IMPLEMENTATION BASED INSTRUCTIONAL MATERIALS CONTEXTUAL TEACHING AND LEARNING (CTL) IN MATHEMATICS LEARNING HIGH SCHOOL STUDENTS

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Abstract

Generally, this study aims to determine how the application-based teaching materials Contextual Teaching and Learning (CTL) on the high school math learning. In particular, this study aims to describe the activities of the students when learning using CTL-based teaching materials. In this study the material being taught is a matter of multiplication, permutations and combinations. This research is qualitative research subjects are students of class XI IPA 6 SMAN 8 Palembang total of 36 students. The results of this study demonstrate that CTL-based teaching material can be applied to high school students for math learning activities the students during learning using CTL teaching materials included in either category.

Keywords: teaching materials, Contextual Teaching and Learning, Implementation

INTRODUCTION

Education is an important element in life to ensure the development and continuity of life of the nation. Act No. 20 of 2003 Article 1 paragraph 1 states that education is a conscious and deliberate effort to create an atmosphere of learning and the learning process for participants upbringing actively develop the potential for him to have the spiritual power of religion, self-control, personality, intelligence, noble character, as well as the skills needed him, society, nation and state. In education, learning activities into basic elements that lead to the achievement of specific educational objectives and have implementation guidelines contained in the curriculum.

Act No. 20 of 2003 states that the curriculum is a set of plans and arrangements regarding the objectives, content and learning materials as well as the means used to guide the implementation of learning activities to achieve specific educational goals. Curriculum 2013 is a refinement of the previous curriculum by applying a thematic learning that integrates the various competencies of various subjects. Learning is a teaching load in high school organized subjects contained in teaching materials. According to the Ministry of Education (2008: 6) teaching materials are all kinds of materials that are used to help teachers / instructors in implementing the learning activities. The statement instructs that the materials provided must comply with the demands of the curriculum in force.

Another observation results show not realize the ease in understanding the content of the material, it appears on the presentation material aspects present easy and breadth of the material to be understood. This contrasts with the attachment Permendikbud No. 57 of 2014 on 2013 high school curriculum that is strengthening material is done by way of reduction of irrelevant material and the deepening and

expansion of the relevant material for learners. In the discussion the students looked difficulties, confusion, and asked many questions about the clarity of work to be done in groups so that students become less than the maximum in presenting the group's work. Then it is considered less in line with the attachment Permendikbud No. 22 Year 2016.

Teaching materials used in the study also considered not encourage students to express and write opinions in the process of finding the answers that are considered unacceptable in accordance with the information obtained. It is not as stated in Annex Permendikbud No. 57 of 2014 on Curriculum 2013 SMA stating learning emphasizes the involvement of students actively in the learning process, so that students can gain hands-on experience and are trained to be able to find themselves a variety of knowledge they have acquired ,

According Mulyasa (2008: 7-8) states that one of the demands of the curriculum of 2013 is learning as much as possible should involve students to be able to explore to establish the competence to explore the potential and scientific truth, as well as changing patterns of education and material results orientation to education as process through an integrative approach to the contextual teaching and learning (CTL).

Contextual Teaching and Learningis a learning strategy that involves students fully in the learning process. Learn with this method, students are not just listening and recording, but are encouraged to make the process of direct experience. Through the experience, it is expected student growth occurs as a whole, which is not only growing in the cognitive aspects, but also affective and psychomotor (Sanjaya: 2011: 255).

Teaching materials that can support terlakasananya CTL activity is the availability of student worksheet (LKS). Arsyad (2004: 29) states that the BLM is one tool that can be used by teachers to increase student engagement in the learning process and help students learn in a focused and help the student do procedurally invention. Therefore, to help facilitate the understanding of the material and make the learning process more effective, researchers will develop worksheets with pedekatan CTL.

CTL-based student worksheet is a teaching material in the form of print media that contains information and activities in the form of instructions or steps to complete a task, which emphasized the involvement of students to be able to find the materials studied by doing a direct experience. LKS-based CTL contains seven components that are used to improve the activity and student engagement in learning. Seven of these components include constructivism, inquiry, questioning, learning community, modeling, reflection and authentic assessment (Sanjaya, 2011: 264-269).

Based on the above, then this article will discuss: how the application of teaching materials in the form of worksheets based Contextual Teaching and Learning (CTL) in mathematics and how the student activity with the implementation of teaching materials in the form of worksheets based Contextual Teaching and Learning (CTL) in learning mathematics.

METHOD

This study is a qualitative research using descriptive research methodology. This study aims to determine the application of teaching materials in the form of worksheets based Contextual Teaching and Learning (CTL) and the activities of students in the

learning of mathematics, with the research subjects are students of class XI IPA 6 SMAN 8 Palembang total of 36 students. Data obtained from this study was the observation data retrieval methods.

Observation is a way to collect informative materials are done by conducting observation and recording (Djaali and Pudji, 2004). Observations in this study is used to determine the student activity by applying the CTL-based teaching materials in mathematics Observations were carried out since the start of activity until the teacher closes the lessons assisted by four observers, observers mark on the observation sheet for the indicators and descriptors that appear during the process.

Data on student activities acquired during the learning process by using observation sheet. Student activity observed during the learning process when students discuss and resolve to complete the worksheets.

Aspects observed the activity of students in the learning process is as follows:

1. Conduct a question and answer discussion (questioning)
2. Discuss / collaborate / question and answer session between students and teachers (learning community)
3. Presenting the group's work (mdelling)
4. Convey an idea / opinion groups / individuals (Reflection)
5. Complete the tasks set by the teacher (authentic assessment)

Data observation results will be analyzed descriptively and qualitatively by converting, and consult the table as follows:

Table 1. Category active students during the learning process

Score (%)	Criteria
90-100	Very good
80-89	Good
70-79	Enough
<70	Less

(Nasution, 2007)

RESULTS AND DISCUSSION

Application of CTL-based teaching material material multiplication, permutations and combinations in Learning mathematics

Based on the lesson plan that has been set previously, the learning is divided into three phases: initial activity, core activities and weekend activities.

Phase 1: Initial Activity

In the experimental class learning is done by learning models CTL-based teaching material. Implementation of the learning begins with a prayer and the roll of

students who do not attend, the researchers introduced himself named anggria and nora who will carry out research for several meetings, the researchers conditioned the studentsbefore the start of lessons, Researchers express learning objectives to be achieved by students today, researchers inform learning how to be taken the use of teaching materials CTL. Having been conditioned class researchers express purpose of learning seen in Figure 1 below:

Figure 1. Researchers were explained in the initial activity.

Stage 2: Core Activities

Learning Community

Students are grouped into 12 study groups consisting of 3-4 people. To create each group with the ability to balance, the grouping is done by spreading clever students in each group so that the group discussion teaching process is expected all students can be active and discussions run effectively.

Constructivism, Inquiry and Questioning

Students held discussions with members of his group and researchers to motivate students to construct knowledge and conduct a question and answer so that they can find a concept that is expected to use the Student Activity Sheet (LKS) CTL based on the material rules of permutations and combinations.

Reflection

Students completing the worksheets with the counsel of a friend in the group, which is shown in figure 2 below:

Figure 2. Students under discussion groups.

One member of the group representatives asked to read and write LKS settlement to the class in which the truth of the answer has been examined by investigators. While other groups check their answers each and hold the necessary justification if there are errors, shown in figure 3 group 1 being mempersentasikan results answer.

Figure 3 Students mempersentasikan LKS answer results.

Stage 3: End Activity

At the end of the meeting of researchers recalled the material that has been studied. The fourth stage is concluded that the material has been studied. In this fourth stage researchers lead students to summarize the material that has been discussed.

Based on the application of the above, according to the theory put forward by Sanjaya (2011), LKS-based CTL contains seven components that are used to improve the activity and student engagement in learning. Seven of these components include constructivism, inquiry, questioning, learning community, modeling, reflection and authentic assessment.

b. The results of students' activity based on the observation sheet

The observations were made during the learning process with CTL approach. These observations dilakukakan in three meetings and observation sheet consists of five aspects of the indicators refer to the CTL-based learning. The average results of observation of 12 groups each on the meeting can be presented in Table 2 as follows:

Table 2. Percentage of the observation of learning activities CTL

No	Aspect	1st meeting(%)	2nd meeting (%)	3rd meeting (%)	Average (%)
1	Questioning	83.33	79.17	91.67	84.72
2	Learning Community	72.22	100	100	90.74
3	modeling	83.33	100	100	94.44
4	Reflection	70.83	79.17	83.33	77.78
5	Authentic Assessment	72.22	83.33	88.89	81.48
	Average	76.39	88.33	92.78	85.83

From the observations, conducted comparative percentage numbers every aspect of student activity with percentage numbers, as follows:

From the observations made at the first meeting, the fifth principle of the new CTL activity reached 76.39% or an average of only reached category enough. At the first meeting it seems that the students had many questions with teachers to ensure understanding (Questioning), students have formed a study group but has not so seemed enthusiastic in discussing (Learning Community), each study group has done modeling, but still nothing wrong in understanding (Modeling), at the time of the study groups are asked to express a conclusion or keywords of the materials studied only a few groups that dare bring it (Reflection), and from the settlement proceeds LKS given some groups can not be argued from persolan appropriately (Authentic Assessment).

At the second meeting CTL aspects already reached an average of 88.33% or better category. At the second meeting of this activity in a group discussion and modeling activities already looks very good, but it seems still weak in finding a concept that creates the problem.

At the third meeting of student learning activities has reached an average of 92.78% or included in the category of very good, but the courage to express their ideas in front of the crowd seemed still need to get used. It can be concluded that the Student Activity Sheet (LKS) used CTL based on average reached 85.83% were categorized as good.

From the results obtained above, in line with the results Somakim (2007) in a class action research conducted on students of D-II PGSD FKIP UNSRI declared that learning mathematics through contextual approach was found to increase the activity and student learning outcomes. A similar trend is also found in this study. Students are active in doing worksheets, do not be embarrassed to ask the teacher's questions on worksheets that are poorly understood, and the students were able to present the results of their group discussions in class.

CONCLUSION

As based on the results of this study, it can be concluded that the CTL-based teaching material can be applied to high school students for math learning activities the students during learning using CTL teaching materials included in either category.

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