

DEVELOPING THE MATHEMATICS STUDENT ACTIVITY SHEET (SAS) IN MATTER CIRCLE FOR STUDENTS OF SMP/MTs CLASS VIII BASED PROBLEM

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ABSTRACT

This research is motivated by the lack of Student Activity Sheet (SAS) in the study of mathematics for students of class VIII SMP/MTs. The purpose of this research is to develop a SAS based problem, determine eligibility based on expert assessment and teacher assessment, as well as students' response to SAS. The study was conducted through the model of Research and Development (R & D). Steps that passed include two aspects, namely the development of the SAS and its feasibility. SAS development includes: (a) collecting information (b) the designing of SAS (c) Validating SAS to the expert review by the mathematics teacher of MTs N 2 Yogyakarta and SMP Muhammadiyah 6 Yogyakarta (d) revising the product. The feasibility of SAS include (a) trial test (b) data analysis (c) the feasibility of SAS. The subjects were students. Data were analyzed using qualitative descriptive analysis to describe the inputs from expert assessment of products, SAS assessment by expert assessment of products, teachers and students' responses to the SAS based problem. The results of research and development has developed the Student Activity Sheet (SAS) on the circle in class VIII SMP/MTs based problem. The results of expert assessment and teacher assessment on the products obtained an average score of 75 with good category, so the SAS can be declared feasible. The students' response to the SAS is included in very good categories indicated by an average score of 87, 7093335. These results indicate that the Student Activity Sheet (SAS) in the circle in class VIII of SMP/MTs based problems can be used in the learning process.

Keywords: Development, SAS mathematics-based problem, good and decent used.

INTRODUCTION

To create a learning atmosphere so that students are active in the learning process there needs to be a plan that is used to support the learning process. Learning is the process of student interaction with educators and learning resources in a learning environment. Thus, learning resources are one component of learning. The use of learning resources in the teaching and learning process aims to increase the effectiveness and efficiency of achieving the expected competencies. Learning resources can be in the form of textbooks, modules, LAS, and so on. Learning resources can be used as a support for the learning process in class. Learning resources that can be used by teachers in carrying out mathematics learning activities in classrooms include problem-based Student Activity Sheets (LAS). Student Activity Sheets (LAS) can be used to support the learning process in class. LAS are sheets containing assignments that must be done by students. LAS is also a learning medium because it can be used together with learning resources or other learning media.

Based on an interview with a mathematics teacher in class VIII, Mrs. Aniek Lestari on November 7, 2014, at 09:00 at MTs N 2 Yogyakarta, information was obtained that the school does not yet have a mathematics LAS in class VIII SMP / MTs. For learning mathematics in class VIII, the school uses the BSE mathematics book. Learning in MTs N 2 Yogyakarta in class VIII is still often centered on the teacher. The teacher conveys learning material using manuals and worksheets made by the teacher but students do not have worksheets individually or in groups so some students only take notes and listen. In this learning process, some students can be active but not all are active. So learning in class does not run effectively. So from that, we need LAS that can be used as a guide for students during learning, with the hope that learning in class can run well.

Based on the results of interviews with mathematics teachers in class VIII, Mrs. Wartinem S.Pd on April 25, 2014, at 09:30 at the Muhammadiyah 6 Junior High School in Yogyakarta, information

was obtained that the school did not yet have a VIII SMP LASmatematics class. In the process of learning mathematics in class, the teacher uses the BSE math reference book for class VIII. Learning happens the teacher explains and students pay attention and take notes, the teacher delivers the material in front of the class with difficulty but some students are active, that is the teacher's constraints in teaching students in class. So that learning in the classroom does not run effectively. So from that, we need the LAS that can be used as a guide for students during learning, with the hope of learning in class can run well.

Because mathematics teachers do not have LAS and have not yet developed LAS. So for learning in class mathematics teacher gives lessons to students using reference books provided by the school. Mathematics learning in class VIII has not been student-centered. With learning that has not been student-centered, all students have not been fully active, so mathematics learning in class has not run effectively In order for learning to be effective students also need to open guidelines in learning such as LAS that can be used when learning mathematics. LAS development can be used as an alternative to learning in the classroom ... Student Activity Sheet (LAS) is another name for the Student Activity Sheet (LKS). In LAS students are required to be active in-class learning.

From these problems, the researcher finally made a decision by making the title Development of Student Activity Sheet (LAS) Mathematical Circle material for problem-based class VIII SMP / MTs students.

Based on the description above, the objectives to be achieved from this research are:

- 1) To plan, create or produce Problem-Based Student Activity Sheets on Circle material for grade VIII SMP / MTs students.
- 2) Determine the eligibility of LAS in Circle Material in class VIII of Problem Based Schools.

METHODS

Research methods

This research is a research and development study with a product in the form of a Student Activity Sheet (LAS) of Mathematics in Circle VIII grade of SMP / MTs based on problems.

Development Procedure

In this development research, the researcher will develop a product in the form of Student Activity Sheets (LAS) in this study using the following steps: potential and problems, collecting data, product design, product design validation, design revision, product trials.

Try Research and Development Subjects

The subjects in this research and development consisted of material experts, and students of class VIII MTs N 2 Yogyakarta and class VIII SMP Muhammadiyah 6 Yogyakarta.

Data Collection Techniques and Instruments

This development research uses several data collection techniques, namely: interviews, documentation, and picket. This research and development data was obtained by using the following data collection instruments: Material Expertise Test Instruments, and Test Instruments for Students.

The data obtained will be calculated the average score or empirical score with the formula:

$$M = \frac{\sum fx}{N}$$

Information :

M : Average score

$\sum fx$: Number of scores

N : Number of assessors

Furthermore, the data obtained from both material experts and students are converted into qualitative values based on ideal evaluation criteria with the following conditions:

Table 1. Actual Score Scale Value 5

No	Sekor Range	Criteria
1	$\bar{x} > Mi + 1,8 Sbi$	Very good
2	$Mi + 0,6 Sbi < \bar{x} \leq Mi + 1,8 Sbi$	Well
3	$Mi - 0,6 Sbi < \bar{x} \leq Mi + 0,6 Sbi$	Enough
4	$Mi - 1,8 Sbi < \bar{x} \leq Mi - 0,6 Sbi$	Less
5	$\bar{x} \leq Mi - 1,8 Sbi$	Very less

RESULTS AND DISCUSSION

Test Data

Trial data in developing the Development of Student Activity Sheets (LAS) of Mathematics in Circle VIII grade of SMP / MTs Problem-based.

1. (Analysis)

Analysis conducted by researchers to provide an overview of the media to be developed. Based on the data analysis technique used, the data obtained from the assessment of product assessment experts and grade VIII SMP / MTs mathematics teachers and students are processed, the results are as follows:

a. Material analysis

The selection of material to be developed in the LAS is done by consulting with mathematics teachers in class VIII MTs N 2 Yogyakarta and Muhammadiyah 6 Yogyakarta Middle School. The material chosen was Circle because this material was felt to be still difficult for students. Students need LAS in the learning process so that it can facilitate students in understanding the material.

b. Curriculum analysis

Curriculum analysis is done by conducting a literature study that includes analysis of the subject matter, competency standards (SK), core competencies (IC), and indicators that must be achieved by students in learning.

2. Design

The design/design stage consists of 3 steps: developing the LAS design, and the LAS assessment sheet.

3. Development

This Development Phase includes:

- a. Reference collection
- b. LAS Making
- c. Validation and valuation
- d. Limited trial
- e. Implementation

Applying math LAS by testing LAS in schools to determine the use of LAS if used in learning, and large class trials are the final trials in this development process. The trial is conducted by giving a product that has been accompanied by a questionnaire to students who have been selected according to specified criteria. The questionnaire used has the function to obtain data in the form of student assessments about the quality of the developed LAS.

Data analysis

The data obtained are divided into three parts of the assessment which are the results of the assessment of the experts, the students' responses and the overall assessment combined. The results of the LAS assessment from various aspects will be explained as follows:

a. Assessment Questionnaire Analysis

Media and LAS material assessment of Mathematics in Circle VIII grade of SMP / MTs Problem Based was conducted by product assessment experts Puput Anggoro, M.Pd is a UAD mathematics education lecturer, and mathematics teacher VIII class, namely Wartinem, S.Pd. is a teacher of mathematics subject class VIII SMP Muhammadiyah 6 Yogyakarta, and Aniek Lestari S.Pd. Is a teacher of mathematics subject for class VIII MTs N 2 Yogyakarta.

Table 2. Validation Rating Data Table Lecturer Material Expert and Teacher

No	Evaluator	Value
1	Puput Anggoro, M.Pd	69
2	Aniek Lestari, S.Pd	70
3	Wartinem, S.Pd	86
Amount		225
Average		75
Quantitative Data Criteria (positive statements) that is Good		

b. Analysis of Student Response Questionnaire

Students' responses to mathematics LAS on Circle VIII grade material SMP / MTs based on problems are known based on the results of a questionnaire given and filled in by students of Muhammadiyah 6 Yogyakarta and MTS N 2 Yogyakarta during the trial

Table 3. Student Assessors Scoring Data Tables

No	Evaluator	Value
1	SMP Muhammadiyah 6 Yk	87.266667
2	MTs N 2 Yogyakarta	88.152
Amount		175.41866
Average		87.709333
Quantitative Data Criteria (positive statements) that is very Good		

c. Combined Analysis of Assessment Questionnaire and Student Response Questionnaire

After the results of the assessment of the material and student, responses are known, then the results of the assessment in terms of the material and student responses are combined to determine the feasibility of the LAS mathematics in the VIII grade circle material SMP / MTs in accordance with the problem-based that has been produced.

Table 4. Combined Assessment Score Data Table

No	Evaluator	Average
1.	Questionnaire Assessment of Material Experts and teachers	75
2.	Student Response Questionnaire	87,709333
Amount		162.70933
Quantitative Data Criteria (positive statements) that is Good		

Product Revision

Mathematics LAS on Circle VIII grade material in Problem Based Junior High School in mathematics learning that has been assessed by material experts and grade VIII SMP / MTs mathematics teachers and then revised according to the given improvement input.

CONCLUSION

Based on the results of the study, it can be concluded that by using the LAS mathematics in the Circle material can be used in mathematics learning, especially in students of SMP Muhammadiyah 6 Yogyakarta and MTs N 2 Yogyakarta in the subject of the Circle. This is evident from:

1. Based on the results of the validation of expert lecturers and teachers obtained an average score of 75. Based on these average scores it can be seen that the Mathematics LAS Circle material for grade VIII SMP / MTs students based on Problems developed according to expert lecturers and teachers reaches good criteria.
2. Based on the results of the questionnaire responses of students of MTs N 2 Yogyakarta obtained an average score of 88,152. Based on the average score, it can be seen that the LAS Mathematics Circle material for grade VIII SMP / MTs students based on Problems developed according to students of MTs N 2 Yogyakarta achieves very good criteria.
3. Based on the results of the questionnaire responses of students of Muhammadiyah 6 Yogyakarta Middle School obtained an average score of 87.266667 Based on these average scores it can be seen that the LAS Mathematics Circle material for Problem VIII Middle School / MTs students developed according to students of Muhammadiyah 6 Yogyakarta Middle School reached very good criteria.
4. Based on the results of the combined questionnaire responses of students between MTs N 2 Yogyakarta and Muhammadiyah 6 Middle School students an average score of 87,709333 was obtained. Based on the average score, it can be seen that the LAS Mathematics Circle material for Grade VIII Middle / Middle School students that is developed according to MTs N 2 and 6 Yogyakarta students achieve very good criteria.
5. Based on the average results of assessment calculations by product experts and student responses with an average of 162,709333. Based on the average score, it can be seen that the LAS Mathematics Circle material for students of grade VIII based on problems developed according to the material experts and students' responses reach good criteria and are suitable for use in the learning process

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