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MODEL DESIGN OF INTERACTIVE LEARNING MEDIA BASED ON WEBSITE IN SMK NEGERI 2 PADANG

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Abstract

This study aims to develop website-based interactive learning media. This media was developed in order to help students be more active, creative, collaborative, and communicative. This research is a type of R and D research using the four-D model, namely: define, design, develop, and desemination. The data used are primary data, namely data directly from the source, including: experts as validators, educators and students. Data collection was carried out through tests, questionnaires, and interviews. The data analysis used was referential statistical analysis to test the validity of the data, practicality, and effectiveness. The results of this study indicate that this website-based interactive learning media is valid, practical and effectively used as a learning medium. Based on the results of the validity, practicality, and effectiveness test, website-based interactive learning media can be developed which can be a renewal in overcoming learning difficulties of students of SMKN 2 Padang on computer and basic network subjects. Therefore, it can be concluded that the learning process and outcomes can be improved through website-based interactive learning media.

Key word: model design, learning media, interactive, website

Introduction

The development of learning media is an integrated activity with the preparation of learning documents, such as curriculum, syllabus and lesson plans (RPP), and others [2]. With the existence of integrated learning media in each lesson, it will be easier for teachers to convey learning to students more clearly, effectively and efficiently. According to Asyhar [2], messages that are transmitted through a medium by the source / sender of the message will be communicated to the target recipient of the message or receiver if there is a similar area of experience between the message source (source) and the message recipient. receiver).

The learning process that is integrated through the internet network can make it easier for teachers to deliver learning materials. The internet is a computer network that is intended for corporate or individual institutional environments in obtaining useful and useful information so that it has the potential to provide convenience in the teaching and learning process in schools [7]. In the current era, the internet can be used by educational institutions or other institutions both in groups and individually openly. But in reality, there are still many lessons that have not made use of the internet (website-based) as a good learning medium and can even support success in providing learning materials in the teaching and learning process in schools.

Initial observations show that the learning of computers and basic networks at SMK Negeri 2 Padang is still in the low category. This factor was allegedly caused by: (1) there is still limited learning process in schools, which is conveyed by the teacher to students, only three hours per week, the time provided by the teacher (2) the lack of supporting facilities for learning media so that students are less

focused in the learning process, Computer-based learning media used by teachers have not been maximized, such as the internet and computer-based media supported by software applications (4) Students have not maximized in completing or applying knowledge, skills that have mastered predetermined competency standards.

One of the computer-based media that can be developed into learning media in schools is website-based learning media. A website is basically a living and growing document [3]. Websites also can develop documents with attractive appearances on the required data in a given information. [5] The website is a tool for service management in organizations to make it more accurate, effective and efficient. Organizational services are important in conveying information from collections of pages on a website to recipients of information.

A website or site is a collection of pages that display some information in the form of text, still or moving image data, animation data, sound, video or a combination of all of these with various kinds of visuals, both static and dynamic. These data form a series of interconnected building systems, each of which is linked by networks to other networks on the page. The website used for the media can accommodate text, images, animation and sound data, which can be displayed on the internet. This information can be accessed by other computers connected to the internet with one another. The web consists of pages or pages, and a collection of pages called the homepage. The homepage is in the top position, with related pages at the bottom. Usually each page under the hompage is called a chill page, which contains hyperlinks to other pages on the web [4].

To get a good quality in website development, it must be supported by the software used by users, even for other users as a necessity in website development. One of the software used in website development is MySQL which stands for Structured Query Language. MySQL is a very popular database processing software, especially among users of the Unix-based operating system. For MySQL Administration, the mysqladmin command is used as follows: mysql> mysqladmin [command] Information for running MySQL database applications can be seen through the documentation provided using the syntax. There are several syntaxes in using the MySQL language, namely: Create Database, Drop Database, Create Table, Drop Table, Insert, Update, Delete, and Select (Query).

Several studies have revealed that the use of website learning media can create a pleasant learning atmosphere. Research conducted by [6] in 2016 showed that learning media using website-based media was about increasing student interaction with their interest in learning and increased student learning outcomes. Website-based learning also makes it easy to help students understand lessons easily. Furthermore, research conducted by [8] in 2017 concerning the development of learning which is website-based on KKPI subjects at SMKN 3 Padang shows that the learning tools have been said to be valid in the aspects of lesson plans and learning media, teacher responses obtained practicality of lesson plans and learning media as well as the effectiveness of learning devices that are said to be effective on improving student learning outcomes.

[9] In 2013, developed a website-based learning media for the Programmable Logic Controller subject. In this development, the researcher conducted a feasibility test on learning media which was covered by material experts and media experts. The results in this study indicate that the success of learning media developed with the planning and development stages, the increasing validity of learning media and increasing student learning values is an alternative solution to overcome the problem of effectiveness in learning. This was also done [1] (2016) who developed web-based learning media on productive subjects in computer and network engineering in vocational high schools. The results of the study indicate that the learning process in the productive subjects of Computer and Network Engineering at SMK using web-based learning media, the student's learning achievement is increasing and interesting, which is seen from the learning outcomes that meet the requirements of valid, practical and effective learning completeness criteria. The validity was tested or validated the instrument and validated the product by two media experts.

From the results of the above studies, the development of website-based learning media is a media as a tool that can be used in the teaching and learning process to increase learning motivation and student interest in developing independent behavior to maximize their knowledge. However, there is something that is still an obstacle in developing a website-based learning media. These constraints relate to the way the content displayed on the website is presented. Typically, on a website-based learning

media, content is displayed in one direction so that it is unable to accommodate the abilities students already have. The website only displays a series of assignments that students need to complete and read the material independently. Therefore, in this study an effort to reform is carried out which has fundamental differences from previous studies. Researchers use website-based learning media that is displayed interactively so that it is indicated that it can maximize the potential of students in overcoming learning difficulties.

Based on the problems that have been stated, it is important to develop a learning media based on a website and supported by media development applications. The existence of website-based learning media that has been developed can make learning active, effective and interactive because it is equipped with interesting content that can develop students' knowledge well. Delivering material with website-based media that has been developed will make it easier for students to understand the material.

Materials and Methods

The research method used is the Research and Development (R & D) research method. The procedure for developing web-based learning media used as learning media in this learning process uses the Four-D model developed by Sivasailan Thiagarajan, Dorothy S. Samuel, and Melvyn I, Semmel (1974). This model consists of 4 stages of development, namely Define, Design, Develop, and Dissaminate or be adapted to a 4-D model, namely definition, design, development, and distribution. The subject of the trial was carried out on XTKJ Class Students in Computer and Basic Network subject at SMK Negeri 2 Padang. Data collection techniques in research There are three instruments used in data collection used in this study, namely: tests, questionnaires, and interviews. Furthermore, the data analysis technique used in this study is to describe the validity, practicality and effectiveness of using website-based learning media through referential statistical analysis.

Results and Discussion

The results of this development research were carried out through three tests, namely: (1) the results of the validation test analysis; (2) the results of the practicality test analysis; and (3) the results of the effectiveness test analysis. The exposure of the three results of the test analysis can be seen in the description below.

Result of Analysis of Media and Material Validation Test

The results of this validation test were carried out by the validator as an expert in their field, namely the developed media trial of 0.88 which was categorized as valid and while the result of the material validation tested by the material validator were 0.88 which was categorized as valid. Based on the results of the Media and Material validators that have been validated by experts, the use of media can be used by teachers and students.

Results of the Practicality Analysis of Teachers and Students

The results of this analysis were carried out to determine the learning media developed, with this it is very necessary to fill out a questionnaire conducted by teachers as practitioners as well as students as users of the media for the teaching and learning process. Based on the results of a questionnaire from practitioners or teachers whose media was developed, it was 0.95 which was categorized as valid, while the results of the student questionnaire were 0.83 and the category was valid.

Effectiveness Analysis Results

Based on the results of learning before using the media at the pretest amounted to 31% while the treatment given using the media at the postest was 81%. Increasing the effectiveness of students in this learning media that is developed has an increase to improve student learning outcomes against learning outcomes achieved by students.

Website-based student development media is also a medium that has an impact on the teaching and learning process in learning which is very adequate so that teachers will be more attractive in the process of delivering the material given to students, as well as students. The results of these studies indicate that website-based learning media are more valid, practical, and effective to be used as learning media. The following shows a development product in the form of a website-based interactive learning media. This is done as a renewal effort that has fundamental differences from previous research.

Initial Display of Learning Media

The display of Learning Media is a place for teaching and learning activities whose media has been developed online and has media facilities that are effective, efficient, interactive and interesting for students and teachers. This can be seen from the display below.

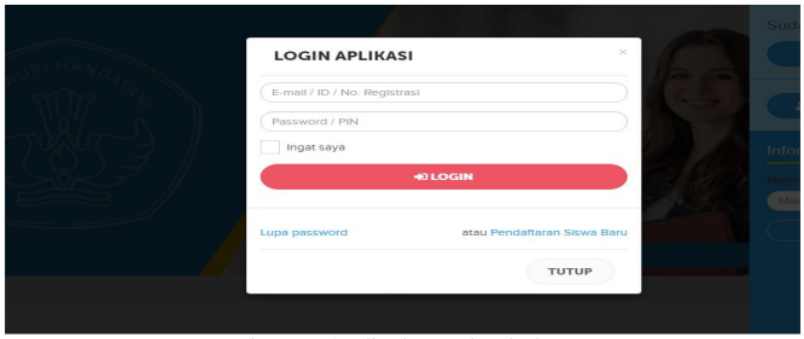


Picture 1. Initial Display of Learning Media

The picture above is an initial display of online learning media as a facility for learning media activities that have been developed in an effective, efficient, interactive and interesting manner.

Application Login Display

This view is the right of access to use this media as learning. Students and teachers who will carry out learning in this learning media online. Students and teachers must login by first entering a username and password. This can be seen from the display below.



Picture 1. Application Login Display

Instructions for Using Learning Display

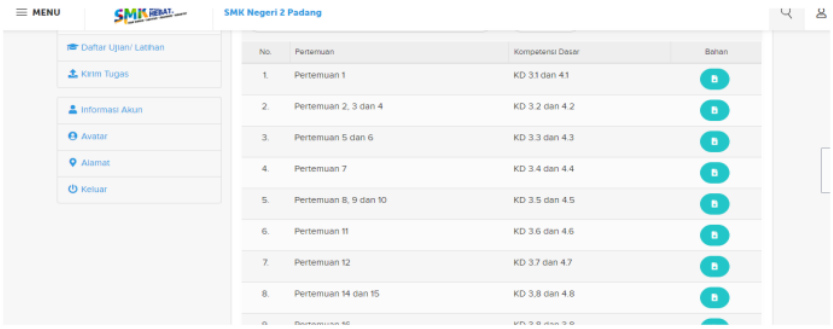
In the display of instructions for using learning, it is a guide for students who will start learning on the learning media that has been provided. This can be seen from the display below.



Picture 2. Instructions for Using Learning Display

Learning Material Display

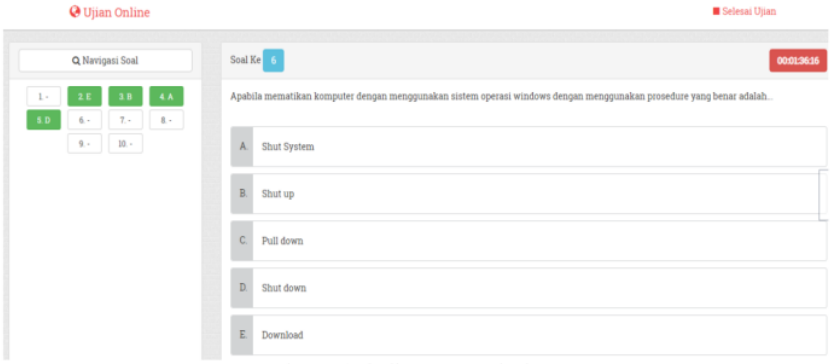
The display of learning material is that students begin to carry out learning online. The learning materials have been uploaded by the teacher into this media so that students can enjoy the good learning provided by the teacher. This material is in accordance with the curriculum and basic competency in this subject. While this research is only discussed in KD 3.2 and KD 4.2 in this subject.



Picture 3. Learning Material Display

Online Exam Display

The online exam display is where students will get an evaluation of the material or learning provided by the teacher. This can be seen from the display below.

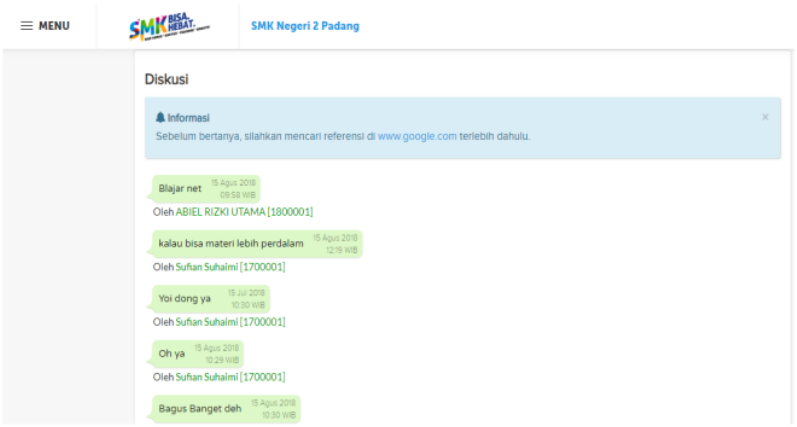


Picture 4. Online Exam Display

Figure 5 is a form of the online exam given by the teacher to students. This online question can be done anywhere and anytime, either at school or outside of school. Questions are in the form of multiple choice and can be done directly by students. Students can find out whether or not the students have done the problems they have done.

Discussion Display

This display of discussion is a container provided by the media on any given material that is in accordance with KD in the subject. The discussion forum can be seen in Figure 6 below.



Picture 6. Discussion Display

The discussion display is a student discussion forum to discuss learning material as well as discussion on the material provided by the teacher in learning so that students can interact, ask questions and even provide accurate solutions for the students themselves. The role of this discussion is very important for teachers and students and even students and students, because teachers can find out which students are active and which students are not active in carrying out the learning process on the media that has been developed.

Conclusions

There are 2 conclusions of this research, namely: (1) the teaching and learning process is easier for educators and students through website-based interactive learning media and (2) the development of website-based interactive learning media can improve student learning outcomes in learning by using technology in the form of media development. Students are more active and independent in the learning process using this website-based media without being limited to space and time and whenever it is implemented. Furthermore, the suggestions for developing this website-based learning media are: (1) teachers in order to develop learning that is even more attractive to students by completing the learning content; (2) students in order to make the best use of the media in order to increase interest in learning, motivation to learn, develop knowledge and be independent in learning; and (3) other researchers need to carry out research on website-based media development in a broader and more comprehensive manner, starting from elementary to tertiary education.

Acknowledgements

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