Integrated Mathematics Development

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Abstract. The purpose of this research is to find out the process of developing integrated mathematical problems (Islamic nuanced questions) in class VII social arithmetic material; the results of integrated questions on class VII social arithmetic; and students' attitudes towards integrated questions in class VII arithmetic social material. This study uses a 4-D (Four-D) development method which consists of 4 stages, namely the define stage, the design stage, the development stage and the dissemination stage, the subjects of this study are Grade VIII students one of the schools in Sukabumi Regency and Bandung City, West Java. The results show that the integrated question development process uses four stages of development; the results obtained from the question development and trial phase, obtained eight integrated questions that have been validated by experts and question criteria consisting of validity, reliability, different strengths, and overall difficulty level in a valid and good category; Student attitudes towards integrated questions with the excellent and positive categories towards integrated questions are developed. The results of this study will be able to assist teachers in presenting integrated mathematical problems or those related to daily ritual worship activities.

1. Introduction

Integrated matter is a matter that is related or there is a connection with studies or other fields, which is intended to be integrated in this research related to Islamic activities sourced from the Qur'an. The birth of the concept of integration of the dilator was driven by a dichotomy between the religious and general sciences. Both are separated and as if walking in their respective regions. It is also triggered by the separation between the Islamic education system and the modern education system which has a latent impact on Muslims. The integration of Islamic science in learning is a hallmark in Islamic educational institutions [1]. In this study the focus is on student activities that are related to daily activities in terms of worship and in social life. The learning process must always be meaningful and useful so that students directly understand, understand and appreciate the role of mathematics in daily life or often called contextual learning. Planning, the process of arriving at the right evaluation will have an impact on the achievement of objectives. Learning objectives will be achieved if the planning and methods used can affect the potential and abilities of students and success will be achieved if students are involved in the thought process and creative teachers in the implementation of learning, mathematical creativity ensures overall mathematical growth [2][3 ]. To go to activeness in the thought process at the evaluation stage, the questions given should be adjusted to the student's thinking stage subsection.

The aspect of developing questions made in the contextual form of routine student activities in worship, certainly does not reduce the actual mathematical context. The teacher needs to involve
students in interpreting the context to explore key mathematical ideas [4]. The integration of Islamic values adds to the knowledge of students about correct worship practices [5], so that they do not only learn about mathematics but more than that understand Islamic religious values. This is certainly not just forcing or connecting mathematics with the Qur'an directly, but living the religious values related to mathematics. Integration in the context of Islam has the meaning of increasing the ability to think critically, creatively and logically. On mathematical problems can develop students' reasoning and build their critical awareness of the highest truths derived from Islamic values and teachings [6].

Mathematical learning is expected to end with a comprehensive understanding of students [7], to measure this understanding evaluation is needed. In the evaluation activities required a set of instruments to measure the achievement of learning outcomes and learning objectives. One of the instruments needed is a test item. More quality test instruments will provide accountable, objective and structured learning outcomes. The position of the instrument for evaluating learning outcomes is very strategic in teacher decision making [8]. The matter of applying this formula is often called a matter of mathematical stories that have not been varied and are routinely encountered by students in doing the exercises given by the teacher. Variations in questions can be given by the teacher by presenting story problems related to daily life, one of which relates to the religious field which is very closely related to student life. Mathematics is not only arithmetic but also contributory to the value of life that is important for human life [9]. The purpose of this study was to find out how the process of developing Islamic nuanced mathematical story problems on social arithmetic material class VII; how the results of the development of Islamic nuances math problems; and how students' attitudes toward the Islamic nuanced math story problem in class VII social arithmetic material. The choice of material is due to social arithmetic material so many contextual studies especially contextual in religious activities so that in this study the focus is on problems that are integrated with daily worship activities or Qur'anic verses that are integrated with mathematics. The achievement and improvement of the mathematical understanding ability of junior high school students who obtain learning using a contextual approach is better than the achievement and improvement of students' mathematical problem solving abilities with conventional learning [10]. The development of integrated questions is one part to encourage students' interest or motivation to learn mathematics, because they believe that mathematics with their daily lives. Motivation will determine the intensity of the learning effort done by students [11].

2. Methodology
The research method carried out is a 4-D (Four-D) development research method, there are four research steps, namely: Define stage; Design stage (Planning); the Development stage; Dissemination stage. Research on the development of integrated mathematical problems is a matter of class VII which was tested on students of class VIII one of the schools in Sukabumi and Bandung. Sampling in this study is purposive sampling. The sample of this study used four classes, namely classes VIII A, VIII B, VIII F and VIII G. The instruments used in this study were check sheets, expert validation sheets, questionnaire sheets and question sheets. At the design stage (planning) which includes planning, making and testing questions, an analysis of the questions obtained from the values obtained after the test development questions.

3. Result and Discussion
The stages of development research include the define stage, the design stage, the development stage and the dissemination stage. is the result of validation from material experts, media experts and teachers at the research location. The results of expert validation can be concluded that the graphical aspect is the highest aspect which is 91.67 in the very valid category. In the material aspect, 79.17 is in the valid category. This shows the material presented is in accordance with the material that has been studied. Furthermore, in the aspect of language that is 83.33 in the category of very valid which means that the language used in the matter of Islamic nuanced mathematical stories is easy to understand and good for use in learning activities. Then the results of the validation after the test problem there is an
increase and getting better. In the material aspect, 87.5 in the category is very valid. This shows that the matter of Islamic nuanced math stories is in accordance with the arithmetic material being studied. Based on the results of small-scale trials show that the Islamic mathematical story questions on social arithmetic material are already very valid, the reliability results are 0.75 in the high category, distinguishing power into five categories namely very good, good, fair, bad and very bad bad questions and very poorly revised or replaced, the level of difficulty in the medium and easy category, and is suitable for use in class VII students.

Islamic nuanced mathematical test was carried out 3 times, namely small-scale trials, large-scale trials and limited trials. In this discussion focus on a large scale. The results of the validity analysis of Islamic-style mathematical story questions in the large-scale test problems in table 1 below.

Table 1. Recapitulation of the validity question of islamic nuance story in large scale trials

| No | Correlation Coefficient | Remarks     |
|----|-------------------------|-------------|
| 1  | 0.330                   | Weak        |
| 2  | 0.622                   | Strong      |
| 3  | 0.656                   | Strong      |
| 4  | 0.619                   | Strong      |
| 5  | 0.635                   | Strong      |
| 6  | 0.803                   | Very strong |
| 7  | 0.724                   | Strong      |
| 8  | 0.592                   | Medium      |

Based on table 1, it can be seen that the mathematical mathematical questions as a whole are included in the valid category, with details of item number 1 in the weak category, item number 8 for the medium category, item number 2, 3, 4, 5 and 7 in the strong category and item 6 in the very strong category. This result concluded that the Islamic mathematical story problem was based on the validity requirements of a problem that was determined to have strong validity so that it was feasible to use. The reliability results above are 0.76 in the high category. This shows that the matter of Islamic nuanced math stories is highly reliable. This means that the test instrument in the form of a mathematical story about Islamic nuances is trusted and gives the same results when given to the same subjects with different conditions.

Table 2. Recapitulation of the distinguishing power of islamic-nuanced mathematical stories on large-scale trials

| No | Correlation Coefficient | Remarks     |
|----|-------------------------|-------------|
| 1  | 0.14                    | Bad         |
| 2  | 0.33                    | Enough      |
| 3  | 0.35                    | Enough      |
| 4  | 0.42                    | Well        |
| 5  | 0.65                    | Well        |
| 6  | 0.76                    | Very good   |
| 7  | 0.71                    | Very good   |
| 8  | 0.27                    | Enough      |

Based on table 2, it can be seen that there are several categories of distinguishing power into five categories: very good, good, enough, bad and very bad. Matter of Islamic nuances in the trial of large-scale problems divided into 3 categories. Item number 6 and 7 are included in the very good category Item number 4 and 5 are included in the good category meaning the item can distinguish between groups of high-achieving students and groups of low-achieving students well. Item number 2, 3, and 8 are included in the category of sufficient means that the item can distinguish groups of high-achieving students and low-achieving student groups quite well. Item number 1 is included in the bad category meaning that the item can distinguish between groups of high-achieving students and low-achieving students from poorly performing groups.
Table 3. Recapitulation of the difficulty levels of islamic nuance mathematics story problems on large scale trials

| No | Correlation Coefficient | Remarks |
|----|--------------------------|---------|
| 1  | 0.76                     | Easy    |
| 2  | 0.77                     | Easy    |
| 3  | 0.73                     | Easy    |
| 4  | 0.58                     | Medium  |
| 5  | 0.61                     | Medium  |
| 6  | 0.49                     | Medium  |
| 7  | 0.47                     | Medium  |
| 8  | 0.13                     | Hard    |

Based on table 3, it can be seen that there are several categories of difficulty levels of Islamic-style mathematical story problems in large-scale problem trials. Easy category items are questions number 1, 2, and 3. Medium category questions are questions numbers 4, 5, 6 and 7. The hard category questions are number 8. The feasibility of the Islamic nuanced math story questions is then assessed from the results of the analysis validity and reliability of questions. Reliability of Islamic-style mathematical story problems in the high category in small-scale trials and large-scale trials. Furthermore, the reliability of Islamic mathematical story problems in limited trials in the very high category. This shows that the questions have been very reliable to be used on Grade VII students. The results of Islamic nuanced math story questions consist of 8 item description questions. This was concluded because the Islamic mathematical story questions had gone through several stages of assessment that were appropriate to use. To measure students' responses or attitudes toward Islamic nuanced mathematical story problems, there are two categories, positive attitude and negative attitude. Following are the results of the analysis of the percentage of students' attitudes towards the Islamic mathematical story problem, namely.

Table 4. Attitudes of students towards integrated problems

| No  | Statements                                                                 | Yes (%) | No (%) |
|-----|---------------------------------------------------------------------------|---------|--------|
| 1   | Matter of Islamic mathematical stories can increase religious knowledge    | 93.7    | 6.3    |
| 2   | The matter of Islamic nuanced math stories is a new evaluation tool         | 87.3    | 12.7   |
| 3   | The language and readability used in the Islamic mathematical story problem are easily understood | 85.7 | 14.3 |
| 4   | The graphical display of the questions presented is very interesting        | 53.7    | 46.3   |
| 5   | The questions given can increase student motivation about mathematics is an interesting lesson. | 48.3 | 51.7 |
| 6   | Questions can increase student interest in solving given problems.         | 79.4    | 20.6   |
| 7   | Questions can improve students' ability to think creatively and innovatively. | 82.5 | 17.5 |
| 8   | This form of meaning is more meaningful and helps me to deepen religious knowledge | 84.1 | 15.9 |
| 9   | Problem forms like this need a good understanding of religion in addition to understanding mathematics | 57.1 | 42.9 |

Based on table 4, the average attitudes of students towards Islamic mathematical story problems have more positive attitudes, namely 74.33% compared to negative attitudes, namely 25.67%. The results of
students' attitudes toward Islamic nuanced math story are included in the positive category so that it can be concluded that Islamic nuanced math problem questions can have a positive influence on students so students can be motivated to solve the problems given by the teacher. Because one of the goals of the test is to have to increase student motivation because students who are competent and aware of their duties as students will make the test results better.

4. Conclusion
The process of developing Islamic nuanced mathematical story problems through the 4-D (Four-D) development method which consists of the define stage, the design stage, the development stage and the dissemination stage. The results of the development of Islamic nuanced mathematical story questions amounted to 8 items obtained in the strong category meaning that Islamic mathematical story problems classified as valid in the strong category. The reliability of the questions in the high category, the average value of the different power in the good category and the Islamic mathematical story problems were obtained from various difficulty level scores, namely the questions with the difficulty level in the medium category. The attitude of students towards the problem of Islamic-nuanced mathematical stories is very positive (happy). The attitude and response of teachers to Islamic nuanced math problems is very positive and the teacher is very appreciative because Islamic math problems can be used as an alternative and the latest variation in presenting evaluation tools to students, this is obtained from the validation sheet given by the teacher after validating Islamic nuanced math problems.

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