



Qur'an-Based Mathematics Learning Design on Mixed Calculation Operation Materials for Grade 4 Elementary School (SD) Students

Mardhiyah Hayati¹

¹ (Mathematics Education, Faculty of Teacher Training, Universitas Muhammadiyah Sumatera Utara)
E-mail : hayatimardiyah85@gmail.com

ABSTRACT

This research aims to develop a mathematics learning design in the form of integrated Al-Qur'an teaching materials on the subject of arithmetic operations for grade 4 students in elementary schools that are valid, practical, effective and appropriate. This research is development research using the ADDIE model. Based on the results of the research and development carried out, it can be concluded that 1.) The product produced is in the form of mathematics teaching materials based on the Al-Qur'an; 2.) The product validation test showed that if the percentage was 92.3%, the product was included in the valid category; 3.) The results obtained from this learning are different from ordinary learning, because apart from understanding the material on mixed arithmetic operations, students will also increase their knowledge of the verses of the Al-Qur'an which contain mathematical concepts; 4.) Based on the results of the effectiveness test on fourth grade students at Ibnu Yunsi IT Elementary School, it can be concluded that Al-Qur'an-based mathematics learning is effectively implemented in all elementary schools (SD) in the city of Binjai.

Keywords: *Teaching Materials, mathematics, Al-Qur'an, elementary school*

1. INTRODUCTION

Education is an effort to advance the quality of life of human beings with the aim of improving social, moral, cultural, and religious values. Through education, human beings can increase progress and development and improve the quality and potential contained in them. There are various ways that can be done to explore and develop the potential of every human being, namely by taking education that can be obtained through educational institutions such as schools in the world of education, many things are learned that can later be used by individuals in solving the problems they face. Education in schools includes a variety of subjects, including mathematics. Mathematics is a branch of science that studies how to count, measure something with numbers, symbols, or numbers. Its subjects of study include algebra, statistics, logic, geometry, measurement and others. Because mathematics is inseparable from daily life, both directly and indirectly.

Mathematics is a subject that is studied at every level of education in Indonesia. The development of education in mathematics learning in Indonesia is still very concerning, this is because many people think that mathematics is a difficult learning so that learning mathematics becomes very lacking

Moreover, mathematics is often considered a subject that has too many calculations and formulas that so far some people have only focused on memorising so that they find it difficult to understand the material.

In the era of the development of science and technology like now, it is important for educators to be more creative and innovative in teaching mathematics so that students can learn independently outside of class hours. However, there are still obstacles in terms of the availability of facilities and infrastructure that can hinder the implementation of independent learning or have not been optimally utilized as a learning resource. Although books and modules as teaching materials are easy to obtain, teaching materials that are Islamic-based and in accordance with the Qur'an are still difficult to find and rarely used in the learning process.

The Qur'an is a guide that, when studied, will help us find values that can be used as a guide for solving various problems in life. If lived and practiced, it will make our thoughts, feelings, and karsa lead to the reality of faith that is needed for stability and peace of personal and community life. The Qur'an is the holy book of Muslims which is the source of all sources of knowledge, which in practice should be reflected in the overall behavior of a Muslim's life. Mathematics as a science, even dubbed as the king of science, mathematics is definitely part of the Qur'an. From this perspective, it is explained that mathematics and the Qur'an are interrelated because there are many mathematical concepts in it that can be learnt and used as a source for teaching materials, especially for the development of mathematics learning teaching materials.

Therefore, through the development of inspiring, easy-to-understand, communicative, and interesting learning concepts sourced from Qur'anic verses, it is hoped that it can foster the interest of children and the next generation in mathematics learning. Mathematics learning does not have to be presented with a complicated or confusing impression, but it is necessary to have a simple, interesting, and contextual display of mathematics learning.

Based on the description above, this study will conduct a research entitled Qur'an-Based Mathematics Learning Design on Mixed Calculation Operation Materials for Grade 4 Elementary School (SD) Students.

2. LITERATURE REVIEW

1. Framework Design

Design is a process to define something that will be done using a variety of techniques and involves a description of the architecture and details of the components and also the limitations that will be experienced in the process of work.

Several experts also give opinions about this design or design, including Pressman "Design is a meaningful engineering representation of something that is to be built". This means that a design result will later be a representation of something to be built (in this case, learning). Then Gustafson gave a broader opinion stating that "Design is the process of applying various techniques and principles for the purpose of defining a device, a process, or a system in sufficient detail to permit its physical realization". This means that in the design process can use various types of techniques to realize the goals you want to achieve.

2. Mathematics Learning

According to Corey in (Sagala), learning is a process in which a person's environment is deliberately managed to allow him to participate in certain behaviors, certain conditions or produce responses to certain situations, learning is a special subset of education. Meanwhile,

according to Achyar, learning is the process of interaction between students and educators and learning resources in a learning environment.

Based on the above opinion, it can be concluded that learning is a process that has been designed programmatically by educators to attract students to participate in certain learning matters, so that students can learn actively and independently by using all learning resource facilities.

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In the teaching and learning process at school, students study several areas of study including mathematics. Mathematics has a very important role in daily life and in helping other fields of science. Mathematics is a means of logical, systematic, and consistent thinking in determining and developing science and technology to face future challenges in global competition. Given the importance of the role of mathematics, there is hope that mathematics learning achievement can be improved.

Based on the opinions of the experts above, it can be understood that mathematics is a science that discusses quantities through a process of calculation and measurement, besides that mathematics is also a science obtained with a logical reasoning result in accordance with certain rules. Thus, it can also be expected that students have a good interest and interest in learning mathematics. So that students no longer think that mathematics learning is a learning that is difficult to understand.

3. Perspective of the Qur'an

Etymologically, the Qur'an comes from Arabic, which is the plural form of the masdar noun of the verb qara'a (أَرَق) – yaqra'u (أَرَقِي) – qira'atan (قِرَاءَاتٍ) – wa qur'anān (أَنْزَارِق) which means "reading" or "something" that is read over and over again". Meanwhile, in terminology (Islamic terms), the Qur'an means the holy book of Muslims which contains the words of Allah SWT which were revealed to the Prophet PBUH as a miracle.

Then experts put forward their opinion about the Qur'an, namely, according to M. Quraish Shihab stated that "it is a proper name of Allah's choice, because there is no reading since man knew the reading five thousand years ago that can match the Qur'an, a perfect and noble reading. Meanwhile, according to Nursupriana (2017) in (Subhi) that the Qur'an is the word of Allah SWT. The holy book that contains the heavenly message mediated by revelation and quick signals that are secret in nature was conveyed by Allah to the Prophet and the Messenger who became a miracle revealed to the Prophet Muhammad PBUH.

The term perspective, according to Martono, a social scientist, reveals that the meaning of the word perspective is a way of looking at a problem by using a certain point of view in looking at the phenomenon Ardianto and Q-Anees also revealed the meaning of the word perspective is our point of view or perspective on something.

So, perspective can be interpreted as a person's way of assessing something that is expressed both orally and in writing with a variety of certain points of view.

4. Mathematics Learning Framework Based on the Perspective of the Qur'an

In the process of learning mathematics, an educator has a very important role. This is because educators are facilitators in the learning process, educators must be able to develop all student competencies to the maximum.

To carry out a mathematics lesson, educators do not necessarily do not necessarily do without preparation, namely they must prepare all things that refer to learning activities. Good learning must have a good and mature preparation. With this good preparation, it is hoped that it will be able to increase the confidence of educators in delivering learning materials effectively to students.

Mathematics learning is a process designed with the aim of creating an environment that allows students to carry out mathematics learning activities, so that the understanding of mathematical concepts or principles can be learned well by students. Through these actions, an effective, efficient, and engaging learning process can be carried out and the results of learning will be achieved.

The researcher interprets the design of the mathematics learning framework based on the perspective of the Qur'an, namely how the mathematics learning framework is designed according to the Qur'an. Where the conceptual framework of mathematics learning is based on or sourced purely from the Qur'an, namely regarding its various verses that refer to the concept of mathematics learning. If the basis of the teachings in the Qur'an is peeled off, then there are a lot of verses related to mathematical concepts. One of them that will be discussed in this study is algebra. The study of algebra cannot be separated from several components, including numbers and number operations. Then the Qur'an also talks about geometry related to the concept of form and measurements. The mathematical learning framework designed in this study is compiled and described in general.

3. RESEARCH METHODS

Research methods are basically a scientific way to obtain data with specific purposes and uses. In general, there are three types of research objectives, namely discovery, proof and development. Discovery means that the data obtained from the study is completely new and previously unknown. Proof means that the data obtained is used to prove the existence of doubts about certain information or knowledge, and development means deepening and expanding existing knowledge.

This research is a development research using the ADDIE (Analysis, Design, Develop, Implement and Evaluate) model. ADDIE is one of the most commonly used models in instructional design to produce productive designs. This model is an approach that helps to develop instructional objectives, instructional development, effective and efficient teaching design by applying the ADDIE model process to each instructional product.

Time and Place of Research

The research was carried out in the second semester of the 2023/2024 academic year at SD IT Ibnu Yunsi, Binjai City.

Research Target/Subject

The study population is elementary school students in Binjai City. The sample in this study is SD IT Ibnu Yunsi, Binjai City.

Research Procedure

The research procedures used are as follows:

- a) Analyze
The analysis stage is to identify the problem (need).
- b) Design
At this stage we design the product we will make.
- c) Development
Tahap ini peneliti harus merealisasikan rancangan semula.
- d) Implementation
Once the product is finished, it can be tested through a large batch The results of the trial will be evaluated and revised to produce a final product that is ready for distribution.
- e) Evaluation
Evaluation is a step taken to evaluate the success of the learning system that is being developed, whether it is in accordance with the initial expectations or not.

Data, Instruments, and Collection Techniques

The instruments used are observation sheets and questionnaires Observation sheets to see the validity and effectiveness and questionnaires are used to see the practicality of the teaching materials developed.

Data Analysis Techniques

The data analysis method of this research involves processing data from expert experts to prototypes that have been developed and tested for validity The practicality test was carried out by distributing questionnaires to teachers and students, while the effectiveness was evaluated through the learning outcomes of students who used the prototype.

4. DISCUSSION

1. Analysis

This stage of analysis aims to identify problems that will be used as the background for research. This aims to see the gap between the ideal and the events in the field.

In this study, there is a problem that arises, namely the lack of development of Quran-based teaching materials in elementary schools. Considering that SD IT Ibnu Yunsi is an integrated Islamic-based school that prioritizes Islamic values, Mathematics teaching materials that integrate the Quran as a learning foundation for elementary school students are needed.

2. Design

These teaching materials have been designed as best as possible using attractive and easy-to-read images, colours, and writing In addition, Qur'an verses that are relevant to the material discussed, namely mixed counting operations The following is an overview of the results of the development of teaching materials:

- a. Teaching materials are created using the Canva design application.
- b. The background design is white, the header is green and white.

- c. Designed with fonts with attractive illustrations and using communicative and easy-to-understand language.
- d. Using verses in the Qur'an in accordance with the related material, namely regarding mixed counting operations.
- e. Teaching materials are equipped with examples and exercises.

The format for the preparation of teaching materials is: cover, preface, table of contents, instructions, decree and KD, title, learning objectives, assignments, additional information, and bibliography.

3. *Development*

At this stage of development, the teaching materials that have been designed are developed in accordance with the plan that has been set. At this stage, tests are carried out to ensure the validity of the teaching materials. Validity aims to conduct a feasibility test on the product developed or a relevance test by a panel that has competence. The validation of this teaching material includes aspects of content feasibility and graphic aspects. The results of validation by expert experts can be seen in the following table as follows.

Tabel 1. Results of Teaching Material Validation Test by Teaching Material Experts

| No. | Assessment Indicators | Total Percentage | Validity |
|-----|--------------------------------|------------------|------------------------|
| 1. | Eligibility Aspects of Content | 92,3% | Valid Without Revision |
| 2. | Language Eligibility Aspects | | |

Based on table 1 above, it was concluded that the final result of validation was 923% which stated that the teaching materials developed were very valid.

4. *Implementasi*

The implementation process involves the use of teaching materials that have been prepared. Teaching materials are adjusted to a plan that has been set beforehand. At this stage, measurements are made of the practicality and effectiveness of the prototype that has been developed. Practicality test is an activity to test the level of product availability developed. The results of the practicality test using a questionnaire given to teachers and students have been recorded in the following table:

Tabel 2. Results of Student Responses

| Research Subject | Total Percentage | Categories Response |
|------------------------------|------------------|---------------------|
| Class IV SD IT Ibnu Yunsi | 69,2% | Positive |

Based on table 2, it can be concluded that students are very enthusiastic in participating in Qur'an-based mathematics learning, which can be seen from the total percentage, namely 69.2% and 78%, this can be ensured that the teaching materials are tested for practicality.

To evaluate the effectiveness of teaching materials, an assessment of Mathematics learning outcomes is carried out with the criteria of learning completeness. The percentage of assessment of learning outcomes is as follows:

Tabel 3. Persentase Ketuntasan Hasil Belajar Peserta Didik

| Statement | Grade IV Students of SD IT Ibnu Yunsi | |
|---------------------|--|------------|
| | Number of Students | Percentage |
| Completed students | 20 | 76,9% |
| Incomplete students | 6 | 23,07% |

Based on the provisions that have been set, learning is considered effective if more than half of the number of students reaches the Minimum Completeness Criteria (KKM) score of the research subject. The learning outcomes of students have reached completeness, which is more than 50%, so it can be concluded that Qur'an-based mathematics learning on mixed calculation operation materials carried out on research subjects has proven to be effective.

5. Evaluation

At this stage, the researcher assesses the teaching materials developed. The assessment aims to evaluate the quality of the products developed. At this stage, if there are any deficiencies, revisions will be made. Based on the researcher's evaluation, Quran-based mathematics teaching materials are deemed suitable for implementation and are highly suitable for dissemination to other primary schools.

5. CONCLUSION

Mathematics learning based on the perspective of the Qur'an is learning that is related to the material, strategies and also learning steps based on the perspective of the Qur'an. With the design of a mathematics learning framework based on the perspective of the Qur'an, it will foster students' interest and interest in learning mathematics, students can analyze a problem more critically, and increase students' insight into mathematics learning based on the perspective of the Qur'an which is sourced from the Qur'an itself, the activity also becomes more communicative and meaningful. In addition, teachers can also help and make it easier for educators to plan the learning process, namely

preparing inspirational teaching materials related to the design of a mathematics learning framework based on the perspective of the Qur'an.

The results of the study show that: 1.) The products produced are in the form of Qur'an-based mathematics teaching materials; 2.) The product validation test obtained the result that obtaining a percentage of 92.3%, the product is included in the valid category; 3.) The results obtained from this learning are different from ordinary learning, because in addition to understanding the material of mixed calculation operations, students will also increase their knowledge of Qur'anic verses that contain mathematical concepts; Based on the results of the effectiveness test of the pad of grade IV students of SD IT Ibnu Yunsi, it can be concluded that Qur'an-based mathematics learning is effectively applied in all primary schools (SD) in the city of Binjai.

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