined in order to meet the required competency standards and basic competencies. Increased competence of skills caused in the learning process of all learners conduct various discussion activities aimed at answering the problems encountered. Presentation the work of the group is one of the things that observers pay attention to. This activity has increased. The resulting commotion can be overcome by teachers, because learners want to argue and talk to each other in groups. The commotion is overcome by providing stimulus in the form of guidance that encourages learners so that learning becomes fun. One way is to invite students to play puzzles. Games can make learners motivated and participate actively in learning. As Suyatno (2005: 2) points out, "Games are usually fun when learners are conditioned in a comfortable learning environment. Useful games can add variations in the spirit and interest of students in learning activities. "

Observation of psychomotor activities of learners in terms of making conclusions also experienced a high increase. This is because the teacher assigns the learner to read and make some questions. Reading tasks are very helpful for learners in making notes.

V. CONCLUSION

The research conducted on students of class VII1 MTsN Koto Tengah Padang was carried out due to the finding of the problem, which is the low competence of learners. To overcome this, the contextual teaching and learning approach (CTL) should be applied as well as the puzzle game to see how the learners improve their competence. Based on the formulation of the problems and the results of classroom action research, it was concluded that the cognitive competence of learners began to increase in the second meeting of cycle II, but has not reached the expected target. Cycle III is continued to see the improvement achieved by learners. In this third cycle, it can be seen that the application

of Contextual Teaching and Learning (CTL) approach with puzzle game can improve the competence of knowledge (cognitive) of VII 1 students of MTsN Koto Tengah Padang, where the number of learners completed in cycle II and cycle III to 74% and 87%.

The implementation of Contextual Teaching and Learning (CTL) approach with puzzle game, can also improve the attitude competence (affective) of students of class VII 1 MTsN Koto Tengah Padang. This can be seen in the change of attitude in which learners begin to focus on observing in a predetermined location. Learners are satisfied with the reality they encountered in the field that was in accordance with the material they learned. The new puzzle form is found likeable so they feel happy, excited and not bored to continue the lesson.

The highest average increase was in the attitude of curiosity which was 90.13% with very good category. Then it was followed by the attitude of responsibility that is equal to 82.89% with very good category. Increasing the competence of skill (psychomotor) of students of class VII 1 MTsN Koto Tengah Padang, the highest average is in report reporting skill which is 89,5% (very good category) followed by product performance skill 88,8% (very good category) and prepare report of 83.5% (good category).

In this research, researcher gets many help from various parties. And For that, the researcher would like to thank Dr. Abdul Razak, M.Sc., as the supervisor of I and Mr. Prof. Dr. Lufri, M.S. as mentor II, Mr. Yerizon, M.Si., Dr. H. AzwirAnhar, M.Si., and Father. Dr. Syamsurizal, M.Bio.Med., Who has kindly provided suggestions and criticisms for the perfection of this research.

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