

## MEDIA DEVELOPMENT APEDU EDUCATIONAL APPLICATIONS BASED ON ANDROID IN FORCE MATERIAL

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**Abstract:** Learning media is one way to facilitate in conveying the content of material from educators to learners. In the era of technological development today there are new habits at the level of elementary school education, one of which is using digital media as a means to convey material. Therefore, there needs to be a learning media that is able to utilize technology, especially for elementary school. This research is included in research and development that later produces a teaching material in the form of learning media that utilizes based on android technology by using animation and backing sound features that are able to stimulate students' thinking systems. To obtain a research learning media also aims to know the process, implementation, feasibility, and effectiveness of the media. The research process is carried out using the ADDIE model which has five stages in the research. In the development stage researchers obtained a score from media experts, material experts, RPP experts, and design experts by 90%, while in the implementation stage researchers obtained a score of 79.15% which was obtained from the average score given by media users. Then for the eligibility score is taken at the stage of the media creation process to the expert validation stage, so as to obtain an average score of 90%. While the effectiveness of the learning media is taken from the results of the t test conducted after the use of learning media, obtained t count 7,970 and t table 2.144 so that  $H_0$  is rejected and  $H_a$  is accepted with a significance level of 0.00 with a correlation value of 0.872 which means there is a positive influence from the use of learning media. The score indicates that the media developed by researchers falls into a category that is validly feasible and effectively used by elementary school students.

**Keywords:** *ADDIE, Android Based, Media Development*

### INTRODUCTION

Education is a means used to educate and shape the character of children to be more focused. Education is not only obtained in school, but is obtained in everyday life. Along with the times, education is currently collaborating with technological developments, where all teaching and delivery of material is carried out with technological tools (Pujiati & Yulianto, 2021). During a pandemic like this, an educator is more helpful in delivering material by using a mobile phone as a learning medium. Learning media is a tool used to convey information or a tool that is functioned by an educator as a supporter in learning activities (Juliansyah, 2021). However, during this pandemic, teachers are often negligent and do not use technology as a learning medium. Educators only use whatsapp messages to be used in

providing material every day and use youtube videos to serve as media. The reason educators are reluctant to use computers in schools is the lack of socialization about the use of the features in it (Hotimah et al., 2021). In addition, educators are required to complete educational administration which must be completed in accordance with the specified time. Therefore, the time for educators to create technology-based learning media is reduced. Thus, there is a need for simple learning media that are able to take advantage of technological developments and are able to support the teaching and learning process.

In this modern era, system changes in the 21st century can be seen in changes and advances in science and technology as well as the flow of globalization. The use of learning media is very influential in the learning process in addition to models and strategies.

This is because the learning media provides a new atmosphere in the teaching and learning process. The role of learning media is so that learning can take place innovatively. Learning media is an inseparable part of the learning process in order to achieve an educational goal in general and educational goals in particular (Arsyad, 2011); (Istiningsih et al., 2020). This learning media is a tool in the form of audio, visual, audiovisual, both using traditional tools and by utilizing technological developments. The use of effective and efficient learning media can foster student interest in learning. Good media is media that is made by utilizing existing facilities to be used as a tool in making learning media. In addition, a good learning media is made according to the characteristics of students and the material to be delivered.

Based on some of these problems, it is necessary to have tools that are used as a means of solving educational problems. The selection of learning media by utilizing computer technology in the form of educational applications using the power point feature is one solution to overcome the problems described above. In addition to helping the process of teaching and learning activities, learning media provide new knowledge to educators that making media using technology is not difficult. The selection of learning media must pay attention to several criteria, including the availability of facilities and student characteristics.

Education is a conscious and systematic effort, carried out by people who are entrusted with the responsibility to influence students so that they have the nature and character in accordance with the ideals of education. Therefore, education is expected to be really directed to make students able to achieve the process of maturation and independence. According to (Muhson, 2010), advances in science and technology have a very large influence in various fields of human life. Education as an inseparable part of the process of human maturation which has a major contribution to the development of science and technology. But on the other hand, education needs to take advantage of advances in science and technology in order to be able to achieve its goals effectively and efficiently. Tricenter of education is education that collaborates between family education,

school teacher education and community education. This tri-center of education is very influential on the development of students, including as guidance and efforts to strengthen a cultured person, as teaching in an effort to master knowledge and skills (Darmadi, 2018).

Education is an effort made by someone with full responsibility to influence students to have character in accordance with educational expectations. In addition, advances in science and technology have an effect on human life (Muhson, 2010). Education in the era of increasing knowledge is supported by the application of media and digital technology which is known as the information super highway (Mukhadis, 2013). Quality education depends on the way educators teach knowledge to students in the teaching and learning process. In addition, the quality of learning is influenced by the use and utilization of multimedia (a combination of media with text, graphics, audio, animation and other supporting components) during the learning process (Pratiwi & Alimuddin, 2019); (Maulya et al., 2020).

The development of technology and the use of learning media used by educators to facilitate the delivery of the learning process to students is very influential with the results obtained after its application. The use of interesting media and supported by the latest technology will facilitate students' understanding in receiving learning materials. This happens because of human biological feelings that always feel curious about new things. It is different if educators use old learning media such as the use of blackboard media. Students will feel that the learning obtained will always be the same and nothing new is found. Therefore, it is necessary to collaborate with the use of technology and learning media to create PAIKEM learning (Active, Innovative, Creative, Effective and Fun Learning). The role of learning media is very influential in the learning process in addition to models and strategies. This is because the learning media provides a new atmosphere in the teaching and learning process. The use of learning media is very important because without the media, learning cannot take place innovatively (Mudlofir & Rusydiyah, 2016). The use of effective and efficient learning

media will foster student interest in learning. During the manufacture of learning media, it is necessary to pay attention to the quality of learning media that can be improved by using and developing learning media, especially interactive multimedia types. Submission of audio-visual material needs to be done with the aim of avoiding learning by memorizing techniques (Raharja, 2018).

APEDU media, one of the educational applications in the form of learning media in the form of mobile application software, in this application there are learning materials that can be used by students to study independently with the help of android mobile phones. The media provides features of moving animated images that make it easier for students to observe the transfer process, audio that helps students understand the material, accompaniment sounds and songs that make it easier for students to remember the material being studied. The media was deliberately created by utilizing existing technology in schools and providing new insights to educators.

Style is the material contained in learning Natural Sciences at the elementary school level. In everyday life, humans often cause objects to move. For example, throwing stones, pulling a toy with a string or pushing a table. At that time humans do a force on the object. From this the researcher can conclude that the force is a pull or push that causes an object to move or move. Various kinds of forces, among others, muscle force, electric force, magnetic force, frictional force and the earth's gravity (Devi, 2008).

## RESEARCH METHOD

The research process carried out by researchers is guided by the ADDIE research and development method which has five steps in the research process, namely analysis, design, development, implementation and evaluation (Sugiyono, 2015). The object of this research is the media developed in the form of application software that uses class IV style material. The subjects in this study were students of class VI SDN Pulolor Vidya Qasana, totaling 28 students. The material used is taken from the theme material for the seventh grade VI Elementary School.

This study uses two analyzes, namely quantitative and qualitative. Quantitative

analysis was used to process data derived from the expert questionnaire validation assessment scores and student response questionnaires. While qualitative analysis is used to process data in the form of interviews. All of these data are used as the basis for determining the feasibility and effectiveness of the product developed by the researcher. The feasibility of the media can be seen in the results of expert validation and implementation, while the effectiveness of the media is determined by using the t-table test. The first step taken by the researcher is to make observations and analyze the needs and characteristics of students in the research area and make observations, documentation and extracting information from various sources involved. The data source comes from the process of developing android-based APEDU learning media on style, implementation, media feasibility and media effectiveness in the learning process. Questionnaire technique is a data collection technique that is done by giving written questions to respondents. This questionnaire is in the form of a checklist which is divided into 4 categories namely Very Like, Like, Quite Like and Dislike) and will be given to students, design experts, lesson plans experts, material experts to find out quantitative data and the results of the questionnaire in the form of quantitative obtained through validation of learning media on student trials (Abdurrahman et al., 2007).

## RESULT AND DISCUSSION

The research carried out obtained results in the form of learning media that had been developed in the form of Android-based APEDU media using power points in which there was class VI style material referring to basic competencies (KD) 3.3 and 4.3 and moving animations, audio and songs to facilitate students in learning. understand the material. The subject of the research is the developed media, while the subject is class VI SDN Vidya Qasana. The results of the research are in the form of a development process, feasibility to the effectiveness of appropriate and effective learning media used by class VI students without revision.

In the process of developing Apedu media, the researcher refers to the ADDIE model. In the early stages, the researchers conducted observations and then the

researchers conducted a needs analysis and analysis of student characteristics. From these activities the researchers obtained the results of the needs analysis, including: 1) the lack of teachers in utilizing technology-based facilities that have been provided by the school; 2) students' interest and enthusiasm in learning decreased; 3) students are not wise in using cellphones; and 4) the constraints of teachers in delivering science learning. While the analysis of student characteristics are as follows: 1) the subjects studied are students aged 10-11 years; 2) likes new things related to technology; and 3) responsibility. Based on

this analysis, we can proceed to the design stage. At this stage, the researcher makes media that is in accordance with the analysis of student needs and characteristics that are adapted to KD and indicators and learning objectives. At this stage the researcher determines the media in the form of Apedu media. The next stage is development, at this stage the researcher conducts expert validation tests given to material, design, media and lesson plans experts to determine the level of feasibility of Apedu media. Here are the validation results:

Tabel 1. Feasibility of APEDU Media

No	Expert Validation Criteria	Percentage	Category
1	Theory	90%	Very Valid
2	Design	85%	Very Valid
3	Media	96,1%	Very Valid
4	RPP	88,9%	Very Valid
5	Average	90%	Very Valid

At this stage the learning media that has been developed by the researchers obtained a score of 90% from the validators. According to the percentage value, the media developed by the researcher is included in the very valid category to be used without revision.

In this study, researchers tested the effectiveness and magnitude of the influence of learning media in the form of applications using SPSS assistance. In testing the effectiveness of the researcher using a hypothesis test that uses the value of t table and t count as a comparison.

The discussion is intended to interpret

and interpret the research results in accordance with the theory used and not just to explain the findings. The discussion must be enriched by referring to or comparing the results of previous studies that have been published in reputable scientific journals and not from predatory journals. In the discussion, it is suggested that it contains the integration of research results into a collection of established theories or knowledge, preparation of new theories, modification of existing theories and implications of research results. The value of t count can be seen in the following table:

Tabel 2. Coefficient of APEDU Media Pretest and Posttest Questionnaire

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	50.983	6.396		7.970	.000
	angket minat pretest	.564	.085	.872	6.652	.000
a. Dependent Variable: angket minat posttest						

In the coefficient table 2, t count shows a value of 7.970. Then to find the t table, the researcher used Microsoft Excel with the formula = TINV (probability of the degree of validity) so that the t table value was 2.144. Because t arithmetic (7.970) is greater than t table (2.144), it can be concluded that Ho is

rejected and Ha is accepted. So, it can be concluded that there is a significant effect between the pretest interest questionnaire and the posttest interest questionnaire.

The effectiveness of the product can be measured by increasing the value of the student's interest/response questionnaire.



Before the application of the Android-based Apedu media, it was seen that student interest was low as seen in the pretest interest questionnaire. However, after applying Apedu media which includes style material, there is a significant increase in student interest. Based on this explanation, it can be concluded that the Android-based Apedu media is effectively used in the process of teaching and learning activities. In addition, to strengthen the influence between before and after the use of Apedu media, the researchers used a correlation table whose results are as follows:

**Table 3. Corelation**

Correlations			
		angket sebelum	angket sesudah
Angket minat pretest	Pearson Correlation	1	.875**
	Sig. (2-tailed)		.000
	N	16	16
Angket minat posttest	Pearson Correlation	.875**	1
	Sig. (2-tailed)	.000	
	N	16	16

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The table shows the relationship/correlation between the pretest interest questionnaire and the posttest interest questionnaire. This can be seen in the Pearson correlation pretest and posttest values which have a value of 0.875, which in this case, when entered in the correlation degree guideline table, indicates a positive relationship and falls in the range of 0.80 to 1.00, which means that it is included in the perfect correlation criteria.

## CONCLUSION

This research is a type of research and development using the ADDIE model. In the development process, this researcher uses five stages, namely analysis, design, development, implementation and evaluation. Before distributing the researchers conducted an expert validation test which obtained 90% results. In the implementation phase, the researcher obtained a score of 79.15% which was obtained from the average score given by media users. Then the feasibility score is taken at the stage of the media creation process to

the expert validation stage, so that an average score of 90% is obtained. While the effectiveness of the learning media is taken from the results of the t-test conducted after using the learning media, the t-count is 7.970 and the t-table is 2.144. So  $H_0$  is rejected and  $H_a$  is accepted with a significance level of 0.00 with a correlation value of 0.872 which means that there is a positive influence from the use of learning media. This score indicates that the media developed by the researcher is in the valid category, feasible and effective for use by elementary school students.

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