

Development of Visual Arts Teaching Materials Based on Scientific Approach Class VII SMP Agam Timur

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ABSTRACT

This research seeks to develop teaching materials that are legitimate (in terms of content, presentation, language, and graphics), practical (in terms of ease of use and timeliness), and effective (in terms of content, presentation, language, and graphics) (viewed from learning outcomes). In junior high school, students is used to learn about the arts and culture of fine arts materials. Research and development is the type of research that is used. The device development model used is a 4-D model, which stands for define, design, develop, and disseminate (Thiagarajan, Sivasailam, in Trianto, 2009). The research was conducted at SMPN 1 Sungai Puar Agam Timur. Methods of collecting data by giving a questionnaire, making observations and giving a test of learning outcomes. Data collection tools/instruments used in this study include: device validation sheets, observation sheets, questionnaires and learning outcomes tests. Data analysis techniques used in this study were descriptive data analysis techniques, namely by describing the validity, practicality and effectiveness of art teaching materials. form based on a scientific approach. The outputs of this research are international publications and products of art teaching materials based on a scientific approach in grade VII SMP. The study's findings show that the visual arts teaching materials developed using a scientific approach met the valid criteria in terms of approach, content, presentation, language, and graphics, as well as being practical (in terms of ease of use and timeliness) and effective (seen from learning outcomes). As a result, it can be concluded that the teaching materials developed using a scientific approach are valid, practical, and applicable to art and culture subjects in junior high school seventh grade.

Keywords: *teaching materials 1, scientific approach 2, art materials 3.*

1. INTRODUCTION

The educator must prepare valuable learning tools in order for the implementation of learning to be successful. Learning devices are a set of media or equipment used in the classroom by instructors and learners to aid in the learning process (Prastowo, 2011). Before teaching, many learning tools must be organized, one of which is teaching materials, which have a significant impact on the learning process. Instructional material include books, print and electronic media, natural surroundings, and other relevant learning resources. Teaching materials are also used to deliver subject matter during the classroom activities. As an educational mediator, the teacher should be able to prepare and provide teaching materials that fulfill the requirements of the curriculum as well as the needs of the students. Preparing teaching materials in the learning process needs to be done, in order to create

effective and efficient learning (Lukman & Ishartiwi, 2014).

The 2013 curriculum requires the practice of a scientific approach in learning process. As a consequence, every teacher in the education unit is obliged to implement a scientific approach in learning, including preparing teaching materials to be used.

Based on information from the head of the arts and culture MGMP of SMP Agam Timur, several points of problems were found, including: First, due to a lack of infrastructure and facilities in schools, teachers are still experiencing difficulties implementing the 2013 curriculum. One of the means in question is a learning resource. Teachers have difficulty delivering subject matter because learning resources at school are still limited. Teachers only use textbooks as the only learning resource. So far, teachers have only used textbooks from the government. Second; the

presentation of textbooks used as a learning resource for students, is not in accordance with the demands of the 2013 curriculum, namely using a scientific approach. The presentation of the material has not encouraged students to actively find out, develop reasoning skills. Third; The description of the material in the textbook is too simple and there are no teaching materials to complement the book, making it difficult for students to understand. Fourth, because the majority of teachers lack an educational background in fine arts/crafts, they are still unable to create their own art teaching materials as a supplement to the textbook.

The problems above are very influential on the smoothness of the learning process, especially the learning of fine arts and result in low student learning outcomes. Based on the researcher's observation of several junior high schools in East Agam, it turns out that the average learning outcomes of students in arts and culture subjects, especially fine arts, are still low, namely 6.7 or below the KKM that has been set, which is 7.5. This was confirmed by the Head of the Middle School and the Head of the MGMP for the Arts and Culture of the East Agam Junior High School.

One option for dealing with the issues listed above is that art and culture teachers must use teaching materials as a complement to the textbooks that have been used by teachers. The teaching materials must use a scientific approach, because this approach is a mandate from the 2013 curriculum (Kemendikbud, 2013). Observing, asking questions, gathering information, associating/solving problems, and communicating are the steps taken by students in the scientific approach (Kurniasih and Sani, 2014). As a result, the scientific approach can inspire and encourage students to identify, understand, solve problems, and apply learning substances or materials in a critical, analytical, and precise manner. This approach is not only applied in learning strategies, but also in learning tools, including teaching materials. This means that in using teaching materials, students not only read the material presented, but also have to question, collect various information to solve it, then students discuss it and finally take responsibility by communicating.

According to the Chairman of the MGMP for the arts and culture of the East Agam Middle School, teaching materials for arts and culture, especially visual arts materials based on a scientific approach, are not yet available at the East Agam Junior High School. For this reason, it is necessary to develop or prepare teaching

materials for art learning based on a scientific approach as a complement to the cultural arts textbooks used in junior high schools. The problem is how to develop teaching materials for art materials based on a scientific approach that are valid, practical and effective for use in learning arts and culture materials in fine arts in junior high schools.

2. RESEARCH METHOD

This study is classified as research and development (R&D). This research entails developing and manufacturing new products for a teaching course that will be used by students. The innovation that will be developed is art teaching materials that could be used in class VII SMP and will be derived on a scientific approach. A four-dimensional development model was applied, which consist of four stages: the definition stage, the design stage, the development stage, and the dissemination stage (Sugiyono, 2019).

The definition stage consists of four activity steps: 1) an assessment of teachers' and students' needs to identify learning problems concerning the role including the use of teaching materials, 2) curriculum evaluation, and 3) subject matter overview.

The planning of learning equipment for art materials for the seventh grade of junior high school was executed in the design stage using a scientific approach. The practicality of the approach, content, presentation, language, and graphics are all considerations in the design of learning materials. At this design stage, the framework of teaching materials is first prepared based on the components of the preparation of teaching materials.

The validity and testing of teaching material products are conducted out during the development stage. The purpose of the validity test is to observe if the approach, content, presentation, language, and graphics of the designed teaching materials are feasible. The purpose of the product trial is to find out: 1) the practicality of the developed teaching materials, i.e., understanding the scope of the benefits, simplicity of use, and reliability in terms of time for implementing learning through the use of teaching materials based on a scientific approach. 2) product effectiveness, i.e., whether the developed teaching materials are effective at enhancing student learning outputs.

The dissemination stage, which was carried out were, 1) application of scientific approach-based visual

art teaching materials in other junior high schools in East Agam and 2) scientific publications in international proceedings.

The instruments used in the form of interview guidelines and questionnaires and validation sheets, Questionnaires for teachers and students, as well as tests of learning outcomes. Questionnaire/validation sheet for validity test, teacher and student response questionnaire for practicality test and learning outcomes test for effectiveness test.

In this study, a descriptive data analysis technique was applied to analyze the data. Data analysis techniques are utilised to establish teaching materials that are appropriate for use and of high quality, and also meeting valid criteria with regard to approach, content/material, presentation, language, and graphics. Expert assessments using assessment sheets/validity of teaching materials yielded validity data. Likewise, data analysis techniques to obtain practical teaching materials are seen from the responses of teachers and students to the use of teaching materials. Both data were analyzed quantitatively and qualitatively. In scoring, a reference is used based on the Likert scale. From this Likert scale data, then the data is analyzed in the following way:

$$\text{Percentage} = \frac{\text{Score obtained}}{\text{Maximum score}} \times 100\%$$

Based on the percentage results, then interpreted with conditions such as the following table:

Table 1 Eligibility Interpretation Criteria for Experts

Percentage	Criteria
81% - 100%	Very Eligible
61% – 80%	Eligible
41% – 60%	Adequate
21% – 40%	Not eligible
0% – 20%	Very

3. RESULTS AND DISCUSSION

3.1 RESEARCH RESULTS

The teaching materials developed are teaching materials for learning materials based on a valid scientific approach / feasible, practical and effective can be used in class VII SMP. To produce valid/feasible teaching materials, several stages are carried out,

namely defining or analyzing needs and designing. 2) practical teaching materials, by conducting small-scale or limited trials in schools as users of teaching materials, to find out the extent of the benefits, ease of use and legibility of teaching materials based on scientific approaches.

Needs analysis was conducted to find out problems in learning related to the role and use of teaching materials. The needs analysis was conducted by interviewing several art and culture teachers and students at several SMPNs in the East Agam region. Interviews were conducted on teachers of cultural arts subjects to obtain information about students' understanding/learning outcomes, teaching materials used, learning resources, use of teaching materials and the level of teacher need for teaching materials based on scientific approaches to visual arts.

The results of these interviews obtained information that in general teachers are not satisfied with the learning outcomes of students in art and culture subjects, because there are still many students whose scores are below the KKM. The methods often used by teachers in teaching students are lectures, demonstrations and assignments. Generally, teachers have used learning materials in the form of course book published by the Ministry of Education and Culture, but students have not yet obtained maximum learning outcomes. In learning, the teacher is only told to read the textbook then the teacher explains it. Learning has not made students active in finding and processing the knowledge obtained by students, there are only students who accept what the teacher explains, so that students often forget the material they have learned. Likewise, the lack of learning resources available in schools. The learning resources used are limited to nationally published textbooks. Existing textbooks have not fully implemented a scientific approach, thus making many students not active in processing information. This is due to the lack of scientifically based teaching materials that can be implemented in schools. The teachers find it helpful if the teaching materials are in school. As a result, teachers urgently require teaching materials that serve the needs of the 2013 curriculum or are based on scientific principles.

For this needs analysis, the researcher also did it to the students by distributing questionnaires. The distribution of questionnaires was carried out to students of class VII SMP to obtain information about the level of understanding of students, methods/models of

teachers when teaching, learning resources used by students, aspects of the material given by the teacher, the form of assignments given by the teacher, the practice of teaching materials and the requirements of students for instructional materials based on a scientific approach.

Based on the results of the questionnaire distribution, information was obtained that 57.46% of students had difficulty understanding art materials. 86.67% of students said that the teacher taught by lecturing, asking questions and giving assignments. 85.32% of students said they had never been given the opportunity to discover and process the knowledge they had acquired by themselves. 100% of students said that the learning resources used by teachers were textbooks from the Ministry of Education and Culture, 83.33% of students said the material presented in the textbooks was minimal. 66.66% are constrained in learning due to lack of source books. Moreover, 73.29% of students said that teachers rarely discussed theoretical material, even though 70% of students needed theory in making assignments. 93.33% of students said that the task given by the teacher was only to make crafts or practice, without explanation. Then 84.67% of students said that teachers have not used teaching materials that make them active in carrying out various activities in understanding learning materials, meaning that teachers have not fully used teaching materials based on scientific approaches. Furthermore, 84.74% of students said that they felt helped when learning using teaching materials that made them do activities.

The design of art teaching materials based upon a scientific approach is in reliance on the evaluation at the definition stage. The instructional materials that have been created are then validated by a group of four experts.

The final outcomes of this study is instructional materials for the seventh grade of junior high school in the subject of art and culture that are based on a scientific approach. Based on a scientific approach, this instructional material is designed to be adapted to the procedure of learning. Observing, questioning, gathering information, associating/reasoning, and communicating are the five steps of a scientific approach.

So that teaching materials are designed in accordance with a scientific approach, validation/assessment is carried out by validators who

are experts and are able to provide input or suggestions for improving the teaching materials.

The validity of learning materials based on a scientific approach in the subjects of art and culture has been tested to comprehend if the approach, content/material, presentation, language, and graphics are all feasible. The results of the overall validity test are shown in the table below.

Table 2: Overall Teaching Material Validation Results

No.	Aspect	Score/Percentage	Category
1	Approach	83.33%	Very Valid
2	Content/Material	88%	Very Valid
3	Presentation	84%	Very Valid
4	Language	92%	Very Valid
5	Graphic	92%	Very Valid
	Average	87.87%	Very Valid

The average validation of teaching materials as a whole from experts is 87.87 percent, according to the table above. The results obtained are categorized as very valid if they are calculated using the criteria used. Thus, teaching materials based on a scientific approach in arts and culture subjects, fine arts materials can be classified as very valid relating to the approach, content/material, presentation, language, and graphics.

Following a scientific approach to determining the validity of teaching materials, the next step is to perform a practicality test or design practicality test in schools as users of educational materials. Its goal is to determine the extent of the benefits, ease of use, readability, and efficiency in terms of time for implementing learning through the use of scientifically based teaching materials.

In this trial, researchers took samples from three schools, namely SMPN 1 Sungai Puar, SMPN 1 Canduang, SMPN 1 Ampek Angkek, (East Agam region), namely 6 arts and culture teachers and 60 class VII students. This trial data was obtained from the teacher's response questionnaire and the student's response to the use of scientific approach-based visual arts teaching materials. The test results obtained are shown in the following table:

No.	Aspect	Average Score	Category
1	Teacher response	88.33% Student	Very practical
2	response	84.23%	Very practical
	Overall Average	86.28	Very practical

Table 3: Teacher Response Questionnaire Results on the Use of Teaching Materials Based Scientific Approach Based

Based on the table above, it may be noted that the average practicality test results on teaching materials as a whole from the responses of teachers and students are 86.28%. If calculated using the criteria used, the results obtained are categorized as very practical. Thus it can be said that the scientific approach-based teaching materials designed are very practical.

3.2 DISCUSSION

Based on the findings of the tests, it can be decided that the art and culture instructional materials, which were developed using a scientific approach, are feasible/valid for use in class VII, particularly junior high school in the East Agam region.

Product validation embraces five aspects of feasibility, specifically the approach used, content/material, presentation, language and graphics.

Aspects of approach; In developing teaching materials, a scientific approach was used. The results of the validation of teaching materials from the aspect of the approach used in teaching materials were obtained with a percentage of 83.33%. This means that the teaching materials for art and culture subjects, which are designed based on scientific approaches, are categorized as very valid from the aspect of the approach used. This is due to the fact that all of the activities in the teaching materials followed a scientific approach. These steps begin with observation, followed by questions, information gathering, associating, and finally communication.

Aspects of content/material; the validation of teaching materials yielded an 88 percent score in terms of content/material in teaching materials. This means that, based on a scientific approach, teaching materials for art and culture subjects are designed to be very valid in terms of content/material. This is due to the fact that teaching materials and exercises have been prepared in accordance with the Basic Competencies and are

sufficient for achieving competency achievement indicators. Furthermore, teaching materials are organized according to students' cognitive development, teaching materials' needs, and the content of the material, and are displayed systematically, logically, and correctly based on art science. Teaching materials that are organized in a systematic manner will create an environment/atmosphere that encourages students to learn effectively (Pujiastuti, 2016).

Aspects of serving; the results of the validation of teaching materials from the presentation aspect get a percentage of 84%. This aspect is also classified as very valid, because the compiled teaching materials have clear activity outcomes and a well-structured structure. (instructions for the use of teaching materials, learning objectives (KD and indicators of success), content or learning materials, exercises, summaries and evaluations), systematic coherent, orderly sequence of lessons according to the learners' level of ability and complete information.

In linguistic aspect; The linguistic aspect of the validation of teaching materials yielded a percentage of 92 percent. This aspect is also categorized as very valid, because the teaching materials are written in accordance with Indonesian language guidelines. Likewise, teaching materials use clear, simple and communicative language and are in accordance with the ability level of junior high school students, so it is hoped that the presentation of material and activities that students must do in teaching materials can be understood by students well.

Aspects of graphics; the results of the validation of teaching materials from the graphic aspect get a percentage of 92%. This aspect is also categorized as very valid, because the teaching materials are designed using the type and size of the letters and the layout / layout is good and attractive. Good illustrations/pictures/photos related to the concept are also included in the teaching materials. Likewise, the cover is designed to look attractive, because it uses attractive pictures, writing and colors. Likewise, the appearance represents the content of teaching materials. With this display, students become motivated and interested in learning and carrying out the activities contained in the teaching materials. This conclusion is in line with Putri and Mitarlis' viewpoint (2015) which state that teaching Teaching materials are able to immediately attract attention and motivate students' interest in learning because the presentation uses text, colors and images that match the material presented.

After testing the validity of the experts, then conducted trials from users in schools, namely teachers and students. The aim is to determine the response of teachers and students to the use of teaching materials. The average test results get a percentage of 86.28% or categorized as very practical. This can be seen from the responses of teachers and students to the use of the developed teaching materials. Both the teacher's response and the student's response revealed that the teaching materials developed were practical in terms of the instructions used, the language used, the appearance, the material and the activities presented.

Based on the description above, It can be concluded that the scientific approach-based teaching materials developed are already in the valid category from the aspects of approach, content, language and graphics. Similarly, this developed teaching material has reached a practical level in terms of user, usability, ease of use and readability. Teaching materials that are practical can be easily used by students so that learning is done meaningful, interesting, fun, and useful for life, and can increase their creativity in learning (Alfiriani and Hutabri, 2017)

Teaching materials developed can now be used in the process of learning art and culture in the field of fine arts, because the development carried out has gone through the stages of validity testing and practicality testing as well as product effectiveness testing. A good teaching material is if the teaching material is developed starting from the stages of defining, designing, developing (validity test, practicality test and product effectiveness test) and dissemination (Sugiono, 2012). Thus the teaching materials developed can be used in the learning process of art and culture in the field of fine arts in class VII SMP.

4. CONCLUSION

This research is a development research that produces teaching materials based on a scientific approach in the arts and culture subjects in the seventh grade of junior high school. Based on the results of the study, it was concluded that teaching materials based on a scientific approach were valid in terms of approach, study material, language and graphics and could practically be used in arts and culture subjects in art materials in grade VII SMP.

SUGGESTION

The following recommendations are made based on the findings of the research and the conclusions stated above:

1. Teaching materials based on a scientific approach in the arts and culture subjects in the seventh grade of junior high school semester 1 can be used as examples for teachers in developing teaching materials in other subjects
2. To enable teachers, particularly in the cultural arts, to create teaching materials based on a scientific approach to other materials, such as music, dance, and drama/theater arts.

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