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Research Article

Development of Problem Based Mathematics Module (Calculating Professional Zakat) to Improve Student's Mathematic Problem Solving

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Abstract.
This study aims to determine: (1) the effectiveness of the problem-based math module of zakat to improve students' mathematical problem solving skills in MA. The private Darul Mursyidi Sialogo Islamic Boarding School; (2) to determine the improvement of students' mathematical problem solving abilities by using the problem-based math module of zakat. This research is a development research using 4-D development developed by Thiagarajan. The stages are define (define), design (design), develop (development) and disseminate (spread). Research on the development of the problem-based math module of zakat at the disseminate stage was carried out in a limited manner in schools which were the research subjects. The subjects in this study were students of class XI MA. Private Darul Mursyidi Sialogo Islamic Boarding School. From the results of the development test: (1) the problem-based zakat math module meets the validity criteria with a valid predicate, (2) the practical problem-based zakat math module based on the revision of the expert team and the results of interviews, and (3) the problem-based zakat math module is effectively used based on the results of the observation of the ideal time percentage achievement, the results of the test of mathematical problem solving abilities meet classical completeness, namely 80% of the test subjects, and (4) an increase in students' mathematical problem solving abilities using modules from test I to trial II and fulfill classical completeness.

Keywords: Zakat; mathematics module; problem solving

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1. Introduction

Pondok Pesantren is the oldest Islamic educational institution in Indonesia. Islamic boarding schools (pesantren) institutions play an important role in providing education for the Indonesian nation, especially religious education. The presence of Islamic boarding schools in the community is not only an educational institution, but also as a religious and socio-religious broadcasting institution [1]. The presence of pesantren cannot be separated from the demands of the people. Therefore, pesantren as an

educational institution always maintains a harmonious relationship with the surrounding community so that its existence in the midst of society does not become isolated. At the same time, all of his activities received full support and appreciation from the surrounding community. All of them give their own judgments that the pesantren system is something that is ”authentic” or ”indigenos” to Indonesia, so that by itself is positive and must be developed [2]. Pesantren have played an important role in the history of educational development in Indonesia. The presence of Islamic boarding schools has actually helped the government in order to educate the nation's life. In teaching and learning activities the teacher must use various teaching materials and are adapted to the conditions of the students so that students understand more of the material presented and are more memorable and will remember more and not easily forget the things they have learned. Teaching materials as a learning resource for students are expected to activate students in learning.

Teaching materials are teaching materials arranged systematically so as to create an environment / atmosphere that allows students to learn ”. If the teaching materials do not match the criteria, various problems arise in the learning process [3]. One of the things that is considered in the development of teaching materials is a module that is in accordance with the demands of the curriculum by considering the needs of students, namely modules that are in accordance with the characteristics and social environment of students. Module is a learning teaching material whose contents are relatively short and specific which are arranged to achieve learning objectives. Modules usually have a series of well-coordinated activities related to material and media and evaluation. The advantages of learning with modules are (a) the module can provide feedback so that students know their shortcomings and immediately make improvements, (b) clear learning objectives are defined in the module so that student learning performance is directed in achieving learning goals, (c) designed modules interesting, easy to learn, and can answer needs will certainly lead to student motivation to learn, (d) the module is flexible because the module material can be studied by students in different ways and at different speeds, (e) cooperation can be established because the competition module can be minimized and between learners and learners, and (f) remedies can be done because the module provides sufficient opportunities for students to be able to find their own weaknesses based on the evaluation given [4].

Seeing the learning process in Islamic boarding schools, especially general material, namely mathematics, is said to be still lacking or even non-existent. In fact, religious science and general science have something to do with it, especially in mathematics. Where mathematics is a discipline that has been studied since basic education and helps

the development of other disciplines such as physics, chemistry, biology, economics and others [5]. During its development, many mathematical concepts are needed to help solve problems faced in everyday life, as well as to help humans understand and master social, economic and natural problems. In learning mathematics, a person is trained to think creatively, critically, honestly and be able to apply mathematical knowledge in solving problems in everyday life and in other disciplines.

This research focuses on the role of mathematics in everyday life, one of which is in the distribution of zakat. Zakat is a certain right in the assets of rich people that must be distributed to those who are entitled to receive (asnaf) zakat [6]. The groups who are entitled to receive zakat are those who are poor, poor, amil, converts (new siblings), servants, people in debt, fii sabilillah and ibn sabil. Based on the form of zakat distribution, zakat is divided into consumptive zakat and productive zakat. Consumptive zakat is a zakat fund to help zakat recipients to meet their daily needs. Because of its nature to help with the needs of daily life, the zakat funds will be used up in a short time. Meanwhile, productive zakat is zakat funds that are used to help zakat recipients generate income so that it can grow and not run out quickly. The amount spent from this wealth is called zakat because what is spent adds up, makes more meaningful and protects the wealth from being destroyed. Thus, how important it is to know the distribution of zakat, especially the distribution of zakat on profession. So that mathematics is expected to be able to play a role in resolving who and how many are entitled to receive zakat and its parts. Because of the many problems that arise due to the distribution of zakat, it is necessary to have a solution in solving this problem. Problem-based learning would be able to solve the problem in the problem of distributing zakat.

Problem-Based Learning is learning that uses real or authentic problems and open thinking as a context for students to develop problem-solving and critical thinking skills and build new knowledge [3]. In addition, problem-based learning is learning that emphasizes authentic problem solving such as problems that occur in everyday life. From the description above, that problem-based learning provides encouragement to students not only to think according to concrete but more than that to think about abstract and complex ideas. Therefore the title of this research is: ”Development of Problem Based Mathematics Module Zakat (professional zakat) in Improving Problem Solving Ability in the Private MA Darul Mursyidi Sialogo Islamic Boarding School.

2. Methods

This type of research is research and development. Research and development is a process or method used to validate and develop modules. the research in this research is research and development (Research and Development). Research and development is a process or method used to validate and develop modules [7]. Implemented in MA. Private boarding school Darul Mursyidi Sialogo, South Tapanuli Regency. As a subject of class XI MA students. The private Darul Mursyidi Sialogo Islamic Boarding School, South Tapanuli Regency and as its object, the problem-based professional zakat math module.

This research is divided into two phases, namely the first stage is the development of a problem-based professional zakat mathematics module, including: i) the validity of the lesson plan, ii) the validity of the module, iii) the validity of the worksheets, and iv) the validity of the mathematics problem solving ability test instrument. The second stage is the implementation of the problem-based professional zakat mathematics module and research instruments that are deemed appropriate based on the test results. Descriptive analysis technique, namely by describing the validity and effectiveness of the learning module.

3. Results and Discussion

In developing learning tools using the Thiagarajan, Semmel and Semmel development models, it is pursued through 4 stages which are further known as 4D abbreviations, namely define, design, develop, and disseminate. The end of this development is to produce products in the form of rpp, modules, student worksheets and their instruments. To find out the validity, practicality and effectiveness can be explained as follows:

3.1. The Validity of the Problem-Based Zakat Mathematics Module to Improve Students' Mathematical Problem Solving Ability

Learning devices that have been compiled through the define and design stages in the form of prototype I are tested for validity first by submitting all the learning components developed such as modules, student worksheets (LKS) and lesson plans (RPP) to the expert team. By fixing some of the problems presented by the validator, the problem-based learning tool of the Zakat Mathematics Module to improve mathematical problem

solving skills The following will be presented in a summary summary of the results of the validation assessment from the expert team:

Table 1: Summary of Validation Results.

No	Rated Device	Average	Validation Results Criteria
1	Module	4,23	Valid
2	RPP	4,19	Valid
3	LKS	4,51	Very Valid
4	Test of Mathematical Problem Solving abilities		Minor revisions and no revisions

Based on the table above, it can be seen that the validation results for each learning component developed are in the ”valid” and ”very valid” categories with the average value of each component, namely 4.23, 4.19, and 4.51. and the mathematical representation ability test is in the minor revision category and without revision. This shows that the learning component developed can be used to measure what you want to measure.

3.2. The Effectiveness of Problem-Based Mathematics of Zakat Module to Improve Students' Mathematical Problem Solving Ability

The increase in students ’mathematical problem solving abilities was seen based on the results of the students’ mathematical problem-solving abilities test on the first trial there were 22 students or 60% of the 30 students who took the test whose level of problem-solving ability was at the minimum category ”sufficient”, while in the second trial there were 26 students or 80%. So through problem-based modules it can improve students’ mathematical problem-solving abilities in solving math problems.

3.3. Achieving the Percentage of Ideal Time for Student Activities

When viewed from student activity, where in the first trial the average percentage of student activity did not meet the specified criteria where the average student activity was 53.3%, while in the second trial the average level of student activity was 80.56%. meet the specified criteria.

4. Conclusions.

From the results of the research that has been done, the conclusions that can be described in this study are: (1) The process of problem-based zakat mathematics module starts from the stages of define, design, develop and desiminate. From the design stage, a learning tool was obtained (draft I). then enter into the develop stage by validating draft I to a team of five experts then draft II is produced after revision and before field trials are carried out. Based on the development process, a final draft was obtained that met the following criteria: Based on the validation of the team of experts for the results of RPP validation, the problem-based math module of zakat, worksheets, student mathematical problem solving tests, where the expert team declared it valid. So that the problem-based math module of zakat is feasible to be used in learning mathematics material percent. (2) The students 'mathematical problem solving ability has increased, this can be seen from the percentage of students' classical completeness on the first try of 60%, and the percentage of the classical completeness of the students in the second try by 80%. In other words, the increase in students' mathematical problem solving abilities from try I to trial II has increased.

References

[1] Zulhimma. Dinamika perkembangan pondok pesantren di Indonesia. J. Darul 'Ilmi. 2013;01(02):166–167.

[2] Ferdinan. Pondok pesantren, ciri khas perkembangannya. J. Tarbawi. 2018;53(9):1689–1699.

[3] Nasrul S. Pengembangan bahan ajar tematik terpadu berbasis model problem based learning di kelas iv sekolah dasar. J. Inov. Pendidik. Dan Pembelajaran Sekol. Dasar. 2018;2(1):81–92. doi: 10.24036/jippsd.v2i1.100491.

[4] Harta I, Tenggara S, Kartasura P. Pengembangan modul pembelajaran untuk meningkatkan pemahaman konsep dan minat SMP. Pengemb. Modul Pembelajaran untuk Meningkat. Pemahaman Konsep dan Minat SMP. 2014;9(2):161–174. doi: 10.21831/pg.v9i2.9077.

[5] Anggoro BS. Pengembangan modul matematika dengan strategi problem solving untuk mengukur tingkat kemampuan berpikir kreatif matematis siswa. Al-Jabar J. Pendidik. Mat. 2015.

[6] Riyaldi MH. Kedudukan dan prinsip pembagian zakat dalam mengatasi permasalahan kemiskinan (analisis pandangan yusuf qardhawi). J. Perspekt. Ekon. Darussalam.

2017;3(1):17–27. doi: 10.24815/jped.v3i1.6989.

[7] Washburn C et al. ⌧⌧. Saf. Sci. 2018;53(1):1–10. Available from: https://doi.org/10.1016/j.advengsoft.2017.07.001%0Ahttps://doi.org/10.1016/j.jairtraman.2019.101687%0Ahttp://scholar.google.com/scholar?q=FatigueSolutionsforMaintenance:FromSciencetoWorkplaceReality&btnG=&hl=en&num=20&as_sdt=0%2C22%0Ahttp://www.avhf.com.