

Profile of Student Difficulties in Mathematics Learning

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ABSTRACT

Observing the results of international and national studies, the achievement of mathematics education in Indonesia has not been satisfactory. This indicates that students have difficulty in solving math problems. So that difficulty can be overcome, to know in advance profile of student difficulty in learning mathematics, both in junior high, high school, and vocational school. This study aims to describe students' difficulties in learning mathematics both in junior high, high school, vocational school based on national exam results from 2010-2017.

To achieve this goal, this research uses descriptive explorative research approach. Secondary data in the form of national exam results and national exam device used in this study at junior high, high school, and vocational school. The factors that cause difficulties as well as the strategy to solve them are known through FGD. Data analysis is done both quantitatively and qualitatively. Quantitative analysis is used to develop student's difficulties profile. Qualitative analysis is used to analyze the causes of students' difficulties in learning mathematics.

The result of the research shows that the utilization of the result of absorption analysis of UN Mathematics SMP from 2008 to 2017 resulted in some information, namely: (1) from four mathematics materials tested in UN junior high school level there are two number material, four algebraic materials, nine geometry and measurement, a statistical-related material, and one more matter related to an opportunity that has a low percentage of absorption (less than 50%); (2) geometry and measurement materials related to the relationship of lines and angles, the area and the volume of wake-up space, the area and circumference of the wake-up, the framework and the spatial webs, congruence and congruence are high categorical difficulty materials; (3) geomotor material and measurements related to the relationship of lines and corners are the most difficult materials whose difficulties begin to be seen from 2013 to 2017; (4) there is a significant different amount of difficult material in terms of UN policy as a determinant of graduation and not as a determinant of graduation; and (5) when the UN as a determinant of graduation there are 4 (3.03%) of material that is considered difficult by the students and when the UN is not a determinant of graduation there are 23 (36.50%) of material deemed difficult by students. For SMA, the change of education policy in Indonesia, especially the implementation of UN, has an impact on the decreasing absorption of the UN, especially on mathematics subjects. The decrease of absorption is not only caused by cognitive aspect but also caused by non cognitive aspect of students in facing UN. In general, some materials such as chance events, geometric transformation, space geometry, calculus, circles, linear programming, and statistics have low absorbency or can be categorized as difficult material in UN 2013 until 2017. The difficulties that occur generally lie in the questions narrative problem solving, or using real-world contexts in the presentation. The results of the analysis also indicate the non-cognitive impacts arising from policy changes, especially the status and technical implementation of the UN, thus implicating the low absorptive capacity of the UN mathematics. For the implementation of UN SMK year 2008 - 2017 there are 14 mathematics material which indicated difficult that is comparison of trigonometry, wake up space, function limit, data dissemination size, permutation and combination, functional derivation, wide area between two curves, data center size, opportunity, logarithm, integral, sequence and series, linear programming and polar / polar coordinates. Based on the analysis of trends for each difficult material, student difficulties are generally dominant in UN in 2013 - 2017, with achievement of absorbency for that period averaging <50%.

Kata Kunci: *student's difficulty profile, national exam mathematics mapel, SMP-SMA-SMK*