



The Learning Process with Contextual Approach to Improve Students' Motivation and Mathematics Learning Achievement

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Article Info	Abstract
Received October 25, 2021	The aim of this study was to describe the learning process with a contextual approach to improve motivation and Mathematics learning achievement on Integer topic for seventh grade students of State Junior High School 1 Bonggo in the 2019/2020 academic year. This research was conducted in the seventh grade of State Junior High School 1 Bonggo, Sarmi Regency, Papua Province. The Classroom Action Research (CAR) was used as the research method. The research object involved the whole process of implementing Mathematics learning with a contextual approach to improve motivation and Mathematics learning achievement of seventh grade students of State Junior High School 1 Bonggo, Sarmi Regency, Papua Province. Based on the research results, the Mathematics score of pre-cycle to cycle I improved from 50.4 to 67.2, in cycle II it improved further to 79.4. Meanwhile, the motivation in Mathematics learning obtained pre-cycle score of 65.8, cycle I score of 70, and cycle II score of 91. It is advised that teachers should use the CTL learning method on other subjects to improve students' motivation and Mathematics learning achievement.
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INTRODUCTION

The implementation of Mathematics learning in the classroom is still concerning, both in terms of the students learning process and the teacher learning method. Mathematics is famous as a hard subject. Students view Mathematics as a frightening enemy for them. They always assume that Mathematics is always synonymous with bad grades (Setiyaningrum & Istiqomah, 2015). Thus, teachers are required to be more creative in choosing interesting learning methods with the objective of making it easier for students to comprehend the material being delivered and the learning objectives can be achieved. It is therefore important for teachers to use active learning methods, where they are no longer the center of learning. Teacher-centered learning tends to make students learn concepts in the abstract without going through the use of the concepts or without experiencing it. This will result in low students' achievement (Kesuma, 2010). Students' achievement serves as an indicator of changes in students after experiencing the teaching and learning process. From the learning achievement, it can be seen

whether students understand or comprehend the subject matter (Astuti & Istiqomah, 2015).

Teacher-centered learning was also implemented at State Junior High School 1 Bonggo, Sarmi Regency, Papua Province. The teacher used expository method, in which the teacher conveyed the material first using lecture method and then continued with practice questions as well as questions and answers session. At the end of the lesson, students were given individual assignment. The use of the expository method in Mathematics learning for seventh grade on Integer material had not produced maximum results. It could be seen from the students' learning achievement in the even semester of the 2018/2019 academic year averaged 53.57, lower than the *Kriteria Ketuntasan Minimum* (KKM) score of 64 for Mathematics. There were still many students who had not achieved the minimum criteria, amounting to 22 students (51.52%) out of 43 students. Another problem was that there were students in seventh grade students of State Junior High School 1 Bonggo, Sarmi Regency, Papua Province who were not yet fluent in reading and writing, so they found it difficult to understand the mathematics topic being delivered.

The results of preliminary observation conducted on seventh grade students of State Junior High School 1 Bonggo, Sarmi Regency also showed that their motivation in Mathematics learning was very low. This could be observed from the number of students who were late when they joined the class, when given assignments they did it slowly, when asked to come in front of the class they felt embarrassed or could not answer the questions. These had proven that their motivation was in even lower state. Learning motivation can arise because of intrinsic factors in the form of desire to succeed as well as encouragement of learning needs and expectations of ideals (Khamid & Santosa, 2016).

Mathematics learning is currently still teacher-centered, while students are still considered as objects in learning that must be given teaching materials. This way, the existing learning becomes less meaningful because it is only delivered without adequate understanding and learning experience. Actually, teacher-centered learning has begun to be abandoned. Teachers begin to use active learning methods where students are invited to create, investigate, and express ideas in the classroom. Students' activeness is a very important element in determining learning success (Silberman, 2006). Student-centered learning is expected to improve the students' understanding of the material. The use of appropriate learning methods will be able to help both teachers and students in the teaching and learning process. Teachers will be facilitated in delivering the material and students will be facilitated in understanding the material; these two together have a great effect on improving learning achievement. Given the characteristics of the classroom that tend to be crowded when the teachers deliver the material, the majority of students being passive when asked to express their opinions, and students being unafraid when they get low grades, a good learning approach that can be used to improve students' learning motivation is needed. The use of a certain learning approach greatly influences students' learning motivation. The use of such approach is expected to overcome boredom in learning which results in improved students' motivation.

A learning approach that can be implemented by teachers is the Contextual Teaching and Learning (CTL). The contextual approach is able to link the material taught by the teachers with real-world situations faced by the students (Masni, 2016). The implementation of contextual approach can improve students' life skills,

concept understanding, achievement, and learning quality. The reason is because the contextual learning approach is oriented towards solving daily life problems that can trigger critical, logical, and creative thinking processes. Therefore, students will have the ability to become problem solvers (Mulhamah & Putrawangsa, 2016).

Several previous research have proven the effectiveness of learning using the CTL approach compared to conventional approach, the results show that the CTL-based learning model can improve students' learning motivation, teacher skills in developing CTL-based learning models, and student learning experiences compared to the use of monotonous conventional learning models such as lecturing (Hidayati & Purwantini, 2017; Khamid & Santosa, 2016; Saepuloh, 2014). It is in line with the opinion of Sulianto (2012) that the CTL learning approach in elementary school Mathematics learning can improve critical thinking as a way of understanding material deeper and better, which is quite strategic in improving the professional quality of Mathematics teachers. Several research also have shown that CTL-based learning models in lessons can improve students' achievement (Agustyaningrum & Widjajanti, 2016; Gita, 2007; Nababan, 2018; Narendrati, 2017; Selan, Amsikan, & Klau, 2020).

Based on the aforementioned explanation, a question was identified whether giving feedback on exercises and tests would affect students' achievement. Therefore, the researchers were encouraged to conduct a research related to the problem. The purpose of this research was to describe the learning process with a contextual approach to improve motivation and achievement in Mathematics learning on Integer material for seventh grade students of State Junior High School 1 in the 2019/2020 academic year.

RESEARCH METHODS

This research was conducted in seventh grade students of State Junior High School 1, Sarmi Regency, Papua Province. The research took place in the odd Semester of the 2019/2020 academic year, from July 2019 to December 2019. This Classroom Action Research (CAR) followed a procedure which consisted of planning, action, observation, and reflection. The research subjects were seventh grade students of State Junior High School 1, Sarmi Regency, Papua Province in the 2019/2020 academic, amounting to 31 students. The research object was the whole process of implementing Mathematics learning with a contextual approach to improve motivation and Mathematics learning achievement for seventh grade students of State Junior High School 1, Sarmi Regency, Papua Province.

The research instruments consisted of test of Mathematics learning achievement and questionnaire of motivation. The mathematics learning achievement tests in cycle I and cycle II each consisted of 15 multiple choice questions, while the questionnaire consisted of 10 statements. The research data were in the form of qualitative data; the student's score motivation from questionnaire and the student's score of achievement from the tests. After the data were collected, they were described and analyzed using the following equation.

$$P = \frac{F}{N} \times 100\%$$

Description: P = percentage number, F = frequency of activities conducted, and N = number of activities conducted. Meanwhile, to find out students' test results, the following equation was used.

$$\bar{X} = \frac{\sum X}{N}$$

Description: $\bar{X}$ = the average score, $\sum X$ = the sum total score of all students, N = the total number of students.

The indicator for the success of this research is the increase or improvement in the average score of students' motivation and Mathematics learning achievement from a cycle to the next cycle by at least 3 points. While the percentage of completeness reached 75% of students who met the minimum completeness criteria (KKM) of 70.

RESULT AND DISCUSSION

This research involved two different cycles. The following session describes the stages in cycle I.

1. Planning

This planning stage began with preparing lesson plan (RPP), student worksheets, evaluation questions, learning media, and other resources related to Integer topic based on the CTL model. The teacher prepared everything needed in the delivery of the subject matter. The teacher also made some observations and documentations.

2. Action

At this stage, the teacher carried out learning process that lasted for 70 minutes (2×35 minutes). The activity began with setting the students down. After the students were ready and orderly, the teacher started delivering the material. The next activity was to form groups and explain group working, with 1 group consisted of 4 students. After the groups were assigned, the teacher distributed tasks that must be completed through group discussion. After group discussion, one of the students presented the results of their group work. After that, the students returned to take the cycle I evaluation test.

3. Observation

At this stage, the teacher made some observations regarding the uncondusive classroom situation, monitored students' motivation while attending lessons, paid attention to students' attitude when someone was presenting in front of the class. The students then prepared to take individual test.

4. Reflection

At this stage, the teacher performed reflection on the learning implementation with a contextual approach. This was done to determine the level of success in learning. Based on the test and questionnaire results after learning using a contextual

approach, there was an improvement in students' learning motivation from pre-action to cycle I action, but the improvement had not met the indicators of success in this research. Therefore, it was necessary to do cycle II.

The score data on pre-cycle and cycle I of Mathematics learning achievement are presented in Table 1.

Table 1. Data of Mathematics Learning Achievement in Pre-cycle and Cycle I

Detail	Pre-cycle	Cycle I
Average	50,4	67,2
Highest	93,8	90
Lowest	18,8	40
Incomplete	83,9%	71,9%
Complete	16,1%	28,1%

Based on Table 1, it can be seen that the average score in pre-cycle was 50.5 and the average score of cycle I was 67.2, still below the KKM (70). The percentage of students who reached KKM in pre-cycle was 16.1% and in cycle I was 28.1%. The low achievement percentage in cycle I was because the learning method used was relatively new to the students, they were not familiar yet with group discussions, so that students could not work together well when discussing the answers.

Meanwhile, data on students' learning motivation showed an improvement between pre-cycle to cycle I, namely motivation at pre-cycle was 65.8% and improved in cycle I to 70%. Based on the observation during learning, there were some students who still looked disinterested in learning. This was evidenced by the students playing with their markers or putting their heads on the table.

In cycle II learning activities, the researchers prepared similar implementation as in cycle I. However, this time the researchers provided more motivation and guidance to the students. The following describes the stages of cycle II.

1. Planning

At this stage, the researchers and the teacher determined and prepared the material to be taught in cycle II based on SK and KD continued from cycle I. Then we prepared lesson plan and learning media, student worksheets, and modules using the CTL model, and prepared the questionnaire of learning motivation.

2. Action

The lesson lasted for 70 minutes (2×35 minutes) at 08.10 to 09.20. The learning activities began with setting the students down. After the students were ready and orderly, and ready to take part in learning, the teacher greeted and checked their attendance. After that, the teacher provided apperception by asking questions and motivating students by explaining the benefits of integers in everyday life, and after that conveying the learning objectives. In the next activity, students explored their knowledge by reading integer material text books. In this activity, the researchers conducted a direct experiment using marbles media, then the students tried to work on the questions. In the next activity, students were assigned into 6 groups and then performed group discussion to solve the questions and then presented the results of the discussion in front of the class. At that time, the researchers provided

reinforcement about the material being studied by students. After that, the students returned to take cycle II evaluation test.

3. Observation

At the observation stage of cycle II, the preparation was better, more optimal, the classroom atmosphere was more conducive, as seen from the high enthusiasm of the teacher and the students. In managing time more effectively, learning activities according to plans and objectives could be achieved.

4. Reflection

In this stage, the researchers and teachers reflected on the actions of cycle II to determine the success of learning. Based on the questionnaire result after implementing the CTL model in learning, there was an improvement in students' learning motivation in Mathematics from cycle I to cycle II. This improvement has made them reaching the indicator of success in this research. Based on the observation, the quality of the mathematics learning process by applying the CTL model in this seventh grade improved from cycle I to cycle II. This could be seen from the successfulness of activities done by the teacher and the students in learning. The teacher in applying the CTL model had carried out activities in accordance with the prepared lesson plan. The students as objects in this research had also experienced improved motivation to learn. This could be seen from their enthusiasm in participating in learning. In addition, the class conditions were also calmer and conducive on cycle II action. Based on the reflection above, it can be concluded that classroom action research was sufficient and unnecessary to be continued to the next stage.

The data on the value of the second cycle of mathematics learning outcomes can be seen in Table 2.

Table 2. Data of Learning Achievement in Cycle II

Detail	Score
Average	79,4
Highest	100
Lowest	62,5
Incomplete	19,35%
Complete	80,65%

Based on Table 2, it can be seen that the average Mathematics learning achievement in cycle II was 79.4, which has increased from cycle I by 12.2 points. The highest score was 100 and the lowest score was 62.5. While the percentage of completeness reached 80.65%.

From the data collection results starting from pre-cycle to cycle II, the data on Mathematics learning achievement after using the CTL method can be presented as shown in Figure 1.

Based on Figure 1, it can be seen that the average score from one cycle I to another has kept improving. This was because the students were more enthusiastic in participating in learning, even when working on evaluation questions, students did not give up easily because they knew the correct problem solving technique.

When making presentations in front of the class, the students were seen as more confident.

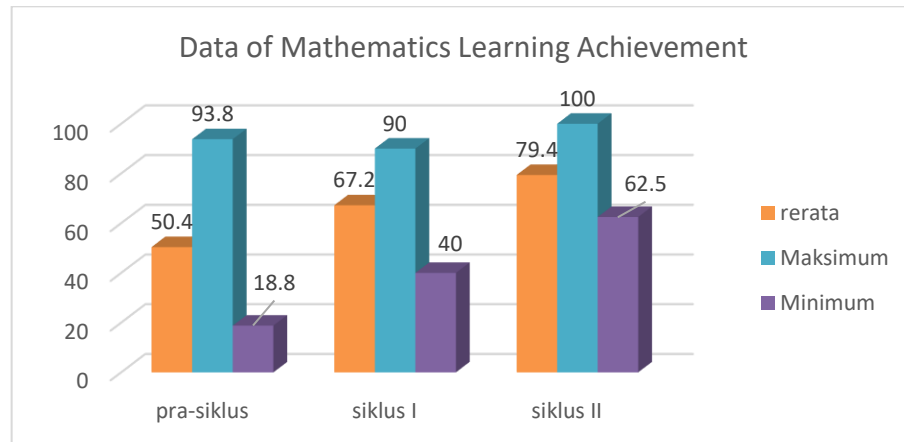


Figure 1. Comparison of Mathematics Learning Achievements

The results of this research are in accordance with several previous research, showing that CTL-based learning model in lessons can improve students' achievement (Agustyaningrum & Widjajanti, 2016; Gita, 2007; Nababan, 2018; Narendrati, 2017; Selan et al., 2020).

It is expected that by applying the CTL approach, it can further improve the motivation and achievement for seventh grade students of State Junior High School 1 Bongo. The data regarding students' learning motivation from pre-cycle to Cycle II are presented in Table 3.

Table 3. Data on Student's Learning Motivation in Pre-cycle, Cycle I, and Cycle II

Detail	Cycle Stage		
	Pre-cycle	Cycle I	Cycle II
Average	65,8	70	91,0
Highest	72,0	78	100,0
Lowest	58,0	62	78,0
Percentage of Students' Learning Motivation Optimization	65%	73%	100%

Based on the data obtained from pre-cycle to cycle II, it was revealed that there was improvements in students' motivation in learning Mathematics. The average score in pre-cycle was 65.8, cycle I was 70, and cycle II was 91. From this data, it was obvious that there was improvement from pre-cycle to cycle II by 21 points (38.3%). The highest score at pre-cycle was 72, cycle I was 78, and cycle II was 100, so it can be seen that from pre-cycle to cycle II there was improvement by 28 points (38.3%). The lowest score in pre-cycle was 58 and in cycle II was 78, it can be emphasized that there was improvement from pre-cycle to cycle II by 20 points (20%). The percentage of motivation optimization at pre-cycle stage was 65% and in cycle II was 100%. Thus, it can be emphasized that there was improvement from pre-cycle to cycle II by 35%. The improvement in students' learning motivation is

because students felt comfortable with learning in cycle II and were already familiar with the activities carried out in the learning process. Students knew correctly the importance of motivation in learning, this was solely for the good of students in developing their current and future knowledge.

This research supports several previous research by Khamid and Santosa, (2016); Hidayati (2012); and Saepuloh (2014) stating that the CTL-based learning model in lessons can increase students' learning motivation.

From the results of data collection from pre-cycle to cycle II, data on the progress of teacher observations in learning are presented in Table 4.

Tabel 4. Teacher Observation Data on Learning in Pre-cycle, Cycle I, and Cycle II

Detail	Cycle Stage		
	Pre-cycle	Cycle I	Cycle II
Percentage of Teacher Observation in Learning	47,1%	57%	90%

Based on the data obtained from pre-cycle to cycle II, the teacher's progress in learning was 47.1% in pre-cycle, 57% in cycle I, and 90% in cycle II. These data shows that there was improvement from pre-cycle to cycle II by 42.9%. Thus, the results of teacher observations in learning revealed improvement.

From the results of data collection starting from pre-cycle to cycle II, the data on the progress of the teacher's observations in class preparation for learning are presented in Table 5.

Table 5. Teacher Observation Data on Class Preparation for Learning in Pre-cycle, Cycle I, and Cycle II

Detail	Cycle Stage		
	Pre-cycle	Siklus I	Pre-cycle
Percentage of Teacher Observation in Class Preparation for Learning	54%	60%	96%

Based on the data obtained from pre-cycle to cycle II, the improvement of the teacher in class preparation for learning was obtained, in pre-cycle by 54%, in cycle I by 60%, and in cycle II by 96%. From these data, it shows that there was improvement from pre-cycle to cycle II by 42%. Thus, the results of teacher observations in preparing the class for learning showed improvement.

CONCLUSION

Based on the research results conducted at State Junior High School 1 Bonggo of Papua by using two CAR cycles, which is the learning process using a contextual approach to improve students' motivation and achievement on integer material, the following three conclusions can be drawn.

First, based on the learning process the purpose of implementing learning is to increase learning motivation and learning achievement in Mathematics. The

implementation of learning is carried out in two cycles, each cycle consists of 2 meetings. Each cycle uses 4 stages that have been planned in classroom action research, namely: planning, observation, action, and reflection. The learning process using the contextual approach is carried out well in accordance with the learning steps.

Second, based on the results of learning, the improvement in students' mathematics learning achievement can be seen in the average score of students in each cycle, namely the pre-cycle average score of 50.4, cycle I average score of 67.2, and cycle II average score of 79.4. So it can be concluded that the implementation of contextual approach can improve Mathematics learning achievement for seventh grade students of State Junior High School 1 Bonggo of Papua.

Third, based on the motivation to learn Mathematics. The improvement in students' motivation can be seen from the average percentage obtained from the questionnaire; pre-cycle learning motivation of 65.8%, cycle I learning motivation of 70%, and cycle II learning motivation of 91%. So it can be concluded that the implementation of a contextual approach can improve the motivation to learn Mathematics for seventh grade students of State Junior High School 1 Bonggo of Papua.

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