SPARKOL LEARNING MEDIA: IS IT EFFECTIVE TO IMPROVE STUDENTS' MATHEMATICAL UNDERSTANDING?

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Article Info	ABSTRACT
	The aims of this study are to find out the view of the validator on learning Sparkol media, to find out the students' views on learning the Sparkol media, to know the effectiveness of learning by using Sparkol learning media. This research and development used the ADDIE research model. Media development based on Sparkol Videoscribe using Research and Development with Addie model which has 5 stages: Analysis, Design, Development, Implementation, and Evaluation. Student responses to the feasibility of learning media with Sparkol show that this media is feasible and attractive to students. The effectiveness of learning using Sparkol Videoscribe-based mathematics learning media was tested in the range $0,2 < E_s \leq 0,80$, this result shows that the category is quite effective.

MEDIA PEMBELAJARAN *SPARKOL*: APAKAH EFEKTIF UNTUK MENINGKATKAN PEMAHAMAN MATEMATIS SISWA?

	ABSTRAK
	Tujuan penelitian ini adalah untuk mengetahui pandangan validator tentang media pembelajaran dengan media sparkol, untuk mengetahui pandangan siswa tentang media pembelajaran sparkol, dan untuk mengetahui keefektifan belajar dengan menggunakan media pembelajaransparkol. Penelitian dan pengembangan ini menggunakan model penelitian ADDIE. Respon peserta didik menunjukkan bahwa media ini layak digunakan dan menarik bagi siswa. Keefektifan pembelajaran di MTs Muhammadiyah Bandar Lampung dengan menggunakan media pembelajaran matematika berbasis Sparkol Videoscribe berada pada rentang $0,2 < E_s \leq 0,80$, hasil ini menunjukkan kategori cukup efektif.

1. INTRODUCTION

Technology-based learning is very important these days, especially because it can be a special attraction for students [1]. That's why teachers must be familiar with it because teachers are one of the cogs to create potential and quality human characters [2], [3]. The high quality of students will be an example of the successful implementation of formal education in a country.

As one of the sciences that plays a major role in technological advancement, mathematics is considered very important to be studied at all levels of education. However, many students still see mathematics as a scary and difficult subject [4]–[6].

When learning mathematics, students tend to memorize rather than understand [7] so that whenever given a different math problem, the results of the students' answers are classified as low [8], [9]. This indicates the need for innovation in learning, one of the learning innovations that according to various studies is effective by utilizing computer technology to increase student understanding [10], [11].

The very rapid development of science and technology, especially in the field of electronics such as computer, laptop, and communication equipment such as various types of smartphones which are supported by various features and applications can be a support for new innovation of learning media [12].

Inevitably, many studies prove that learning using ICT has a positive effect [13]–[15]. AECT (Association of Education and Communication Technology) defines the media as all forms and channels used to convey messages or information [1], [16]. Learning media is said to be anything that can be used to convey information or messages during learning process so that it can attract students' attention and interest [17], [18].

It is clear that education must keep up with global developments by utilizing computer software in learning. Mastery of this technology can make it easier for teachers to make various interactive learning media with multimedia concepts [19], [20]. The use of media in learning is expected to make it easier for students to find information precisely and quickly [21], [22].

Sparkol Videoscribe media can combine and synergize media consisting of text, graphics, photos, sound, and music that can be programmed based on learning theory [23] Some of the benefits of using Sparkol Videoscribe are: 1) Sparkol Videoscribe can be used for online business interests such as marketing ideas. 2) Sparkol Videoscribe can be used by educators, such as teachers and lecturers, to deliver material creatively. 3) Sparkol Videoscribe can be used for presentations for educational purposes[24]. The research conducted by Fitri Nurrohmah showed that mathematics learning media with sparkol has a very suitable product quality, with very attractive criteria in large class tests [25].

Based on the above reasons, the authors developed a learning media product with the aim of: 1) To find out the validator's view of the Sparkol Videoscribe mathematics learning media on the concept of two dimentional figures, 2) To find out the students' views on learning media for mathematics, Sparkol Videoscribe to the concept of two dimentional figures. 3) To determine the effectiveness of learning using Sparkol Videoscribe learning media on the concept of two dimentional figures. It is hoped that the development of this media can be a solution to improve students' mathematical understanding, as has been mentioned in previous studies [26].

2. METHOD

The type of research used is Research and Development. The product produced from this study is a learning media based on Sparkol Videoscribe on the concept of two dimensional figures for VIII grade students of SMP/MTs (Junior High school). The preliminary study stage of this research and development is the observation carried out at MTs Muhammadiyah Bandar Lampung and the distribution of questionnaires to students and educators at the school. The product trial stage was carried out in class VIII MTs Muhammadiyah Bandar Lampung.

There are five stages in this model, namely Analysis, Design, Development, Implementation, and Evaluation. This research used data collection techniques in the form of interviews, questionnaires, and tests. This research used descriptive qualitative data analysis techniques and quantitative descriptive.
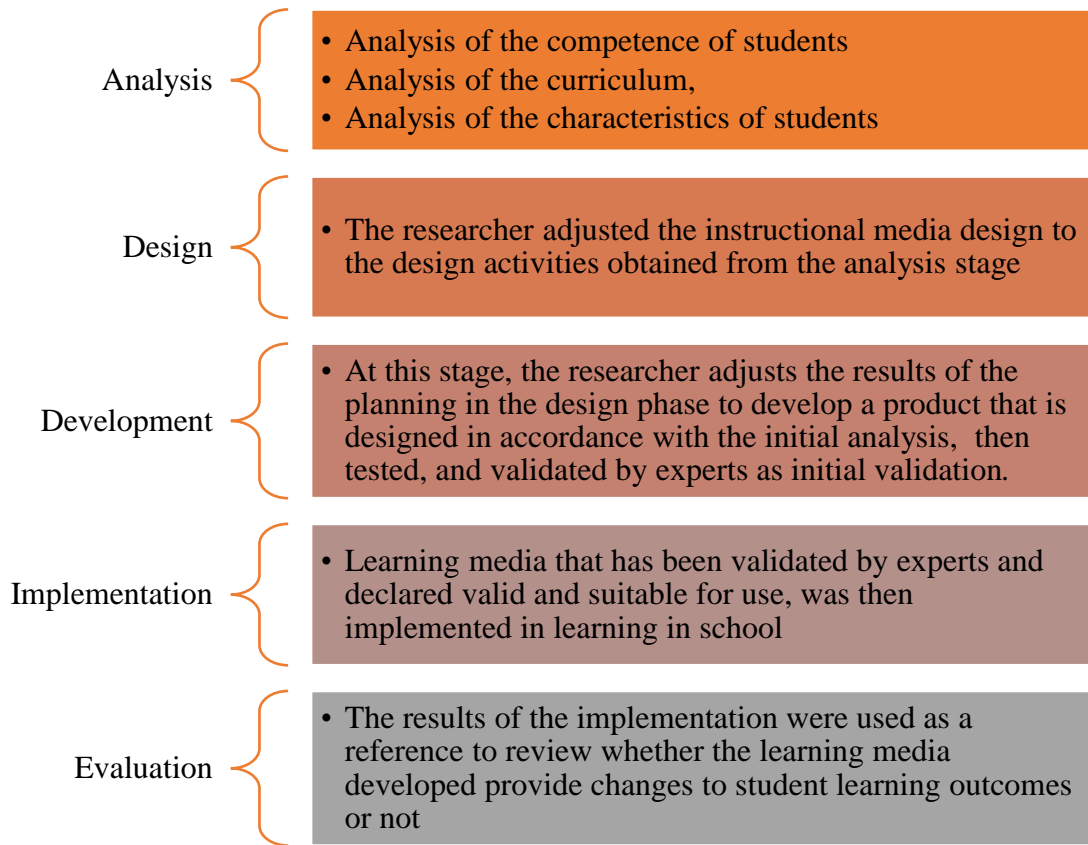
Analysis	• Analysis of the competence of students • Analysis of the curriculum, • Analysis of the characteristics of students
Design	• The researcher adjusted the instructional media design to the design activities obtained from the analysis stage
Development	• At this stage, the researcher adjusts the results of the planning in the design phase to develop a product that is designed in accordance with the initial analysis, then tested, and validated by experts as initial validation.
Implementation	• Learning media that has been validated by experts and declared valid and suitable for use, was then implemented in learning in school
Evaluation	• The results of the implementation were used as a reference to review whether the learning media developed provide changes to student learning outcomes or not

Figure 1. ADDIE Model Stages

3. RESULTS AND DISCUSSION

The implementation stage was by applying Prototype 3, Sparkol Videoscribe mathematics learning media, to learning the concept of two-dimensional figures. Based on the results of discussions with mathematics subject teachers at SMP N 19 Bandar Lampung, the classes that will be used as research samples are class VIII B and class VIII C, where class VIII B is used as the respondent for the instrument validation test as well as the limited class test. And class VIII C is used as a class to test the effectiveness of learning with mathematics learning media Sparkol Videoscribe to the concept of two-dimensional figures. Students were given a questionnaire to measure readability and responses to the Sparkol Videoscribe mathematics learning media on the concept of two dimensional figures.

Figure 2. Learning Process

Based on the results of small-scale tests on 10 students who have high, medium, and low cognitive abilities, it is concluded that the Sparkol Videoscribe mathematics learning media on the two-dimensional figures concept was feasible (Prototype 2) with an average final score of 3.48.

Then the researchers conducted a small-scale test on ten students in class VIII.U1 MTs Muhammadiyah Bandar Lampung.

Figure 3. Small-scale Test

The large-scale test is focused on testing the attractiveness of the Sparkol Videoscribe learning media in two-dimensional figures. Students are given a questionnaire to measure readability and responses to learning media. The results of small-scale and large-scale tests related to the learning media are presented in Figure 4.
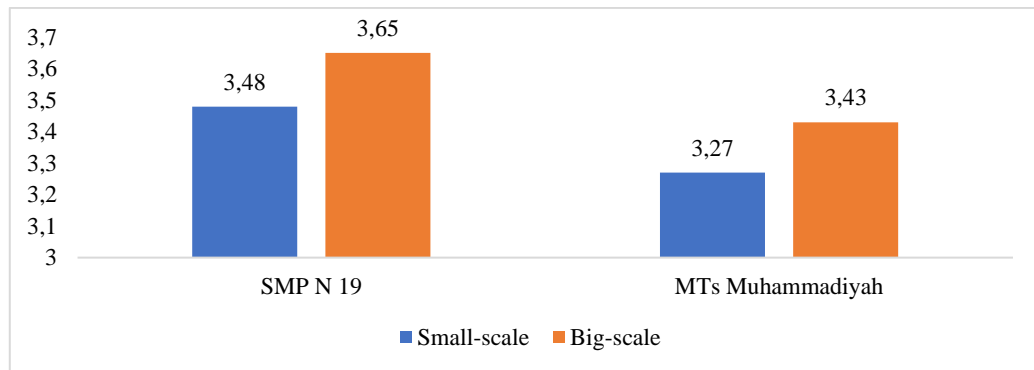

Figure 4. Graph of Small Scale and Large Scale Trial Results

The evaluation stage in this research can be applied at every ADDIE stage. Evaluation is carried out to analyze the data obtained from the research results, namely the analysis of student needs, the preparation of designs, the validity of products from experts, and the results of student response questionnaires. The final results of the evaluation stage show that the products developed in the form of learning media for mathematics, Sparkol Videoscribe on the concept of two-dimensional figures, has a very interesting criteria..

Based on the results of students' answers, the results of the recapitulation of the pretest and posttest scores are presented in Table 1.

Table 1. The Results of Pretest and Posttest

Score	N	Ideal Score	Minimum Score	Maximum Score	Average
Pretest	40	100	30	62	43,42
Posttest	40	100	47	90	70,45

Based on the results of the pretest and posttest, then an analysis is carried out to determine the effectiveness of learning using learning media through the Effect Size test. Based on the results of data analysis, the value was obtained $E_s=0,462$, in a scale of $0,2<E_s\leq0,80$, based on the specified category, the level of effectiveness E_s learning using mathematics learning media Sparkol Videoscribe is categorized as quite effective.

Mathematics learning media Sparkol Videoscribe in the concept of two-dimensional figures is a solution to develop students' abilities in understanding mathematics. Improving the quality of learning can be done from various aspects of learning variables. The learning variable that is directly related to the quality of learning is the availability of learning media such as quality pictures and videos.

According to several theories, learning using learning media has several advantages so that it can make learning effective for students. One of the advantages of learning media is that it can manage an effective relationship between the two main parties (teachers and students) in the learning process. In addition, learning media can make students' independent learning activities more effective.

The results of this development resulted in a product, namely Sparkol Videoscribe learning media on the concept of two-dimensional figures which has the following characteristics: 1) Basic competency-based learning media in accordance with the 2013 curriculum in accordance with Permendikbud (regulation of the minister of education and culture) no 24 2016. b) The questions are adjusted to the condition of the students' abilities from low questions to difficult questions. c) Designed in an attractive, dynamic, and giving the impression that the competencies being learned can be mastered easily, simply, and meaningfully.

The effectiveness of learning media is measured by the effect size test of the pretest and posttest results of student learning outcomes. The written test is taken after learning activities using Sparkol Videoscribe learning media. The effectiveness of a learning is achieved when the learning material can be absorbed perfectly by students. According to Mulyasa, "effectiveness is related to fulfilling all the main tasks, achieving goals, punctuality and active participation of its members"[27]. Based on the results of the effect size test, it can be concluded that in the learning process, there is a good interaction between students and educators, so that learning becomes active and more meaningful.

The effectiveness of learning media at MTs Muhammadiyah Bandar Lampung is shown by the results of $E_s=0,462$ in the range of $0,2<E_s\leq0,80$, based on the category determined the level of effectiveness E_s categorized as quite effective with the classification classified as moderate.

4. CONCLUSION

Based on the results of the study, it can be concluded that the Sparkol Videoscribe mathematics learning media in mathematics subjects with the concept of two-dimensional figures for class VIII SMP/MTs students are declared feasible and effective. As for suggestions for the development of further learning media: Further learning media are expected to be developed in other mathematical concepts. The researcher hopes that further learning media can be developed on different themes to correct deficiencies in learning media to make it more attractive and efficient.

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