

The Improvement of Mathematic Learning Achievement through Process Skill Using Measurement Media in Muhammadiyah Sapen Elementary School

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Abstract—This research was carried out because there are various problems in learning Mathematics in the class. As a solution of the problems, researchers conducted a classroom action research. The purpose of this research is to (1) develop the learning of elementary mathematics and (2) to describe the improvement of mathematics learning achievement in determining the volume, and the surface area of cube and prism building with the approach of media-aided process skill in grade V student of Muhammadiyah Sapen Yogyakarta. This research is a classroom action research. Data collection was done through observation, interview, field notes, and documentation. Data analysis technique used is descriptive qualitative and quantitative analysis. The results of the study are as follows. (1) The approach of media-assisted process assisted measure can improve mathematics learning achievement in determining cube and prism build volume in grade V SD Muhammadiyah Sapen Yogyakarta. (2) The media-assisted process-assisted approach can improve the mathematics learning achievement in determining the surface area of cube and prism building on the students of grade V SD Muhammadiyah Sapen Yogyakarta. Both of these are proven by the improvement of average and mastery of students' mathematics learning. The average of student learning increased at pre-cycle of 77, 42 increased to 78, 21 in cycle 1, and 82,60 in cycle 2. The improvement of students' conformity with the value of KKM or mastery of students in the learning on the pre cycle is that 16 students or 48.49%, complete the KKM, which later increased in cycle 1 with 21 students or 64.64%, completed the KKM and on cycle 2 there were 32 students or 96.97% completed the KKM.

Keywords— *mathematic learning achievement, process skill*

I. INTRODUCTION

Education is an important thing in human life, because through education, human beings can understand various knowledge. This will continue to happen as the unlimited and the uninterrupted needs of human beings grow. The importance of education must be concern and priority of the relevant government, because with a good education people will prepare the superior generation that will become the next generation, and of course, other professions which are important for the life of the Indonesians. The importance of understanding various knowledge, in order to train critical and logical thinking will lead the students to be able to learn math lessons.

According to National Knowledge Department [1], "Mathematics is a universal science which supports the development of modern science and technology, it has an important role in the various disciplines and the advancement of the human mind." The rapid development of information and communication technology today is based on the development of mathematics which are number theory, algebra, analysis, probability theory and discrete mathematics. To master and develop the technology in the future requires a strong mastery of mathematics from early age.

Mathematics is a subject lesson that is taught to students, since they study in the elementary school, or even before entering formal education, they have been introduced with mathematics, which introduces number and simple calculation which are used in daily life through games. The public opinion which spreads among the people and the students is that mathematic

subject lesson is a difficult, boring, and even scary subject lesson.

The result of the interview between the researcher and the students that was done in August 2016 shows that mathematics is one of the difficult subject lessons for some of the fifth grade students in Muhammadiyah Sapen Elementary School Yogyakarta. Based on the observation result, some of the students get some problems in learning Mathematics which is primarily caused by the teachers, especially for implementing the teaching method by over emphasizing only for memorizing, the emphasizing on counting speed, the authoritative teaching, the lack of media using, and the lack of the varieties in learning process. Besides that, there are a lot of student who find difficulties when doing mathematic exercises, especially the fifth-grade material in which the topics are calculating volume, surface width of cube and prism. The learning process which is done by teacher is using various speech methods such as by giving examples, explaining, then asking the students to finish the exercises. Besides that, this condition becomes worse because of the lack of creativities from the students and the teachers in using learning media on the main topic being discussed. In mathematics learning, the teachers have been using learning media, such as: pictures, text books, money replicas, cylindrical things, circular things, cubical things, and other things. Learning process which is conducted by the teacher in the class affects the students' interest and students' study result, and so do the learning media which are used.

The aforementioned things are further shown by the result of the past final semester test last year, specifically on geometry material in which there was almost 50% of the students gave incorrect answers in doing those excises. There were also still a lot of students who had wrong answers. That was caused by the mathematic learning which still referred to the result, focused on the teacher instead on the students, and also due to the given assignment which was not sufficient to facilitate the students to improve their cognitive equation, and their skills. Another problem is the lack of teacher's creativity in using various learning methods, and in supplying learning mathematics media which are suitable for the students.

According to Semiawan [2], the process skill approach basically is a learning activity management which is focusing on the involvement of the students actively and as creatively in the process of learning result. To face the fast growth and the improvement of the knowledge and technology, the process skill approach seems to be the most inappropriate approach by most experts within learning process at school. So, this is important for students, especially for the fifth grade students who will be the sixth grade students. Students with this character can improve their process skills easily, because it will support their intelligence and their creativity. The process skill approach is an approach which emphasizes on learning process,

activity, and creativity of the students in acquiring knowledge, mark, and attitude and also implementing those in their daily activities. Learning through process skill approach is a process which is designed so well that students can find facts, create some concepts and theories with process skill and improve the scientific attitude of the student themselves.

Besides that, the present learning mathematics on the fifth grade of Muhammadiyah Sapen Elementary School Yogyakarta has not given maximum situation and condition for the students to learn well, therefore the students' process skills do not improve as it should be. In the usage of learning media, teachers do not encourage the students to participate in investigating elements of relationship in geometry. Those things also influence on the students' interest and achievement in mathematics learning. It can be noticed from the results of the interview on some students of the fifth grade of Muhammadiyah Sapen Elementary School Yogyakarta, which stated that mathematics learning tends to be boring and less interesting.

Based on that the given fact, the researcher wants to hold a class action research about the increasing of the mathematics learning achievement in determining volume, surface width of cube and prism by using process skill assisted by the measurement media for fifth grade students of Muhammadiyah Sapen Elementary School Yogyakarta.

A. Structure

The mathematics learning achievement of fifth grade student of Muhammadiyah Sapen Elementary School Yogyakarta has not reached maximum result yet, especially at the geometry material, in which there were almost 50% of the students had wrong answers in doing those exercises. Besides that, the mathematics learning on the school still referred to the result, focused on the teacher, also due to the given assignment which was not enough to facilitate the students to improve their cognitive quation and their skills, and also the lack of teacher's creativity in using various learning methods, and the supply of the learning mathematics media which are suitable for the students.

The result of this research is hoped to be able to give information for the education field, especially for the teachers to get knowledge which is suitable for their class to fix the quality of the learning in the class or even outside the class. This research also is aimed to urge the accomplishment of the learning process, which is interesting, challenging, comfortable, and nice. Also, it should involve the students, because the application of learning methods are exact and chosen seriously. For education practitioners, this research is hoped to increase the quality of the learning by implementing *process skill*. How to develop and increase the elementary school mathematics learning achievement in determining volume, surface width of cube and prism by process skill approach assisted with

the measurement media on the fifth grade (Ibnu Sina students) of Muhammadiyah Sapen Elementary School Yogyakarta.

This research is aimed to develop and increase the elementary school mathematics learning achievement in determining volume, surface width of cube and prism by process skill approach assisted with the measurement media on fifth grade (Ibnu Sina students) of Muhammadiyah Sapen Elementary School Yogyakarta. This research will be focused on the fifth grade (Ibnu Sina students) of Muhammadiyah Sapen Elementary School Yogyakarta in the academic year of 2016/2017. The learning materials in this research are volume, width surface of cube and prism using process skill approach assisted with measurement media

II. LITERATURE REVIEW

A. Learning Achievement

Santrock [3] said that achievement is an excellent standard accomplishment which is achieved from the result of hard work. Besides that, an achievement is the real result achieved by someone (student) from their series of effort (learning) with his ability, competent, skill, whose marks' can be measured (evaluation) after doing some works. An achievement also means someone's ability, skill, and attitude in finishing something.

The success or the failure of the students in learning can be shown through the learning achievement that has been gained, learning achievement is an effort proof that can be gained [4]. An achievement is the result that is obtained by someone both quantity and quality, as a result of learning activity that has been done by someone. Someone who has done learning activity will show his good changes in science, understanding, skill, mark, and attitude. Students' learning achievement can be found out through the whole teaching process even there is a feedback relationship between the evaluation and the teaching. Certain evaluation procedure demands a suitable teaching program process, otherwise, a certain approach demands certain evaluation effort too. Learning achievement is influenced by some factors, such as learning motivation, student's readiness, keenness, ability to understand learning and the sufficient time for studying. Talking about the learning achievement must not be a part from the discussion about learning process. From the learning process, a result which is generally called as learning result or learning object or studying result can be obtained. To obtain the optimum result from a learning process, we must do it consciously, intentionally, and also well organized. In the learning process, the teacher as the instructor and the students as the learning subjects are demanded to have certain profile qualification. That qualification relates to the understanding, the ability, the attitude, and the grade system and also their personal characteristics.

According to Putra W [5], he states that if someone's effort has resulted a behavior pattern as it is

planned, that means he has obtained learning achievement. It also occurs on the mathematic subject lesson. Students can be determined as successful in obtaining mathematics learning achievement if they are successful to obtain the grades which pass the KKM (minimum standard) at mathematics subject lesson. Then, he also states that learning achievements is a success on teaching learning process that can be generally seen from its efficiency, effectiveness, relevance, and the teaching learning productivity in obtaining certain objects. Nowadays, learning achievement is used as a tool to measure school's ability by holding competitions or Olympiads on a certain subject lesson. The more the school produces students with good achievements the better the school achievement is. Therefore, it is the teacher that must choose the method appropriately, in order to improve the students' learning achievements. Learning achievement is an ability in which the student gain improvement after he gets his learning experience. Learning result has an important role in learning process, the evaluation process towards learning result can give information to the teacher about the student's improvement in order to obtain his learning objects by learning activity. Then, based on the information, the teacher can arrange and teach the students through further activities, both for the whole class and the individual. Learning achievement is divided into three kinds namely: (a) Skill and habit; (b) Knowledge and understanding (c) Attitude and goals, in which each group can be filled with the material based on school curriculum [6]. Learning achievement which is obtained by the students is a result of a learning process which is done by the students. The learning achievement of a student must be better/higher than the learning result obtained by the students. Learning process is a learning result support which is obtained by the students [6].

Based on the information above, it can be concluded that learning achievement is the result obtained by the students after doing the learning process., especially mathematics subject lesson. Also, the learning achievement can be seen empirically on the semester test result.

There are many factors that affect the students' learning achievement in the mathematics learning, and one of them is the teachers themselves. This thing is in accordance with the opinion that was stated by Heibert in [7] who stated that:

Those factors include the teacher's knowledge of the subject matter, ways the subject matter could be manipulated to be made meaningful and accessible to learners, a deep understanding of learners and their developmental trajectories, and a perspective on short and long term trajectory of curriculum. Teachers need to learn how to select appropriate strategies by reflecting on what factors influence the adaptation of particular approaches when teaching specific concepts. They also need to develop a disposition of inquiry and a professional attitude that allows them to continue to learn from practice [7].

It can be said that factors which influence the learning achievement include the teacher's knowledge about the learning material, yet the ways the subject is taught can be adjusted to make the lesson more meaningful and easier to access especially by the students. In terms of understanding about the students and their improvements and perspective about the short and long term curriculum line's, teachers need to learn how to choose the appropriate strategy by reflecting what factors are needed to influence the certain adaptive approach particularly when teaching specific concept. They also need to know how to improve investigation disposition and professional attitude that enable them to keep learning from the practices [7].

Sometimes, learning achievement is used as a measurement tool to know the changes happen which is how far someone can master the material that has been taught. How much someone understands after doing learning process can be derived by measurement using a good evaluation tool which fulfills the requirements.

In relation to the learning achievement meaning, these are definitions from some experts:

Ardiansyah [4] defines that learning achievement is the changes that caused people to change their attitude and behavior. Those change aspects refer to the learning object which involves cognitive, affective, and psychomotor aspects. Soedijarto [8] defines that learning achievement as a level mastering that obtained by the university students in participating the learning teaching process in accordance with the determined goals of the education. According to Purwanto [9], learning achievement can be explained by understanding two words: result and study:

The definition of achievement refers to an acquisition caused by doing an activity or process that caused the changes of the input functionally. Besides that, studying is an acquisition that obtained because the activity changes goods into functional goods, the learning teaching activity, after studying, the students' behaviors change. Many theories above state that a learning achievement is behavior changes which happen caused by learning process, in which those behavior changes include cognitive, affective, and also psychomotor aspects.

Mathematics learning achievement according to Uno, Hamzah B. [10], is that students' learning achievements on mathematics subject lesson is the result of a mathematics learning activity in the form of knowledge as a result of treatment or learning which is carried out by the students. In other words, the students' learning achievement on mathematics subject lesson is what the students have been already obtained from the mathematics learning process.

In the curriculum 2013, students' achievements are hoped to reach HOTS or High Order Thinking Skill, in all contents of the subject lesson. It is on mathematics material content too. This fact is in accordance with Resnicks in [11] who states that the opinion clearly explains that the high order thinking processes that occur in the process of solving mathematical problems

are characterized by the implementation of multiple criteria, which may not be noticed before. Mindset problem solving involves multiple steps in a complex analysis that requires elaboration and judgement [11]. Thus, there is a need for an assessment tool to document the sources of the thinking processes, rather than documenting only on the final solution.

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The opinion clearly explains that the higher order thinking processes that occur in the process of solving mathematical problems are characterized by the application of multiple criteria, which may not be known in advance. Problem solving thought patterns involve multiple steps in a complex analysis that requires elaboration and judgment [11]. Thus, there is a need for an assessment tool to document the intricacies of the thinking processes, rather than documenting only the final solution. Then, the same thing is also stated by Schwarzkopf (2015: 39) as follows:

"In many cases, the teacher explicitly made sure of the correctness of a statement, before he asked the pupils to reason it and the argumentation began. But even when the teacher did not do this at the beginning of an argumentation, there was no development of a "quaestio" in the meaning of pragmatolinguistical theories observed: One can say, that the pupils knew that at least the teacher knew whether the statement is correct or not. It seemed to be clear that the teacher's "judgement" would be accepted by the whole group."

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From the definition above, it can be concluded that a learning achievement is a measurement or a standard that determines the student's achievement level in knowing and understanding subject lesson material after having learning experiences that can be measured through an examination.

Based on the explanation about the learning achievement and the mathematics of elementary school, it can be concluded that the learning achievement of the elementary school mathematics is a measurement that determines the students' success level after doing mathematics learning for certain period which is stated in the form of numbers. Those successes can also be seen when the students are able to implement mathematics mindset in their daily activities and when they are learning other knowledge (lessons).

B. Process Skill Approach in Elementary School Mathematics Learning

According to Mulyasa [9] process can be defined as a complex skill equipment which is used in doing scientific research. The process is a big concept that can be divided into components which must be mastered by someone if he will do a research. Hence, skill means ability which uses mind, logic, and action effectively and efficiently to obtain certain result including creativity. Process skill is the whole directed scientific skill, both cognitive and psychomotor, which can be used to find a concept, a principle, or theory to develop the previous existing concept, or to deny an invention.

Process skill is the student's ability to process information with principles on how the active students learn. It is similar to the contextual learning included in the 2004 and 2006 curriculums.

According to Semiawan [2] process skill approach is a management of learning teaching activity which focuses on the involvement of the students in the process of obtaining learning result actively and creatively. This process skill approach is regarded by many experts as an approach which is in accordance with learning activity at school in order to face the fast growth and the development of science and technology.

According to Soedijarto [8], it is also defined that process skill approach is an approach which emphasizes on the learning process, activity, and the learners' creativity in obtaining knowledge, value, and attitude, and also implements them into their daily life. Learning uses process skill approach is a process which is designed somehow so that the students are able to find facts, develop concepts and theories by using process skill and scientific attitude from themselves. In the process skill approach, the teacher's task is to give an easy way to the students in creating conducive environment. So that, all the students are able to grow optimally.

Learning based on the process skill approach needs to pay attention on the following things:

- 1) The Student's activeness is supported by his willingness to study, because of the demanded goals.
- 2) The student's activeness will grow if it is supported by the student's potential empowerment.

- 3) The class' atmosphere can support or even decrease the student's activity. The atmosphere of the class must be managed in order to trigger the student's learning activities and creativities.

In the learning activity, the teacher's task is to give an easiness in studying by a guidance and motivation to obtain their goals. The activities which can be done to encourage the student's activities and creativities in learning are discussion, observation, research, practice, question answer, study tour, case studying, role playing, and other activities which can support in obtaining the learning goals.

According to Semiawan [2] the founding and the development of creativity means to activate the students in their learning activity. So, the active students' learning way which develops a process skill, the skill here is the basic physic and mental ability as a booster in individual's other capabilities

III. METHOD

A. Data

This research was carried out in semester 2 in the academic year of 2016/2017. In referring to the mathematics lesson schedule of the fifth-grade students of Muhammadiyah Sapen Elementary School Yogyakarta, this research was carried out for approximately 4 months, from January 2017 to April 2017.

The subjects of this research were the students of fifth grade (Ibnu Sina) Muhammadiyah Sapen Elementary School Yogyakarta. There were 33 students involved in this research. The students' intellectual capability is similar among them, so it was possible for the students to receive the learning material together. The data collecting techniques are test, observation, interview, documentation, and the use of field notes

B. Method

This class action research refers to the research model which is stated by Kemmis & Taggart whose main concept is the equipment which contains of strings of four components, those are *planning*, *acting & observing*, and *reflecting*. Those four strings components are regarded as a cycle and often called as *spiralling cyclus* model, this cycle implementation is like a spiral forming. This kind of research is a collaborative action research [12].

- a. The steps of this research are carried out in accordance with the condition of Muhammadiyah Sapen Elementary School environment and the characteristics of the fifth grade students of Muhammadiyah Sapen Elementary School Yogyakarta. The steps of class action research (PTK) are based on the opinion stated by Hamdani (2008: 16) which includes action planning, action implementation, observation and reflection. The scheme of the steps is as follows

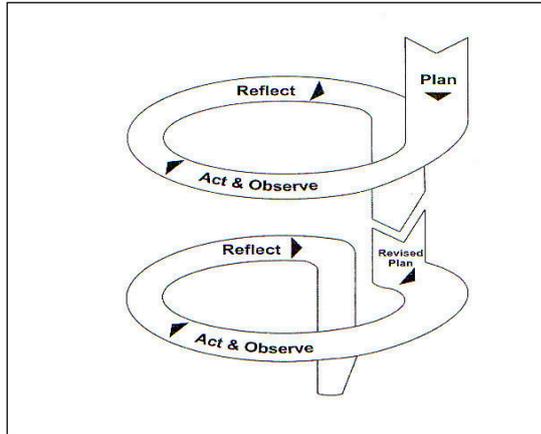


Fig. 1. Scheme of study

b. This research was planned at semester 2 in the academic year of 2016/2017. In referring to the mathematic lesson schedule of the fifth-grade students of Muhammadiyah Sapen Elementary School Yogyakarta, this research was carried out for approximately 4 months, it was from January 2017 to April 2017.

This research was carried out in Muhammadiyah Sapen Elementary School Yogyakarta at Bimokurdo street No.33 Demangan, Gondokusuman, Yogyakarta. Muhammadiyah Sapen Elementary School Yogyakarta manages 1447 students who are divided into 45 learning groups, with 93 teachers, and 31 staff members.

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C. Table and Figures

TABLE I. THE COMPARISON STUDENTS LEARNING ACHIEVEMENT PRE ACTION AND CYCLE 1 AND CYCLE 2.

Category	Pre action	Cycle 1	Cycle 2
Total	2555	2581	2726
Average	77.42	78.21	82,60
Students who passed	16 students	21 students	32 students
Students who didn't pass	17 students	12 students	1 student

Source: Research result data

The result from the above table is shown in graph as follow:

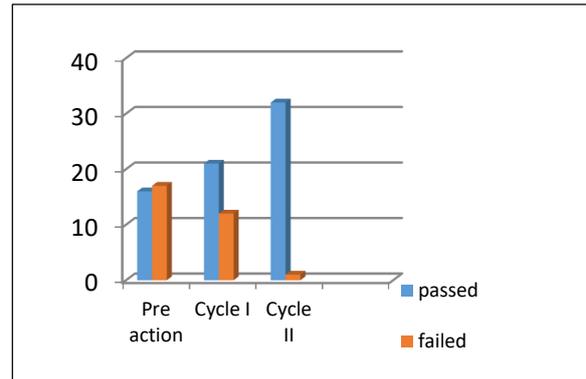


Fig. 2. The graph of comparison students learning achievement among Pre action, Cycle 1, and Cycle 2.

IV. RESULT & DISCUSSION

This research carried out on the fifth grade (Ibnu Sina) class of Muhammadiyah Sapen Elementary School Yogyakarta is aimed to develop and increase the elementary school mathematics learning achievement in determining volume, surface width of cube and prism by skill process approach assisted measurement media on fifth grade (Ibnu Sina) students of Muhammadiyah Sapen Elementary School Yogyakarta and increase the elementary school mathematics learning achievement in determining volume, surface width of cube and prism by skill process approach assisted measurement media on fifth grade (Ibnu Sina) students of Muhammadiyah Sapen Elementary School Yogyakarta. This research was started by making observation plan, and action implementation. The action implementation was carried out into two cycles which suited to the learning objects which was demanded to obtain in every cycle.

- a. The research instruments used in this research are observation sheet, question tests, interview instruments, and student's mark documents. The observation sheet used is the observation activity sheet which is done by the students and the teachers. Based on the observation sheet, this research refers to four process skill indicators which are actively participating in learning, searching and finding concept independently, logical thinking in problem solving, and self-confidence.
- b. This research also gets the data from the opening observation or the pre cycle. The data that were produced were analyzed to know the increasing in every process and the result that is obtained in every cycle. Based on the observation of the pre cycle, these students' process skill was still low particularly in mathematics learning. This can be seen during the classroom activities, where the students rarely do some skills especially those based on the process skill practices, such as problem formulating, questioning, observing, calculating, measuring, classifying, analyzing, concluding, communicating, and also concept implementing.

- c. Seen from the result of observation sheet at cycle 1 until cycle 2, mathematics learning implementation by implementing process skill, the result is better. At cycle 1 there are only 2 indicators which are completed by observing activity and questioning. On the other hand, at cycle 2 it had been carried out until it communicated the result. Many causes are found such as: the teacher did not divide groups but the students chose their own group members. It causes the relatively smarter students to join the groups of smart students too. This thing prevents the students to implement the process skill. The other cause which become the obstacle is that the teacher provided less guidance and motivation to the students, so that the students who are not good at mathematics learning become uninterested at this subject lesson. At cycle 2, the aspect of the students' process skill activity improves and meets the success criteria. The students' percentage result on the students' process skill with high category in mathematics learning improves significantly from 5% who possess high category at cycle 1 increase into 90% at cycle 2.
- d. Next, the mathematics learning achievements, especially the materials of calculating volume and surface width of cube and prism, it can be seen at cycle 1 that mathematics learning average is 78, 21 in which there are 21 students who pass the learning or their marks pass the KKM (minimum standard), and it increases at cycle 2 with the average of 82, 60 in which there are 32 students passing the learning.
- e. The action that needs to do to fix the obstacles that is found at the cycle 1 is done at the cycle 2 through making students group discussion, motivating the students by giving rewards, and guiding the students who have not understood the learning concept optimally. The teacher also establishes the clear rules about how the process skill estimation is done. In this case, the teacher makes groups consisting of 3 students each. This is reflected from the objects of the learning group which are stated in the 2006 Elementary School curriculum which are for knowing, behaving, and appreciating the knowledge and the technology and also for planting the thinking habit and the critical, creative, and independent scientific attitude.
- f. According to Semiawan [2] Process skill is the students' ability to process information with principles as in contextual learning process. In elementary schools, this kind of skill must be introduced in any subject lessons and technology, especially in mathematics. This thing is reflected on the objects of teach groups that is to know, behave, and appreciate the knowledge and technology and also to plant a thinking habit and critical, creative, and independent scientific attitude. The learning process that implements a process skill will involve active students in the learning. Besides that, the students also have independent attitude, be critical and is able to do creative thinking. This result also refers to the theory that is stated by Gredler [14] about learning stating that *learning is the process by which human being acquire a vast variety of competencies, skills, and attitudes. The human capacity for learning is an important characteristic that sets the species a part from all others.* It means that learning is the process by which human being acquire a variety of competencies, skills, and attitudes. The human capacity for learning is an important characteristic that sets the species a part from others. This case is suitable with what have been done by the researcher in the fifth grade students of Muhammadiyah Sapen Elementary School Yogyakarta.
- g. This mathematic learning with process skill also uses learning media to increase students' understanding at calculating the surface width and the volume of cube and prism materials. So that the students can study directly by understanding tangible things. This case is suitable for what have been stated by Sumiati and Asra [15] that learning media is everything which can be used to send message (*message*), stimulate mind, felling, attention, and students' willingness to the students, so it can support the learning process. The shapes of learning media can make learning experience more tangible.

Besides that, researcher adds one observer, so there are 2 observers to evaluate students' process skill, so it makes the researchers easier to do the evaluation. The increasing of the learning achievement and students' process skill in mathematics learning related to the affective, cognitive, and psychomotor aspects of the students. It can be seen from the increasing of the students' learning achievement, students' attitude, and the increasing of the students' ability. The students are doing mathematics learning so well that the students can understand the learning material optimally. The students can also finish the exercise given by the teacher with the average surpasses the KKM (minimum standard) at cycle 2.

Based on the aforementioned things, the conclusions are (1) mathematics learning in fifth grade especially at calculating volume and surface width of cube and prism material by using process skill approach and is assisted by measurement media. This case can be stated that the mathematics learning can be improved by using process skill approach as science learning, so that the mathematics learning can use process skill approach with appropriate steps, (2) by using process skill and measurement media, it can improve the students learning achievement in the mathematics learning on grade five of Muhammadiyah Sapen Elementary School Yogyakarta. It can be seen through the improvement of mathematics learning achievement average at pre cycle which show the average of 77, 42 becomes 78, 21 at cycle 1, and 82, 60 at cycle 2. As well as the improvement of students' concord with the KKM (minimum standard) marks or students' completeness in learning is that at pre cycle there were 16 students who pass or 48,49%, increases at cycle 1 where there

were 21 students who pass or 64,64% and at cycle 2 there were 32 students who pass or 96,97%

V. CONCLUSION

The result show that educational game-based learning model with assertive training technique in enhancing students' self-confidence is an important and relevant for enhancing student self-confidence. Educational game-based learning model with assertive training technique is the learning model which is combined with the educational game that is relevant to the characteristics, learning styles, needs, and the developmental phases of the students. This model is also integrated with assertive training technique that is a popular psychological training to help students to express feelings, choose the most appropriate way in the act, reveal at the right time, increase self-esteem, help increase confidence, state disapprovals to change the behavior and ask people to change their behavior without attacking or judging them.

Based on the result of this research, which is carried out on the fifth grade (Ibnu Sina) Muhammadiyah Sapen Elementary School and the discussion, it can be concluded as follows.

- a. Process skill approach using measurement media can be used in the mathematics learning improvement on the fifth grade students of Muhammadiyah Sapen Elementary School Yogyakarta.
- b. Process skill approach using measurement media can improve mathematics learning achievement in determining the volume and the surface width of cube and prism on the fifth-grade students of Muhammadiyah Sapen Elementary School.

Those two things are proven by the average improvement and students' mathematics learning completeness. Students' learning average increases from 77,42 at pre cycle into 78,21 at cycle 1, and 82,60 at cycle 2. The students' completeness mark improvement in learning is that at pre cycle there were 16 students who have passed or 48,49%, increasing at cycle 1 in which there were 21 students who have passed or 64,64%, and at cycle 2 there were 32 students who have passed or 96,97%

REFERENCES

- [1] Departemen Pendidikan Nasional. 2008. Panduan Pengembangan Bahan Ajar. Direktorat Pembinaan Sekolah Menengah Atas.
- [2] Semiawan, C. 1992. Pendekatan Keterampilan Proses: Bagaimana Mengaktifkan Siswa dalam Belajar. Jakarta : Gramedia
- [3] Santrock, J.W. 2002. Life-Span Development. Perkembangan Masa Hidup. Jakarta : Erlangga.
- [4] Ardiyansyah. 2010. Pengertian Prestasi Belajar. Artikel. Which is accesed from the internet site <http://ariantosam.artikelpendidikan.student.umm.ac.id>. On Wednesday, Desember 21 ,2016 at 14.00 WIB.
- [5] Winata Putra, U. 2008. Prestasi Belajar Siswa Sekolah Dasar. Jakarta: Universitas Terbuka.

- [6] Sudjana, N. 2008. Cara Belajar Siswa Aktif dalam Proses Belajar Mengajar. Bandung : Sinar Baru Bandung bekerja sama dengan Pusat Penelitian Pengajaran dan Pembedangan Ilmu Lembaga Penelitian IKIP Bandung.
- [7] Manouchehri, A. 2008. Motivating Growth of Mathematics Knowledge for Teaching : A case for secondary Mathematic teacher Education. Journal. The Mathematics Educator 2008. Vol 18. No. 2, 3-10.
- [8] Soedijarto, 2007 Pendekatan Keterampilan Proses. Bandung: Nuansa.
- [9] Purwanto, N. 2009. Strategi Pembelajaran. Bandung: Remaja Rosdakarya.
- [10] Uno, H. 2007. Model Pembelajaran Menciptakan Proses Belajar Mengajar yang Kreatif dan Efektif. Jakarta: Bumi Aksara.
- [11] Rubin, Jim, and Manikya Rajakaruna. "Teaching and assessing higher order thinking in the mathematics classroom with clickers." *International Electronic Journal of Mathematics Education* 10.1 (2015): 37-51.
- [12] Mulyasa. 2007 Perangkat Keterampilan Proses. Bandung: Remaja Rosdakarya.
- [13] Hamdani, N. 2008. Classrom Action Research. Jakarta: Rahayasa.
- [14] Gredler, M. 1986. Learning and Instruction, Theory into Practice. New York: Macmillan Publishing Company.
- [15] Sumiati & Asra. 2009. Metode Pembelajaran. Bandung: CV Wacana Prima.