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The Practicality and Effectiveness of Web-Based Learning Media

Harry Pratama Figna[a], Kasman Rukun[a], Dedy Irfan[a]

[a] *Techonological and Vocational Education,Universitas Negeri Padang, Indonesia*
E-mail: harrypratamafigna@gmail.com

Abstract: The objective of this research is to obtain a web-based learning media that has a valid and practical use for learning. This web-based learning media is designed to enhance students understanding thereby improving learning outcomes. This paper uses the Research and Development (R and D) method with the 4-D development procedure (define, Design, Develop, Disseminate). The descriptive data analysis is used to describe the validity and practicality of the web-based learning media. Results obtained from this development research shows that: (1) the validity of web-based learning media is valid in all aspects of the media and material aspects (2) the practicality of web-based learning media based on teacher and student responses is very practical. According to the data obtained from this research, it was concluded that web-based learning media is valid and practical in its use as a teaching material.

Keywords: Effectiveness, practicality learning media, research and development

INTRODUCTION

Education plays an integral role in building better learning conditions and processes that will enhance students' activeness as well as shape their personalities. The formation of personality in education is influenced by the efforts to teach values that form the basis of both individual and national personality at large. The progress of the country is inseparable from the development of a better educational system. Education is a process of communication and information from educators to students containing academic information in the form of science. Learning is a process of interaction that occurs between educators and students in an environment to achieve the goals of education. For this to be effective, it must be well supported by all its elements which include teachers, students and also a conducive environment.

The effective use of these mediums in the learning process will have a positive impact on students. The selection of appropriate media will lead to changes in the orientation of teaching and learning from the teacher as a facilitator towards the orientation of students who are actively seeking sources from various media. Azwar S.2014.The media is employed as a teaching aid device to convey notes from the teacher to the students. The Interactive media can improve students, enabling them to receive learning materials delivered by the teacher.

The application of the latest learning curriculum, which is the 2013 curriculum requires a student-centered learning model, as well as effective procedures of learning that is limited to the local. In online learning, the students are allowed to get knowledge from anyone in the internet. In the 2013 curriculum, the teacher acts as a facilitator, and this makes the teacher prepare the adequate learning media that are connected to the internet, giving room to students to learn independently according to their skills and learning styles. One of the main tools in supporting learning facilities is the internet which can be done by utilizing the LMS (Learning Management System).

One of the significant challenges of the learning method is its simplicity in that the teacher explains the material with lectures in print mode assisted by a projector and PowerPoint media. The material displayed is only limited to slides without video, audio and animated images that make students more active.

Content – This is another challenge because the content on the media is still small. From the use of media offered by the teacher, there is still less interaction than expected. The unavailability of books, modules or student worksheets for eyes Productive learning in the new curriculum is another primary

challenge. The teacher must understand how to activate media that can help students in the learning process. By using web media, students can master academic material quickly and become more active. This method is quite terrific because more teachers tend to make learning media in the form of manuals and most likely the learning media does not last long. A combination of electronic media and other learning media will be more productive and durable because its storage will be in the form of files and web media usage. This is easier and more practical because it can be used anywhere and anytime.

This media utilizes technology that is connected to the internet network whose working principle in learning can be implemented with the concept of E-learning (electronic learning). For web media usage, this concept is quite easier and practical. One needs to turn on a laptop, computer, and smartphone and connect to the internet and the students can immediately be shown the subject matter to be learned.

The use of this web can help students in terms of understanding the material, making it easier for students to repeat their learning at home, enabling learning without having to be in class, and reducing learning equipment that students bring to school.

The use of web-based learning media can influence the learning process making passive students more active. The use of this web-based learning media that delivers material from teachers to students is quicker since it can make abstract material more concrete, provide assignments that make students better understand the learning that in the classroom or outside the classroom. Learning media is interactive, and it can help increase student activity. In it, there are student worksheets, practice questions, discussion forums, and video learning materials.

METHOD

The research model used is the development research. Development research is a design used in the production of certain products as well as testing the effectiveness of these products [6]. Research conducted can create specific products. It is also employed in performing an effectiveness test on a product [6]. According to the existing definitions, it can be concluded that development is a set of activities or processes that produce certain products supported by science.

This problem-based model of electronic learning media development uses a 4-D (four-D) development, model. It was chosen because it has a simple procedure that is systematic. According to the steps of the research development that the researcher conducts, the development involves expert judgment in a way that before the trial, the media developed has been revised based on the assessment, suggestions, and input of the expert. The development process consists of four stages, namely: (1) Define; (2) design; (3) develop; (4) disseminate [7].

Validity Analysis

The data obtained from the validity were analyzed using the Aiken's V validity coefficient which formulates the Aiken's V formula used in calculating the Content Validity Coefficient based on the expert's assessment of the number of people on an item regarding the extent to which the item could represent its measurement [8].

$$V = \sum S/[n(c-1)]$$

Information:
V = index of validity
s = r - lo
lo = lowest validity rating
c = highest validity rating
r = number given by a researcher
n = number of assessors

From the results of expert judgment conducted, the Aiken’s V validity coefficient of the items assessed are > 0.66 categorized as valid and if the validity value < 0.66 it is categorized as invalid. In this case, the numbers obtained from the validity of these experts can be used in research if they have met the valid instrument requirements.

Practicality Analysis

A practical analysis was performed on teachers and students by giving questionnaires to web-based learning media. Practical measurement in this instrument uses a Likert scale consisting of 5 alternative

answers which are very good with a value of five, both with a value of four, enough with a value of three, not good with a value of two and very less with one. Giving practical values by summing and calculating what is the percentage of practicality with the formula.

$$NA = S/M \times 100\%$$

Information:
NA = Final value
S = Score obtained
M = Maximum score

RESULT AND DISCUSSION

The results of the research that have been conducted are web-based learning media that are valid and practical for learning. The results of designing problem-based electronic learning media are shown in Figure 1, Figure 2, Figure 3 and Figure4.

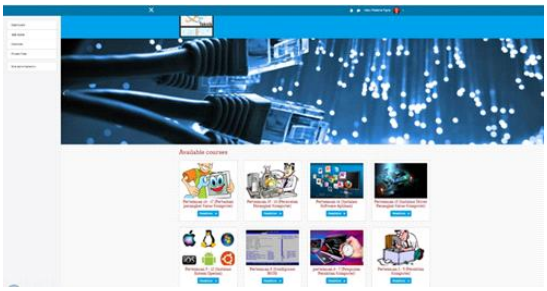

Figure 1. Initial display of learning media

This initial view was that every student who wants to participate in online learning must log in first by entering the username and password previously given by the subject teacher. This initial display shows all the number of lesson meetings according to the syllabus consisting of all Basic Competencies in the odd semester consisting of 16 meetings. But in this study, only Basic Competency 3.2 and Basic Competence 4.2 were discussed.

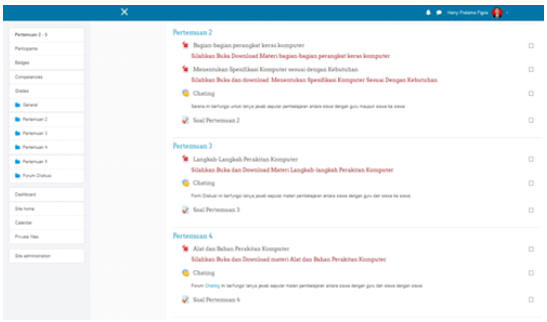

Figure 2 the initial display menu of the lesson

After the teacher or student has successfully logged into the media, the lessons contain the material to be examined, discussion forums, media chat and the territorial videos that make it easier for students to study accordingly.

Figure 3. Exercise View

This display is a form of practice questions and examinations multiple choice form. The problem can be directly tackled by students, and they can easily discover the wrong and right answers when they finish working on the problems. After working on the problems, the results of the student's practice or exam will appear.

Figure 4. Display of General Discussion Forums

This general discussion forum is a free means of communication specially devoted to students to interact with each other and giving room for them to enrich their knowledge. The topic of discussion can be filled out by the teacher or student in the form of writing or video.

The media that has been designed is tested for its validity. Validation was conducted by three media expert experts and three material experts. Validated aspects of the media are the academic, construction and technical aspects. Validated materials include the quality of the material and the quality of learning. The results obtained are valid values for the design of instructional media, which are summarized as shown in Table 1.

Table 1. Validation results of web-based learning media

No	Validator	Aiken's Coefficient V	Classification
1	Media Experts	0,87	Valid
2	Material Experts	0,83	Valid

The results of the validity test analysis to media experts obtained an average of $0.87 \geq 0.66$, the results of the validation with material experts were $0.83 \geq 0.66$. So, problem-based electronic learning media was declared validly by media experts and material experts.

The media has been declared valid; then a practical test is performed on the teacher and students to obtain the performance and the obstacles that occur when using the media. The results obtained are summarized as shown in Table 2.

Table 2. Results of Teacher and Student Responses

No	Respondents	Achievement Rate (%)
1	Teacher	86,00
2	Students	86,19
Average		86,10
Aspects Category		Very Practical

The results of the analysis of teacher responses and student responses based on table 2 obtained an average of 86.10% with convenient categories. Therefore, it can be concluded that problem-based electronic learning media is declared practical.

According to the data obtained from research, the results of media and material validation can be tested in the field. [6] That learning media should meet the requirements of being visible, exciting, and accurate. In essence, the media should be easy to read, attractively designed to motivate students through the characteristics of learning materials.

The practicality test results of learning media seen from the responses of teachers and students were stated to be very practical, so it was concluded that web-based learning media were based on practical problems used. By the opinion, [6] that learning media must have the value of practicality and equality so that it can be used easily.

CONCLUSIONS

This research produces learning media products in the form of e-learning which will later be used to facilitate the learning process. The resulting web-based learning media is stated by experts as a valid media so that it can be used as a learning medium. The web-based learning media produced are also expressed as practical media that are responded to by teachers and students.

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