

DEVELOPMENT OF INTERACTIVE LEARNING MEDIA BASEDONARTICULATE STORYLINE 3 SOFTWARE ON TEMPERATURE AND HEAT MATERIAL IN SMA NEGERI 14 MEDAN

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Abstract

This study aims to produce interactive learning media based on articulate storyline 3 software to test the feasibility of the developed media, determine the response of students to the developed media and test the effectiveness of Interactive Learning media. This type of research is research and development with a development design model 4D (Define, Design, Development, Disseminate). The subjects of this study were 40 students of Class XI in SMA Negeri 14 Medan. The research instruments used were observation sheet, interview instrument, student response questionnaire and test instrument. Based on the results of the feasibility test by material experts obtained a percentage of 90% with very decent criteria, assessment by media experts is 86% with very decent criteria and assessment by expert users (teachers) is 90% with very decent criteria. The effectiveness of Interactive Learning Media obtained a value calculated with a gain of 0.43. The results were included in the medium category in improving students ' cognitive abilities. Based on these results, it can be concluded that the Interactive Learning media based on articulate storyline 3 software that has been developed is very feasible to be used as a medium in the process of learning physics and can improve students cognitive abilities.

Keywords: Interactive Learning Media, 4D Thiagarajan, Articulate Storyline 3

Introduction

In this era (21st century), scientific and technological progress is progressing rapidly. These advances had a huge impact and changed the world of Education. The aim is to improve the quality of the education system in order to produce young people who are ready to facethe changing world very quickly. In terms of the learning process teachers follow the guidelines set by the government of the Republic of Indonesia through Regulation No. 9 of 2005 on standards of the learning process. The standard states that the learning process in schools should be interactive, inspiring, fun, challenging, and motivate learners to participate actively. In addition, the learning process must also provide sufficient space for initiative, creativity, and independence of learners in accordance with their talents, interests, and physical and psychological development. Based on the results

Infrastructure used for Learning media is not adequate in supporting learning activities. Teachers still use the conventional approach by referring to the package books and worksheets students to convey the material, as well as using the

blackboard to explain the material to students. Lack of teacher creativity in using Learning media causes students to quickly feel bored in the learning process. Whereas in today's era it is important to introduce new innovations.

Nevertheless, technology can be used by students through the Learning media presented. The role of the media in the learning process is very important to arouse the interest of students so that they are enthusiastic in participating in learning. Based on research conducted by Setyahandani et al (2018), the use of Android-based physics learning media androidis considered very feasible by material experts with an average score of 85% and media experts with an average score of 86%.

According to Gartner survey results, smartphone users with android system reached 85.9% (Anggreni et al., 2022). Android usage is common in Indonesia, especially among students. Although android users are often only used for entertainment and communication in the absence of an integrated learning aspect. The use of android can be an opportunity to help in learning activities and allow students to learn without being limited by time and class.

In making software-based learning media, there are many applications that can be used. Of the various types of software, one of them is Articulate Storyline 3 which can be used to create interactive learning media. Although rarely used in making learning media because it requires adequate computer specifications, Articulate Storyline applications have the advantage of ease in using button navigation functions without the need to perform complex coding. Even beginners can use it to create learning media. According to yumini & Rakhawati (2015: 848), the use of Articulate Storyline-Based Interactive Learning media can be used as learning media in the classroom as well as independent learning media for students.

Based on Safitri & Alwen's (2020) research, the use of Articulate Storyline-Based interactive media can provide ease in the learning process and encourage students to be more innovative and creative in designing learning. This Media can also be a solution to increase learning quality and become an alternative when teachers face limited opportunities to teach. After considering the above explanation, the researchers scrambled to conduct the study.

RESEARCH METHODS

The types used in this study are qualitative and quantitative research. This study was conducted at SMA Neeri 14 Medan on Jl. East End Students, Binjai Village, Medan Denai District, North Sumatra. The population in this study was 40 students in SMA Negeri 14 Medan. The sample was taken using simple random sampling technique. This type of research is research and development with a development design model 4D (Define, Design, Development, Disseminate). The subjects of this study were 40 students of Class XI in SMA Negeri 14 Medan. The research instruments used were observation sheet, interview instrument, student response questionnaire and test instrument.

RESULTS AND DISCUSSION

• Research Results

The final result obtained from this research development is a feasible and effective physics Interactive Learning media. This learning Media is used to help Class XI students in learning the material of temperature and heat. At the stage of development of learning media used Thiagarajan 4D development model. Model

pengembangan 4D Thiagaran terdiri dari 4 tahap, yakni define, design, development, dan disseminate. The stages of media development will be explained as follows:

1. Stage Define

Based on interviews obtained the results of interest in learning physics students are still low, the limited use of learning media that cause learning is still impressed monotonous, educators who are still not much familiar with a variety software of learning media software to help facilitate the learning process. Facilities and infrastructure available in schools are also complete such as LCD and technological developments are adequate, but its use is still not optimal.

Based on the results of student questionnaires, most students stated that temperature and Heat were difficult to learn. This stage serves to obtain information about learning media. During teaching, teachers are used to using package books. Students stated that it was not enough to learn the temperature and heat material based on the explanation from the book, so other learning media were needed so that students could more easily learn the material and improve student understanding. Based on the observation of the majority (87% of 40 students), students want learning using interesting media.

2. Stage Of Design (Design)

This media Development Research is in the form of android applications and HTML5 links. The format / component of Interactive Learning media physics-based articulate storyline on the material temperature and heat media identity menu, home menu, KD menu, indicator menu, material menu, sample video, menu, video menu, exercise menu, and development profile menu.

3. Stage Development Of Development

Interactive learning Media that have been made conducted feasibility test stage/validation. The Media is tested by validators from material experts and media experts. Based on the assessment by material experts, the Learning media that have been developed get a percentage of 100% for the presentation aspect, get a percentage of 85% for the content aspect, get a percentage of 90% for the language aspect, get a percentage of 80% for the evaluation aspect, and overall get a percentage of 100% for the display aspect of the application. Overall, the material contained in the Learning media obtained an average percentage of 91%. Based on the assessment by learning media experts, the interactive learning media physics-based articulate storyline software that has been developed by the developer get the results of the validator is the percentage of 90% for the aspect of media display, get the percentage of 80% for the aspect of type and size, get the percentage of 100% for the aspect of media design, get the, obtaining a percentage of 80% for the final display aspect of the media. Overall, learning media received an average percentage of 86%.

In this test keefektifitas using pretest and posttest data. The analysis technique used to analyze pretest and posttest is N-Gain test to see the improvement of students' mastery of concepts on temperature and heat material. The N-Gain Test score showed a result of 0.43 which means that the N-Gain score is in the medium category. The effectiveness of Interactive Learning Media physics-based articulate storyline software in improving student learning outcomes (cognitive understanding) is measured using the value of gain. In this study, the

method used by researchers is the Gain of Averages, namely by calculating in advance the average value of the pretest and posttest students and find the value of the gain by entering the values obtained into the N-gain formula. Obtained a gain value of 0.43 which is included in the criteria of moderate and quite effective.

4. Disseminate Stage

The last stage in the development of 4D model Learning media is the diffusion stage. At the deployment stage, it is carried out to promote the product development results so that it can be accepted by users by individuals, as well as groups. At the stage of dissemination, researchers should disseminate physics learning media that have been developed so that they can be used and utilized by many students and teachers and even everyone who needs it such as dissemination to the playstore. However, researchers only disseminate Learning media developed using Google drive links. This is because, if the Learning media that has been developed is included in the playstore, it will cost a lot.

- **Discussion**

The main result of this research is an Interactive Learning Media based on Articulate Storyline Software that can be accessed using android. Development research was prepared using the Thiagaranja 4D model which consists of Define, Design, Develop, Disseminate. Development of Interactive Learning Media physics-based articulate storyline software on the material temperature and heat to improve cognitive understanding of students who performed in SMA Negeri 14 Medan. In physics-based interactive learning media articulate storyline software developed, there are eight main menus. Before the Learning media is distributed, the developers carry out a pretest to measure students' initial knowledge on temperature and heat materials. After the pretest activity was completed, then the developer distributed interactive physics-based learning media articulate storyline software to students via a link sent to WhatsApp. Students are given the opportunity to learn about temperature and heat with the help of interactive physics-based learning media articulate storyline software. After that, the developer carried out posttest activities to see how the level of media efficiency developed in improving students' cognitive understanding.

The feasibility test stage of Learning media is given to experts, namely material validators and media validators. Overall, the material contained in the Learning media obtained an average percentage of 88.7% and if converted to a qualitative statement form, the material in the developed media including very feasible criteria by making additions and improvements in accordance with the suggestions of the validator.

Overall, learning media received an average percentage of 86% by including very feasible criteria by making improvements according to suggestions from validators.

The overall results of student responses to Interactive Learning media based on articulate storyline software get an average percentage of 90% (categorized as very good). Interactive learning Media using articulate storyline software is perceived very well by Class XI students of SMA Negeri 14 Medan. Excellent media quality is supported by aspects of the content of the material described in a coherent manner so as to increase understanding and be able to increase student learning interest, because the Learning media is very attractive to students and not boring

where students are directly involved in learning so that students play an active role. The presence of appropriate illustrations and backgrounds also helps students in understanding the material. In line with previous research that states the response of students to articulate storyline-assisted media is very good because the media is able to increase student interest and motivation to learn. Student attention increases during learning after applying articulate storyline software so that students become more active (Pratama, 2018).

Based on facts in the field and the results of student responses in Interactive Learning media based on articulate storyline software. It runs effectively and achieve moderate criteria, this is evidenced by running smoothly during the lesson and students are more focused on interactive learning media because it seems more interesting, and also the achievement of increased value from pretest and posttest. In Class XI physics learning using interactive learning media based on articulate storyline software showing pictures and learning videos.

Furthermore, the effectiveness stage is based on a test carried out as many as 10 questions involving 40 students with one group pretest-posttest design system, the pretest value pretestis 45.0%. After that, for the next meeting, students are given Interactive Learning media based on articulate storyline software in the learning process. After students have finished learning all the material temperature and heat using the media, the next is the students carry out posttest. Obtained an average score of 69.5%. After the pretest and posttest values are obtained, a gain test analysis is performed to see the effectiveness of the product. The results of the average N-gains score of students is 0.45 with a medium category. The results of this study showed an increase in learning outcomes obtained by students before and after being given so that when adjusted to the category of effectiveness according to the criteria (Arini, 2016) the value of the gain into the criteria is quite effective in improving learning outcomes in cognitive aspects of students in Class X MIPA 2 SMA N 7 Medan. Therefore, this study is also in linewith that conducted by Pratama, et al (2018) with the gain category which is quite effectively used in the field for both teachers and learners.

Practice questions are able to condition students to learn the material and understand more deeply based on the problems that have been done, so that the knowledge gained will be more firmly attached to the student's memory (long term memory) which results in students not easily forget the material learned and will improve the resultsof learning. In line with previous research that the delivery of material with Learning media will be more easily accepted, understood and attached to longer memory. The material in the learning media using articulate storyline is stated to be very feasible, because the material is explained sequentially with the support of clear illustrations and sentences so that it is easy to understand.

Research conducted has several advantages, namely: 1). In using this media students can learn independently easily; 2). Is a media with an unlimited period of time, as long as the user has urla media url address or installs media in the form of an application, the media can still be used; 3). Large the size of the media format in the application is not large, only 16 MB; 4). The Interactive Learning Media developed looks still simple but has earned a very decent category for trials; 5). The process of working on Interactive Learning media does not use the internet. Not only advantages but also some disadvantages, namely: 1). In the material part, the delivery is in the form of audio-visual, but the audio does not have access to repeat and stop, so it must be watched to the end, but for media in the form of video can

be repeated and can be dismissed; 2). Media can only be accessed with Android and Microsoft systems and for media formats in apk files can only be accessed using the android operating system with a minimum of Version 10. For versions below 10 it is not recommended not to use Learning media in the form of applications: 3). Not all materials can be created or suitable using articulate storyline 3 software.

Conclusion

Interactive Learning Media based on articulate storyline software that has been developed get the average value of material validator is (90%) and in terms of media validator is (86%). The average value of both aspects is (88%) so that the interactive learning media physics-based articulate software. The practicality of Interactive Learning Media physics-based articulate storyline software developed can be measured based on the response to use by students and subject teachers. Response to the use of media by students get an average score (90%) and the practical test of use by teachers get a score (90%). The average value of the practical test is equal to (90%). So that the physics-based interactive learning media articulate storyline software that has been developed is considered very practical by users.

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