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The development of islamic learning media using macromedia flash on geometry

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Abstract. The aim of this study is to construct an Islamic learning media using Macromedia Flash on curved side geometry subject. The type of this research is a development research which refers to ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model. The result of this research indicates that based on the assessment of the media experts, the learning media have been valid and Based on the assessment of contain experts the learning media have been valid. The results of questionnaire responses of teachers, questionnaire responses of students, and interviews with students indicate that the learning media have been applicated by teachers and learners.

1. Introduction

Media is one of the most important aspects in learning. Through media, learning process will be more interesting, useful, and fun. Learning media as an external factor can be applied to improve classroom awareness because it has the potential or ability to assist teacher in teaching, which basically will increase students' abilities in understanding the topic [1,2,3,4]. Learning Media is also one of the tools or the messenger tools used by the teachers to their students to enhance the effectiveness and efficiency in achieving learning goals. By using well and creative learning media, teachers will facilitate and improve the efficiency in learning. It also helps the teachers in achieving the main objectives of the subject [5,6]. Therefore, it is crucial to prepare and to plan what media will be used in the process.

The importance of media planning led to several functions: to concretize the abstract concepts; to lead the student in understanding the subject matter anonimously; to increase students' in absorbtive capacity; to assist the teachers in explaining things that are difficult to understand verbally [7]. In general, learning media is very useful in clarifying the subject of the presentation, in overcoming space constraints, able to motivate the students to be more active, in generating students' excitement, in giving the same stimulation and perception for the whole class, and in allowing students to learn individually according to their abilities and interests [8].

Mathematics as one of the basic sciences is included as abstract subject. The existence of Mathematics abstract nature would make the students to have difficulties in understanding Mathematics. To help students understand the abstract concepts of mathematics, it is necessary for the teachers to show the concrete objects or other learning media during the class activities. Based on an observations held at SMP N 1 2X11 Enam Lingkung, Padang Pariaman, on August 14, 2017, the instructional media presented by the mathematics teachers on 3D shapes with curved-side materials are still in the simple forms e.g. cardboard and plastic made materials. These materials tend to make students easily bored. Teachers also have not maximized the function of computer laboratory as a classroom, though one of

the essential efforts in achieving lerarning goals are by changing the classroom atmosphere. Studying in a laboratory will positively increase students' interests. By studying in a laboratory, it is expected that students will not get bored easily.

To improve the quality of mathematics learning, teachers must develop the most advanced learning media. The learning media must be more directed to students' improvement in science and yet some how connects and improves the quality of faith and devotion of the students in the most applicable ways [9,10,11]. Here, it is necessary for the teachers to develop learning media, especially in mathematics subjects in Islamic schools, by instilling Islamic values within.

The Islamic values are the ones directed by the Holy Quran and the Hadith in which related to the educational aspects especially for Muslims. The current educational system: the 2013 Curriculum at Schools is more focused on creating well-behave students with faith and devotion, noble attitudes, proper health, interegent, capable, creative, and independent. For this reason, it is important for the teachers to instill moral knowledges on their students. One of many ways to instill moral knowledges at class is by using Islamic based learning media.

The development of Islamic based learning media can be realized by e.g. striving to give Islamic related values in every Basic Competency and Standards Competency of the subject and applying them in the learning process. Mathematics classes based on Islamic values are expected to be developed by the teachers and prospective teachers in the learning process [12,13].

Nowasdays, computer technologies are rapidly developed. There are many computerize applications that have been created e.g. *GSP*, *Adobe Flash*, *Macromedia Flash* that can be useful in creating interactive learning. These applications would make it easier for us to solve mathematics problems. They can present the un attractive mathematics subjects to become more interesting and fun. Learning media presented were based and created by using *Macromedia flash software*. Macromedia flash is a computer application to create animation and professional web applications. It is one of the most popular application in designing animated graphics and widely used by graphic designers around the globe [14,15]. The advantage of the *flash* lies in its ability to produce motion and sound animation. At beginning of its development, *flash* is widely used for the animation on the websites, but now it is starting to be widely used for learning media for its abilities.

Learning by *Macromedia flash* is a combination of learning concepts with audiovisual technology that is able to produce new features. *Macromedia flash* is selected because its ability to provide conceptual images and to provide clear and interactive material presentation [16,17]. By using multimedia-based learning, the learning process can certainly be more interesting, not monotonous, and easy to understand. Students can learn certain subject matter independently with computers equipped by multimedia programs. It allows students not to memorize abstract mathematical concepts but real mathematical shapes.

Considering that there are not many teachers use *Macromedia flash* as the learning media and there are not many Islamic media available, an Islamic based learning media in Mathematical, especially for curved-side space model, are developed by using macromedia *flash*. The selection of curved-side space material was because the available media presented by the teachers are not interesting and not included as the creative learning media [18].

Many researches related to *Macromedia flash* have also been previously conducted by several researchers. Some researches that are relevant to this research include: [19] who had been succeded developing interactive multimedia in mathematics learning that has been categorized as *good* (B) according to the assessors of material and learning experts, media experts, and 42 students from grade IX. As for the effectiveness and students' attitudes towards mathematics and ICT, there were changes in attitude on students' anxiety, self-confidence, and interest towards mathematics and ICT; [20] presented that the average percentage of the assesors of material experts' and media quality's is very good. Media experts (design and software experts) stated that the media is adequate and suitable; [21] get 74.64 validation results and is in good category. The media was piloted at SMPN 44 Sijunjung. The response of students in learning that was tested on a small scale is 87.56 and in the very good category

(very practical). It was concluded that the development of *Macromedia*-based learning media on cylinder subjects was valid, practical, and effective

The differences between this research and previous researches are in terms of material and media developed. This research develops Islamic based learning media. The products produced in this research are in the form of learning CDs on the subject of 3D shapes with curved-side by using *Macromedia flash* app in order to figure out the validity and practicality levels.

2. Methods

The type of this research is included as research and development. This type of the research aims to develop and implement the products produced [22,23,24]. The developmental model of this research is ADDIE Model. There are five procedures in this research: 1) Analysis, 2) Design, 3) Development, 4) Implementation (try-out), and 5) Evaluation. There are some techniques in collecting the data i.e. observation, interview, and literatures. Data retrived from evaluation questionnaires for the teachers, material experts, and media experts were analyzed. The analyses are in the form of explanation, suggestion, and submission from the teachers, material experts, and media experts. The data is then selected and summarized so that it can be used as a basis for revision of the developed learning media.
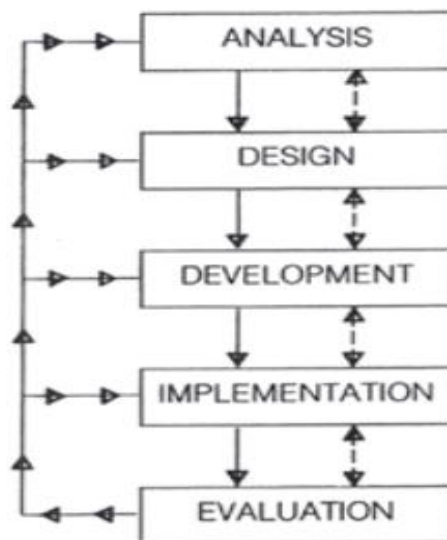

Figure 1. Development of islamic learning media using
ADDIE process [25]

The products are in the form of Islamic based interactive mathematics learning media in CDs by using *Macromedia flash* related to 3D shapes with curved-side for Junior High students grade IX. The research were held on November 24 – December 12 2017, located in SMPN 1 2x11 Enam Lingkung, Padang Pariaman on the first semester of 2017/2018. Quantitative data analysis techniques were applied on the data obtained from the questionnaire responses of students. The results of the analysis are used to describe students' level of response to the learning media. In the other hand, qualitative data analysis techniques are used to find out the various obstacles encountered in implementing learning media in schools. Quantitative data obtained from the results of the media evaluation questionnaire by teachers, questionnaires by material expert lecturers, and media expert lecturers arranged on a Likert scale (intervals 1 to 4). The Likert score will be calculated on the average score for each statement item. Then, the scores are converting to obtain average score and which then converted into a value on a scale of 5. From the data, it can be found that the responses of the students related to the media that has been developed. In addition, inputs from the teachers are also considered for the final revision stage.

3. Result and Discussion

In the analysis phase, the researchers identify and analyze what media are needed by teachers and students in learning. The aspects analyzed by the researcher are descriptions of mathematics learning in the classroom, learning tools used by the teacher, the activities of students in the classroom, students' understanding of the material, the views of students about the methods used by the teacher in teaching, the views of students about books, the views of students on the relevance of mathematics to life, hobbies of students, the activities carried out by students outside the school and the colors that are liked by students. The design process consists of several key facts. Primarily the designer is conducting research and planning throughout this stage. The planning includes the identification of objectives, determining how the objectives will be met, the instructional strategies that will be employed to achieve the objectives, and the media and methods that will be most effective in the delivery of the objectives [26].

The development phase emphasizes three areas: drafting, production, and evaluation. Designers in this stage develop or select materials and media and conduct formative evaluations [26]. Media was validated by media expert lecturers was carried out after the media development process was completed. Validation was held by two expert lecturers of mathematics learning media. The validation process aims to get comments and suggestions about the lack of the media so that the final stage of media revision can be done before testing. Validated aspects, especially in terms of media, include: integration, balance, image, shape, color, and language. The overall assessment of the material on the quality of interactive media by Media Specialists obtained is Good, qualitative category (B) with an average score of 88 of the ideal maximum score of 108 with an ideal percentage of 81.5%. It can be concluded that the interactive learning media with Islamic nuances developed according to the Material Expert has met the valid criteria.

The aspects that the researcher wants to know are aspects of the sense of pleasure, curiosity, activity, attention, interest and nuance of Islam. The following are the results of the students' responses questionnaire as listed in table 1 below:

Table 1 Students' Responses

Aspect	Percentage	Criteria
Joyfulness	88,6 %	Very Positive
Couriousity	88,0 %	Very Positive
Activity	85,5 %	Positive
Attention	85,5 %	Positive
Participation	89,0 %	Very Positive
Islamic values	91,0 %	Very Positive
Average	87,9 %	Very Positive

In the implementation phase, the product was developed by researchers in active roles. In order to delivered effectively product, researchers must analyze, redesign, and enhance the product. The product developed can't be effective without conducting an evaluation without the implementation phase. Teacher and learners will use the product in a learning and they will assess this product. Meanwhile, researchers and teachers discuss about their findings. On advice of teachers and learners, the researchers revised the product that had been developed. When students and teachers contribute to use the product, it will help researchers to evaluate the effectiveness of the product.

The application of media by the teachers was designed for two Mathematics teachers at SMP Negeri 1 2x11 Enam Lingkung, i.e. Ms. Ainul Mardiah, S.Pd. and Mrs. Beti Yeti, S.Pd. This assessment aims to get the input that will be used to improve the media that has been developed so that the final stage of media revision can be carried out. Assessments conducted by teachers include: Islamic values, quality and purpose, technical quality, and learning and instructional quality.

This research has successfully developed an interactive learning mathematics CD with Islamic nuances using Macromedia Flash as a source of learning mathematics in the 3D shapes with curved-side material i.e. tubes, cones, and balls. The learning CD that is produced consists of tubes, cones and balls. In addition, in the learning CD there is also Islamic motivation and evaluation or games.

4. Conclusion

The Islamic learning media developed in this research using macromedia flash on geometry met the criteria of validity, practicality, and effectivenes. The development research which refers to ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model that we used to develop the islamic learning media was very helpful to see response of teacher and students. Moreover, the Islamic learning media could help the students to reinvent the concepts in geometry. The results of questionnaire responses of teachers, questionnaire responses of students, and interviews with students indicate that the learning media have been applicated by teachers and learners.

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