ALQURUN TEACHING MODEL-BASED TRIGONOMETRY TEACHING MATERIAL

Rizki Wahyu Yunian Putra1, Suherman2, Bambang Sri Anggoro3, Aan Subhan Pamungkas4

1,2,3Department of Mathematics Education, Universitas Islam Negeri Raden Intan Lampung, Indonesia
4Department of Mathematics Education, Universitas Sultan Ageng Tirtayasa, Indonesia

*Corresponding author: rizkiwahyuyp@radenintan.ac.id

ABSTRACT

Learning in the industrial era 4.0 requires innovation in the development of teaching materials. The purpose of this research is to develop a valid and attractive Alqurun Teaching Model (ATM) teaching material for learning trigonometry. This research was a development research using the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model. Data were collected using a questionnaire. The small group test was conducted by 9 respondents and the large group test was carried out by 12 respondents. The results showed that based on material experts, this teaching material received a feasibility score of 4.06, 4.78 from media experts, and 4.19 from linguists, all of which indicated that this teaching material was in the very feasible category. The results of the small and large group tests showed a score of 3.36 and 4.21, meaning that this teaching material was very interesting. So, it can be concluded that this teaching material can be used in learning trigonometry.

Keywords: Alqurun teaching model, Learning material, Trigonometry
1. INTRODUCTION

Developments in mathematics learning in the digital era need to be followed up. Learning shouldn’t just be limited to practicing skills and memorizing [1]–[3], but through learning, students must be able to understand the concept well and be able to apply it to solve a problem [4]–[6]. Learning in the digital age must be presented with a pleasant learning atmosphere that can attract students’ interest [7], hence, teaching materials are needed to support multidirectional learning [8]–[10]. Teaching materials are important in learning to create a pleasant learning atmosphere so that information will be well received by students [11], [12] and learning will get good results [13]. Apart from being a curriculum requirement [14]–[16], Teaching materials are also needed to make it easier for students to understand learning topics and to help students learn independently [17]–[19].

Several studies have revealed that there were still few teachers and lecturers who develop teaching materials by themselves [20]–[22], thus, learning only went in one direction and students tend to be passive [23]–[25], less motivated to learn [26], [27], not accustomed to investigating and analyzing objects [28]–[30], students’ synthesis thinking process that became less meaningful [31]–[33], and are not used to solving problems in new ways, especially on trigonometry [34]–[36]. This problem needs to be resolved, so that students can have new and meaningful experiences in learning. As a solution, it is necessary to develop teaching materials that can facilitate these activities. In this study, researchers developed teaching materials based on the Qur’anic Teaching Model (ATM). ATM was chosen because students need to learn to construct new ideas in various situations, then learn to review a problem, as needed to learn trigonometry topics. Based on the researcher’s analysis, it is known that the use of teaching materials as a learning resource is very important. In order for the learning process to run well and interestingly, the researchers developed the ALQURUN Teaching Model-based trigonometry teaching material.

Previous research has shown that the development of the Al-qurun Teaching Model has succeeded in being a solution in improving learning outcomes on the topic of Pythagorean [40], other research also showed that students became more motivated in learning mathematical concepts after learning with the Al-Qur’an Teaching Model [42], other research have also stated that ATM makes students accustomed to finding mathematical concepts [43].

If previous researches have focused on the application of the Alqurun teaching model in learning, in this study we developed teaching materials based on the Alquru teaching model on trigonometric material. So that the purpose of this study is to determine the feasibility and response of students to ATM-based trigonometry teaching materials.

2. METHOD

The method used in this study is Research and Development with the ADDIE development model (Analysis, Design, Development, Implementation, Evaluation) [44]. Figure 1 below illustrates the ADDIE development model design.
At analysis stage, we conduct a needs analysis of teaching materials for students and lecturers, curriculum analysis, and analysis of student characteristics. At design stage, we design teaching material. At development stage, a conceptual framework for the application of new teaching material was drawn up. The initial product was then tested for the feasibility of the material, media, and language. The expert validation assessment score consists of five categories, i.e. Very Good (VG) with a score of 5, Good (G) with a score of 4, Fair (F) with a score of 3, Poor (P) with a score of 2, and Very Poor (VP) with a score of 1.

The validation results were analyzed using descriptive quantitative. The feasibility interpretation test is shown in table 1 below [22]:

<table>
<thead>
<tr>
<th>Score</th>
<th>Criteria</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.26 ≤ \bar{x} ≤ 4.00</td>
<td>Very Good/ Valid</td>
<td>No need revision</td>
</tr>
<tr>
<td>2.51 ≤ \bar{x} ≤ 3.26</td>
<td>Good/ Quite valid</td>
<td>Partial revision</td>
</tr>
<tr>
<td>1.76 ≤ \bar{x} ≤ 2.51</td>
<td>Poor/ Not valid</td>
<td>Partial revision &amp; need for re-assessment of the material</td>
</tr>
<tr>
<td>1.00 ≤ \bar{x} ≤ 1.76</td>
<td>Very poor/ Not valid</td>
<td>Overall revision</td>
</tr>
</tbody>
</table>

Implementation stage was carried out to determine the response of students to the teaching materials that have been developed. Evaluation in the last stage was evaluation of student responses based on the results of the questionnaire that has been given. The technique of analyzing product validity data was validation of material and media experts using a likert scale, with a score of 4 (very good), 3 (good), 2 (poor), and 1 (very poor).

3. RESULTS AND DISCUSSION

Based on the research that has been done, the results of the research analysis are:

3.1 Analysis Stage

We conducted an analysis of the students’ lack of interest in learning mathematics. One of the biggest contributing factors was due to monotonous learning, which results in low trigonometric learning outcomes. In the 2013 curriculum, learning must be carried out with a scientific approach, meaning that students must learn to find concepts through learning activities. To increase student interest, teaching materials developed based on student character are needed.

3.2 Design Stage

The design of teaching materials involved designing instruments. The difference between ATM-based teaching material and teaching materials commonly used in schools and universities is that this teaching material have learning steps based on ATM syntax. So that, it became a more interesting and challenging teaching material.

3.3 Development Stage

The teaching materials made at this stage were in accordance with the design at the design stage. The stages of Alqurun Teaching Model (ATM) learning in this teaching material are illustrated in Figure 2.
Stage 1: Acknowledge

- At this stage, students can observe the importance of learning trigonometric concepts in everyday life, so that students are ready to obtain the next concept.

Stage 2: Literature

- At this stage, students are given an understanding of the concepts according to the learning topic.

Stage 3: Quest

- At this stage, students investigate and analyze several objects, facts, or data related to the concepts.

Stage 4: Unite

- At this stage, students synthesize parts/elements from several objects, facts, or data that have similar characteristics.

Stage 5: Refine

- At this stage, students choose a combination of elements from the results of the unite activity, by providing opportunities for students to internalize the concept into their minds.

Stage 6: Use

- At this stage, students are given exercises to measure their ability to apply concepts in a new and real situation.

Stage 7: Name

- At this stage, students determine new ways to solve problems, and choose the most effective way, then students give names to the new method.

Figure 2. Design of Teaching Material

Figure 3. Material Expert Validation Results
3.4 Implementation Stage

This product attractiveness test was carried out by small-scale trial and large-scale trial. The small scale trial was carried out by involving 9 respondents, while the large-scale trial involved 27 respondents.
The development of teaching materials based on the Alqurun Teaching Model (ATM) was carried out very carefully and went through various evaluation processes at each stage. This evaluation was carried out to observe and record all the processes that have been done at each stage. Thus, the result was a feasible and interesting teaching material to be used as a learning tool in the topic of trigonometry. This result is in line with the result of previous research which stated that ATM teaching material can be a solution in overcoming learning problems by attracting student learning interest [40], because this teaching material was feasible and interesting [42], [43]. The distinctive feature of Alqurun Teaching Model-based teaching material was that learning activities in teaching material were enriched with work steps based on ATM steps [41], [42]. So as to make students more motivated in learning trigonometric concept [45].

4. CONCLUSION

Based on data analysis, it can be concluded that the Alqurun Teaching Model (ATM)-based Trigonometric Teaching Material was declared valid by material experts, media experts and linguists. The material expert validation gave a score of 4.06, the media expert gave a score of 4.78, and the linguist gave a score of 4.19, all of which were in the very feasible category. Small and large group tests showed a score of 3.36 and 4.21 with very interesting categories. This research needs to be developed for other learning topics, so that it becomes a solution for other learning topics.

ACKNOWLEDGMENT

Thank you to the Institute of Research and Community Service (Lembaga Penelitian dan Pengabdian Masyarakat/ LP2M), UIN Raden Intan Lampung, who have provided financial support for this research.

REFERENCES


