

Improving Mathematics Learning Outcomes in the Covid-19 Pandemic Era Through Contextual Teaching and Learning (CTL) Learning Models Using WhatsApp Groups for Class II Students of Kempong State Elementary School, Kapanewon Kalibawang, Kulon Progo Regency

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ABSTRACT: The purpose of this study was to determine the application of the Contextual Teaching and Learning (CTL) learning method through WhatsApp Group. This type of research is classroom action research which is carried out in 2 cycles. Each cycle consists of 4 stages, namely planning, implementing actions, observing, and analyzing and reflecting. This research was conducted at Kempong State Elementary School, Kapanewon Kalibawang, Kulon Progo Regency. The results of this study indicate that the achievement of students in the first cycle at the first meeting the average value is 71.33 with a learning completeness of 55.56% with the "Very Low" category, while the first cycle of the second meeting the average value is 75.67, the percentage is 66, 67% in the "Low" category, then in the second cycle of meeting 1 the average value was 82.33, the percentage of completeness was 77.78% with the "Enough" category. While at the second meeting of cycle II the average value was 87.44 in the "High" category with a completeness percentage of 100% with the "Very High" category. Meanwhile, teacher activities using the Contextual Teaching and Learning (CTL) learning model using WhatsApp Group in the first cycle of meeting 1 obtained an average score of 3.59, the presentation of the total score was 89.68%, with the category "Very Satisfactory". Meanwhile, in the second cycle of meeting 2, the average score was 3.84 with a presentation of 95.91%, in the "Very Satisfactory" category.

Keywords: Contextual Teaching and Learning, WhatsApp Group, achievement, cycle

INTRODUCTION

The Circular of the Minister of Education and Culture number 4 of 2020 concerning the Implementation of Educational Policies in the Emergency Period for the Spread of Corona Virus Disease (COVID-19), states that the teaching and learning process from home through online/distance learning is carried out to provide a meaningful learning experience for students. , without being burdened by the demands of completing all curriculum achievements for grade promotion and graduation [1].

Instruction of the Governor of the Special Region of Yogyakarta No. 2/INSTR/2021 regarding the policy of restricting community activities in the Special Region of Yogyakarta which states that schools carry out teaching and learning activities using the internet network [2]. Seeing the fact that the pandemic has not ended and the latest regulations have emerged, the teacher has the task of carrying out learning that adapts to applicable regulations, namely distance learning or online learning.

Learning in the network is a learning that is carried out by utilizing internet media and several other devices such as cellular phones, laptops and computers [3]. The use of internet media is intended to help the implementation of distance learning run smoothly, effectively and efficiently in terms of energy, time and cost [4]. There are many media that can be used in this distance learning process where students are also familiar with using it, namely Whatsapp social media [5].

Whatsapp is an application that is easy to use and is the right media to use in the distance learning process, this is because Whatsapp has many features such as sending messages, sending pictures, videos, making group sounds and so on and easy for users to use [6].

As a result of the Covid-19 pandemic, mathematics learning at the Kempong State Elementary School, Kalibawang, Kulon Progo, has experienced obstacles, making it impossible to carry out face-to-face meetings. Therefore, it is necessary to take steps to improve learning in the Covid-19 pandemic era, namely by choosing the right learning model in these conditions.

To overcome this problem, in addition to the media selected in the learning process, it is also necessary to select the right learning model. An alternative learning model that can be chosen by the teacher is the Contextual Teaching and Learning (CTL) learning model. Contextual Teaching and Learning (CTL) is a learning method that connects the material learned or taught in class with real world conditions, so that students can be encouraged to understand the material according to what is seen in the life around [7].

In simple terms, Contextual Teaching and Learning (CTL) is a learning that links the material with real-world situations that are interconnected and occur around students so that it is easier for students to understand the material being studied and take advantage of it and can apply it in life. Learning activities with this method become a liaison for students in giving meaning to knowledge, which is obtained from concrete events that occur in life [8].

Using the CTL learning model, it is hoped that students can improve learning outcomes. The CTL learning model will make it easier for students to do the tasks given by the teacher through online learning such as grouping, answering, determining, applying and so on in the form of material, instructions for working on practice questions. Thus, students are actively involved directly in the online learning process.

Based on this background, researchers are interested in conducting research with the title "Improving Mathematics Learning Outcomes in the Covid-19 Pandemic Era Through Contextual Teaching and Learning (CTL) Learning Models Using WhatsApp Groups for Class II Students at Kempong State Elementary School, Kalibawang Kulon Progo".

RESEARCH METHODOLOGY

Research design

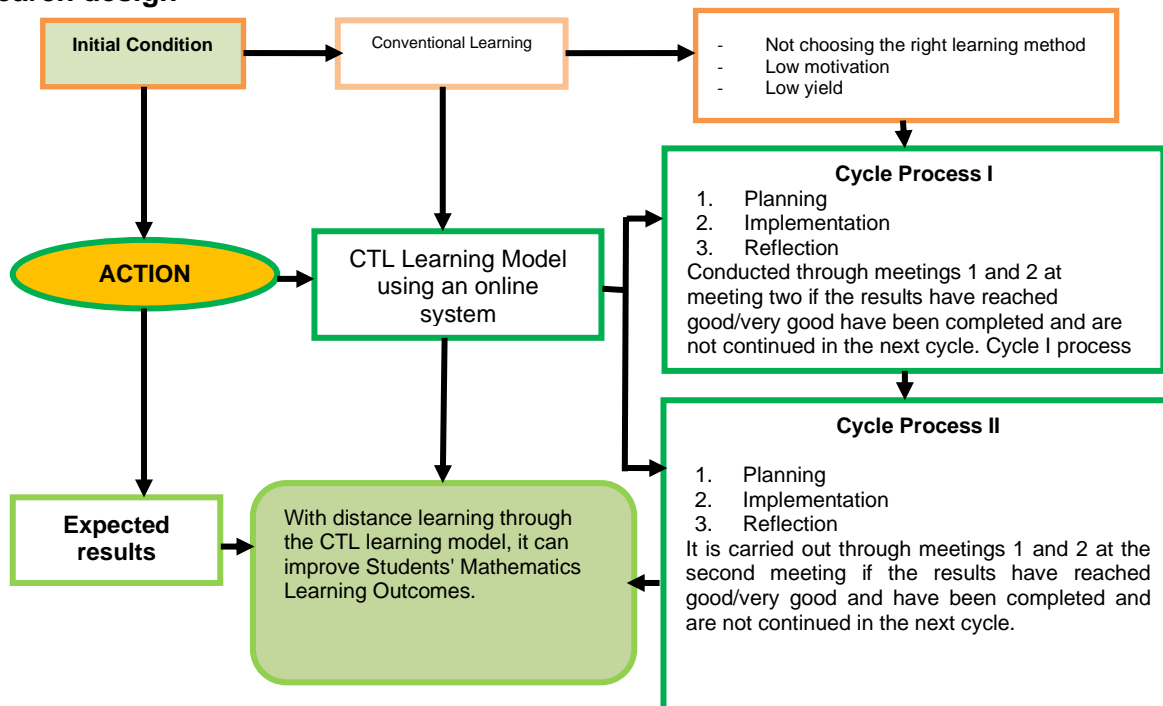


FIGURE 1. Research Design

This research is classroom action research. The design of this research is the research model of Kemis & Mc Taggart is a procedure that describes the research to be carried out [9]. Observations are

carried out by observing and recording the learning and participation appointed by the students during the learning activities. The design of this research can be seen in FIGURE 1.

Place, Time, and Research Subject

The place of this research is SD Negeri Kempong Kalibawang. The subjects in this study were all second-grade students of SD Negeri Kempong, Kapanewon Kalibawang. which consists of 9 students, the number of male students is 6 and the number of women is 3. The object of the research is the use of the Contextual Teaching and Learning (CTL) Learning Model. This research was carried out on January 7, 2021, to April 26, 2021.

Data analysis

Based on the assessment guidelines that have been made, calculate the average total score by using equation 1.

a. Rata-rata

$$X = \frac{\sum X}{N} \quad (1)$$

Information:

X= average

$\sum X$ = total student score

N = number of students

b. Completeness Percentage

The percentage of students' completeness is calculated using equation 2.

$$\text{percentage} = \frac{\text{number of students completed}}{\text{the number of students}} \times 100\% \quad (2)$$

The percentage of students' completeness obtained is then converted into criteria with a range of presentations, referring to TABLE 1.

TABLE 1. Criteria for Student Achievement Values

No	Percentage	Criteria
1	90% < P ≤ 100%	Very high
2	80% < P ≤ 90%	High
3	70% < P ≤ 80%	Enough
4	60% < P ≤ 70%	Low
5	0% ≤ P ≤ 60%	Very low

Analysis of the results of observations during learning through the Contextual Teaching and Learning learning model and the results of observations of teachers. Observational data that has been obtained is calculated and then a percentage. The percentage calculation is calculated using equation 3.

$$\text{Percentage}(P) = \frac{\text{Total indicator score}}{\text{Number of items}} \times 100\% \quad (3)$$

The results of the transformation of quantitative data from qualitative data are presented in TABLE 2.

TABLE 2. Scoring Criteria For Teaching And Learning Activities By The Teacher

Value	Percentage	Criteria
4	85% < P ≤ 100%	Very satisfactory
3	75% < P ≤ 85%	Satisfying

2	$65\% < P \leq 75\%$	Enough
1	$45\% < P \leq 65\%$	Not enough
0	$0\% \leq P \leq 45\%$	Not satisfactory

The learning activities carried out are declared successful if there is an increase in student learning outcomes in learning seen during the learning process on test results, cycle I with learning outcomes in cycle II SD Negeri Kempong, Kapanewon, Kalibawang, Kulon Progo Regency. Cycle III The indicator of the success of this action research is if the students have been able to achieve the Minimum Completeness Criteria with a score of 70 and the average value of the class reaches >70 .

RESULTS AND DISCUSSION

This classroom action research was carried out in class II SD Negeri Kempong, Kapanewon Kalibawang, Kulon Progo Regency, in mathematics subjects related to everyday life in the even semesters of the 2020-2021 school year through the Contextual Teaching and Learning (CTL) learning model with distance learning. remotely using Whatsapp Group. This learning is designed to improve student learning outcomes. The use of the Contextual Teaching and Learning (CTL) learning model with distance learning using Whatsapp Group makes a solution to improve student learning outcomes in the pandemic era. Cooperative learning is the right model to use, in the era of the Covid-19 pandemic.

Pre-research results before conducting research related to strategies, methods or learning media in the era of the covid-19 pandemic, in mathematics subjects about length (including distance), weight, and time in standard units, in grade II SD Negeri Kempong Kapanewon Kalibawang on the theme 4 Clean and Healthy Living sub-theme 4 healthy and clean living in places, students look less active so that their learning outcomes have not reached the Minimum Completeness Criteria determined by the school. It can be seen from 9 students there are 4 students who achieve the Minimum Completeness Criteria and 5 students who have not reached the Minimum Completeness Criteria. From the results of the pre-study, it shows that the level of student learning outcomes, in Mathematics subjects about explaining the pattern of rows of flat shapes and building spaces using concrete models is still below average or low.

As for the data on student learning outcomes in mathematics subjects from the pre-research results above, it can be seen that the number of students who complete is less than students who have not completed. Of the 9 students, only 3 students managed to achieve the Minimum Completeness Criteria, 6 students had not reached the Minimum Completeness Criteria, the percentage of completeness obtained was 33.33%. The average value obtained by class II students in mathematics subjects using a concrete model is 66.66%, with the "Low" category so it still has not achieved the success indicators as expected.

The results of classroom action research are based on research results related to the use of the Contextual Teaching and Learning (CTL) learning model using Whatsapp Group during the Covid-19 pandemic with distance learning starting from cycle I to cycle II can be explained as follows:

1. Student Learning Outcomes

The learning outcomes of students in the mathematics subject matter of length (including distance), weight, and time in standard units, related to daily life, obtained the results of an evaluation carried out at the meeting of each cycle. Students' learning achievement increases when doing distance learning using Whatsapp Group, it is shown that each student works on math problems with long material (including distance), weight, and time in standard units. Students work on questions online through the Whatsapp Group and are able to compete with other groups, because in the pandemic era the learning process is carried out online, including taking tests according to the flow determined by the teacher through the Whatsapp Group. Nawawi (in Susanto, 2013: 5) which states that learning outcomes can be interpreted as the level of success of students in learning the material stated in the scores obtained from test results. The assessment is carried out differently from the face-to-face method, by learning online using the Whatsapp Group application. The learning outcomes of students in mathematics subjects for length (including distance), weight, and time in standard units, which are related to daily life can be seen in TABLE 3.

TABLE 3. Improving Learning Outcomes of Class II Students at Kempong Kapanewon Public Elementary School, Kalibawang, Kulon Progo Regency

No.	Research result	Cycle I		Cycle II	
		1 st meeting	2 nd meeting	1 st meeting	2 nd meeting
1	Average value	71.33	75.67	82.33	87.44
2	Number of Students Completed (%)	55.56	66.67	77.78	100.00
3	Number of Unfinished Students (%)	44.44	33.33	22.22	0.00

TABLE 3 shows that the test results of the average value of the first cycle meeting 1 and 2 there is an increase of 4.34, while the second cycle of meetings 1 and 2 there is an increase of 5.11; The number of students who completed the first cycle of meetings 1 and 2 there was an increase; 11.11%, cycle II meetings 1 and 2 there was an increase of 22.22%, the above results indicate that the use of WhatsApp Group for learning mathematics in the Covid-19 pandemic era through the Contextual Teaching and Learning (CTL) learning model has a positive impact on learning achievement students at Kempong Kapanewon Public Elementary School, Kalibawang, Kulon Progo Regency.

Complete learning of students from cycle I to cycle II there is an increase in almost every cycle experiencing development. Students do not find it difficult to carry out the process of learning mathematics, because students find it easier to use the surrounding media so that they can complete tasks on time. Based on the opinion above, it is concluded that through the Contextual Teaching and Learning (CTL) learning model with the HP Whatsapp Group application, it can improve student learning achievement in mathematics.

2. Teacher Activity Observation Results

Judging from the teacher's activities during learning from cycle I to cycle II, the average score obtained through observation showed a significant development. Teachers always try to improve performance in learning activities to make changes and the success of students. The results of the average score of teacher activity nodes using the Contextual Teaching and Learning (CTL) learning model with the HP Whatsapp Group application in Mathematics are presented in TABLE 4.

TABLE 4. Results of Observation of Teacher Teaching and Learning Model Cycle I and II Class II Students of SD Negeri Kempong Kalibawang Kulon Progo.

No.	Observation Results	Cycle I		Cycle II	
		1 st meeting	2 nd meeting	1 st meeting	2 nd meeting
1	Total score average	3.25	3.42	3.59	3.84
2	Percent (%)	81.31	85.62	89.68	95.91
3	Value Conversion	3	4	4	4
4	Category	Satisfying	Very satisfactory	Very satisfactory	Very satisfactory

TABLE 4 shows that there is an increase in the ability of teaching and learning activities in cycle I, cycle II, model teachers through the Contextual Teaching and Learning (CTL) learning model using the Whatsapp Group mobile application in online mathematics learning in class II SD Negeri Kempong, Kapanewon Kalibawang, Kulon Progo. Starting from the pre-research to the last activity carried out action research, the results of the first cycle of observation had an average score of 3.34, the percentage reached 83.46%, the conversion value was 3, the category "Satisfactory" while the second cycle the average score reached; 3.71, while the percentage reached; 92.80%, conversion value 4, category "Very Satisfactory", the increase can be seen from the average score of the first cycle of meetings 1 and 2 there is an increase; 4.31%, in the second cycle of meetings 1 and 2 there was an increase of 6.23%.

CONCLUSION

1. The Contextual Teaching and Learning (CTL) learning model using the Whatsapp application on length (including distance), weight, and time material in standard units related to daily life in the first cycle of meeting 1 obtained an average value of 71.33 learning completeness 55.56% with the category "Very Low". Cycle I meeting 2 obtained an average value of 75.67 percentage of 66.67%, category "Low". In the second cycle of the first meeting, the average score was 82.33 with a

completeness percentage of 77.78% in the "Enough" category, while at the second meeting in the second cycle the average value was 87.44 with a 100% completeness percentage in the "Very high" category.

2. The Contextual Teaching and Learning (CTL) learning model using the Whatsapp online learning group application can improve the teacher's ability to carry out the process of teaching and learning activities. Cycle I meeting 1 obtained an average score of 3.59, the presentation of the total score was 89.68%, the conversion value was 4, the category "Very Satisfactory" Cycle II meeting 2 obtained an average score of 3.84, the presentation was 95.91% conversion value of 4, category "Very Satisfactory".

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