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Using Powerpoint Slide Media to Improve Student Learning Outcomes in Learning Mathematics in Primary School Class IV

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Abstract

The purpose of this research, in general, is to describe the improvement of student learning outcomes using powerpoint slide media on learning mixed calculation operations in class IV State Elementary School 18 Sungai Kakap. The method used is descriptive method with Class Action Research form. This research was conducted in 3 cycles and got an idea of how the design of learning, the implementation of learning, the characteristics of slide powerpoint media, the technical implementation of learning evaluation and improvement of student learning outcomes. There is an increase in learning outcomes in each cycle, from 37% of students who reach KKM in cycle 1 to 68% in cycle 3.

Keywords: Media Slide Powerpoint, Learning Outcomes, Mathematics Learning

Introduction

In this globalization era teachers are required to be skilled in implementing innovative learning by using various types of learning media in order to produce an interesting learning process and provide a memorable learning experience for learners. In the use of instructional media, teachers can utilize Information and Communication Technology (ICT) one of the computers and software that is in it. There are some software that exist on the computer that can be used as a medium so that it can support teaching and learning activities. The software (software) such as Microsoft PowerPoint, Microsoft Word, Microsoft Excel and so forth.

Speaking of Microsoft powerpoint media, Susilana (ekokhoerul.wordpress.com.html, 2012) says "Microsoft PowerPoint is a presentation application program in computers." In learning activities, teachers can take advantage of Microsoft PowerPoint software. By leveraging Microsoft PowerPoint software (software) teachers can present audio, video, animation, graphics, and text. By presenting learning materials with audio, video, animation, graphics, text, students will be more interested in learning. In addition, students will also more easily understand the material because of the presentation of examples in the media Microsoft PowerPoint. In addition, Microsoft PowerPoint media is very practical, can be reproduced and can be used repeatedly, and can be taken anywhere because it can be stored on a CD or flash.

Every learning that is delivered in elementary school level has different characteristics, especially learning mathematics. Some characteristics of learning mathematics according to Karso (2007: 2.16) are as follows. Mathematics learning in elementary school cannot be separated from the abstract mathematical properties and intellectual development of students who are still concrete. Therefore we need to consider some of the characteristics or characteristics of mathematics learning in elementary school level.

1. Mathematics learning is tiered (gradually)
2. Mathematical learning follows the spiral method
3. Mathematical learning emphasizes inductive approaches
4. Mathematical learning embraces the consistency of truth

From the description it is illustrated that the characteristics of mathematics are tiered (gradual), repetition of previous concepts to introduce new concepts, understanding of mathematical concepts and there is no conflict between the truth of a concept with others.

According to experts, there are several theories relating to the world of education that can be used as a basis for learning activities, especially learning mathematics. Humans are born not directly mature but through several processes. Every process that occurs is affected by the human age. Each level of age in humans has a different intellectual level. Piaget (in Nyimas Aisyah, 2008: 2-3) says that the process of human thinking is a gradual development of concrete intellectual thinking to the sequential abstract through four stages of development as follows:

1. Motor sensory period (0 - 2) years
2. Pre-operational Period (2 - 7) years.
3. Concrete operation period (7 - 12) years.
4. Period of formal operation (> 12) years

Based on the theory of intellectual development of Piaget in general, primary school children aged 7-12 years are included in the period of concrete operations. Each student has a different level of intelligence. This affects how quickly the students understand the concept of the material delivered. To that end, teachers should provide stages in learning. Bruner (in Nyimas Aisyah, 2008: 1-6) states that,

At every opportunity, mathematical learning should begin with the introduction of problems appropriate to the situation. By posing contextual problems, learners are gradually guided to master mathematical concepts. Thus in order for learning to develop the intellectual skills of the child in learning a knowledge, then the subject matter needs to be presented by considering the stage of cognitive development so that knowledge can be internalized in the person's mind. The process of internalization will occur seriously if the learned knowledge is studied in three stages model ie the enactive stage model, the iconic model, and the symbolic stage model.

The three models of the stages can be described as follows:

1. Enable Stage Model
2. Iconic Stage Model
3. Symbolic Stage Model

Children at this stage have been able to use the notation without dependence on the real object. At this symbolic stage, learning is represented in the form of abstract symbols.

Based on Bruner's theory, the three models of the stages are illustrated in this study when students pay attention to the slide containing the material being studied. In this study, the reference is Bruner's learning theory because the use of Microsoft powerpoint media on mixed calculation, counting and rounding materials is illustrated in the three stages model.

Media is an integral part of teaching and learning process to achieve the goal of education in general and the purpose of learning in schools in particular (Azhar Arsyad, 2014: 3). Briggs (in Arief S. Sadiman, 2012: 6) argues that "The media are all physical devices that can present messages and stimulate students to learn." Whereas Gagne (in Arief S. Sadiman, 2012: 6) states that " "Arief S. Sadiman (2012: 7) says that" The media is everything that can be used to channel the message from the sender to the receiver so as to stimulate thoughts, feelings, attention and interests and concerns of students in such a way that the learning process takes place. "Further Gagne and Briggs (in Azhar Arsyad, 2014: 4) says that" The

learning media includes tools physically used to convey the content of teaching materials, tape recorders, tapes, video cameras, video recorders, movies, slides (picture frames), photos, pictures, televisions, and computers. "

According to Hamalik (in Azhar Arsyad, 2014: 19) "The use of learning media in teaching and learning can generate new desires and interests, generate motivation and stimulation of learning activities, and even bring psychological influences on students." While Kemp & Dayton (in Azhar Arsyad, 2014: 23) says that the media fulfill three main functions: (1) motivating interest or action, (2) presenting information, and (3) instructing.

Further Sudjana & Rivai (in Azhar Arsyad, 2014: 28) suggests the benefits of learning media in the learning process of students, namely:

1. Learning will attract more students so that they can grow learning motivation;
2. Learning materials will be more clear meaning that can be better understood by students and enable them to master and achieve learning objectives;
3. Teaching methods will be more varied, not merely verbal communication through the words by the teacher, so students are not bored and the teacher does not run out of energy, especially if the teacher taught at every learning hour;
4. Students can learn more because not only listen to teacher's description but also other activities such as observing, performing, demonstrating, acting and others.

Kemp & Dayton (in Azhar Arsyad, 2014: 39) classifies media into eight types: (1) print media, (2) medium length, (3) overhead transparencies, (4) audiotape recordings, (5) slide series and film strips, (6) multi-image presentations, (7) live video and movie recording, and (8) computers.

Furthermore, Azhar Arsyad (2014: 39-54) describes the eight media types: 1) Print media, 2) Media display, 3) Overhead transparency or Projector transparency (OHP), 4) Audio-tape recording, 5) Slide, 6) Film and video, 7) Television, 8) Computers.

From several types of media that have been exposed, the use of slide media, movies (live images) and computers are combined into one in Microsoft powerpoint, can be a trigger of student motivation to learn. This is because in its application Microsoft powerpoint uses a computer (laptop) that can display slides and movies (live images).

Before deciding to utilize the media in the learning activities, we should do the selection first to the learning media that we will use. The selection can be done by considering several criteria, namely: (1) in accordance with the objectives to be achieved, (2) appropriate to support the content of the lesson which are the facts, concepts, principles or generalizations, (3) practical, flexible and persistent, (4) skilled teachers use it, (5) target grouping, and (6) technical quality (Azhar Arsyad, 2014: 74-76).

Research Method

The method used in this research is Descriptive with Class Action Research form (PTK). According to the PGSM Project Trainers Team, the TOD is a reflective form of study by actors undertaken to enhance the rational stability of their actions in performing their duties, deepening their understanding of the actions, and improving the conditions under which the learning practices are conducted (in Mukhlis, 2003: 3). Step by Mukhlis (2003: 5) PTK is a form of review that is systematic reflective by the actors to improve the condition of learning is done

The main purpose of the TOD is to improve the learning practice on an ongoing basis, while the goal of inclusion is to cultivate a culture of research among teachers (Mukhlis, 2003: 5).

In accordance with the selected form of research, ie action research, this study uses an action research model of Kemmis and Taggart (in Sugiarti, 1997: 6), which is spiral-shaped

from one cycle to the next. Each cycle includes planning, action, observation, and reflection. Steps in the next cycle are revised plans, actions, observations, and reflections. Prior to entering in cycle 1, a preliminary action was done in the form of problem identification.

The subjects of the study were researchers, grade 4 teachers and all 4th-grade students of Sekolah Dasar Negeri 18 Sungai Kakap

The data collection techniques used in this classroom action research consist of:

1. Direct Observation Technique
2. Indirect Observation Technique
3. Document Screening Technique

The data collection tool in this study are;

1. Observation sheet
2. Interview guidelines
3. Document
 - a. Value Book: used to get the score of learning results obtained in each cycle.
 - b. Audio and Video recording during the learning process to get the whole picture data of the learning implementation and evaluation process as well as the attitude of the students during the learning process.
4. Field notes

Based on the data characteristics then:

1. Data on learning design, learning steps, evaluation process, and Powerpoint slide media characteristics obtained through observation, and field notes and audio and video recordings will be analyzed qualitatively descriptively.
2. Student learning outcomes will be calculated the number of students who reach the Minimum Exhaustiveness Criteria (KKM) from each cycle will then be calculated percentage and described in accordance with reality.
3. The student response data obtained through the interview will be presented as is and will be used as a reflection for the implementation of the next action.

Results and Discussion

A. Research Results

1. The 1st Cycle

a. Lesson plan

The Learning Plan is made prior to the implementation of cycle 1 action with the fourth-grade teacher to determine the timing of implementation and other preparation related to the learning needs. The format used refers to Permendiknas number 41 of 2007 on Process Standards consisting of the following components: 1) Subject identities, 2) Competence Standards, 3) Basic Competencies, 4) Indicators of achievement of competence, 5) Learning Objectives, 6) Teaching materials, 7) Time allocation, 8) Learning methods, 9) Learning activities consisting of introduction, core, and cover, 10) Assessment, and 11) Learning Resources.

Based on the results of discussions with classroom teachers, learning activities planned to refer to the principles of learning that use the method of training and packed with the help of powerpoint slide media, so that in the formulation of learning objectives illustrated the use of powerpoint slide-assisted media training methods.

To initiate learning activities, the first thing to do is to give apperception to students by displaying images of some fruit baskets. The viewing of the images aims to have students count the number of fruits by means of multiplication counting operations. After the students multiply the fruits contained in the displayed image, the next step is to present a slide containing four rules in performing a mixed count operation and then explained each rule.

The next step is to provide some examples of problems related to mixed counting (multiplication and multiplication, reduction and multiplication) to the students and explain the steps in solving the problem.

The next step is to give the students questions to do in the notebook. Students are given a time limit of 30 minutes to work on the given problem.

b. Implementation of Learning

This research was conducted in class IV of SD Negeri 18 Sungai Kakap in odd semester of academic year 2016/2017. Cycle 1 was held on Friday, 23 September 2016 at 08.10 - 09.55 WIB.

To initiate learning activities in cycle 1, the teacher gives apperception to students. In the teacher apersepsi activity with students answer, from the student's answer, the teacher start the learning step by displaying slide containing four rules in doing the mixed counting operation that is: 1) addition and subtraction are equal, then from that done first is the one left; 2) Multiplication and division equally strong, therefore from that done first is on the left; 3) Multiplication and division is stronger than sum and subtraction, therefore multiplication and distribution are done first, and 4) Operations contained in brackets must be done first. Then the teacher explains one by one the rules along with examples of problems relating to each of these rules. After completing the explanation of the rules, the teacher gives some examples of problems related to mixed counting (multiplication and multiplication, reduction and multiplication) to the students and explains the steps in solving the problem. After that, the teacher gives the exercise to the students to do in the notebook.

c. Evaluation of Learning Outcomes

In order for us to know the results of student learning, it is necessary to be given the question of evaluation. In this 1st cycle, evaluation of learning outcomes is done on the same day that is after the learning activities are completed. Evaluation is done by giving four exercise questions which are displayed on powerpoint slide media. Students do evaluation questions in their notebooks within 30 minutes.

d. Improved Learning Outcomes

In the process of learning activities, improvement of learning outcomes is the expectation that must be achieved. With the improvement of learning outcomes, then the learning process is seen to have been successful. From the results of evaluation in cycle 1, obtained the data as follows.

1) Judging from the process or step of completion, there are 47% of students who score above 60 (KKM).

2) Judging from the result of student counting (student counting skills), there are 31% of students who score above 60 (KKM).

e. Response Student Class IV SD Negeri 18 Sungai Kakap

From the results of teacher reflection to students, there are some responses expressed students, including:

1) Teachers are too fast when explaining the material, so students are difficult to understand the material that has been delivered.

2) Teachers too quickly use or move from one slide to another, so students become less interested in the powerpoint slide media.

2. Cycle 2

a. Lesson plan

Based on the results of reflection on cycle 1 and discussion with classroom teachers, learning activities are still the same that is planned with reference to the principles of learning that use the method of training and packed with the help of powerpoint slide media with a

little change of reflection results, so that in the formulation of learning objectives drawn using the method media-aided exercise slide powerpoint.

To initiate learning activities, the first thing to do is to give apperception to students. In the apperception activity, what is done is to do Questions and answers with students related to previous learning, After hearing the answer from the students, the next step is to re-display the slide containing four rules in doing the mixed counting operation and then explained back one by one the rules. After completing the explanation of the rules, the next step is to provide some examples of problems related to mixed count operation (addition and distribution, reduction and division) to students and explain the steps in solving the problem. The next step, students are given the opportunity to work on the sample questions in their notebooks and some students are given the opportunity to work on the sample on the board. The activity was carried out several times with different students who were given the opportunity to work on a sample on the board. After that, the next step is to give the problem to the students to do in the notebook.

b. Implementation of Learning

The second cycle was held on Friday, September 30, 2016, at 08.10 - 09.55 WIB. Untuk initiate learning activities, teachers provide apperception a question and answer about the rules in the operation of a mixed count. The next step, the students are given the opportunity to work on the sample questions in their notebooks and some students are given the opportunity to work on the sample on the board.

c. Evaluation of Learning Outcomes

In order for us to know the results of student learning, it is necessary to be given the question of evaluation. In this 2nd cycle, evaluation of learning outcomes is done on the same day that is after the learning activities are completed. Evaluation is done by giving four exercise questions which are displayed on powerpoint slide media. Students do evaluation questions in their notebooks within 30 minutes.

d. Improved Learning Outcomes

In the process of learning activities, improvement of learning outcomes is the expectation that must be achieved. With the improvement of learning outcomes, then the learning process is seen to have been successful. From the results of evaluation in cycle 1, obtained the data as follows.

- 1) Judging from the process or step of completion, there are 58% of students who score above 60 (KKM).
- 2) Judging from the result of student counting (student counting skills), there are 53% of students who score above 60 (KKM).

e. Response Student Class IV SD Negeri 18 Sungai Kakap

From the results of teacher reflection to students, there are some responses expressed students, including:

- 1) Teachers are not too fast when explaining the material so that students have begun to be able to understand the material that has been delivered.
- 2) Teachers are not too quick to use or move from one slide to another slide so that students have become interested in the powerpoint slide media.

3. The 3rd Cycle

a. Lesson plan

Based on the results of the reflection on the 2nd cycle and discussions with the classroom teachers, learning activities are still the same that is planned by referring to the principles of learning that use the method of training and packed with the help of powerpoint slide media with little change of reflection results, so that in the formulation of learning objectives are drawn use of media-assisted slide show help methods.

Learning begins with a Q & A on the previous material and on the rules of performing a mixed count operation. After completing the rules, the next step is to provide some examples of problems related to mixed counting (sum, subtraction, multiplication, and division) to the students and explain the steps in solving the problem.

The next step, students are given the opportunity to work on the sample questions in their notebooks and some students are given the opportunity to work on the sample on the board. The activity was carried out several times with different students who were given the opportunity to work on a sample on the board.

b. Implementation of Learning

This 3rd cycle was held on Friday, October 7, 2016, at 08.10 - 09.55 WIB. As in the cycle before the learning begins with Questions about the rules in the mixed count operation followed by the teacher's explanation and then provide practice questions to the students, starting by taking turns working on the board then given more practice questions to do on their notebooks.

c. Evaluation of Learning Outcomes

In order for us to know the results of student learning, it is necessary to be given the question of evaluation. In this 3rd cycle, evaluation of learning outcomes is done on the same day that is after the learning activities are completed. Evaluation is done by giving ten exercise questions displayed on powerpoint slide media. Students work on evaluation questions in their notebooks with a time limit of 45 minutes.

d. Improved Learning Outcomes

In the process of learning activities, improvement of learning outcomes is the expectation that must be achieved. With the improvement of learning outcomes, then the learning process is seen to have been successful. From the results of evaluation in cycle 1, obtained the data as follows.

- 1) Judging from the process or step of completion, there are 84% of students who score above 60 (KKM).
- 2) Judging from the results of student counting (student counting skills), there are 68% of students who score above 60 (KKM).

e. Response Student Class IV SD Negeri 18 Sungai Kakap

From the results of teacher reflection to students, there are some responses expressed students, including:

- 1) Explanation of the material by the teacher is regular so that students' understanding of the material delivered increased.
- 2) Teachers are regular in using powerpoint slide media, so students are interested in the powerpoint slide media.

B. Discussion

1. Learning Activities

The process of learning activities can be said to succeed if the planned learning steps can be implemented properly. To start the learning activities, of course, teachers give apperception to students. In giving apperception, the teacher can give direct questions to the students, such as: "What is the result of $4 \times 5 - 15$?" "Any count operation contained in the question?" Or can also provide a picture or video display before giving a question to students, such as: "What is the number of pieces contained in the picture or video?" "What count operation can you use to calculate the number of pieces contained in the picture or video?". But in terms of student interest, displaying images or videos in apperception more makes students interested.

From image or video view in powerpoint slide media, students are invited to 'jump' directly to the real world. This will provide a fun learning experience for students. From the

answers to these questions on apperception, the teacher can know the initial knowledge of the students on the material to be delivered. In the delivery of apperception, the thing to note is the tempo. In the delivery, should be done with a tempo that is not too fast, give some time for students to think so that students can grow knowledge initially. If the student can grow his or her initial knowledge, then at the time of delivery of the mixed counting operation material can be more easily accepted by the student.

Having known the initial knowledge of students obtained from apperception activities, then the teacher is ready to continue the next step of learning is the teacher displays the rules in the workmanship of the mixed count operation. The rules in the operation of the mixed counting operation are as follows: 1) The sum and the subtraction are equally strong, so from that done first is the one on the left; 2) Multiplication and division equally strong, therefore from that done first is on the left; 3) Multiplication and division is stronger than sum and subtraction, therefore multiplication and distribution are done first; and 4) Operations contained in brackets, must be done first. In displaying the rules of the operation of a mixed count operation, it should be accompanied by several sample questions.

In order for students to easily understand the teacher's explanation, the teacher should not be too fast in explaining the steps of completion of the mixed count operation. In giving an example of this problem, should be done several times so that students better understand the steps of completion of the mixed count operation. After several examples are submitted by the teacher, in the following example the teacher should involve the students by asking the students at each step in solving the problem of mixed count operations.

This is done several times to improve students' understanding of how to complete a mixed-count operation. In order for students to deepen the material that has been submitted, that is how the completion of the mixed count operation, then the teacher should give the opportunity for the students to do the sample problem independently in their respective book. At the time students do sample examples, teachers should still provide classical guidance to students. It aims to keep students focused on working on examples of given questions. In order for the student's ability more deeply, this activity should be done repeatedly.

After the learning activities are completed, to know the level of student knowledge after following the learning activities, then given the matter of exercise. The correction of this exercise should be divided into two parts: an assessment of the concept of workmanship (steps of work according to the rules of mixed count operation) and an assessment in terms of student counting skills. It aims to know anyone who still does not understand the concept of mixed counting work and anyone who is still not skilled in terms of counting.

2. Learning Media Slide PowerPoint

Of the three cycles that have been implemented, then in the mathematical learning activities mixed computational materials, good media slide should be able to make students interested in learning activities and teachers can use easily according to their desire.

Powerpoint slide media should display images or videos to support apperception activities. The purpose of showing the image or video is so that students are more interested to grow knowledge initially. In addition to displaying images or videos, the use of animations are diverse, the writing varies, the use of animations in bringing up the writing and colors that vary can also make students interested in the media. This will affect the interest of students in pursuit activities. But the selection of colors on the animation, background, and writing should be appropriate and thorough. Do not let the selection of colors on the animation, background, and writing actually make the students difficult in reading the writings displayed in the media slide powerpoint.

In the slide example above, using animations we can generate the first rule first, then we explain to the students. At the time of explaining, of course, we can include examples that we are appearing one by one by using animations. After students understand the first rule, then we can come up with the second rule, then we explain again with the example, and so on.

In addition to the use of existing features in the powerpoint slide media, we should also use a tool called pointer. This pointer is useful for running the media slide powerpoint remotely so that when moving the slide the teacher does not need to go back and forth facing the laptop. Thus, the teacher can also explain the material while controlling the students and not fixated on one place where the laptop is placed.

3. Learning Outcomes

In addition to the learning, steps can be done properly, learning activities can be said to succeed if student learning outcomes can increase. Improvement of student learning outcomes can be seen from the evaluation conducted by teachers in every learning activity (cycle).

In this study, of the 19 students who reviewed the first cycle, 31% of the students who scored above the Minimum Exhaustiveness Criteria (KKM) and 69% of the students scored below the Minimum Exhaustiveness Criteria (KKM). This result is obtained because the level of student ability in matters is still lacking and students' understanding about mixed count operation is still lacking.

However, in the second cycle, the acquisition of student learning outcomes increased from 19 students who participated in the evaluation activity, obtained 53% of students who scored above the Minimum Exhaustiveness Criteria (KKM). The number of students who scored below the Minilam Criteria decreased from 69% to 47%.

Increased acquisition of student learning outcomes also occurs in the third cycle. This is evident from the evaluation results that are from 19 students who follow the evaluation activities, obtained 68% of students who score above the Minimum Exhaustiveness Criteria (KKM). The number of students who score below the Minimum Passing Criteria decreases from 47% to 32%. From data of result of evaluation which done, hence earning result of student learning from cycle to cycle have increased.

Conclusions and Suggestions

A. Conclusion

From the results of research that has been done for three cycles and has been analyzed descriptively it can be concluded several things:

Making learning plans for mathematics learning using powerpoint slide media should reflect learning steps that provide as many opportunities as possible to students to practice. Giving an explanation of sample questions done in the order of 1) teachers, 2) teachers and students, and 3) students. The sequence means, as a first step to planting the concept or how to solve the mixed operation to the students, the teacher gives an example of the problem without involving the students first. Examples of questions done directly by teachers and students are only listening to teacher explanations while finding initial knowledge on how to complete a mixed-count operation. After several examples of questions were given without involving the students, several examples of the next question the teacher invites the students to work on the sample problem together to further embed the concept of the work of mixed counting operations to the students. At this stage, the teacher only facilitates with questions about the completion steps of the sample matter. Deeper conceptualizing can be done by giving examples of self-employed problems in both the individual book and the opportunity to work on the board. Giving example of the problem to the students who do independently

done repeatedly in order to stabilize the students' knowledge about how to complete the mixed counting operation.

Learning activities with the model that has been described above can be accepted and understood by the students. This can be seen from the improvement of learning outcomes and understanding of students' concepts on the matter of mixed count operation from cycle to cycle.

B. Suggestions

When explaining the material and explaining the example of the problem, the teacher should pay attention to the tempo. The explanation is done slowly with attention to the diversity of students' abilities so that students have time to think and write the material or examples of problems described by the teacher.

In addition, in making powerpoint slide media should pay attention to the use of writing, animation, and color. The inappropriate use of writing may result in the student being unable to read the contents of the slide media. For example, the type of writing that is not appropriate for use in learning activities is the MT Brush Script (Example: "MT Script Brush") or Blackadder ITC (Example "Blackadder ITC"). The type of writing used is Times New Roman (Example: "Times New Roman") or "Calibri" (Example: "Calibri").

In addition to terms of writing, the appearance of the sections contained in the slide is set well. Which parts should be raised first, in which parts appear afterward. The settings can use the animations feature.

When using a powerpoint slide media in a learning activity, the teacher should use a pointer in running each slide. The use of pointers can make the teacher move freely without being fixated on where the laptop is placed. It also can make the teacher more flexibility to control the students during the learning activities take place.

References

- Arief S. Sadiman, dkk. (2012). *Media Pendidikan*. Jakarta: Raja Grafindo Persada.
- Azhar Arsyad. (2014). *Media Pembelajaran*. Jakarta: Raja Grafindo Persada.
- Karso, dkk. (2007). *Pendidikan Matematika I*. Jakarta: Universitas Terbuka.
- Nyimas Aisyah, dkk. (2008). *Pengembangan Pembelajaran Matematika SD*. Jakarta: Depdiknas.