

IMPROVEMENT OF MATHEMATICS LEARNING OUTCOMES THROUGH TALKING STICK LEARNING METHOD (CASE STUDY: SD NEGERI 1 KALIWUNGU)

Wanda Nugroho Yanuarto¹, Trisnawati²

¹University of Muhammadiyah Purwokerto, Central Java, Indonesia

²STMIK Pringsewu, Lampung, Indonesia

Email: wandanugrohoyanuarto@ump.ac.id, trisnawatistmikpsw@gmail.com

Abstract

This research focuses more on learning based on the 2013 curriculum at the basic unit level. The type of research that will be conducted is collaborative *Class Action Research* (PTK). The data collection techniques in this study were conducted by (1) observations, (2) tests, and (3) field records. Data analysis techniques in this study using qualitative and quantitative data analysis techniques. Based on the results of the study, teacher activity in each cycle has increased and has achieved the success of established indicators. Judging from the learning outcomes students have also improved and have achieved the success of the indicators set. The obstacles that arise during the learning activities in cycle I and cycle II can be overcome well by finding the right solution/problem solving.

Keywords: mathematics, talking stick, learning method

INTRODUCTION

The implementation of curriculum 2013 is an update of the previous curriculum, namely KTSP which is further refined. One of them is subjects that are designed to be interconnected with each other and support all competencies both attitudes, knowledge, and skills so that the subjects do not stand alone. Every learning activity must support the 5M aspect of "Observing (Mengamati), Questioning (Menanya), Gathering Information (Mengumpulkan Informasi) and Communicating (Mengomunikasikan)". Of the 5 learning activities must be in the learning steps in the hope of training and familiarizing students to be skilled and master the 5 skills.

In the 2013 curriculum, there is the integration of learning materials or using thematic approaches which relate to several materials in each learning activity. Therefore, teachers' skills must be able to manage to learn creatively and innovatively so that all materials can be delivered and understood by students. But in reality, there are still students who do not seem to have mastered certain subjects that have more material about reading. This is because subjects with a lot of reading and memorizing materials, make students look bored and not eager to read books. Considering each

subject there must be something or reading that becomes an important element to understand the material so students need to master. This research focuses more on learning based on the 2013 curriculum at the basic unit level. In some cases, there is a learning process still using direct learning methods so it still seems to have not worked effectively. This indicates the lack of ability of students in following such learning. One of them is the lack of ability to express opinions.

The ability to express opinions is very important for every student to have because it can train students to think critically, foster courage to answer questions, and foster confidence. Therefore, in the learning process teachers must cultivate the courage of students in answering and arguing against the material that has been described. The use of interesting learning methods is needed in teaching and learning activities because it will support the learning process to be more maximal and help students learn better. From the above problem, it was found that the cause of the optimal student learning outcomes is the lack of effective learning methods used by teachers so it seems that quite a lot of students are not able to follow the learning well. Therefore, this paper discusses a learning method that can improve students' learning outcomes. Therefore, the learning method that allows students to achieve learning outcomes is the talking stick learning method. Where this talking stick learning method trains students to dare to argue (speak) and think critically about something.

RESEARCH METHODS

2.1 Research Design

The type of research that will be conducted is collaborative Class Action Research (PTK). Arikunto (2010:130) suggests that class action research is a reflection of activities that are deliberately raised and occur in a class. The action is at the direction of the teacher and subsequently the student who performs. The teacher only acts and observes the results. Therefore, the role and skills of teachers in teaching are indispensable to manage the course of learning and manage the classroom.

This research is based on a cycle, one cycle is carried out twice through a leafy assessment process consisting of 3 stages, namely: a) planning, b) actions and observations (acting and observing), and c) observing and analyzing what has happened (reflecting) Kemmis and Mc Taggart (in Arikunto, 2010:131). If cycle I do not meet the predetermined criteria, then it can be done through cycle II until it can meet the criteria. The cycle will end if it meets the established learning completion criteria.

The research procedure is carried out through several stages, namely, planning, implementation and observation, and reflection on each cycle. At the planning stage, researchers try to plan the learning that will be carried out in teaching and learning activities, namely in the form of RPP. In this case, researchers collaborated with class teachers in developing learning tools and determining appropriate learning methods for learning materials and processes to run effectively and to develop observation sheets that will be used to observe the progress of the learning process.

The stage of implementation and observation is, the steps taken based on the plan that has been formulated before, namely teachers carry out learning devices that have been prepared at the planning stage. While in the observation stage, researchers observe, record and document the learning activities conducted by teachers and

students to know the suitability between the implementation of actions and the specified plan. The implementation and observation stages are carried out simultaneously. At the time of learning activities, the way teachers teach is observed by researchers. When carrying out observations, researchers are guided by predetermined observation instruments.

The reflection stage is the final stage of each cycle to see the various shortcomings of the activities that have been done. At this stage, the researchers point out the shortcomings and things that need to be improved from the learning activities that have been implemented. Researchers and teachers discuss the implementation of the draft actions of the implementation of learning. The teacher as the executor of the learning explains his experience during the learning and things that are felt have gone well and which parts have not. Researchers also reveal which activities have been carried out well and which need to be improved. When the learning activities have obtained the results of records that identify deficiencies, it will be re-planned by teachers and researchers so that new planning will be produced that will be implemented in the next cycle.

2.2 Data Sources

The data source in this study is data derived from observation data and student test results data on subjects taught using the talking stick method. The research will be conducted at SD Negeri 1 Kaliwungu Grade III with mathematics learning.

2.3 Data Collection Techniques

The data collection techniques in this study were conducted by (1) observations, (2) tests, and (3) field records. Observation techniques are used to know directly the learning process of both students and teachers. Test techniques are used to measure what students have achieved during the learning process. From the test results, teachers can make decisions on whether or not students' abilities and understanding have progressed in each cycle. Field record techniques are used to obtain information about obstacles found in learning activities. Any information obtained will be recorded by the conditions in the field.

2.4 Data Analysis Techniques

Data analysis techniques in this study using qualitative and quantitative data analysis techniques. The qualitative data analysis technique is data analysis in the form of sentence-shaped information that gives an idea of the success obtained from the field record sheet. While quantitative data in the form of figures obtained from observational analysis of the implementation of learning and assessment of student learning outcomes. In analyzing the research data using a formula that corresponds to the aspect that the researcher wants to measure so that the right results are obtained and appropriate to answer the problem formulation. Observation of learning implementation is analyzed with the formula:

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

Description:

P = Percentage of Learning implementation

f = Number of activities carried out.

N = Total number of activities (Winarsunu, 2012 :20)

Once calculated by percentage, the existing data is interpreted with a sentence, which is as follows:

81% - 100% = Very good

61% - 80% = Good

51% - 60% = Enough

Less than 40% = Failed (Arikunto, 2010 :245)

Observation of the achievement of learning scores can be analyzed with the formula:

$$N = \frac{x}{\sum x} \times 100$$

Description:

N = Value of Learning Implementation Achievement.

x = Score earned.

$\sum x$ = Maximum Score. (Nurgiyantoro, 2014:392)

Furthermore, the data is stated in the criteria of learning achievement value as follows:

80 - 100 = very good

66 - 79 = good

56 - 65 = enough

40 - 55 = less

30 - 39 = failed (Arikunto, 2012:281)

The data of learning outcomes in the form of individual student evaluation sheets are analyzed by looking for individual grades, the average value of students who complete the study, and classical completion scores. The final grade (NA) of the student in the research test uses the formula:

$$N = \frac{x}{\sum x} \times 100$$

Description:

N = Final value.

x = Score earned.

$\sum x$ = Maximum Score. (Nurgiyantoro, 2014:392)

After calculating the final value, the existing data is interpreted with a sentence, which is as follows:

>75 - 100 = Complete

<75 = Incomplete (Based on KKM)

The classic completion formula is used to determine the percentage of students who graduate in learning. Classical completion is calculated through students' complete learning divided by the number of students. So that the classical completion formula is obtained, as follows:

$$P = \frac{\sum \text{siswa yang tuntas belajar}}{\sum \text{siswa}} \times 100\%$$

By using the above formula, it can be known the average grade value and test scores of students after the talking stick learning method is applied.

To determine the criteria, the percentage ranking of student learning outcomes, the researchers used the following assessment criteria:

$\geq 80\%$ = very high

60% - 79% = high

40% - 59% = medium
20% - 39% = low
≤ 20% = very low (Aqib et al., 2011:41)

RESULTS AND DISCUSSION

3.1 Research results

In cycles I and II, the results of research on the implementation of mathematics learning using talking stick learning methods at SD Negeri 1 Kaliwungu will be presented according to the stages in class action research, namely the planning stage, implementation, and observation stage, and reflection stage.

At the planning stage, researchers make preparations to carry out the learning process cycle I and cycle II, namely as follows: (1) communicating with the school, (2) determining the problem to be studied, (3) determining the schedule of data retrieval, (4) analyzing the curriculum to determine KD, (5) developing learning tools. Learning planning in cycle I consist of two meetings. This is tailored to the learning materials to be delivered. The components in the learning tool consist of: (1) syllabus, (2) RPP, (3) determining media, (4) learning tools and resources, (5) assessment instruments, (6) LKPD (Student Worksheets) along with answer keys, (7) evaluation sheets along with answer keys, (8) reading materials, (9) question grids, and (10) media illustrations.

At the stage of implementation of the cycle I and II, the action is done in mathematics learning using talking stick learning method. The implementation of learning consists of three activities contained in the RPP (Learning Implementation Plan) namely the initial activities, core activities, and closing activities. The implementation of learning in cycles I and II, each held 2 meetings. Where in the meeting I, the implementation of learning focuses more on the provision of materials and learning activities using talking stick learning methods. In meeting II, the learning activity is more to remind students of the materials that have been given before and deepen the student's mastery of the material by using talking stick learning methods.

In the observation stage or observation in cycle I and cycle II of teacher activity in the teaching and learning process carried out by teachers and students observed by two observers, namely as researchers as observers / first observers and peers as observers/observers second. Observers are guided by pre-formulated instruments. In the observation stage or observation obtained is the observation of teacher activities using talking stick learning methods, student test results, and field record results.

Based on the observations in the first cycle of meeting 1 and 2, indicators of learning implementation have been achieved with an average of 100% and an average achievement value of 85.05. Student learning outcomes in cycle I completed an average student score of 80.06. While the classical completion result of 66.67% means that the student's learning outcomes still have not reached the indicator of success, namely ≥75%. From the acquisition of the learning results, the research needs to be continued in the next cycle for the indicators of success to be fulfilled.

As for the obstacles that arise in cycle I as follows: (1) when using animated puppet media, teachers still have difficulties, (2) the rules in the implementation of talking stick learning methods are poorly explained so that students distribute sticks to other students by rolling and sticks falling, (3) the accompaniment of the song when the stick is distributed from 1 student to another for too long so that the condition of

the class looks less conditional, (4) the activeness of the students is still uneven, it appears that only some students participated in answering questions from the teacher, (5) while working on le (Evaluation Sheet) some students still asked their friends and teachers less attention to the allocation of time in le work, and (6) the implementation of ice breaking fingers and thumbs is still not maximized.

As a solution to the obstacles that arise during the implementation of learning cycle I to improve the implementation of learning, namely: (1) at the next meeting, teachers can associate animated puppets with stories / fairy tales related to daily life to make it easier for students to understand, (2) at the next meeting, the teacher shall read the rules of the game unequivocally and completely so that no student violates, for students who violate the teacher must give punishment, (3) at the next meeting, the teacher should pause the song either in the middle or a certain part of the song to establish the student is entitled to answer the question so that the student becomes more enthusiastic to participate in the learning activity, (4) in the next cycle, the teacher appoints the student randomly and takes turns to participate and answer the question asked, (5) in the next cycle , the teacher must read the instructions or rules of doing LE so as not to ask his friend, in addition the teacher also pays attention to the allocation of time, and (6) in the next cycle, the teacher should be more active and uplifting students in doing ice breaking.

Based on the observations in the second cycle of meeting 1 and 2, indicators of learning implementation have been achieved with an average of 100% and an average achievement value of 92.41. Student learning outcomes in cycle I completed an average student score of 87.52. While the student learning outcomes in cycle II with classical completion of 80.95% which means that the student's learning outcomes have reached the indicator of success that is $\geq 75\%$.

The obstacles that arise in cycle II are as follows: (1) when students are asked to close the reading book, some students do not listen to the teacher's instructions, (2) the presence of one of the students who is crowded and does not focus on the learning process to disturb his other friend, (3) the arrangement of chairs when the implementation of talking stick learning methods is less varied, and (4) the use of ice breaking is the same so that students become less excited.

As a solution to the obstacles that arise during the implementation of learning cycle II to improve the implementation of learning, namely: (1) at the next meeting, teachers should remind students to close the book when the talking stick learning method is implemented, (2) at the next meeting will be held ice-breaking interrupted by the learning process whenever students are crowded and do not focus on the learning process, (3) should arrange chairs made differently so that students will be more enthusiastic and provide a more interesting learning experience, and (4) teachers should give ice-breaking more varied so that students do not get bored. Based on the observation of teacher activities, and students' learning outcomes in mathematics using talking stick learning method cycle I and cycle II can be seen in the table below:

Table 1.1 Observation of teacher activity and student learning outcomes in mathematics using talking stick learning method cycle I and cycle II

No	Data	Cycle I	Cycle II	Improved
1.	Implementation of teacher activities	100%	100%	-

2.	Achievement of teacher activities	85,05%	92,41%	7,36%
3.	Classical completion of student learning outcomes	66,67%	80,95%	14,28%

meanwhile, the results of reflections conducted by teachers together with observers/observers 1 as researchers and observers/observers 2 as peers, in this cycle show that there are no problems that need to be fixed. Teachers have reflected the learning process in cycle I so that cycle II has achieved the expected results following the value of achievement of teacher activities and student learning outcomes have improved. Therefore, learning in cycle II runs smoothly.

The results of the study on the use of talking stick learning methods to improve the results of mathematics learning grade III SD Negeri 1 Kaliwungu achieved maximum results. Overall students follow the learning well during the implementation of the cycle I and cycle II.

3.2 Discussion

The discussion section will be discussed about the data obtained from the observation of learning activities in the use of talking stick learning methods to improve learning outcomes in mathematics grade III SD Negeri 1 Kaliwungu so that this discussion can answer the problem formulation contained in chapter I. The results of this study showed that the implementation of learning in mathematics using talking stick learning methods went well and improved every cycle. The following are the results of the recapitulation of learning implementation data in cycle I and cycle II presented in the form of bar charts.

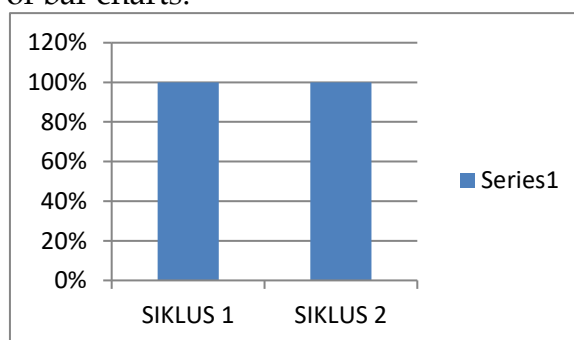


Diagram 1. Learning Implementation using Talking Stick Learning Method
 Diagram 1 shows the percentage of learning implementation using talking stick learning methods in cycles I and II reach a percentage of 100%. Thus, the implementation of learning goes very well.

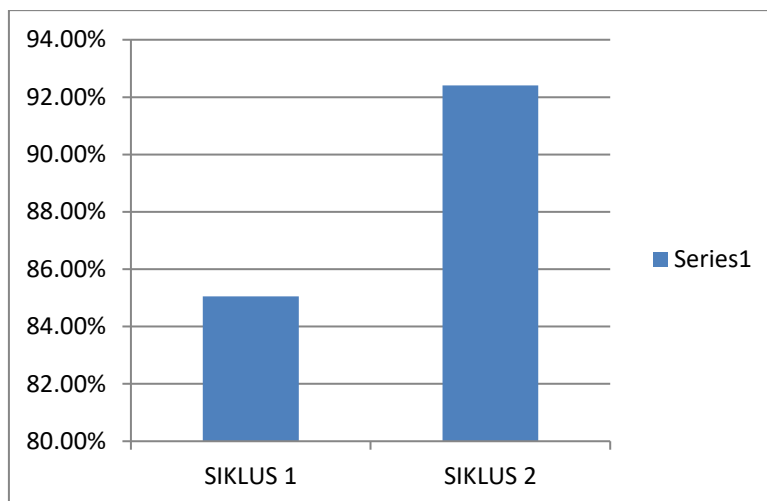
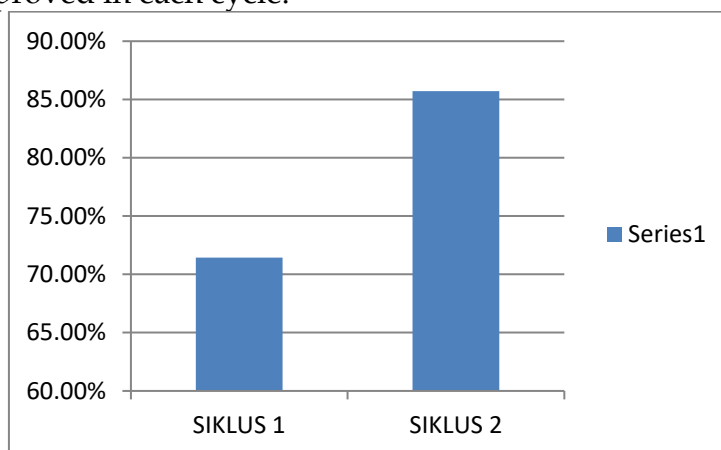


Diagram 2 The Value of Achieving Learning By Using Talking Stick Learning Methods

Diagram 2 shows the value of achieving the implementation of learning by using the talking stick learning method in cycle I of 85.05. In cycle II the achievement of learning implementation amounted to 92.41. Thus, the data on the implementation of learning and the achievement of learning implementation in cycle I and cycle II increased by 7.36. This shows that the implementation of mathematics learning using the talking stick learning method grade III SD Negeri 1 Kaliwungu has been running well and has improved in each cycle.



In diagram 3 shows the classical completion of students' learning in cycle I by 71.43%. This indicates that cycle I have not reached the completion that has been set $\geq 75\%$ so the research is carried out again in cycle II. In cycle II, students' learning completion results were classically obtained by 85.71%. This shows that students' learning completion in cycle II has reached a predetermined percentage, which is $\geq 75\%$. Thus, student learning outcomes from cycle I to cycle II have increased by 14.28% so it can be said that student learning outcomes have improved significantly.

CONCLUSIONS AND SUGGESTIONS

Conclusion

Teacher activity in each cycle has improved and has achieved the success of established indicators. Judging from the learning outcomes students have also improved and have achieved the success of the indicators set. The obstacles that arise during the learning activities in cycle I and cycle II can be overcome well by finding the right solution/problem solving, including the teacher must read the rules of the

game firmly and completely, the teacher should pause the song either in the middle of a certain part of the song to establish the students who are entitled to answer questions so that students become more enthusiastic to follow the learning activities, the teacher appoints students randomly and alternately to participate and answer the questions asked, the teacher should be more active and uplifting students in doing ice breaking, and the arrangement of chairs is made differently so that students will be more enthusiastic and provide a more interesting learning experience.

Suggestions

Based on the research that has been done, it is known that the use of talking stick learning methods can improve the learning outcomes of grade III students of SD Negeri 1 Kaliwungu, so researchers provide the following advice:

- a) teachers in learning activities will be better if using talking stick learning methods so that teacher activities in learning can be increased continuously;
- b) teachers in learning activities will be better if using talking stick learning methods so that students' learning outcomes can be improved continuously;
- c) teachers in learning activities will be better if using talking stick learning methods so that obstacles in carrying out learning can be overcome properly.

REFERENCES

- Aqib, Zainal, dkk. (2011). *Penelitian Tindakan Kelas untuk Guru SD, SLB, TK*. Bandung: CV. Yrama Widya.
- Arikunto, Suharsimi. (2012). *Dasar-dasar Evaluasi Pendidikan Edisi 2*. Jakarta: Bumi Aksara
- Arikunto, Suharsimi. (2010). *Prosedur Penelitian: Suatu Pendekatan Praktik*. Jakarta: Rineka Cipta.
- Hamdayama, Jumanta. (2016). *Metodologi Pengajaran*. Jakarta: Bumi Aksara.
- Huda, Miftahul. (2013). *Model-model Pengajaran dan Pembelajaran: Isu-isu Metodis dan Paradigmatis*. Yogyakarta: Pustaka Pelajar.
- Mulyasa, E. (2015). *Pengembangan dan Implementasi Kurikulum 2013*. Bandung: PT Remaja Rosdakarya.
- Mulyasa, E. (2005). *Menjadi Guru Profesional*. Bandung: Remaja Rosdakarya.
- Nurgiyantoro, Burhan. (2014). *Penilaian Pembelajaran Bahasa Berbasis Kompetensi*. Yogyakarta: Bpfe-Yogyakarta.
- Nursalim, Mochamad, dkk. (2007). *Psikologi pendidikan*. Surabaya: Unesa University Press.
- Rusman. (2012). *Model-model Pembelajaran: Mengembangkan Profesionalisme Guru*. Jakarta: PT Raja Grafindo Persada.
- Rusman. (2012). *Belajar dan Pembelajaran Berbasis Komputer Mengembangkan Profesionalisme Guru Abad 21*. Bandung: Alfabeta.
- Suprijono, Agus. (2014). *Coopertative Learning: Teori & Aplikasi PAIKEM*. Yogyakarta: Pustaka Pelajar.
- Sudjana, Nana. (2011). *Penilaian Hasil Proses belajar Mengajar*. Bandung: PT Remaja Rosdakarya.

- Trianto. (2007). *Model Pembelajaran Terpadu dalam Teori dan Praktek*. Jakarta: Prestasi Pustaka.
- Winarsunu, Tulus. (2012). *Statistika dalam Penelitian Psikologi & Pendidikan*. Malang: UMM Press.
- Wena, Made. (2011). *Strategi Pembelajaran Inovatif Komtemporer: Suatu Tinjauan Konseptual Operasional*. Jakarta: Bumi Aksara.
- Yamin, Martinis. (2010). *Desain Pembelajaran Berbasis Tingkat Satuan Pendidikan*. Jakarta: Gaung Persada Press.