Development of Al-Qur'an-Based Science Magazine on Human Movement System Material for Class VIII SMP/MTs Students

Pengembangan Majalah Sains Berbasis Al-Qur'an tentang Materi Sistem Gerakan Manusia untuk Siswa Kelas VIII SMP/MTs

Inta Niatul Hasanah
State Islamic University Kiai Haji Achmad Siddiq Jember, Indonesia
niainta42@gmail.com

Laily Yunita Susanti
State Islamic University Kiai Haji Achmad Siddiq Jember, Indonesia
susantilaily89@gmail.com

Abstract

This research was conducted to develop a Qur'an-based Science magazine on the human movement system material for class VIII SMP/MTs students. The research objectives are to describe the validation of the Qur'an-based science magazine on the Human Movement System material for class VIII SMP/MTs students and to describe the students' responses to the Qur'an-based science magazine that was developed. This research is a research and development research using the 4-D Thiagarajan development model with the research stages of define, design, develop and disseminate. The results of this research are in the form of a science magazine based on the Qur'an on the Human Movement System material for class VIII SMP/MTs which is used as a learning support book with a material expert test validity level of 88.75%, religious validity of 85%, media validity by 97.14% and users (teachers) by 90.30% which means science magazines are included in a very valid category to be used as a supporting book. Then the results of the students were 90, 96% with a sample of 6 students in class VIII, and the results of the large-scale student response test of 90.66% with a sample of 30 students in class VIII. These results indicate that the magazine is included in the very attractive category for the development of a science magazine based on the Koran on the Human Movement System material for SMP/MTs Class VIII students.

Keywords: Supporting books, magazines, science of the Qur'an, human movement systems.
Abstrak

Penelitian ini dilakukan untuk mengembangkan majalah IPA berbasis Al-Qur'an tentang materi sistem pergerakan manusia untuk siswa kelas VIII SMP/MTs. Tujuan penelitian adalah untuk mendeskripsikan validasi majalah IPA berbasis Al-Qur'an pada materi Sistem Gerakan Manusia untuk siswa kelas VIII SMP/MTs dan mendeskripsikan tanggapan siswa terhadap majalah IPA berbasis Al-Qur'an yang dikembangkan. Penelitian ini merupakan penelitian penelitian dan pengembangan dengan menggunakan model pengembangan 4-D Thiagarajan dengan tahapan penelitian mendefinisikan (define), merancang (design), mengembangkan (develop) dan menyebarluaskan (dissemination). Hasil penelitian ini berupa majalah IPA berbasis Al-Qur'an tentang Sistem Gerakan Manusia materi untuk kelas VIII SMP/MTs yang digunakan sebagai buku penunjang belajar dengan materi tingkat validitas tes ahli materi sebesar 88,75%, validitas ahli agama sebesar 85%, validitas ahli media sebesar 97,14% dan pengguna (guru) 90,30% yang berarti majalah IPA termasuk dalam kategori sangat valid untuk dijadikan sebagai pendukung buku. Kemudian hasil uji respon siswa sebesar 90,96% dengan sampel 6 siswa di kelas VIII, dan hasil uji respon siswa skala besar sebesar 90,66% dengan sampel 30 siswa di kelas VIII. Hasil tersebut menunjukkan bahwa majalah tersebut termasuk dalam kategori sangat menarik untuk pengembangan majalah IPA berbasis Alquran pada materi Sistem Gerakan Manusia untuk siswa SMP/MTs Kelas VIII.

Kata Kunci: Majalah IPA, al-Qur'an, sistem pergerakan manusia

A. Pendahuluan

The National Education System Law Number 20 of 2003 states that "National Education functions to develop capabilities and shape the character and civilization of a dignified nation in the context of educating the nation's life, aiming to develop the potential of students to become human beings who believe and fear God Almighty. One, having noble character, healthy, knowledgeable, capable, creative, independent, and being a democratic and responsible citizen.

Science learning is a process of activities to study nature through scientific work to produce an understanding of concepts, principles, laws and scientific attitudes so that they are useful for everyday life. The success of learning is very dependent on the use of appropriate learning resources, which can meet learning objectives, namely motivating, attracting attention and stimulating students through learning materials (Iwan, et al, 2017).
While the holy book al-Qur’an is a book that is a guide and guide in the life of Muslims. Ibn Sina also advised to pay attention to the education of the Qur'an to children from an early age, so that all the potential of children, both physically and mentally, receive this main education, so that the child's Islamic faith can flow and be embedded in his heart (Maksum, A. M, et al., 2017). The need to insert religious values (kauniyah verses) in science learning can be based on several reasons, one of which is to avoid spiritual emptiness in science education in schools (Tomo Djudin, 2016). However, what happens in junior high school learning is still very little that includes verses from the Qur'an or Islamic values in it. One way to make students interested in learning al-Qur'an-based science is the creation of learning resource media that can create new nuances that attract students' attention to study, one of which is magazines.

Magazines are mass communication media in the form of print that present actual reading, contain information that attracts attention, enrich knowledge, inspire readers' motivation and can foster reading cultivation (Bambang Sri Anggoro, 2019). Lack of interest in reading school material can result in a lack of information such as it is known that most of the knowledge is presented in the form of written language so that it requires children to carry out reading activities in order to gain knowledge. So it is necessary to have interesting, effective and efficient learning media sources so that students are motivated to read (Nining Nuraida, 2019). Magazines are one of the visual media that is suitable to be used as a learning resource media that contains learning material and is equipped with verses from the Koran as confirmation that the material is indeed contained in the Koran, as well as information on how to maintain health.

Based on the results of interviews with science teachers at MTs Bustanul Ulum Bulugading Bangsalsari Jember, the lack of infrastructure, especially alternative learning sources or supporting books, can hinder the learning objectives, because learning activities still tend to use conventional learning resources and schools are under the auspices of Islamic boarding schools, so as to provide supporting media in the form of electronics in learning is still limited. Therefore, it is necessary to conduct research by developing printed learning resources in the form of science magazines that can be used as an alternative source of independent learning. This magazine contains science material for class VIII.
SMP/MTs students, namely the motion system material in humans and is equipped with verses of the Koran that are relevant to the material.

B. Metode

The model used in this research and development is a 4-D development model, which consists of the main stages: (1) Define, (2) Design, (3) Develop and Disseminate. However, in this study, it was only limited to the develop stage due to limitations in terms of time, effort and cost.

The activities carried out at each stage of the development of the 4-D model of learning tools can be explained as follows:

1. Define stage (Define). The purpose at this stage is to determine and define learning requirements that include five stages, namely front-end analysis, student analysis, concept analysis, task analysis, and formulation of learning objectives. specifying instructional objectives). This stage is carried out by observation, questionnaires and interviews, concept analysis and task analysis. The results have been used as consideration for designing a Qur'an-based Science magazine on the Human Movement System material.

2. Stage of planning (Design). At this stage, the preparation of a Qur'an-based science magazine will be carried out. Science magazine materials will be compiled based on the applicable science curriculum and adapted from several textbooks. magazines that are equipped with pictures and verses that are relevant to materials that support the development of alternative learning sources in the form of a science magazine based on the Qur'an.

3. Development stage (Develop). The purpose at this stage is to produce a revised science magazine based on input from experts, especially supervisors. This stage includes: (a) validation (validation of material experts and validation of media experts, validation of religious experts), (b) test of student responses.

4. Dissemination Stage This stage is the stage of using tools that have been developed on a wider scale, for example in other classes, in other schools, by other teachers.
The product trial in the development of this module consists of five stages, namely (1) trial design; (2) test subjects; (3) types of data; (4) data collection instruments; (5) data analysis techniques.

a. Trial Design

The product that has been developed, namely the science learning module, is then validated by experts with the aim of knowing the level of product validity. After validation and improvement, a student response test was conducted with the aim of knowing the student's response to the developed learning module.

b. Trial Subject

The trial subjects in this development involved several experts, educators and students. 1) The subject of the validity test is the validator, who is an expert lecturer on natural science material, a religious expert lecturer and a media expert lecturer (magazine design) who are masters in their fields. 2) Educators, namely science teachers at MT's Bustanul Ulum Bulugading, 3) Students, small group trial subjects 6 students, while large group trial subjects 30 students.

c. Data Type

The types of data in development research are quantitative data and qualitative data. 1) Quantitative data in the form of validity test results of experts and teachers as well as the results of student response questionnaires. The results of quantitative data analysis are used to determine the level of product validity and attractiveness. 2) Qualitative data in the form of descriptions of criticism, suggestions and input in the form of comments from experts and the use of instruments as product improvements.

d. Data Collection Instruments

The data collection instrument in this study used a validation questionnaire and a response questionnaire. The questionnaire used in this study was in the form of a checklist with scoring on each aspect using a 1-5 Likert scale. The criteria for each rating scale used are as follows (Sahlan, 2015):
Table 1.1
Criteria For Each Rating Scale

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Good</td>
<td>5</td>
</tr>
<tr>
<td>Good</td>
<td>4</td>
</tr>
<tr>
<td>Enough</td>
<td>3</td>
</tr>
<tr>
<td>Not Enough</td>
<td>2</td>
</tr>
<tr>
<td>Very Less</td>
<td>1</td>
</tr>
</tbody>
</table>

e. Data analysis technique

The development of science learning modules uses descriptive statistical analysis. This analysis serves to describe or provide an overview of the object under study through sample or population data. The results of the description were used by researchers to revise the product that was developed in the form of a learning module. Data analysis techniques include data analysis techniques from validation results and data from student responses.

1). Validation result data analysis

Data analysis of the validation test results aims to determine the level of validity of the developed learning module. The technique used is the percentage calculation technique and qualitative descriptive technique, with the following formula (Akbar, 2017):

\[
V_{ah} = \frac{Tse}{Tsh} \times 100 \%
\]

Description:

- \(V_{ah}\) = Expert validity
- \(Tse\) = Total empirical score achieved
- \(Tsh\) = Total expected score (maximum)

With the eligibility test criteria for the learning module presented in the table below (Akbar, 2017):

Table 1.2
Magazine Eligibility Criteria

<table>
<thead>
<tr>
<th>Validity Criteria</th>
<th>Validity Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>85,01% - 100%</td>
<td>Very good or can be used without revision</td>
</tr>
<tr>
<td>70,01% - 85,00%</td>
<td>Quite valid or usable but need minor revision</td>
</tr>
</tbody>
</table>
2). Response result data analysis

The percentage of student responses who gave responses according to certain criteria, namely with the following formula (Akbar, 2017):

$$V_{au} = \frac{Tse}{Tsh} \times 100\%$$

Description:
- $V_{au} =$ Audience validity
- $Tse =$ Total empirical score achieved
- $Tsh =$ Total expected score (maximum)

The criteria for the attractiveness of digital-based science teaching material products by the audience (students) descriptively include (Akbar, 2017):

<table>
<thead>
<tr>
<th>Skor</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>81% - 100%</td>
<td>Very Interesting</td>
</tr>
<tr>
<td>61% - 80%</td>
<td>Interesting</td>
</tr>
<tr>
<td>41% - 60%</td>
<td>Quite Interesting</td>
</tr>
<tr>
<td>21% - 40%</td>
<td>Not Interesting</td>
</tr>
<tr>
<td>0% - 20%</td>
<td>Very Not Interesting</td>
</tr>
</tbody>
</table>

C. Pembahasan

1. Define (Definisian)

Based on interviews with science teachers at MTs Bushortul Ulum Bulugading, it was found that the obstacles during the learning process were the lack of infrastructure, especially alternative learning resources or supporting books. So that it can hinder the learning objectives, because learning activities still tend to use conventional learning resources and schools are under the auspices of Islamic boarding schools, so to provide supporting media in the form of electronics in learning is still very limited.
Then observations of class VIII students to find out the difficulties and obstacles of students in the learning process showed that the results of the questionnaires were mostly students expected additional references to support the independent learning process and strongly agreed if a supporting book for Natural Sciences was developed that was associated with Islamic elements.

Based on the results of the interviews and observations above, it is necessary to have a book as an alternative source of independent learning or a supporting book that is designed in an attractive design and can be studied independently so that it can help students understand the material in its entirety and is associated with Islamic elements. Here is a science magazine based on the Qur'an.

2. **Design**

At this stage is the design stage of the science magazine that will be developed.

a. The beginning or introduction of the magazine consists of the author's porch, KI and KD, and a concept map

b. The magazine's content section consists of a description of the contents of the material, articles on disease disorders and their prevention as well as relevant verses of the Qur'an and hadith.

c. The last part or cover of the magazine consists of the author's profile and bibliography.

The material presented in it consists of:

1. Introduction to the Movement System in Humans
2. Frame
3. Bone disorders and prevention
4. Joints
5. Disorders and prevention of joints
6. Muscle
7. Disorders and prevention of muscles
8. Integration of relevant verses with the material
3. Develop (Development)

At this stage, the scientific magazine validation process is carried out by three experts, namely material experts, religious experts and media experts (design) and validation by science teachers. The results can be seen in the following table:

**Table 1.4**  
Validation result

<table>
<thead>
<tr>
<th>Validator</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material Expert</td>
<td>88,75%</td>
</tr>
<tr>
<td>Religious Expert</td>
<td>97,14%</td>
</tr>
<tr>
<td>Media Expert</td>
<td>85%</td>
</tr>
<tr>
<td>Science Teacher</td>
<td>90,30%</td>
</tr>
</tbody>
</table>

Then at this stage a student response test was also carried out, namely by conducting a small-scale student response test and a large-scale student response test. The presentation can be seen in the following table:

**Table 1.5**  
Student response results

<table>
<thead>
<tr>
<th></th>
<th>Interesting</th>
<th>Content Quality</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Scale</td>
<td>92,66%</td>
<td>90%</td>
<td>86,66%</td>
</tr>
<tr>
<td>Large Scale</td>
<td>90,53%</td>
<td>91,83%</td>
<td>86,66%</td>
</tr>
</tbody>
</table>

In the Qur'an-based science magazine, the Human Movement System material that was developed contains the Human Movement System material accompanied by articles about disease disorders according to the material expected that the magazine can be used as an alternative source of independent learning or supporting books in the learning process. This magazine is also equipped with relevant Qur'anic verses according to the discussion which is expected to provide additional knowledge about Science in the Qur'an, so that there is no spiritual void in science education in schools.

The magazines that were developed were then tested for validation by material experts, religious experts, media experts and validation by science teachers to determine the validity of the magazine. The following is a graph of the results of the validation test of material experts, religious experts, media experts and science teachers.
Based on the graph, it shows that the validation results from material experts, media experts, religious experts, and science teachers on the Science magazine are very valid (appropriate) to be used with few notes and input from material experts, religious experts, media experts and science teachers as a revision of Science magazine. The assessment of the Science magazine by material experts with a percentage of 88.75% with suggestions and input that must be completed with image sources and additional examples. The percentage of the feasibility of Sains magazine by media experts is 97.14%. There are suggestions and inputs as a magazine revision, namely adding a picture on the cover and including references to KI and KD that are used. Meanwhile, religious experts get a percentage of 85%, where advice and input from religious experts is the addition of verses from the Qur’an, reinforced by hadith and research results. In the explanation, efforts are made to display more interpretations of the verses that are displayed in the magazine. In addition to material experts, media experts, and religious experts, the Science magazine was also tested on science teachers. The percentage of eligibility by the science teacher was 90.30%. There are suggestions and inputs given by the science teacher, namely not to write too much, but to multiply pictures so that students are more interactive in reading.

The validation results from material experts, media experts, religious experts, and science teachers show that the Science magazine developed can be used for small-scale trials and large-scale trials. In accordance with the Guidelines for Writing Non-Text Books published by the Book Center of the Ministry of National Education, this magazine can be
used as a learning support book or reference if the book has been validated if it has several aspects consisting of material components, presentation components, language and illustration components, magazine contents, and magazine appearances (Center for Bookkeeping and Guidelines, 2008). This magazine can be said to be very feasible because the aspects contained in the magazine have been fulfilled and are in accordance with the writing guidelines.

The Science Magazine which has been validated by experts and science teachers and revised is then tested on students. The first test was a small-scale trial conducted by 6 students of class VIII E MTs Bustanul Ulum Bulugading. While the second test is a large-scale trial conducted by 30 students of class VIII E MTs Bustanul Ulum Bulugading. The results of small-scale trials in the form of a percentage of eligibility based on student assessments of 90.96% with very interesting criteria. Science magazines that are already suitable for use based on student assessments on a small scale can then be used in large scale trials.

The second trial was a large-scale trial conducted by 30 students who assessed the Science magazine according to the student response questionnaire to the Sains magazine as in the small-scale trial. The results of large-scale trials are 90.66% with very interesting criteria. The results of small-scale and large-scale trials can be seen in the following graph:

![Graph of the results of small scale and large scale trials](Picture 4.14)

The results of small-scale and large-scale trials can be said to be feasible even though the percentage in large-scale trials decreased at 90.66%. This is due to differences in
students' cognitive levels and learning styles as well as differences in determining the attractiveness of a learning media for them, so the percentage results will vary. This percentage is based on the percentage developed by Sa'dun Akbar, the magazine is included in the very interesting criteria and can be used by students as a source of independent learning and additional references in learning to improve students' knowledge and spiritual attitudes so that they can achieve the expected competencies, especially core competencies (Pudyaswara, 2016).

D. Simpulan

The conclusion of the research shows that the Qur'an-based science magazine that has been developed is in the very valid category to be used as a source of independent learning and an additional reference in learning. As well as student responses indicating that the Qur'an-based science magazines are in the very interesting category.

DAFTAR PUSTAKA


