



Development of Mathematics Teaching Modules Based on Joyfull Learning

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Keywords

Teaching Module

Mathematics

Joyful Learning

Abstract

This research is motivated by the learning process where educators still apply monotonous methods in teaching, which makes students less motivated to learn. The lack of motivation to learn can affect students' learning outcomes, especially in learning mathematics. The solution offered for the problem is the development of Joyful Learning-based teaching materials to improve students' learning outcomes. The method used in this research is the research and development (R&D) model ADDIE with its steps consisting of 5 stages, namely: a) analysis, b) design, c) development, d) implementation, e) evaluation. The objectives of this research are (1) to understand the process of developing Joyful Learning-based mathematics teaching modules for first-grade students at MINU Jati Rejoyoso Kepanjen, (2) to determine the feasibility of Joyful Learning-based mathematics teaching materials in facilitating first-grade students at MINU Jati Rejoyoso Kepanjen in achieving competence in mathematics, and (3) to assess the effectiveness of Joyful Learning-based mathematics teaching modules for first-grade students at MINU Jati Rejoyoso Kepanjen. The research results show that the Joyful Learning-based teaching module is suitable for use as teaching material, as indicated by the assessments from teaching material experts, subject matter experts, and practitioners, each providing a favorable evaluation. The effectiveness of the teaching module is demonstrated by field trial results, which show an improvement in learning outcomes in the cognitive aspect according to the success criteria determined by the researcher. where the percentage of student learning completeness after using Joyful Learning-based teaching materials is 84.21%.

1. Introduction

Education is a conscious and planned effort to create an atmosphere of active learning and learning in developing potential. The system in education will continue to change to adapt to the needs and developments of the times, one of which is changes in the curriculum. The independent curriculum is a curriculum that is developed by adapting to current demands and needs. The independent curriculum is one of the curriculum concepts that demands independence (Manalu, 2022). One of the characteristics of the independent curriculum is the freedom of teachers to carry out learning based on the learning styles and abilities of students.

The freedom given to teachers in the learning process does not necessarily have a positive impact. There are many things that teachers must do in learning planning, one of which is understanding student characteristics (Safurudin, 2020). Based on student characteristics, teachers need to develop learning designs and learning materials. The selection of design and materials is an important part of the learning process, this aims to adjust abilities and provide learning motivation to students.

Student learning motivation is an important part of every learning process, one of which is mathematics learning. In everyday life, students actually interact with mathematics, but this is not realized because it is in a different form, so in this case the teacher must be able to present mathematics material according to the characteristics of the students. The characteristics of students in phase A are learning concretely and simply, besides that they still enjoy games (Safitri, 2022). Therefore, as a teacher, especially in phase A, it is necessary to innovate in designing learning and choosing the material to be studied, so that students are able to receive and understand the message from the material being studied.

Problems in understanding mathematics often occur in every learning process, this also happens at MI NU Jati Rejoyoso Kepanjen. Based on the results of interviews with first grade teachers,

it was stated that students still do not understand the mathematics material, this is indicated by the results of the assessment carried out by the teacher in daily tests. The results of observations of mathematics learning also show that, in the learning process, teachers still use conventional methods, where teachers explain and provide exercises. In addition, in terms of students, they show a passive attitude in learning. For this reason, mathematics is a difficult subject, even though students are actually used to mathematics in everyday life.

Based on the problems that occurred at MI Nu Jatirejoyoso Kepanjen, the researcher tried to provide a solution in the form of developing a Joyfull Learning-based teaching module. A teaching module is a teaching material that is systematically designed based on the curriculum and packaged in a form of learning that allows it to be studied independently in a certain time unit so that students can master the competencies taught (Laila, 2019). In the independent curriculum, teaching modules are considered an important component in learning, because teaching modules are an implementation of the Learning Objective Flow (ATP) developed from Learning Outcomes (CP). In compiling it, teachers need to consider the learning objectives and what material will be studied, so that the learning carried out by students becomes interesting and meaningful.

Learning can be interesting and meaningful if the learning method applied is adjusted to the characteristics and stages of students' cognitive development. In addition, the presentation of the material is also a factor that can help students understand the lesson. The general characteristics of first grade students are that they still enjoy playing, moving, playing in groups and doing activities directly. Therefore, the Joyfull Learning approach is one solution that can be applied in learning. Joyfull Learning means fun learning, where the learning model specifically directs the learning process with games (Fadillah, 2026). In this fun learning or Joyfull Learning, packaging learning in fun games is expected to create student interest and creativity perfectly.

2. Method

This study was focused on first-grade students of MI NU Jatirejoyoso Kepanjen, the type of research applied was research and development or Research and Development (R&D) which produced a product in the form of a teaching module. The Research and Development (R&D) model in this study uses the ADDIE model because this model is more dynamic and effective (Rayanto, 2020). The ADDIE model consists of stages that are easy to understand and implement in developing a product. The ADDIE stages include Analysis, Design, Development, Implementation and Evaluation.

In the Analysis stage, the researcher conducted material analysis, needs analysis and student characteristics analysis. This analysis was carried out so that the developed teaching module was in accordance with the needs and in accordance with the objectives of the study. The next stage is Design or planning, the researcher made a teaching module plan by considering the results of the analysis that had been carried out previously. In the planning stage, the researcher made a framework as a material for developing a teaching module in the form of media, devices and learning instruments. Furthermore, the development stage was carried out by compiling learning devices according to the previously created framework. After the compilation process was completed, the researcher conducted validation as an effort to improve the product with an assessment from experts, namely material experts, teaching material development experts and practitioners. After the validation and revision process, the next stage was implementation, namely the application of the teaching module that had been developed. At the implementation or application stage, it was carried out in two groups, namely small groups and large groups. Evaluation is the final stage of the ADDIE model, evaluation is carried out to assess the progress and effectiveness of a performance or project. In this study, evaluation was also carried out at each stage, this aims to ensure that problems that arise at each stage can be identified and resolved quickly and accurately.

3. Results and Discussion

3.1. Development of Teaching Modules

In accordance with the research method explained previously, this development research uses the ADDIE model. Which consists of 4 stages, namely: Analysis, Design, Development, Implementation and Evaluation. First, the researcher conducts an analysis first, the things analyzed include material, needs and characteristics of students. Material analysis is carried out by identifying

aspects contained in learning achievements, identifying types of materials, choosing materials that are in accordance with learning achievements and learning objectives, material orientation towards students, and several things related to the material. Furthermore, problem and needs analysis is carried out to find out the problems that exist in schools/madrasas and what is needed as a solution in achieving learning objectives. So far, the learning process still uses the lecture method, in addition, the tools used by teachers have not been adjusted to the needs and character of students. This problem is due to the lack of teacher understanding of the implementation of the independent curriculum. Furthermore, the characteristic analysis aims to see the characteristics of the target subjects. With the analysis of student characteristics, product development can be used appropriately for the subjects and objects of research.

The development design was carried out after the researcher conducted an analysis, the results of the analysis were used to design the product. In designing a product in the form of a mathematics teaching module based on Joyful Learning with number elements. The steps taken are: 1) consisting of the front cover and back cover, instructions for using the module, materials, LKPD, and teaching materials used. The module consists of the Learning Objective Flow (ATP), Learning Objectives (TP), activity instructions, number pair learning materials. Furthermore, through several stages, the teaching module was developed by considering the principles of developing teaching materials for elementary school students.

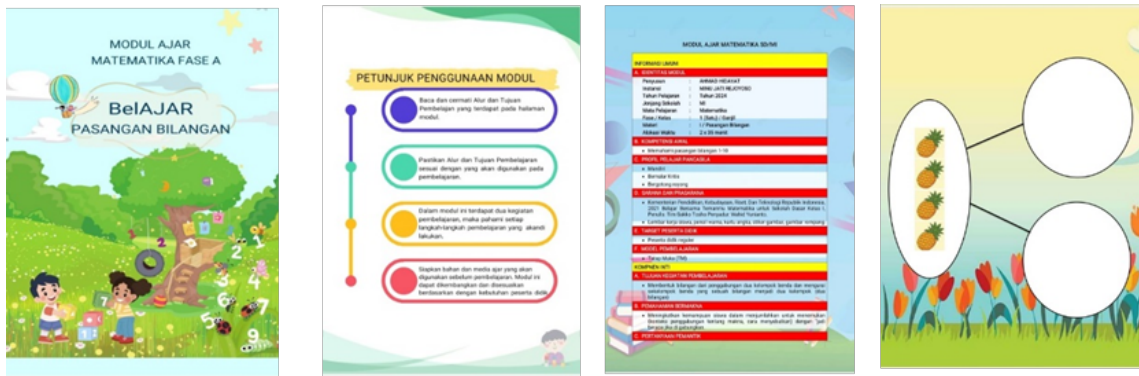


Figure 1. Several displays on the Teaching Module

To determine the effectiveness and validity of the developed teaching module, the researcher conducted validation with the following results:

Table 1. Validation Assessment of Teaching Materials

No	Aspects observed	Indicator	Score	Information
1	Visual Display	a. Image selection	5	Very good
		b. Color harmony	5	Very good
		c. Conformity of image to material	5	Very good
		d. Image size accuracy with font	5	Very good
		e. Accuracy of font selection	5	Very good
		f. Image layout with text	5	Very good
		g. Image attraction	5	Very good
2		a. The attractiveness of teaching materials	4	Good

	Teaching Materials Engineering	b. Effectiveness in use Usability (ease of use)	4	Good
3	Functions and Benefits of Teaching Materials	a. Makes it easier for teachers to deliver material	4	Good
		b. Make it easier for students to understand the material	4	Good
TOTAL SCORE			51	
Percentage obtained			92.27%	

Table 2. Material Validation Assessment

No	Aspects observed	Indicator	Score	Information
1	Contents	Suitability of material with basic competencies	5	Very good
		Suitability of material with learning indicators	5	Very good
		Suitability of material to purpose	5	Very good
		The material is easy to understand	5	Very good
		Accuracy of the language used	5	Very good
2	Teaching Materials Engineering	Ease of use	4	Good
		Ease of processing	5	Very good
TOTAL SCORE			34	
Presentation			97.14%	

Table 3. Practitioner Validation Assessment

No	Aspects observed	Indicator	Score	Criteria
1	Teaching materials	The attractiveness of the teaching module	5	Very good
		Suitability of teaching modules with materials	4	Good

		Suitability of teaching modules to students	5	Very good
2	Engineering teaching materials	Ease of use	4	Good
		Ease of processing	4	Good
		Effectiveness in use	5	Very good
TOTAL SCORE			27	
Presentation			65.71%	

Based on the results of the expert assessment above, the smart count media is valid or suitable for use in class by revising or adding comments from experts. After the media was revised, the researcher conducted a large group trial on Class I MI/Primary School at MINU Jati Rejoyoso Kepanjen as many as 19 students. The trial conducted by the researcher used pretest and posttest. The following is a recapitulation of student scores Class I MI/Primary School at MINU Jati Rejoyoso Kepanjen

Table 4. Recapitulation of student test scores

No	Name	Mark	
		Pretest	Posttest
1	AA	90	100
2	ARNR	70	90
3	S	50	70
4	Z1	80	80
5	Z2	70	90
6	A	60	90
7	AFA	70	90
8	RH	50	90
9	MAS	60	90
10	MAR	80	100
11	MRAF	60	90
12	QMS	70	90
13	AAAS	70	80
14	MYI	50	70
15	NMFE	70	80
16	AAS	40	50
17	AZB	40	50
18	MAF	60	90

19	PACW	40	60
	Total	1180	1550

Based on the values obtained from the pretest assessment sheet, there are 9 students who get scores reaching the KKM. So the classical learning requirements of students are calculated using the following formula:

$$\text{Prosentase (\%)} = \frac{\text{siswa yang tuntas}}{\text{seluruh sampel penelitian}} \times 100\%$$

$$\text{Prosentase (\%)} = \frac{9}{19} \times 100\% = 47,36\%$$

Meanwhile, based on the scores obtained from the posttest assessment sheet, there were 16 students who received scores that reached the minimum completeness criteria (KKM). Therefore, the classical student completion is calculated using the following formula.

$$\text{Persentase (\%)} = \frac{\text{siswa yang tuntas}}{\text{seluruh sampel penelitian}} \times 100\%$$

$$\text{Persentase (\%)} = \frac{16}{19} \times 100\% = 84,21\%$$

The learning outcomes obtained in the large group trial were a pretest score of 1180 and a classical completion percentage of 47.36%, while the posttest score was 1,550 and a classical completion percentage of 84.21%. Judging from the results of the recapitulation, the increase in student learning increased by 36.85%. Based on the results of the analysis of student pretest and posttest data, the percentage of increasing module effectiveness for students was 36.85%, so it can be said that joyful learning-based teaching materials are very effective for use in learning. Researchers conducted classroom learning observations to determine the shortcomings of the teaching materials developed. In addition, researchers can also see from student learning outcomes after completing the pre-test and post-test. After that, researchers can conclude and the shortcomings of the products developed and improve the products so that the teaching materials become more effective when used in the final stage, namely large group trials.

3.2. Conclusion

This study provides information that the development of joyful learning-based teaching modules has been carried out through several stages. The developed teaching modules have been assessed by experts and practitioners, where each gave a value with a valid and feasible category on the teaching module to be tested on target subjects. Furthermore, at the field trial stage carried out in class 1 MI NU Jatirejoyoso Kepanjen which began with a pretest and ended with a posttest showed that there was an increase, and from the results of the analysis it can be concluded that the developed teaching module is effective in helping students improve their knowledge and achieve learning objectives according to the specified criteria.

Author Contributions

All authors have contributed equally to the paper. All authors have read and approved the final manuscript.

Funding

No funding support received.

Declaration of Conflict of Interest

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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