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Improve Understanding the Concept of Rectangle Circumference through Realistic Mathematic Approach of Primary Class III (SD)

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Abstract: **This study examines the use of realistic mathematics approach in improving the understanding of the concept around a rectangular circumference with Realistic Mathematics Approach in class III SD. The results showed that the learning material and the concept of a rectangular circumference Approach Realistic Mathematics can make the students relaxed, happy, and not tense in learning. Lessons are conducted by: (1) shows the objects that are around rectangular and non-rectangular; (2) students complete worksheets using props that have been given; (3) Each group presented the results of their discussion while the other students respond; (4) students construct a rectangular circumference through the guidance of teachers; (5) students solve problems and other realistic problems. Based on the research findings and the provision of the act of learning, it can be concluded that learning by applying realistic mathematics approach can enhance students' understanding of the material around the rectangle.**

Keywords: **Approach, mathematics, realistic, concept, circumference, a rectangle.**

1. INTRODUCTION

Mathematics is a science dealing with the study of forms or abstract structures and relationships between these things. To understand the structures and relationships required an understanding of the concepts contained in the math. This is in line with Bruner (Aisha, 2007: 5) says that "Learning math is to learn about the concepts and structures contained in our study and find relationships between concepts and the structure". Many people assume that mathematics is difficult to learn, not unpleasant, boring, scary and so on. This attitude of course lead to mathematics learning achievement slump. This should be a special concern of teachers and prospective teachers of Elementary School (SD) to make an effort in order to improve mathematics achievement of their students.

In order to equip students with adequate mastery of concepts, the ability of teachers to implement learning that enables students to take up, is necessary so that students can enjoy it. To help facilitate the students understand the material presented, then the learning of mathematics in elementary school should not be done toward the abstract, but as far as possible from the public starting from the concrete to the abstract, from the things that are easy to things that are difficult or from the simple to the to the complex.

Based on interviews with teachers of mathematics in primary school, said that math is the most difficult and enigmatic student is geometry. While the geometry is a core areas of study of mathematics in elementary school. Since childhood, elementary school students already know and are familiar with the visual objects in the surrounding geometry, for example the form of tiles, candies, glass tables, surfaces hour, bicycle tire and so on. This will greatly assist the child in learning geometry. According to Kennedy and Tipps (1994: 385) argues that "learning experience geometry improve problem-solving and reasoning skills as well as supporting a variety of mathematical topics lesson". Therefore, in

elementary geometry is a study that is well placed to promote quality improvement processes and outcomes of learning mathematics.

As an example of the results of measurements conducted so far aimed to determine the ability to understand the concept of a rectangular circumference indicates the level of mastery of the students were very easy. Last measurement teachers do by giving 20 items related to the concept of a rectangular circumference showed that only 5 people were among 21 students who answered right 10-12 items, the remaining 11 people. Answer the incorrectness of which is 2 to 8 items

Seeing the strategic position of geometry as described above, the geometry in the elementary need to get major attention from the teacher, especially methods and learning approaches. Among all study mathematics, geometry occupies a position of concern Kahf, (1991: 31), not only because of the achievements of geometry students in elementary school is very far from the expected but also their response to the experts about the inequity in the teaching of geometry serious (Soedjadi, 1991: 5). According to (Kahf 1997: 31) geometry is the only one of the most neglected areas in the mathematics curriculum.

Noting the teaching approaches used by teachers in teaching Flat, sometimes teachers do not pay attention to the level of ability of students, teachers teach students the ability to impose such as the ability of teachers. So that students feel pressured to learning and becomes the spirit to follow the lesson.

The above approach is less appropriate to be applied to elementary school children because of the level of the child's thinking is still the standard of thinking concretely To avoid such a thing a teacher must be creative in designing a good learning in choosing the approach that will be used, one of which teachers can take advantage of the surrounding environment as a learning tool , As in the flat wake learning, teachers can use the objects that are around in the form of flat wake to be used as a tool in teaching and learning. Because by showing objects that are around children will more easily understand the lesson and will be hard to forget that lesson, because every child would view these objects will recall the lesson.

The main characteristic Realistic Mathematics approach is an approach to learning that engage students in meaningful learning, according to the students 'ability to think and relate to students' lives everyday. Linkage to the daily life will lead students on the notion that mathematics is not just a mere symbolic science but can be used in everyday life to help and facilitate the work of man to solve the problems of his life. "Providing meaningful mathematics learning and does not separate students learn mathematics with everyday experience, students will be able to apply mathematics in everyday life and not quickly forgotten", (Suherman et al, 2001: 128).

In this study selected material around the rectangle, for reviewing the curriculum SBC that's the subject of flat wake studied in the first semester of class III and subject Flat is considered difficult because it will be introduced how to define and apply the formula of area and perimeter of a rectangle.

2. RESEARCH METHODS

This study used a qualitative approach, because (1) the researchers will look directly increasing learning outcomes around the rectangle through scientific approaches to community technology and (2) obtain a description of understanding research subjects that arise during the learning process.

This research is a classroom action research, because researchers are in school from the start of the study, analyze the situation and see the gap, and then formulate a plan of action and participate in implementing the plan and monitors. In this study, researchers will participate actively and directly involved in the process since the beginning of the study and provide a framework for regular and systematic use of realistic mathematics approach to learning the concept of a rectangular circumference. Stage covered in this study include two stages, namely: (1) the preliminary stage and (2) the implementation phase of action research.

Data analysis in this research was conducted during and after data collection. The data analysis is done by comparing the results of observations, interviews, field notes with indicators at the reflection stage of the research cycle. Data were analyzed by using quantitative analysis developed by Miles and Humberman, (Latri, 2004: 25), which consists of three stages of the activities carried out in sequence, namely: (1) reducing the data, (2) present data, and (3) draw conclusions and verification of data.

3. THE RESULT OF STUDY

Observations during the learning activities in the first cycle is as follows:

a) In the early learning teachers express purpose of learning well

b) he teacher started the lesson by giving the problems that exist around children

c) Introduce the concept of waking rectangle through the things that are concrete or from about students

d) to motivate students to solve realistic problems in a way and style of their own language

e) Students in presenting results of their discussion looks still shy

f) Providing opportunities for students to express opinions ideas

g) In response to the complaints of students during the learning takes place.

h) Provide evaluation to students

i) Provide an assessment on the results of student work

The observation of the learning process shows that there are still students who have not actively resolve the problem realistically presented teachers in group discussion activities. They do not dare express their opinions, even they prefer to listen and pay attention to his discussion.

Students also had difficulty in solving realistic problems related to the calculation of a rectangular circumference. From the discussion groups in solving problems LKS students' answer generally is not optimal, so that teachers take the initiative to provide individual tasks to test the ability of each student. Based on the answers students' formative tests conducted obtained information there are still many students who do not know calculate the circumference of the rectangle. And most of the fault lies in a settlement to calculate the circumference of the rectangle.

The problem above occurs because during the group discussion only active students are solving problems LKS, others just pay attention to the theme alone.

Based on the above analysis, it was concluded that the study was continued in the second cycle by considering the following matters:

1. Teachers should be more motivating students to solve realistic problems in small groups, especially low-ability students.

2. Teachers should formulate realistic problem by using simple sentences and brief so easily understood by students.

3. Teachers should give realistic examples that the students can better understand the concept of a rectangular circumference and solve the problems determining the circumference of the rectangle

Observations during the learning activities in the second cycle are as follows:

1. At the beginning of learning teachers express purpose of learning well
2. The teacher started the lesson by giving the problems that exist around children
3. Introduce the concept of waking rectangle through the things that are concrete or from about students
4. Motivate students to solve realistic problems in a way and style of their own language
5. Most serious students in discussions and observations, active in the discussion.
6. Students present the results of their discussion in enthusiastically
7. Students no longer have difficulty in solving problems on a worksheet
8. Providing opportunities for students to express opinions / ideas
9. In response to the complaints of students during the learning takes place.
10. Giving evaluation to students.

11. Provide an assessment on the results of student work.

Learning on the second cycle is focused on increasing understanding of the circumference of the rectangle. All data recorded through observation, interviews, evaluation process and evaluation of the results have been compiled and discussed together with the observers. The results of the analysis and reflection of the events that occurred in this action are as follows:

1) Teachers have been carrying out their duties in learning from delivering learning objectives, guiding and directing students to work individually and in groups. Teachers observe all the learning activities and assessment of students from the learning process until the end of the lesson.

2) The use of props spiked boards, square units to understand the concept of a rectangle around very attract students. In addition the use of props is very pleasant because students learn while playing and make it easier to understand the concept being studied.

3) Implementation of the learning process students were actively in group work solving problems LKS, and has the courage to present the results of their discussion to the class.

4) When learning takes place as planned. It is powered by a division of the group has been divided before the learning begins, and contributions props have been divided according to the number of groups formed

5) Based on the overall assessment of the results of students in a class categorized students have gained an understanding of the concept of the circumference. Similarly, the results obtained by the students are categorized based on the criteria of success has been successfully set.

Based on the above analysis and reflection and refers to the defined success criteria, concluded that learning was successful. Thus defined learning objectives have been achieved. This is evident from the results of the test cycle II, the average class reaches 7.76.

Lack of students' understanding of the material and the concept of a rectangular circumference was caused by the student in learning the material. Students studying this material in a way to receive information and then memorize. Therefore what is learned quickly forgotten. This is consistent with what is stated by Ausubel (Sitti Inganah, 2003: 111) that the study by receiving information does not involve the discovery of the student. Furthermore it is said that the students were only involved to internalize (understand) materials into the cognitive structure so that one day can be relived or use. But in fact most students can not express again, this is because the students after receiving the information and then memorize the material already learned so quickly forgotten. As stated by Ausubel (Sitti Inganah, 2003: 112) that through rote learning students who can not associate the information obtained into the cognitive structure, so that this information can not be deposited. In addition, students can only remember the facts are simple.

Based on the fact that has been put forward, prepared lesson plan that can help students understand the concept and the circumference of the rectangle through realistic mathematical approach using props. Learning through mathematical approach realistic by using props basically has four main activities, namely: (1) Completion of the problem realistically in small groups (2) the percentage of the results of the discussion (3) The organization of the knowledge gained from the problem realistically into the concept of roving rectangle (4) Completion of a matter or issue another realistic.

Realistic problem-solving activities are the activities carried out at the beginning of learning. This activity is done in an effort to provide opportunities for students to use the knowledge that has been owned by her intuitive to solve realistic problems.

Before students complete a realistic problem, students are given some explanation by the teacher of the subject matter to be studied related problems and provide a realistic Student Activity Sheet (LKS). On exposure of the material provided has been prepared realistically by teachers (researchers) which can be used as supporting material in learning. While LKS contains realistic problems to be solved by the students.

Students completing this realistic problems in small groups. They discussed and given for an opportunity to use their own language the way in solving realistic problems. They are also allowed to use a summary of the notes given by the teacher during the discussion. While the teacher will provide assistance if needed.

Some things that can be obtained from the research on each action is the action learning cycle I found that there are still many students who ask in solving problems concerning LKS realistic problems. For example, students are always asking

that how to resolve such questions. Many students who looked confused, so he felt unsure and indecisive in resolving such questions. This is because students are still affected and learning models, which solve the problem of realistic after understanding the concept or know the formula.

Students are still experiencing difficulties in determining the circumference of a rectangle. This is evident from the results of the settlement discussions questions presented student worksheets. In the percentage of students showing some errors. While the interviews conducted on DD obtained information that the students do not understand the rectangular circumference caused by the teachers teach not use props. This is consistent with learning theory of Bruner (Aisha 2007: 22) study of mathematics in primary schools, especially in the lower classes are in need of concrete objects that can be observed and held directly by the students when learning activities. Therefore, the role of props in realistic mathematics learning should not be forgotten.

Another thing that was found in the learning cycle I is a problem-solving story related to problems in everyday life. Problems found is that students do not know the circumference of completion formulation rectangular in shape about the story. Therefore, it is considered better if the learning problem-solving in the form about the story to explain again that using objects that are around students.

Low-ability students who have not actively in discussions to solve the problems LKS. They only see and pay attention to her friend solve the problems LKS. In fact, they never ask questions even though he did not know what was said by friends. Therefore, low-ability students who need to get more attention than students who are capable of medium and high.

In the second cycle study found that students were beginning to delight in solving problems. In the discussion they sometimes give chorus if you get the right answer.

Another thing that was found in this second cycle of learning is the completion of the problems in determining the length or the width of a rectangle if the circumference is already known. From the teacher's explanations with props can be seen students have started passion in solving a given problem. Seen during the discussions in resolving LKS no one student who looked confused. Unlike the first cycle, there are still many students who looked confused and always asking.

The next activity was to present the results of the discussion. This activity is carried out by one of the main students representing the group. But if there is a different job than other groups, one of the main students of other groups is also welcome to the percentage. Likewise, there are things that have been presented by a student is not clear and other students can ask questions or provide feedback.

The percentage of activities intended to explain the results of the discussion that has been obtained in a group of students at all students in the classroom. Prior to the percentage of students work in small groups to discuss the realistic problem solving that has been given by the teacher. Each group then prepares a percentage to communicate the answers are found to the whole class. However, if the answer is found equal to what has been presented by a group, the group that has the same findings do not need to be a percentage.

Through this percentage also meant the team to motivate students to participate actively solve the problems worksheets in the group. Because the percentage of students who appointed directly by the teacher. Therefore, it is expected that all students understand what is achieved in small group discussions.

From the implementation of the first cycle was found that the percentage of students doing group's report shyly. There was even a student can only write because only. The percentage of it can be said that the students are less happy and passion in learning. This is due to less students understand the material being discussed. Therefore, it would be nice if when the teacher approached the group discussions are problematic and lead in resolving such questions until they understand the intent of the questions discussed. In the end the student can do with a good percentage.

Furthermore, the percentage of the second cycle, the students discovered pleased and excited to do a presentation. Because presentations second cycle students has shown good progress, so that the implementation of the research was conducted in two cycles.

Then, to help students understand abstract mathematical concepts, teachers use props. The props used are concrete to be easily tampered with students' hands making it easier for students to recognize the concept being studied. Thus, students will more easily understand abstract math concepts more simply. Experience in direct contact with the tool will provide some kind binder for math concepts represented by props used.

In learning activities, students work together in groups by manipulating props that spiked boards, square unit and yarn / rope. These props used in the students recognize the concept of a rectangle and define rectangular circumference in solving problems LKS. In its activities, the students fiddling with props another student write the results found from these props. This activity is in addition to creating an enjoyable experience of students, it can also involve the students physically and mentally in learning so that students can build their knowledge.

With the student activities in contact with props, students consciously interpret mathematical patterns contained in the concrete objects. In addition, the students felt that the activities undertaken square tamper unit and a spiked plank atmosphere like playing. A feeling of satisfaction and pride experienced by students when the students discover the answers of props, so the concept and rectangular circumference can be found by students. Thus, students can easily explain the concept and determine the circumference of the rectangle.

Based on analysis of student responses indicated by selection through a questionnaire given statement can be concluded that the concept of learning rectangular circumference with a realistic mathematical approaches and props can give some impact to students, namely:

- Glad to solve the problem realistically,
- Encouraged to express his ideas in discussing the problems of realistic,
- Glad to follow the lessons around the rectangle with the approach and props used by teachers in learning,

4. CONCLUSIONS

Based on the description of the background, problem formulation and discussion about enhancing students 'understanding of concepts around the rectangle, the writer can express a conclusion that learning by using props boards spiked and square unit approach realistic mathematics can improve students' understanding of the material concept and around the square long.

Based on the conclusions that have been obtained in this study, presented some suggestions to consider:

a. For education practitioners (teachers) who are interested in applying mathematical approach realistic in mathematics, it is advisable to pay attention to the following matters:

- Need to allocate time as well, because the discussions to solve realistic problems if not timed the student will be long in the discussion. And the time is not limited, students will use it for another time. In addition, teachers should always monitor the activities of the student discussion, so it knows what students can do.
- Teachers need to prepare material that is arranged realistic that students can use as a support in learning
- In preparing the realistic problems, it is necessary not to use the phrase convoluted and long. This long sentence can make it difficult students understand the intent of the problem. So that they are hampered in sentence comprehension.
- The formation of the students in small groups, should be heterogeneous so that students can work together and help each other.

b. For researchers who are interested, are expected to develop the mathematical material other than rectangular concept only.

REFERENCES

[1] Aisyah, Nyimas. dkk. 2007. *Pengembangan pembelajarn matematika SD*. Jakarta: Direktorat Jendral Pendidikan tinggi, Departemen Pendidikan Nasional.

[2] Arikunto, Suharsimi. dkk. 2006. *Penelitian tindakan kelas*. Jakarta: PT Bumi Aksara

[3] Cahya, Antonius. 2006. *Pemahaman Dan Penyajian Konsep Matematika Secara Benar Dan Menarik.* Jakarta: Depdiknas Direktorat Jendral pendidikan tinggi direktorat ketenagaan

[4] Darhim. 1992/1993. *Work shop matematika modul 1-6*. Jakarta: Depdikbud Direktorat Jendral pendidikan dasar dan menengah bagian proyek penataran guru SLTP setara D-III.

[5] Depdikbud. 1997. *Matematika*. Jakarta: Universitas Terbuka.

[6] 1992/1993. Pendidikan Matematika 1. Jakarta: Depdikbud Direktorat Proyek Pembinaan Tenaga Kependidikan Tinggi Proyek Pembinaan tenaga Kependidikan.

[7] Depdiknas. 2003. *Seminar Nasional Exchange Experience Pembelajaran MIPA Kontekstual dalam Menyongsong Implementasi KBK.* Malang: Universitas Negeri Malang FMIPA.

[8] Herman, Tatang. 2001. *Pengembangan Profesionalisme Guru Melalui Kegiatan Kolaborasi Penelitian Tindakan*. Jakarta*:* Japan International Cooperation Agency Directorate General of Higherducation Departement of National Education.

[9] Kahfi, M.S. 1997. *Membenahi Pembelajaran Geometri di Sekolah* melalui Teori Van Hiele. Karmath, III (2): 31.

[10] Kennedy, LM dan Tipps, S. 1994. *Guildey Children`s Learning of Mathematies*. New York: Wes Pablishy Company.

[11] Kurikulum tingkat satuan pendidikan (KTSP). 2006. *Mata pelajaran matematika untuk tingkat SD/MI*. Jakarta: Depdiknas.

[12] Latri. 2004. Pembelajaran bangun ruang secara konstruktivis dengan menggunakan alat peraga di kelas IV SDN 10 Watampone. *Tesis*. Malang: Universitas Negeri Malang program pasca sarjana program studi pendidikan matematika SD.

[13] Moleong, L. 2000. *Metodologi Penelitian Kualitatif*. Bandung: PT. Remaja Rosdakarya.

[14] Muhsetyo, Gatot dkk. 2005, *Pembelajaran Matematika SD*. Jakarta: Universitas Terbuka Departemen Pendidikan Nasional.

[15] Mulyana, 2001. *Rahasia Matematika untuk SD kelas 4, 5, dan 6*. Surabaya: Edutama mulya.

[16] Pitajeng. 2006. *Pembelajaran Matematika Yang Menyenangkan.* Jakarta: Departemen Pendidikan Nasional Direktorat Jenderal Pendidikan Tinggi.

[17] Ruseffendi, dkk. 1992. *Pendidikan matematika 3 modul 1-9*. Jakarta: Depdikbud Proyek Pembinaan Tenaga Kependidikan Tinggi.

[18] Siti Inganah. 2003. Model Pembelajaran Segiempat dengan Pendekatan Realistak Pada Siswa Kelas II SLTP Negeri 3 Batu. *Tesis.* Malang: Universitas Negeri Malang

[19] Soedjadi, R. 1991. *Evaluasi Hasil Belajar dalam rangka Meningkatkan Pendidikan.* Jakarta: Media Pendidikan.

[20] Sri Subarinah. 2006. *Inovasi Pembelajaran Matematika Sekolah Dasar*. Mataram: Departemen pendidikan Nasional, direktorat Jenderal Pendidikan Tinggi direktorat Ketenagaan.

[21] Suherman, Erman, dkk. 2006. *Strategi pembelajaran matematika kontemporer*. Bandung: JICA Jurusan Pendidikan matematika FMIPA Universitas Pendidikan Indonesia.

[22] Tarigan, Daitin. 2006. *Pembelajaran Matematika Realistik*. Jakarta: Depdiknas Direktorat Jenderal Pendidikan Tinggi Direktorat Ketenagaan.

[23] Wardani, I.G.A.K. 2005. *Penelitian Tindakan Kelas*. Jakarta: PT Bumi Aksara.

[24] *http://rangkuman-pelajaran.blogspot.com*, diakses 5 Januari 2010.