DEVELOPMENT OF MATHEMATICS STUDENT WORKSHEET BASED ON REALISTIC AND ISLAMIC NUANCES IN THE SOCIAL ARITMETICS SUBJECT OF CLASS VII SMP / MTs

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ABSTRACT

This research is based on the unavailability of student worksheets as one of the learning resources. Saturation and lack of skilled students doing exercise questions. SW that used realistic concept and Islamic nuance is one alternative to reduce the problem. This study aims to develop and test the feasibility of Student Worksheet (SW) based on realistic and nuances Islamic in the social arithmetic subject for class VII Junior High School (SMP/MTs). This research method used Research and Development (R & D) covering the stage of preparation, implementation, testing, and revision. Material experts and media experts do SW validation. The subjects of the study were students of grade VII SMP / MTs. The instrument used is a questionnaire instrument—the analysis technique used qualitative descriptive analysis. The result of the research and development of SW shows that the material expert's assessment obtained a 75,5 score with a very good criterion, from media expert 78,3 with good criterion. The result of student response to SW is good, with a scoring average of 60,19. Based on the above, it can be concluded that SW is based on realistic and nuances Islamic in the social arithmetic subject for class VII SMP / MTs, both used as teaching materials in the learning process.

Keywords: development of student worksheets, realistically based, Islamic nuances.

INTRODUCTION

In the national education system Law, No. 20 of 2003 states that: Education is a conscious and planned effort to create an atmosphere of learning and learning process so that students actively develop their potential to have spiritual strength, self-control, personality, intelligence, noble character, and the skills needed by themselves, the community, nation, and state. Not everything students learn is concrete. Many abstract concepts require students to understand them. To make it easier for students to learn abstract things, they can use media. There is no teaching material used in subjects, especially mathematics, which links Islamic values. Students from Islamic studies at school obtain Islamic knowledge about Islamic values.

Based on researchers' observations and interviews with mathematics teachers at SMP Muhammadiyah 1 Sleman and Muhammadiyah Pakem Middle School, grade VII students have not gotten a link between mathematics learning and Islamic concepts on social arithmetic and the unavailability of teaching materials for student worksheets at school. Also, student learning outcomes have not been maximized or are still low. Of the many influential factors, the development of media needs to be presented in a form that can build students' creative thinking by presenting natural material to be more interested in mathematics. Students can construct their knowledge. The development of student worksheets aims to make it easier for students to interact with the material provided, present tasks that increase students 'mastery of the material, train students' independence, and help educators give students (Prastowo, Andi: 2014).

This research aims to develop student worksheets based on realistic and Islamic nuances and know the quality of student worksheets based on realistic and Islamic nuances in terms of content worthiness, language worthiness, presentation worthiness, and graphics feasibility. Product specifications are developed in the form of A4-sized textbooks, Ix products containing brief material descriptions of social arithmetic material and are equipped with exercises, additional information, real images, and problem examples. They include four textbook quality components, namely the

appropriateness of content, language, images, and graphics. Also, there are Islamic values that need to be improved in people's lives. The Qur'an explained the dangers of usury, as in the letter Ar-Rum verse 39, which means and something usury (additional) that you give so that human wealth increases, then it does not increase in the sight of God. Moreover, what you give in the form of zakat that you intend to obtain the pleasure of Allah, then that is the people who look at it Islam teaches its people to trade profitably as appropriate, not exploit, and not spread deception.

Many interactions occur between individuals or groups in social life because humans are social creatures who need other people. One of these social interactions is buying and selling. So that social arithmetic material will be transformed with Islamic values to help students interact socially with Islamic values. The objectives of this study are:

1. Develop realistic and nuanced Islamic student worksheets on social arithmetic for grade VII SMP / MTs.
2. Knowing the quality of student worksheets based on realistic and Islamic nuances in terms of the appropriateness of the content, appropriateness of language, appropriateness of presentation, and appropriateness of graphics.

METHODS

This study uses a research and development model called Research and Development (R&D). In this research it is focused on developing realistic and Islamic nuanced student worksheets (SW). This study's subjects were three material experts, three media experts, and 22 Muhammadiyah Middle School students in Pakem and 28 Muhammadiyah Middle School 1 Sleman students. The data collection technique used is the questionnaire instrument method. The questionnaire used was a Likert scale questionnaire. According to Sukardi (2011: 146), this scale assesses the attitude or behavior desired by researchers by asking respondents some questions. Then the respondent is asked to give a choice of answers or responses in the scale that has been provided.

The data obtained in this study are qualitative data and quantitative data. Qualitative data were obtained from the questionnaire analysis of the feasibility of material experts, media experts, and student responses. The questionnaire uses levels of quality assessment, namely: SS (Strongly Agree), ST (Agree), RG (Doubtful), TS (Disagree), and STS (Strongly Disagree). While the quantitative data obtained from the score of the results of the feasibility questionnaire material experts, media experts, and student responses. Quantitative data used in this study are SS (5), ST (4), RG (3), TS (2), and STS (1). Material experts and media experts then validate products that have been designed. Further revisions were made by input and advice from material experts and media experts. Trials were conducted twice, namely small class trials consisting of 10 students and large class trials consisting of students in one class.

Furthermore, after the data is converted into quantitative using the ideal assessment criteria table with the following conditions:

Table 1. Criteria for Ideal Rating Categories

No	Qualitative Score Range	Qualitative Category
1.	$\bar{X} > \bar{X}_i + 1,8\,SB_i$	Very good
2.	$\bar{X}_i + 0,6\,SB_i < \bar{X} \leq \bar{X}_i + 1,8\,SB_i$	Well
3.	$\bar{X}_i - 0,6\,SB_i < \bar{X} \leq \bar{X}_i + 0,6\,SB_i$	Enough
4.	$\bar{X}_i - 1,8\,SB_i < \bar{X} \leq \bar{X}_i - 0,6\,SB_i$	Not good
5.	$\bar{X} \leq \bar{X}_i - 1,8\,SB_i$	Very bad

Source: Sukarjo (2006:53)

In analyzing this data, the highest score is five, and the lowest score is 1. After every aspect of the student worksheet is assessed by the material expert, the media expert, and the student's response, then the student's overall worksheet value is determined by determining the average score for all the

subjects. Then it is converted into quality data by using the ideal rating category criteria, which are outlined in the table below:

Table 2. Criteria for Expert Material Assessment

No	Qualitative Score Range	Qualitative Category
1.	$\bar{X} > 71,34\%$	Very good
2.	$57,78\% < \bar{X} \leq 71,34\%$	Well
3.	$44,22\% < \bar{X} \leq 57,78\%$	Enough
4.	$30,66\% < \bar{X} \leq 44,22\%$	Not good
5.	$\bar{X} \leq 30,66\%$	Very bad

Table 3. Criteria for Media Expert Rating Categories

No	Qualitative Score Range	Qualitative Category
1.	$\bar{X} > 80,94\%$	Very good
2.	$64,98\% < \bar{X} \leq 80,94\%$	Well
3.	$49,02\% < \bar{X} \leq 64,98\%$	Enough
4.	$33,06\% < \bar{X} \leq 49,02\%$	Not good
5.	$\bar{X} \leq 33,06\%$	Very bad

Table 4. Criteria for Evaluating Student Response Categories

No	Qualitative Score Range	Qualitative Category
1.	$\bar{X} > 63\%$	Very good
2.	$51\% < \bar{X} \leq 63\%$	Well
3.	$39\% < \bar{X} \leq 51\%$	Enough
4.	$27\% < \bar{X} \leq 39\%$	Not good
5.	$\bar{X} \leq 27\%$	Very bad

Tabel 5. Overall Category Rating Criteria

No	Qualitative Score Range	Qualitative Category
1.	$\bar{X} > 84\%$	Very good
2.	$68\% < \bar{X} \leq 84\%$	Well
3.	$52\% < \bar{X} \leq 68\%$	Enough
4.	$36\% < \bar{X} \leq 52\%$	Not good
5.	$\bar{X} \leq 36\%$	Very bad

RESULTS AND DISCUSSION

The assessment of student worksheets (SW) based on realistic and Islamic nuances was carried out by three material experts and three media experts. Material experts and media experts provide an assessment of the Islamic-based and realistic-based practice through an assessment sheet presented in a questionnaire. The results of the assessment of material experts and media experts are then recapitulated to get the results of testing about the feasibility of the products made. Based on research that has been carried out obtained data:

1. Trial I

   Based on the first trial conducted, it was found that the Ix products were considered to be good in terms of material and media. The first trial used a small class with ten students at Muhammadiyah Pakem Middle School and Sleman Muhammadiyah 1 Middle School. The trial was conducted on 15 and 16 November 2017. The results of the calculation of trial I can be seen in Table 6.

Table 6. Calculation Results of Trial Student Response I

No.	School	Total Score	Quantitative Criteria
1.	SMP Muhammadiyah Pakem	63,4	Very Good
2.	SMP Muhammadiyah 1 Sleman	58	Good
Average		60,7	Good

2. Trial II

   After testing I and there is no improvement in the product, it is ready to be used in trial II. Trial II used a large class consisting of one class of students. Trial II was conducted on November 20, 2017. There was no revision in this stage because the LPs were judged to be good in terms of material and media. The results of the calculation of trial II can be seen in Table 7.

Table 7. Calculation Results of Trial Student Response II

No.	School	Total Score	Quantitative Criteria
1.	SMP Muhammadiyah Pakem	57.36	Very Good
2.	SMP Muhammadiyah 1 Sleman	62	Good
Average		59.68	Good

3. Due diligence by the Material Expert

   Based on the feasibility test conducted by three material experts, it was found that the worksheet developed was in very good criteria. The results of the calculation of the material expert questionnaire can be seen in Table 8.

Table 8. Results of Calculations by Material Experts

No	Assessment	Total Score	Quantitative Criteria
1	Assessor 1	78	Very Good
2	Assessor 2	71	Good
3	Assessor 3	74	Very Good
Average		74,3	Very Good

4. Due Diligence by Media Experts

   Based on the feasibility test conducted by three media experts, it was found that the Ix developed was good. The results of the calculation of the feasibility of a media expert questionnaire can be seen in Table 9.

Table 9. Results of calculations by media experts

No	Assessment	Total Score	Quantitative Criteria
1	Assessor 1	79	Very Good
2	Assessor 2	79	Good
3	Assessor 3	77	Very Good
Mean		78,3	Very Good

5. Overall Student Work Sheet Analysis

   Determination of IQ's quality is based on the assessment by three material experts, three media experts, 20 students in the trial I, and 50 students in trial II from two schools. The data obtained were analyzed to determine the quality of the work. The results of the combined questionnaire calculations from material experts, media experts, and student responses can be seen in Table 10.

Table 10. Overall Calculation Results of Student Worksheets

No	Aspect	Ideal Average Score	Percentage of Ideality
1	Material	85	88,82%
2	Media	95	82,42%
3	Student response	75	63,35%
Total		255	234,59%

The final assessment score obtained for the score is 234.59% of the maximum score of 255, with an ideal percentage of 83.91% with a suitable category. It can be said to be worthy as a source of learning mathematics with social arithmetic for SMP / MTs. This is inseparable from counselors' input and advice, material experts, media experts, and student responses.

CONCLUSION

Based on the results of research and discussion, the conclusions can be drawn, namely:

1. Development of Realistic and Islamic nuanced Student Worksheets

   The student worksheet developed on the subject of social arithmetic uses the Research and Development (R&D) development model, with the following steps: The researcher collects information through preliminary observations and initial interviews. After getting the information and identifying it, the researcher designs the product made then validates the product design to the material expert and the media expert. The researcher revises it based on the input from the material expert and the media expert. After going through several stages in the preparation, namely identifying potentials and problems, gathering information, product design, product design validation, product design revisions, and product trials, the worksheet experienced improvements. The result of this series of development processes is creating a realistic and nuanced Islamic-based Student Worksheet that is ready to be used in the learning process in the classroom.

2. Feasibility of Student Worksheets that are developed

   The Feasibility of Student Worksheets is based on realistic and Islamic nuance in content, linguistic, presentation, and graphic feasibility. From the assessment results by material, experts obtained a score of 75.5 with very good criteria, from ahi media 78.3 with good criteria. Moreover, the results of student responses to worksheets are good, with an average score of 60.19. Based on the above data, it can be concluded that the Student Worksheet based on realistic and Islamic nuances on the subject of social arithmetic in class VII SMP / MTs both used as teaching material in the learning process.

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