

Improvement of Student Learning Outcomes through the Development of a Flat-based Building Material Teaching Module Based on RME Approach in Class VII MTs Integrated Langsa City

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ABSTRACT

This study aims to describe: 1) The validity, practicality and effectiveness of teaching materials on flat shapes based on the developed Realistic Mathematics Education (RME) approach. 2) Improving student learning outcomes on flat material. This research is a development research using the ADDIE model which is carried out in class VII Integrated MTS Langsa City. The research results obtained are: 1) The teaching materials developed have been categorized as Valid, Practical and Effective. 2) Based on the normalized gain index, it is found that there is an increase in student learning outcomes after using the developed teaching materials. Based on classical student completeness, the percentage of student completeness in the tests carried out was that students completed 29.3% of students completed the pre-test and 86% of students completed the post-test. Thus, the development of teaching materials for flat shape materials based on the Realistic Mathematical Education (RME) approach developed can improve student learning outcomes for class VII MTS Integrated Langsa City

KEYWORDS

RME approach; flat material learning; module learning

INTRODUCTION

The teaching module is one important aspect in the world of education, because the teaching module is one of the means to support the learning process. The quality of module learning also determined the quality factor of process learning (Sinurat, S. et al, 2022). It means the students can understand easily or not looked from the quality of module learning.

Based on the results of the analysis of the textbooks circulating and used by students at MTs Langsa City Integrated, the weaknesses in the textbook are obtained, namely the textbooks do not support participants to be able to learn independently so that students' knowledge is only obtained from the reading text listed in the textbook, then less memorable learning because the textbook is still general in nature can't make the learning atmosphere of students appear active, creative, do not produce effective learning in the learning process, as well as the material in the textbook is too difficult and too high to understand students so that students become bored. So, such textbooks do not train students to find out or want to find something more important and meaningful in the learning that takes place.

Problems that often occur in developing a teaching module, namely the lack of student understanding in understanding flat building material, students also still tend to be lazy when finding out solutions to the questions given, lack of concentration so that students become faster bored in learning (Daryanto, A D, 2014). Based on these problems, teachers are required to pay more attention to students' ability to remember learning (Ariyadi, W., 2012).

In addition, the teacher also needs to prepare an interesting teaching module so that it can invite students to be more active in participation in learning activities, especially in flat building materials.

Based on the results of interviews with class VII teachers at Langsa Integrated MTs, it is known that learning mathematics, especially flat building materials that are applied in schools are less varied in the learning process. Not only that but the teaching module that supports students' interest is less met, so that most students only refer to what is conveyed by the teacher. In addition, also examples of questions in government-owned books for class VII still tend to be difficult to understand so students are less interested in learning. In addition, the use of learning media, especially regarding the elaboration of formulas during the learning process, still seems to rarely use learning media in the classroom.

The results of the interview above are supported by the learning outcomes of the Langsa Integrated MTs VII MTs Class VII student which obtained the average results of as many as 5 class VII students who can work on the questions well, while as many as 25 other people are still in the unfavorable category in working on flat building questions given. Students do not understand what they do data taken from the VII class VII teacher's record of 2023). Only 5 of those who are able to understand the problem well. Besides that, many students have difficulty understanding the formula given. From the explanation above, it is said that it is necessary to develop a tool in the form of a teaching module to make it easier to achieve the learning goals of students in class VII MTs Integrated so that learning activities become much more interesting and fun. One of the appropriate learning material developments for class VII students is the Print Teaching Module. Print teaching modules such as textbooks can be a tool in teaching learning mathematics, especially flat building material. Therefore, in this study the development of mathematics teaching materials will be carried out to improve student learning outcomes.

RESEARCH METHODS

This research is a research development. It is a process used to develop or validate products in learning. It is a process or steps in order to develop a new product or perfect existing products (Amin and Mayasari, 2015). The product developed in this study is a learning tool in the form of a teaching module based on the realistic mathematic education approach in mathematics subjects in flat building material. In this study a product was developed in the form of a print teaching module to improve the learning outcomes of class VII MTs students. The development model in this study was Addie B developed by Thiagarajan.

RESULTS AND DISCUSSION

To develop the module learning based on the development of a flat-based building material teaching module based on RME approach. In this research use 5 steps;

The first is the analysis stage, at this stage the researcher carries out observations at the Langsa City Integrated MTs, the observation was carried out on Monday, April 21, 2023. In the analysis stage the analysis of the needs and analysis of the characteristics of students. The results of the needs analysis are obtained based on the results of observations and interviews with the teacher. The results obtained namely the Integrated MTs of Langsa City, especially Class VII only provide a teaching module whose questions come from package books, have not been able to improve students' critical thinking skills and are in the form of print, so it is needed renewal of teaching modules that can improve students' critical skills and adjust With current learning in its application. In the analysis of the characteristics of students, researchers obtained results through interviews with class VII MTs Integrated

Langsa City teachers. The results of the analysis of students obtained are the level of cognitive abilities of students are heterogeneous, namely high, medium and low capability.

The second is design. The researcher performs the design of the teaching module design, the results of the design that have been made is the initial display design, images and manuscripts as well as the draft teaching module from the cover to the bibliography. Applications used in the design stage are Canva, Supermii, Microsoft Word.

The third is development. The researcher develops the product in accordance with the input and validator criticism. Teaching module products developed consist of the front view, instructions for using the teaching module, basic competencies, learning indicators, learning objectives, learning activities based on realistic mathematical approaches, bibliography, instructions for using teaching modules. After the teaching module product is completed, then the product that has been developed will be validated by three validators, namely learning material experts, design experts, and linguists. Validation is carried out to obtain an assessment and input on the development of products based on a realistic mathematical approach to flat building material. The results obtained are based on the validation of teaching modules by learning material experts, design experts, and teachers it is stated that the teaching module is very valid to be implemented in the school first.

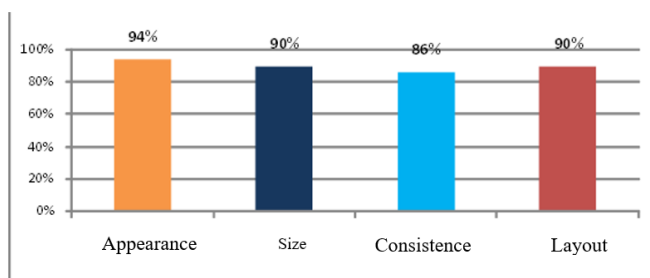


Figure 1. Diagram Result of Design Expert Validation

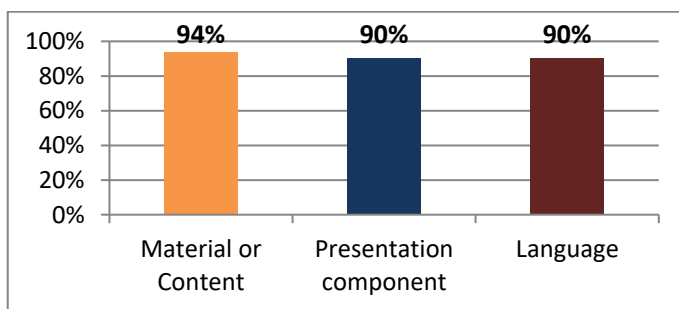


Figure 2. Diagram Result of Material Expert Validation

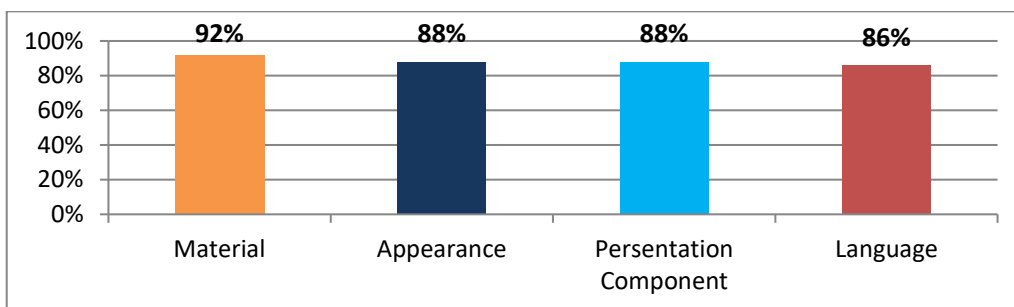


Figure 3. Diagram Result of Language Validation

The fourth is the implementation. It was carried out on June 9, 2023 to 13 June 2023. This stage was carried out after the Realistic Mathematical Approach to the Flat Building Material

was developed and validated implementation was held 4 meetings at the Integrated MTs of Langsa City Class VII.

The fifth is the evaluation. This stage was held on June 13, 2023, researchers carried out post tests in class VII B MTs Integrated Langsa City. Based on the evaluation conducted, the post test results were higher than the pre -test results. The average pre test value is 55.7 and the average post test value is 87%.

Analysis of the effectiveness of the Realistic Mathematical Approach to the Mathematical Approach to the Flat Building Material

Analysis of the effectiveness of teaching materials developed can be seen from the level of completeness of student learning outcomes, through pre -test and post test values. The percentage of student learning completeness was obtained by 87%, there was an increase in learning outcomes of 31.5%. Thus, this shows that learning by using a teaching module based on a realistic mathematical approach to flat building material has been able to improve student learning outcomes. So that the teaching module based on the realistic mathematical approach to flat shape material has been effective and valid.

Practical analysis of teaching modules based on realistic mathematical approaches to flat building material

Fatmawati (2016) revealed the practicality of learning tools is determined through the analysis of student response assessments, as well as learning implementation. Students' responses aim to determine the practicality of learning tools in terms of students' perspectives as research subjects. Puspitawedana (2019) states the analysis of learning implementation aims to determine the practicality of learning devices through direct observations by two observers. The observation is assessed by the teacher's ability to manage learning, as well as the activities of students during learning. Through the observation sheet of learning implementation using a realistic mathematical approach that is developed and carried out in each meeting, the results obtained that the observation score of learning implementation is in the category of "implemented well" with a score of 3.06. This score has fulfilled the criteria for successful practicality of teaching modules based on realistic mathematical approaches in terms of learning implementation.

The teaching module developed in this study is said to be practical if the average learning average is in the category of "implemented well" ($3 \leq \bar{X} < 4$). So that through the results of observation sheets of learning implementation using a teaching module based on the realistic mathematical approach developed and carried out in each meeting obtained the results that the developed teaching module was declared practical because it was in the category "implemented well" with a final score of 3.1. This score has fulfilled the criteria for successful practicality of teaching modules based on realistic mathematical approaches in terms of learning implementation.

Practicality seen from the student response, this student response data aims to see the extent of interest, feeling of pleasure. Underlines and ease of understanding the teaching materials developed. Student response data obtained from the questionnaire analyzed based on the percentage. The questionnaire given in the form of questions related to student interest in the teaching module used.

Based on the results of the student response questionnaire, the average questionnaire score was 3.3 with the category of being interested in the Realistic Mathematical Approach to the Mathematical Approach so that it can be concluded that from the student's response to the Mathematical Realistic Teaching Module that was developed effectively (Asih, Kurnia, et

al,2017). This teaching module can attract the attention of students so that students are interested in learning it, one of which is caused by an interesting design and image in the teaching module developed. This is in accordance with what was explained by Fatmawati (2016) that the implementation of learning is classified as a very good criterion if it reaches a value of 3.5 to 4.0. Furthermore Andi (2014) explains the learning tools can be said to be practical if the minimum learning implementation is in good criteria.

Through the results of research obtained and supported by previous research, it is known that the teaching module developed is categorized as practical to use because it meets the criteria "implemented well" in the aspect of learning implementation and also received a positive response from students to get a score of 3.28 with the category "Interested".

CONCLUSION

Validity of the Realistic Mathematical Approach Based on the Developed Mathematics Approach is in the category of "valid" in terms of the analysis of the results of the validity of teaching materials by validators. There is an increase in learning outcomes after using the module seen from the completeness of classical learning outcomes. The Teaching Module Based on Realistic Mathematical Approaches Developed meets the established effectiveness criteria. Based on classical student completeness, as for the percentage of student completeness in the test conducted, namely, students are completed, namely 29.3 % of students complete in the pre-test and 86 % of students are completed in the post test. Based on the results of the study, it appears that the learning teaching module developed can help students achieve classical learning completeness. In addition, the learning time used does not exceed learning time in general in class VII. Realistic Mathematical Approach Based on the Developed Mathematics Approach Meet the Practicality Criteria for Teaching Modules in terms.

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