Development of E-Learning Learning Media for Class VII Informatics Subjects at Islamic Middle School Bustanul Hikmah Lamongan

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Abstract. Learning media development is essential because learning must continue to innovate so that education will continue to develop with the times. This study aims to describe, explain and analyze the development process, feasibility, and effectiveness of web-based e-learning learning media through blended learning methods for informatics subjects in junior high schools. This study uses the ADDIE development method through 5 stages. Qualitative data were obtained from interviews, input from validators, and documentation. In contrast, quantitative data was obtained from the results of student learning trials before and after using e-learning learning media through blended learning, which was analyzed using a feasibility test. The results of the development show that: (1) Produce website-based e-learning learning media through the ADDIE development stage, (2) The process of testing the feasibility of website-based e-learning learning media through validators of IT/media experts, material/content experts, learning design experts whose results are 95% very feasible and the results of the small group trial the results are also feasible to be tested, (3) The level of effectiveness in website-based e-learning learning media through blended learning can be seen from the feasibility value, the results of which are proven to be effective. This is reinforced by the results of the average value of the student response field trial of 85%. Students are more likely to like the website-based learning model through Blended Learning.

Keywords: Development of E-Learning; Learning Media; Blended Learning

INTRODUCTION

Implementing the 2013 curriculum at the junior high school level or equivalent at this time applies interactive learning. The role of technology in education has changed the learning model in the conventional way of teachers delivering material from the lecture method to using learning media, the use of various media such as print media in the form of books to audio-visual media displayed through the internet network that can be accessed online (Rohimah, Riswandi, 2020).

According to (Degeng, 1989), aspects that support and affect the quality of education is paying attention to models and methods that are suitable to be applied in learning by looking at the conditions in the field to want to achieve good learning outcomes, so it is concluded that the influence in learning in improving learning outcomes must pay attention to methods or models used in learning. The quality of learning in the 21st century requires teachers and students to be ready in an interactive learning model by organizing the delivery of learning easily assisted by technological developments that are developing in the world of education. (Wardani, Toenlioe, & Wedi, 2018).

Students' success in learning is not only influenced by cognitive abilities, but other

factors, namely non-cognitive such as their beliefs, attitudes, and values. One of the most significant factors that significantly affect Growth Mainsed is the belief in the extent to which students' mindset can grow so that they have the intelligence to achieve the desired goals, as well as stable and consistent nature in learning called a fixed and unchanging mindset. Change (Limeri et al., 2020).

A developing teacher's mindset is that he can implement fun learning, communicate well, and always look for new creative things that tend to take a challenging attitude. Meanwhile, a student's mindset can apply well-maintained so that the intelligence possessed will become a patent understanding. A teacher always tries new strategies and makes decisions with entire balance without thinking about the risk of failure. Always optimistic about achieving success in the learning process (Zeng et al., 2019).

The government has issued a new normal implementation policy in several sectors, including the education sector. This condition makes the public have to adapt to the new normal by complying with the rules made by the government. This adaptation is interpreted as a new perspective and behavior which will eventually become a new culture. The development of the world of education is growing rapidly, as can be seen from the increasing variety of learning methods used and the use of various media that are useful for improving the quality of learning outcomes.

The development of multiple learning methods and media is in line with rapid technological advances. The form of this development that can be utilized is using e-learning. This application is used to face the new normal era (Priestnall et al., 2020).

The implementation of e-learning impacts the increasing use of social media. What the description of adaptation to face the new normal in e-learning learning methods. The most important aspect is the adjustment of learning during this new normal (Efgivia et al., 2020).

With technology very helpful in the learning process, learning media development is growing rapidly, one of which is online learning or e-learning. Educational institutions are required to utilize the internet with information and communication media to develop learning media. The student's academic system in learning is information related to the learning process. Web-based e-learning products allow students to access materials, quizzes, and discussion forums online and are carried out independently wherever they are and are not stuck in time, and of course, there is still teacher intervention in it. Online learning media allows students to learn material anywhere and is expected to increase their curiosity, which can be accessed using their gadgets (Rahmi, 2020).

Currently, e-learning-based learning media through a blended learning model is considered quality and able to answer

millennials' learning needs. The blended learning model is considered a technology-based integrated learning innovation that combines face-to-face learning (traditional learning) and e-learning. The blended learning model was actually implemented in Indonesia several years ago. In 2018, the Ministry of Research and Technology launched a blended learning system as one of the changes in higher education strategies for millennials. Meanwhile, the Ministry of Education and Culture has already launched e-learning with a blended learning model in 2011, although at that time, it could only be accessed by teachers (Inkeri Rissanen a, *, Elina Kuusisto b, c, d, Moona Tuominen d, 2019).

According to Nick Hutton, Regional Director of Asia for D2L Brightspace, a provider of the Learning Management System (LMS) platform, "Implementing a blended learning model through online LMS does not eliminate the role of a teacher (Yakubu & Dasuki, 2018). The government has issued a new normal implementation policy in several sectors, including the education sector. This condition makes the public have to adapt to the new normal by complying with the rules made by the government. This adaptation is interpreted as a new perspective and behavior which will eventually become a new culture. The development of the world of education is growing rapidly, as can be seen from the increasing variety of learning methods used and the use of various media that are useful for

improving the quality of learning outcomes. The development of various learning methods and media is in line with rapid technological advances. The form of this development that can be utilized is using e-learning. This application is used to face the new normal era.

Description of adaptation to face the new normal in e-learning learning methods. The most important aspect is the adjustment of learning in this new normal. On the contrary, it will further emphasize the importance of the role of teachers in improving the quality of education for students or teachers in Indonesia (Rutter & Smith, 2019). The blended learning model itself is considered very effective for the current learning model by not eliminating the role of a teacher in the learning process because the teacher's role will not be replaced so that in the learning process, there is still the role of the teacher between the teacher and students and students with learning media (Gunawan et al., 2020).

The blended learning model can be applied in all subjects, especially informatics. The learning media currently used still tend to be less innovative or traditional. Based on the observations of researchers, it was found that monotonous learning will make students bored and lack concentration, affecting learning outcomes later. The statement of an informatics teacher also reinforced this at the junior high school level during the interview session conducted by the researcher, namely: In the learning process that has been carried

out so far on the existing subjects, it has not been able to be carried out effectively because of several inhibiting factors in it. One of them is the lack of learning media that can overcome or cover all sub-chapters in the themes. In addition, the media and learning models used are still conventional, so learning feels boring, loses concentration after 30 minutes of learning, and becomes sleepy, affecting student learning outcomes during exams. In addition, the lack of e-learning media that is easy to use by teachers also reduces teacher performance in class (Gruyter et al., 2017).

In all subjects, it is necessary to have innovative learning media that can support learning in the classroom so that learning activities will feel alive and students will feel interested in learning. Of course, it can be easily used by both teachers and students. So later, students learn effectively and will get satisfactory learning outcomes. According to the school's KBM, learning objectives will be achieved through media with learning models that do not eliminate the function of the teacher in it. The selection of the Bustanul Hikmah Islamic Junior High School as a place of research because this school has a good reputation in many ways, especially in religious matters because it is based on a pesantren. With facilities that are quite complete in learning media, starting from the computer lap room, Class LCD/projector and school wifi facilities with good benefits. It's just that the facility is rarely used because it is constrained by the management of the media used by teachers. Students and teachers feel that no media website is easy to use, less innovative, and the level of interest tends to be consistent. In addition, students at the Bustanul Hikmah Islamic Junior High School also experience problems in all subjects that students feel are boring because the delivery of learning is still using conventional methods, for example, with stories and lectures that are currently happening. Less innovative, and the level of interest tends to be consistent. In addition, students at the Bustanul Hikmah Islamic Junior High School also experience problems in all subjects that students feel are boring because the delivery of learning is still using conventional methods, for example, with stories and lectures that are currently happening. Less innovative, and the level of interest tends to be consistent. In addition, students at the Bustanul Hikmah Islamic Junior High School also experience problems in all subjects that students feel are boring because the delivery of learning is still using conventional methods, for example, with stories and lectures that are currently happening.

Thus, researchers develop e-learning media that are expected to help teachers and students in all learning subjects, especially Informatics. The researcher will conduct a study titled "Development of E-Learning Learning Media for Class VII Informatics

Subjects at Islamic Middle School Bustanul Hikmah Lamongan."

RESEARCH METHODS

This study used the Research and Development (R&D) model, which was a series of processes or steps to develop a new product or improve an existing product so that it could be accounted for. To obtain the results of certain products, research that needs analysis was used to test the effectiveness of these products so that they can function in the wider community (Rustandi, 2021). The development model used was the ADDIE Model. The developed product was tested through several activities, such as product design and product test subjects.

Expert validation, limited trials, and large-scale feasibility tests were carried out at the trial design stage. The data was known by analyzing the feasibility test activities carried out through several steps: validation by design experts and one design expert lecturer. The second was a material expert trial conducted by one lecturer who was an expert in the field of content or material. Third, by a learning media expert by a learning media lecturer or media expert, further validation was carried out by colleagues in the field of informatics as well as a teacher in the media field, material design from the schools studied, and validation to respondents, namely product testing on students. At the same time, the product test subject on the web-based e-learning learning

media was carried out at the Bustanul Hikmah Islamic Middle School.

The type of data in this development research was in the form of validation data from student responses and also data from validators. Validation data in the form of information obtained using the results of the feasibility level of web-based learning media products with the google site. While the validation data was in the form of information from class teachers and peers in the form of questionnaires and comments, responses, and suggestions for improvement based on the results of assessments from validators and students after using web-based e-learning media with the google site.

The technique or method used for data collection in research on the development of web-based e-learning learning media with this google site was a questionnaire and document study. A questionnaire was a data collection tool containing several questions or statements the research subject must answer. Document study was a technique or method of collecting data by collecting information needed for research from several documents.

The description of the feasibility of the product by looking at the weight of each response and calculating the average score by using the following formula:

Information:

X = Average score
X = Total score of each one
n = Number of raters

The assessment of each aspect of the product developed used a Likert Scale, where the product could be said to be feasible if the average for each evaluation had good criteria using calculations according to (Sudjana, 2001) as follows:

Information:

P = Percentage
f = Score obtained
N = Maximum score

Furthermore, the data processing results using the percentage formula were explained by percentage values. The assessment used a five-answer scale with a value range of four to one. The ideal maximum value was obtained if all items got a value of four, and the minimum value was obtained if all things in the component got a value of one. The ideal maximum value is if it is a percentage. The total percentage will be 100% and the minimum value. The percentage distribution of the category criteria was divided into four parts very decent (>80%-100%), quite decent (>60%-79%), less feasible (>50%-59%), and not feasible (>0%)-49%). The distribution of eligibility categories was in Table 3.2

With the media eligibility category in the table above, the recapitulation of the validation data was concluded based on the established categories so that the indicators in the assessment of web-based e-learning learning media with the google site were concluded about the feasibility level. The guideline was to determine the eligibility criteria for web-based e-learning learning media with the google site. Web-based e-learning learning media with the google site was used if the respondents' assessment results were at least in the appropriate category.

DISCUSSION

The feasibility level of e-learning media based on Google Sites in Informatics subjects was tested by several validators who are experts in their fields, such as Design expert validators, IT/media expert validators, material or content expert validators, learning expert validators, of course, they have a criterion educational background. Minimum S-3 educational technology. The following is the data from the validation of the media feasibility test.

Material/Content Expert Validation

Table 1 Results of Material/content Expert Validation

Statement	Score		
	2	3	4
Attractive e-learning media display			√
Usability(easy to use)		√	
The existence of videos and image links will add to the diversity of the media			√
The material presented is coherent and appropriate with KD and learning objectives			√
The language used is easy to understand			√
Video images/illustrations according to the material			√
Placement of titles, subtitles and content placement is very precise			√
Instructions are well understood		√	
Practice questions according to the material presented		√	
Presentation of material from various sources increases students' knowledge			√
Total score	37 (92.5%)		

Material/content Expert Validation Data Analysis

Data analysis was carried out starting from the data on the website-based learning media product assessment results through a questionnaire. Based on the results of the assessment of learning materials/content experts on website-based e-learning learning media as listed in table 1, it shows the percentage level of validation is 92.5 after being converted to a 5-scale conversion table, the percentage of the achievement level of 92.5 is at a sufficient qualification level. Valid so that website-based learning media in Informatics lessons do not need to be revised. Based on qualitative data obtained from comments/suggestions from material/content experts in table 4.2, it is necessary to improve the font that is too small, which causes students not to be able to read, questions that must develop into the HOTS criteria,

Media Expert Validation

Table 2 Results of Validation of IT Experts/Learning Media

Statement	Score	
	3	4
Material sources can be accessed easily		√
Usability(easy to use in operation)		√
The e-learning web link works well		√
Media documentation is quite complete		√
The language used is easy to understand		√
Video images/illustrations according to the material		√
Placement title,the subtitles and content placement are very precise		√
Color effects and color placement on the media are precise	√	
The sound on the video/audio is clear and easy to understand	√	

Simple and attractive	√
Total score	38 (95%)

Analysis of the Validation Results of IT Experts/Learning Media

Data analysis was carried out starting from the data on the website-based learning media product assessment results through a questionnaire. Based on the results of the learning media expert's assessment of the website-based e-learning learning media as listed in table 2, it shows the percentage level of validation is 95 after being converted to a scale five conversion table, the percentage level of achievement of 95 is at the qualification level is quite valid so that the website-based learning media In the Informatics lesson, it does not need to be revised. However, adding features to the material content is necessary to be more attractive to students.

Design Expert Validation

Table 3 Validation Results of Learning Design Experts

Statement	Score	
	3	4
Source material can be accessed with easy		√
Usability(easy to use in operation)		√
The e-learning web link works well		√
Media documentation is quite complete		√
The language used is easy to understand		√
Video images/illustrations according to the material		√
Placement title, the subtitles and content placement are very precise		√

Color effects and color placement on the media are precise	√
The sound on the video/audio is clear and easy to understand	√
Simple and attractive	√
Total score	38 (95%)

very precise	
Color effects and color placement on the media are precise	√
The sound on the video/audio is clear and easy to understand	√
Simple and attractive	√
Total score	38 (95%)

Analysis of the Validation Results of Learning Design Experts

Data analysis was carried out starting from the data on the results of the website-based learning media product assessment through the feasibility instrument. Based on the results of the learning design expert's evaluation of the website-based e-learning learning media as listed in table 3, it shows the percentage level of validation is 95 after being converted to a scale five conversion table, the percentage level of achievement of 95 is at the qualification level quite valid so that the website-based learning design In the Informatics lesson, it does not need to be revised. However, it is necessary to add color designs to be more attractive to students.

Peer Validation

Table 4 Peer Test Results

Statement	Score	
	3	4
Material sources can be accessed easily		√
Usability (easy used inoperation)		√
The e-learning web link works well		√
Media documentation is quite complete		√
The language used is easy to understand		√
Video images/illustrations according to the material		√
Placement title, the subtitles and content placement are		√

Analysis of Peer-to-peer Test Results

Data analysis was carried out starting from the data on the website-based learning media product assessment results through a questionnaire. Based on the results of the peer assessment of the website-based e-learning learning media as listed in table 4, it shows the percentage of peer-testing after being converted to a 5-scale conversion table, the 95% achievement level percentage is at the qualification level quite valid so that the website-based learning media at Informatics lessons do not need to be revised. However, it is necessary to improve the color quality of the material content so that it will be more attractive to students.

Field Test

In the results of this field trial, the researcher will present an analysis of the effects of field tests in the Development of E-Learning Learning Media for Class VII Informatics Subjects at Bustanul Hikmah Islamic Middle School Lamongan. The product from the media development was tested on seventh-grade students of Bustanul Hikmah Islamic Middle School on 9-10 February 2022. The data obtained from the

results of field trials on the development of website-based learning media was tested once on 21 students in grade VII. Field trials were conducted on 21 students who were taken at random. 21 respondents represented the field trial with random criteria consisting of 7 respondents in the upper category, 7 in the middle category, and 7 in the lower class.

The development product submitted for field testing is in the form of website-based e-learning learning media on Informatics material with the theme "Computer Hardware." The following is the data from the field trials:

Table 5 Field Trial Results

R	Question items to-										x
	1	2	3	4	5	6	7	8	9	10	
X1	4	4	3	4	4	4	3	4	3	4	37
X2	4	4	4	4	4	4	3	4	4	4	39
X3	4	3	4	4	3	4	4	4	4	4	38
X4	3	4	4	4	4	4	4	3	4	4	38
X5	4	3	4	4	4	3	4	4	4	3	37
X6	4	4	4	4	4	4	4	4	4	3	39
X7	4	4	4	4	4	2	2	4	3	4	35
X8	4	4	4	3	4	4	4	4	3	4	38
X9	4	4	4	4	4	4	4	4	4	3	39
X10	3	3	4	3	4	3	4	4	4	4	36
X11	4	4	4	4	4	4	4	4	4	4	40
X12	4	3	4	4	4	4	4	3	4	4	38
X13	3	4	4	4	3	4	4	3	4	4	37
X14	4	4	4	4	3	4	4	4	4	4	39
X15	3	4	4	4	4	4	4	3	3	3	36
X16	4	3	4	4	3	4	3	4	4	4	37
X17	3	4	3	4	4	4	4	4	3	4	37
X18	4	3	4	4	4	3	4	4	4	3	37
X19	3	4	4	4	3	4	4	4	3	4	37
X20	4	4	4	4	4	4	4	4	3	4	39
X21	4	4	4	4	3	4	4	4	4	3	38
Total Score											715
Maximum Score											840

Based on the results of field trials on the development of website-based learning media as listed in the table5, the percentage of the

validation results is 85% after being converted to a scale four conversion table. The percentage of the achievement level of 85% is a very valid qualification level, so it does not need to be revised.

Based on research results on the development of E-Learning learning media for class VII informatics at the Islamic Middle School Bustanul Hikmah Lamongan, then the following conclusions are obtained:
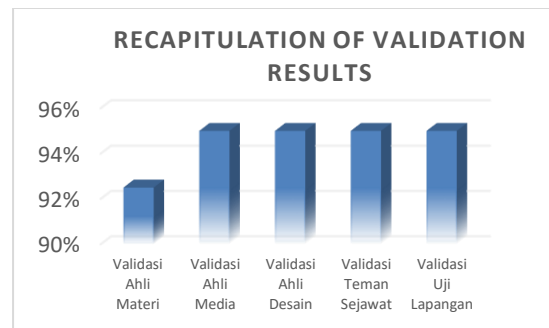
Where development of this E-Learning learning media as an alternative media to increase the effectiveness of student learning activities. Therefore it needs to be developed and improved to make it more interesting. As for now, E-Learning learning media has met the valid criteria and is suitable for use after validation, small group and field trials, and peer testing.

E-learning allows different interactions with conventional or face-to-face learning. In conventional learning, students do not dare to express their opinions directly. E-learning allows students to be more in the online class because they appear indirectly and can express their views or questions anytime and

anywhere. So that students can think critically and also create digital literacy.

CONCLUSION

The development of E-Learning Learning Media for Class VII Informatics at the Islamic Middle School Bustanul Hikmah Lamongan will answer pre-existing problems in the background. Where Development of E-Learning Learning Media for Informatics Subjects as an alternative medium. So the E-Learning Learning Media for Informatics Subjects can increase the effectiveness of student learning activities. Therefore, it is necessary to develop E-Learning Learning Media Informatics Subjects who have gone through the research stage to determine the validity of E-Learning Learning Media Informatics Subjectsthe. E-Learning Learning Media Informatics SubjectsThis has met the valid criteria and is suitable for use after validation, small group and field trials, and peer testing.

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