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The Development of Adobe Animate Based Media in Learning Mathematics Class Five

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Abstract: The purpose of this study is to describe the process of developing learning media based on Adobe Animate in learning mathematics for fifth-grade students. This study uses a research and development approach. The research and development procedure refers to the Borg & Gall development model which consists of 10 steps. The subjects in this study were students and teachers of class V Gugus Sunan Langgar in four elementary schools, namely Sanetan Elementary School, Langgar Elementary School, Assembled Elementary School, Sluke Elementary School, in Sluke District, Rembang Regency at odd Elementary School 2021/2022. Data collection techniques using observation, questionnaires, interviews, documentation, and tests. Test the validity of the data consists of testing the validity of the product and the validity of the instrument. The results showed that the validity score of the media expert's assessment was 3.375 with very good criteria. then the conclusion is that the development of adobe animate-based learning media is suitable for learning mathematics with cube and block material.

Keywords: Learning media, adobe animate, community mathematics, mathematics

1. Introduction

The spread of the Corona Virus 2019 (Covid-19) which has occurred since December 2019 until now has had an impact on the economic and social world, but now the impact is also felt by the world of education (Purwanto et al., 2020) The impact is the closure of schools and universities in more than a dozen countries due to the Covid-19 pandemic. Indonesia applies the 5 M i.e washing hands, wearing a mask, keeping your distance, staying away from crowds, and reducing mobility to reduce the risk of contracting Covid-19. One of them is a physical distancing that must be applied causing the student learning process in the classroom to change the method by learning from home or learning from home (Herliandry et al., 2020). Students are required to use their time at home. home by studying, discussing, doing assignments, and exams using online media (Safitri et al., 2020).

Following the Law of the Republic of Indonesia No. 20 of 2003 concerning the National Education System, Article 1 number 1 states that education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, as well as the skills needed by themselves, the community, the nation, and the state. So online learning that is carried out during the pandemic must also be oriented toward learning objectives (Fatimah & Puspaningtyas, 2020).

That distance learning that is carried out is lacking in terms of interaction, teachers cannot directly monitor the learning process and limited ability to receive material delivered online with instant messaging applications. This is because distance learning is still considered no better than conventional direct learning, students cannot ask the teacher directly if there is the material that is not understood through virtual explanations. The use of social media is often used in a state of online or distance learning during the current pandemic (Firman & Rahayu, 2020).

Many problems occur due to distance learning. one of them is the low learning outcomes in all subjects taught in schools. This is due to the lack of learning media used during online learning. Dita et al. (2020) explain that the media is a very useful tool for students and educators in the learning and teaching process. Media is an intermediary or delivery of messages from the sender to the recipient of the message. The term media used in the field of teaching or education is

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called educational media or learning media (Johar, Risdianto, & Indriyati 2014). As part of the instructional system, the media has practical values in the form of the ability to 1) Make concrete from concepts that are still abstract, 2) Bring objects that are dangerous or difficult to obtain into the learning environment, 3) Displaying objects that cannot be observed with the naked eye such as microorganisms, 4) Can show movements that are tsoo fast, for example with slow motion, 5) Generating student learning motivation, 6) Presenting learning information consistently and can be repeated or stored as needed, 7) Presenting messages or information simultaneously over time and space, 8) Give the impression of individual attention to all members of the student study group in the class (Syefrinando, Suraida, & Parman, 2020).

The role of teachers today is very much needed, not only professional and competent in their fields but able to increase their knowledge, master and develop learning media, and be able to improve learning achievement under competency standards, basic competencies, and indicators. There is a need for learning media to overcome difficulties in explaining the concept. The media and learning models aim to convey material so that it is easy for students to understand and learn. In addition to using learning media in the form of teaching materials, the learning should use a learning model that can increase effectiveness and solve problems the learning media can be in the form of multimedia (Sofiyati, Suad, & Surachmi, 2021). The use of computers as a medium in the learning process has been widely carried out and developed in the form of computer-based learning media. This learning media can be used online by utilizing the internet network or offline which does not require internet network access (Yusuf, 2015).

At this time, there are many applications for designing and creating interactive-based learning media that we can choose and the right ones to build, design, and develop media to produce a product that can be used and needed in the learning process. The application that is often used today is the Adobe animate application. Adobe Animate is an application program designed by the Adobe company and is used in making animations, and images with bitmap extensions, resulting in very interesting, interactive, and dynamic products both to design websites and for other media development purposes (Purwati, 2021).

In making this interactive learning media using Adobe Animate. Adobe Captivate is an E-Learning application or software for Microsoft Windows and Mac OS X from Apple that can be used to develop interactive learning media. The way Adobe Captivate works is similar to Powerpoint, but the advantages of Adobe Captivate can be used to create presentations that are equipped with demonstration.

Several previous studies that have developed media are researched by Sari & Cahyono (2020), which develops Android-Based E-Learning "Fun Math" as an Alternative to Learning Mathematics during a Pandemic. The results of this study in the form of mathematics learning media "Fun Math" became one of the alternative media for learning mathematics.

Based on the background and the results of previous research, it is necessary to research the development of Adobe Animate-based mathematics learning media for improving mathematics learning outcomes in fifth-grade students of the Sunan Langgar Rembang Elementary School.

1.1 Conceptual Framework

Problems in online learning include the decline in students' understanding of mathematics. In online learning, the media used by the teacher is still simple and unattractive. The difficulty of teachers in delivering subject matter is because it is online, and students learn a lot in theory. This causes students still not understand the material of cubes and blocks. For this reason, innovative learning media is needed that can make students more enthusiastic about learning and students understand more about mathematics. The media developed is adobe animate-based media. The development of adobe animate-based media was chosen because the adobe animate application is in the form of animations, and images with bitmap extensions, resulting in very interesting, interactive, and dynamic products for learning.

2. Methodology

Research on the development of adobe animate-based learning media in mathematics lessons in class V. Research using research and development methods. Research and Development (R&D) is a research method used to produce certain products and test their effectiveness of these products (Sugiyono, 2017).

2.1 Research Procedure

The research procedure according to the Borg and Gall R & D model consists of ten implementation steps including 1) research and data collection (research and information collecting), 2) planning, 3) product draft development (develop a preliminary form of product), 4) field testing (preliminary field testing), 5) improvement of the initial product (main product revision), 6) field testing (main field testing), 7) perfecting the product resulting from the field test (operational product revision), 8) field implementation testing (operational field testing), 9) final product revision, and 10) dissemination and implementation (Aka, 2019).

2.2 Data Sources and Types

Sources of data in this study include 1) main data sources (primary) obtained and collected directly from informants through filling out questionnaires, observations, and interviews with resource persons, 2) additional data sources (secondary) are data sources that do not directly provide data to data collectors, for example through other people or documents.

The types of data obtained in this study are quantitative data and qualitative data. Quantitative data is in the form of the average value of the validation sheet, student questionnaires, and evaluation test results. These figures are then quantified so that it can be concluded the level of feasibility of the book. Meanwhile, qualitative data in the form of suggestions, criticisms, and responses from validators are used as considerations in revising the product.

2.3 Data Collection

Data collection techniques used are observations and interviews conducted to determine the need for media development in mathematics lessons in class V. Interviews were also used to test the validity of the results of media development. Questionnaires were used to validate designs and materials in the development of learning media.

2.4 Data Analysis Techniques

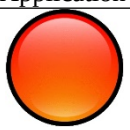
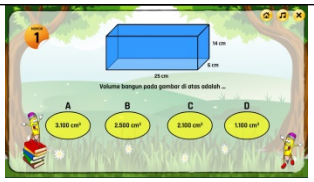
Data analysis was carried out by following the instructions in the manual of each data collection instrument. Quantitative data can be analyzed using statistics. According to (Sugiyono, 2017) parametric statistics are used to test the comparative hypothesis of the average of two samples, analysis of teacher response data, and analysis of student response data.

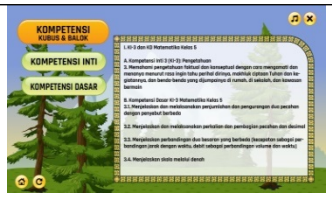
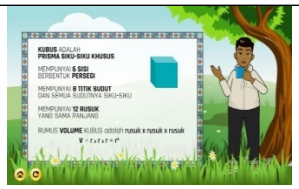
3. Results

The results of observations with students obtained data that in mathematics lessons during the current pandemic the teacher only gave assignments sent via the WhatsApp group. During online learning, students study at home using only the textbooks provided by the school to students. teachers do not use learning media in online learning. The lack of learning media used makes learning outcomes less than optimal. then we need interactive learning media in online learning.

The steps in designing adobe animate-based learning media are as follows 1) goal formulation. At this stage the researcher formulates the research objective, namely the development of adobe animate-based learning media to improve student learning outcomes in mathematics, 2) Determining the material. In conducting the research, the writer analyzed the material to be developed for the development of adobe animate-based learning media. The material analysis carried out was the mathematics lesson on cube and block material in class V semester 1. The material analysis will be adjusted to the needs of students regarding learning media and adapted to basic competencies, indicators, and standards of competence and learning objectives. This is necessary to reduce the ineffectiveness of media development, 3) Determination of media. After analyzing the material, the next step is to determine the appropriate media with the selected material. This is done by analyzing needs by conducting observations, and interviews and distributing questionnaires to teachers and students, 4) developing learning tools. At this stage before carrying out the preparation of learning tools in the form of Learning Implementation Plans, syllabus, and semester programs. Learning devices are arranged to adapt to the development of learning media that will be made so that development goals can be achieved, 5) Designing adobe animate learning media. The design of the adobe animate-based learning media development was made based on the results of the adobe animate-based online learning media needs analysis.

Table 1 - Adobe animate based media.

Design/Application Section	Explanation
 Icon	Is a special image on the android device screen to enter the main screen opening application
 Main Menu / Main Screen	This is the main display when you first enter the learning media application. material from

 Competency Standards and Learning Objectives	Contains basic competence indicators and learning objectives
    Material Explanation	Contains the learning material discussed, namely cubes and blocks
 Evaluation	Evaluation results from students.

The development of adobe animate-based learning media is then validated by media experts. The results of expert validation are as follows.

Table 2 - Media expert test assessment results.

No.	Aspect	Indicator	Question Number
1	Language	The accuracy of using verbal language style	3
		Verbal language compatibility with the display of adobe animation-based learning media	3
		Ease of understanding the flow of learning material	3
		The suitability of sound effects with student characteristics	3
		The suitability of animated images with student characteristics	3
2	Effects on Learning Strategies	The ability of adobe animate-based learning media to encourage students' interest and curiosity	3
		Support for adobe animate-based learning media for student independence	4
		The ability of learning media in increasing knowledge	4
		The ability of learning media in improving students' understanding	4
		The ability of learning media increases students' learning motivation	3
3	Software engineering	Ease of moving learning media apk. files	3
		Easy installation of learning media on android devices	3
		Ease of operation of adobe animation-based learning media	3

No.	Aspect	Indicator	Question Number
		Screen navigation key function	3
		Drag and drop function	3
		Feedback function	4
		Multiple choice function in evaluation	4
		Evaluation function review	4
		Creativity and innovation of learning media	3
4	Visual Display	The attractiveness of learning media icons	3
		Compatibility of color selection	4
		The suitability of the choice of type and font size	4
		The suitability of the selection of sound recording effects	3
		Back sound selection compatibility	3
		Navigation key placement accuracy	4
		Image display suitability	4
		Image proportion balance	4
		The attractiveness of learning media design	3
		The relevance of learning media with the material	3
	Amount		98
	Validity Score		3.38
	Validity level		Very good

The results of the media expert validator's assessment after being averaged were 3.38 with very good criteria. Aspects that are assessed are aspects of language, Learning Strategy, Software Engineering, and Visual Display. It can be concluded that the development of adobe animate-based learning media is declared feasible to use.

The development of adobe animate-based learning media is very good for learning mathematics with cube and block material. The use of this media is in the form of learning media that can be installed on computers and smartphones. The use of interactive learning multimedia in the classroom is supported by the results of research conducted by Amin, Azim, & Kalam (2018) which states that multimedia provides many benefits from its use. Puspitarini & Hanif (2019) states that the use of media in learning can present an object or event that cannot be presented in class by visualizing it. In addition, the media can also stimulate students' learning motivation and increase students' curiosity in getting information conveyed by the teacher. The media developed in this study presents visualizations of animal reproduction in the form of animations that actually cannot be observed directly by students due to limited time and the existing environment. Interactive multimedia also provides interesting and fun learning for students, because students are allowed to use the media and search for their learning materials by clicking or pressing on the desired option button so that students become more active in learning. This is in line with the interactive multimedia specifications, which are as follows: a) have more than one element that has the same goal, for example by combining audio and visual elements, so that it can provide good learning information, b) interactive, namely multimedia The interactive feature can make students active in participating in learning because students are given the freedom to make choices about the learning materials to be studied, c) are independent, which is a continuation of interactive nature, with that students, are given convenience and completeness of media content. in such a way that users can use it without the guidance of others (Oktafiani, Nulhakim, & Alamsyah 2020).

4. Conclusions and Recommendations

Based on the results of research and discussion, it can be concluded that the development of adobe animate-based learning media is feasible to be used in learning mathematics for cube and block material according to the results of the media expert validation assessment with a validity score of 3.375 with very good criteria. Following the conclusions, it is suggested that the making of learning media. In addition, to block and cube material Second, the media made should use more moving images in the form of animation so that students are more interested in studying cube and block material.

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Conflict of Interest

The authors declare no conflicts of interest.

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