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ANALYSIS UNDERSTANDING OF THE SMP STUDENTS BUILD CONCEPT AND PRINCIPLES OF FLAT IN MATH

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This type of research is categorized as Descriptive-Explorative research. Descriptive approach of describing actual facts about the understanding of concepts and principles in the square flat material that occurs during the learning of mathematics. While the exploratory approach is intended to explore the qualitative research results concerning students' understanding of concepts and principles in the wake flat rectangular shape through interviews with students. This study aims to determine the level of students' understanding of concepts and principles in the wake of material flat rectangle shape in Junior High School 1 Eremerasa Bantaeng. The subjects were students of Junior High School 1 Eremerasa Bantaeng Class VIII as many as 24 students in the academic year 2014/2015. The research instrument used is a multiple choice test that is accompanied by the reasons for choosing the answer. The results showed that: the first level of students' understanding of the concept of a flat quadrilateral are waking up in the medium category with an average score of 5.63 out of 18 ideal score, the standard deviation of 3.16; The second level of students' understanding of the principle of flat wake quadrilateral are in a lower category with an average score of 5.50 from the ideal score 26 with a standard deviation of 3.50; qualitatively third level students' understanding of the material moder flat in middle category.

Keywords: math, student understanding, concepts and principles of flat wake.

Introduction

Improving the quality of human resources through education as part of the development of a nation is always a concern of all the parties. The Efforts to improve through education is to improve the quality of education, especially primary and secondary level. Enhancement and quality of education and educational empowerment is a strategy and a program that is always done by the government and the community, because good quality education can improve human resources that have adequate knowledge. Qualified human resources have the competence and the implementation of the tasks and responsibilities of development, Therefore it is necessary to increase the quality of professionalism, dedication attitude, the spirit of unity, as well as insight into the development of education. Various factors affect the quality of education, among others, the availability of adequate educational infrastructure and competent human resources. Both are very important input component in supporting learning activities. Teaching and learning in schools that effectively influence the achievement of an adequate quality of education.

The legal basis in education set forth in the Law of the Republic of Indonesia No. 20 / 2003 on National Education System argued that the purpose of national

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education is to the development of students' potentials to become religious and devoted to God, noble, healthy, knowledgeable, capable, creative, independent, and become citizens of a democratic and responsible.

One of the subjects in schools that provide a positive impact on improving the quality of education was mathematics. We are all aware that mathematics include subjects that are not easy for most students, this evidence by the average value obtained by the students is lower when compared to other subjects. One of the mathematical material that plays an important role in the formation of students' reasoning is geometry. The geometry of the material is one of the important topics in school mathematics, including the mathematics junior high school (JSS). This is demonstrated by the number of subjects on the outlines of the teaching program junior mathematics courses, namely 40% (Department of Education, 1993 and 1999). An equally important purpose of teaching geometry at school is to understand the direct object of mathematics, namely: facts, concepts, principles, and skills and its applications. According to Hilbert and Carpenter (in Mulyati, 2000) "students should understand the mathematics itself." The main focus in teaching is to instill the concepts and principles of geometry based on understanding, because if students only rely on knowledge of the procedure without the support of knowledge of the concepts and principles of good geometry will resulting difficulty in learning geometry students at advanced levels. Based on the terms described it, the authors are motivated to conduct research on the subject at junior high school students devoted to the geometry of the material understanding of the concept and principles on the subject of the quadrilateral flat wake.

To determine the extent to which the level of students' understanding of concepts and principles in the wake of material flat on the Junior High School 1 Eremerasa Bantaeng, because by understanding the concepts and principles in mathematics then indirectly the students understand the facts contained in mathematics itself and students are expected to easily be able to complete the math problems.

Research Method

Based on the formulation of research problems, this research categorized Descriptive-Explorative research. Descriptive approach of describing actual facts about the understanding of concepts and principles in the wake flat material that occurs during learning in the class. While the exploratory approach is intended to explore the qualitative research results concerning students' understanding of concepts and principles in the wake flat rectangular through interviews with students. Subjects were students of Class VIII Junior High School 1 Eremerasa Bantaeng consisting of 24 people chosen or purposive. Data on the understanding of concepts and principles quadrilateral obtained by providing a multiple-choice test that is accompanied by the provision of reasons for choosing the answer, the test consists

of 22 items, divided into about 9 item 13 item about the concepts and principles of the quadrilateral flat wake. Interview data obtained by interviewing students based group that has been specified above which have been disclosed in the instrument. Data analysis technique is done in the following Step namely; (1) Checking and megindentifikasi answers of students, (2) Provide to answer students' scores as described above, ie, if the choice is correct and true reason is also given a score of 2, if one of them is correct or one of them one was given a score of 1, and if both are wrong given a score of 0, (3) Based on the identification of students' answers that have been given a score, then categorized into four groups, namely the group of I, II, III, and IV, (4) For understanding the concepts and principles of flat wake quadrilateral, students 'answers were grouped into three categories, low, medium, and high categories, (5) provide a conclusion on the results of the analysis of students' answers by describing in general of results of analyzes related to the understanding of the concepts and principles of waking flat quadrilateral, (6) Provide conclusions from interviews with a sample interview students an understanding of concepts and principles related to flat wake quadrilateral.

Research Result

In general, understanding of concepts and principles of the quadrilateral can be seen in the following table

TABLE 1: UNDERSTANDING THE CONCEPT OF QUADRILATERAL

Type quadrilateral	*Rectangular*	*Square*	*Parallelo -gram*	*Rhombus*	*Kite*	*Trapezoid*	*The concept of average understanding quadrangle*
Score	2,08	0,21	1,63	0,13	0,42	1,17	5,63
Ideal Score	6	2	4	2	2	2	18
Standard Deviation							3,16
The average scores	0,69	0,21	0,81	0,13	0,42	1,17	0,62
Category	Moderate	Low	Moderate	Low	Low	Moderate	Moderate

Table 1 above shows that the Students understanding of the concept of a rectangle, parallelogram and trapezoid are in the medium category, while the square, rhombus and kite is at a low kategoi. In general understanding of the concept of a rectangle in the medium category, with an average score of 5.63, from the ideal score of 18 with a standard deviation of 3.16.

Based on the results of research above, on understanding the concept of quadrilateral classified in the moderate category. This is consistent with the results of Sunardi, et al (1998) which states that there are still many students who do not understand the concepts of geometry. The study provides an overview of the level of students' understanding of concepts in a rectangular material is still relatively

moderate. However, from Table 1 shows that at the square, rhombus, kite and students' understanding of the concept is still relatively low. Especially for the square at number 6 which raised the question about the nature of a square where the students can determine which is not a characteristic of a square, turned out of 24 students only five people who choose the answer that matches the key for multiple choice, but of The fifth person is not one who gives reasons in accordance with the assessed aspects of the guidelines set out in the scoring.

TABLE 2: UNDERSTANDING PRINCIPLES QUADRILATERAL

Type quadrilateral	*Rectangular*	*Square*	*Parallelo -gram*	*Rhombus*	*Kite*	*Trapezoid*	*The concept of average understanding quadrangle*
Score	0,83	0,08	0,71	1,58	1,63	0,67	5,50
Ideal Score	4	2	4	6	6	4	26
Standard Deviation							3,50
The average scores	0,41	0,08	0,35	0,53	0,54	0,33	0,42
Category	Low	Low	Low	Moderate	Moderate	Low	Low

Table 2 above shows that the understanding of the principle of a rectangle, square, parallelogram, and trapezoid are in a lower category, while the rhombus and kites are in the medium category. In general understanding of the principle of a rectangle in the low category, with an average score of 5.50 from the ideal score 26 with a standard deviation of 3.50.

For understanding the principle, of the 24 students who become subjects in the study was low. Based on Table 2 above that understanding the principles of a rectangle, square, parallelogram, and trapezoid is low, while the sides kite moderate. Understanding of the principles of the rectangle (Question 3), from 24 students test participants only 3 people who give the correct answer and 3 among the people there was one student who give reasons in related to aspects assessed by scoring guidelines. But what's interesting is one of the students who are able to give reasons in accordance with aspects of the assessed based on the guidelines of scoring, but he replied option that does not comply with answer key so that the student is interviewed relevant answers and reasons given. However the question number 4, which measures about understanding the principles of the rectangle of the formula circumference of a rectangle students classified as moderate,

Averaged for understanding the principles of the rectangle is low based on predefined categories above. Understanding of the principles of the square categorized as low, because of the 24 students there are only 2 students who give the correct answer choice but do not give any reason in accordance with aspects assessed by scoring guidelines. As for the parallelogram and trapezoid is also quite low as in the matter of number 10 on the circumference formula parallelogram

there were only 8 people who give the correct answer and the choice between the existing 8 3 students who give reasons in accordance with aspects judged on the basis of scoring guidelines, while to number about 11, which determines the larger one corner adjacent to the parallelogram if other angles are known turned out of 24 students only five people who give the correct answer and the choice between 5 is only one person who gives appropriate reasons aspects assessed based guidelines scoring. As for the understanding of the principles concerning the trapezoid big determines one corner of the right-angled trapezoid, turned out of 24 students only 2 people who give the correct answer choice while providing appropriate reasons aspects assessed by scoring guidelines. Medium to understanding the principles of the circumference of a trapezoid including moderate, but the general understanding of the principles of the trapezoid is low based on categories that have ditapkan above. From the discussion about understanding the principles of the quadrilateral is low because it is between 0.00 to 6.50, which is 5.50 as shown in Table 2 above.

Discussion

In related to with this study, entitled: "Analysis of junior high school students understanding of the concept and principle of Build Flat in Mathematics," it is deemed necessary for the explanation of the following terms: (i) The concept (concepts) in Mathematics is an abstract idea, which allows people to be able to classify object or event, and determines whether the object or event that is not an example of a sample or an abstract idea that in this case the concept of a rectangle, square, parallelogram, rhombus, kite, and associated with the long trapezoid side and a large angle, (ii) Principles (Principle), is the object of Mathematics of the most complex, can be axioms, theorems, properties, or formula, and so in this case the principle of a rectangle, square, parallelogram, rhombus, kite, and associated trapezoidal with a diagonal length, its properties, roving formula, and the breadth, (iii) Mathematics referred to in this research is to Build Flat Quadrilateral comprising: a rectangle, square, parallelogram, Rhombus, Kite, and Trapezoid.

Gagne (in Ratumanan, 2004) revealed the need for knowledge about the phase sequence of learning to understand the object of study in mathematics, including to make students able to have a better understanding of the mathematics in this understanding of the concepts and principles of the quadrilateral. Understanding of the concepts and principles of the quadrilateral, students will make it easy to obtain a better learning achievement. According Ausebel (in Bell, 1994), in terms of concepts in the concept of a rectangle obtained in two ways, namely: the formation of the concept (concept formation) and assimilation concept (concept assimilation). Concept formation is primarily a form of acquisition of concepts before children enter school. While the concept of assimilation is the main way to acquire concepts during and after school. Concepts are taught through the discovery, not through notification. Students should be experienced manipulate concrete objects, teaching

starting from the examples that led to a concept of inductively. Meanwhile, according to Van Hiele (in Mason, 2007) that terhap students' understanding of concepts and principles in a rectangular geometry in this case passes through stages Visualization, Analysis, Abstraction, Deduction Formal and Rigor stage. Theories of learning the above indicated various possibilities that can be experienced with regard to students' understanding of concepts and principles of the quadrilateral. Students' understanding of concepts and principles of the quadrilateral may vary. Students' understanding of the concept of the quadrilateral can be categorized as low, medium and high. Similarly, students' understanding of the principles of the quadrilateral can be categorized as low, medium and high.

Level of van Hiele (1957) also implied that if students have trouble getting up the concept of a flat for example quadrilateral concept, it would be expected to be difficult in terms of four such principles. Students who do not know the concept of a square will be difficult to determine the extent or the circumference of the square. Sunardi research results (2000), shows many students make mistakes in menyelesikan matter of parallel lines in class 2BJunior High School 4 Jember. He further revealed that of 443 junior high school students in grade three are 86.91% stated that the square is not a rectangle, 64.33% stated that a rhombus is not a parallelogram, 36.34% stated that on the square, two opposite sides perpendicular, The above study said many students do not understand about the concept of square, parallelogram and more specifically about parallel lines. In accordance with the results of research Sunardi, observations and experience of researchers as a mathematics teacher at the junior high school shows that there are still many students who have difficulty in material mainly rectangular geometry because it does not understand the concept and principles. There are still many places the researcher in charge of junior high school students and junior high school currently occupied ever served by a researcher who still do not understand the concept of rectangle.

In Learning theory, Gagne (1975) stated that; is a balanced combination between behaviorism and cognitivism, which stem from the theory of information processing. Gagne use mathematics as a medium to test and develop the theory of learning. Two figures of mathematics education from the Netherlands, namely Pierre Van Hiele and his wife, Dian Van Hiele-Geldof, in the years 1957 to 1959 proposed a theory about the process through which the development of the students in the study of geometry. In theory they put it, they are found in the study of the geometry of the students has developed the ability to think through certain stages (Meson, 2007).

From grand theory mentioned above that by studying geometry students are expected to experience growth thinking certain stages in accordance developmental age, but based on various haasil research and the researcher's own experience that many students have difficulties in learning geometry as tetuang in research Sunardi (2000), shows many students make mistakes in menyelesikan matter of parallel

lines in class 22B Junior High School 4 Jember. He further revealed that of 443 junior high school students in grade three are 86.91% stated that the square is not a rectangle, 64.33% stated that a rhombus is not a parallelogram, 36.34% stated that on the square, two opposite sides perpendicular.

Conclusion

Basedontheresults of research and discussionthat has beenpresented in thepreviouschaptersrelatedtotheformulation of theresearchproblem, it can be concluded as follows:Thelevel of students 'understanding of the concept of a flat quadrilateral are waking up in themediumcategorywith a score of 5.63 fromthe ideal score of 18 and a standarddeviation of 3.16, whilethelevel of students' understanding of theprinciple of flat wakequadrilateral are in a lowercategorywith a score of 5.50 fromthe ideal score 26 and a standarddeviation of 3.50.

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