Journal of Educational Technology and Learning Creativity
Vol. 1, No. 1, June 2023, pp. 25~32
ISSN: xxxx-xxxx, DOI: 10.37251/jetlc.v1i1.621

Development of E-Learning Media Using Adobe Flash Program in a Contextual Learning Model to Improve Students' Learning Outcomes in Junior High School Geographical Research Steps Materials

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Article Info

Article history:

Received Jun 15, 2023
Revised Jun 19, 2023
Accepted Jun 23, 2023
OnlineFirst Jun 26, 2023

Keywords:

Media Development
E-Learning
Adobe Flash

ABSTRACT

Purpose of the study: This study aims to analyze the needs of students and teachers for the development of e-learning media with the Adobe Flash program, develop e-learning media with the Adobe Flash program, determine the feasibility of e-learning media with the Adobe Flash program.

Methodology: The research method used is the research and development (R&D) method developed by Dick and Carey. The sampling technique used was purposive sampling and simple random sampling. Data collection was carried out using validation sheets from media experts, material experts, educators, student trial questionnaires, observation, posttest, and documentation.

Main Findings: The results of this study are needs analysis based on dominant results includes visual learning characteristics, experience of using media with frequent categories, agreeing responses with media development, green visualization, and Comic Sans MS font type. Development of research products in the form of e-learning media with the Adobe Flash program equipped with pictures, maps, videos and animations used to support contextual learning models.

Novelty/Originality of this study: The novelty of this research is that the results of this study can provide convenience for independent learning through the media and make it easier to implement material on real problems in the surrounding environment.

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1. INTRODUCTION

Advances in technology and communication are developing very rapidly [1]. The rapid development of information and communication technology has had a major impact on the pattern of relationships between individuals, between communities, and even between countries [2]–[4]. Technology is not only used as a means of computing in processing words and numbers but can be used as a learning tool that allows design for a concept and knowledge. [5]–[7]. Technology products can be utilized in the field of education, one of which is learning media.

Media as a tool used by teachers in learning aims to present material in an interesting way and includes all the content of the material to be conveyed [8]. The existence of media as a tool in delivering the material is expected to make it easier for students to understand learning material. The selection of the right media according to the needs is expected to be able to influence the improvement of student learning outcomes.

Geography subjects cover a lot of material that all students must understand and understand [9], [10]. Teachers are required to convey the entire material so that it can be well understood by students [11], [12]. In its implementation there are several obstacles in the learning process. Geography learning time in class is not balanced with the scope of material that must be delivered. Limited learning time is one of the obstacles in achieving learning objectives. Material that is too broad causes geography subjects to seem difficult to understand by students.

The problems of learning geography require appropriate media innovation. Media that can be developed by utilizing technology and communication is e-learning based media [13]. This research includes material on basic competency 3.3 steps of geographic research. These basic competencies were chosen because they are new material in the 2013 curriculum. The material for geographical research steps includes broad material covering systematic research steps and ways of solving problems using a geographic perspective. The limited time for studying geography causes the material to be delivered only at a glance. This makes students unable to understand the material optimally.

Learning problems that occur require teachers to innovate in order to facilitate students in learning [14]–[16]. In addition, the learning model must be selected according to the needs of students and learning objectives. One of the appropriate models in learning geography is the contextual learning model. The contextual learning model is a learning concept that can assist teachers in linking the material taught with real-world situations and encourage students to make connections between the knowledge they have and their application in life.

The material for geographical research steps requires studies related to geosphere phenomena in the surrounding environment so that students have a clear picture of the problem and how to solve it. There needs to be supporting media including maps, pictures, and videos in the learning process so as to be able to provide a concrete picture that makes it easier for students to understand the material. Delivering material by displaying real images encourages applicative abilities so that students don't just imagine in their minds which sometimes become abstract.

The learning media that will be developed in this study is e-learning media using the Adobe Flash program. Packaging material for geographic research steps is made using the Adobe Flash application because this program can produce interactive and interesting animations. The Adobe Flash program supports animation, images, images, text, and programming in it. The advantage contained in the Adobe Flash program is that it is able to produce learning media in the form of presentations accompanied by animations with attractive designs and not monotonous.

The selection of e-learning media with the Adobe Flash program is expected to be able to overcome problems that occur in the geography learning process and can improve student learning outcomes. The development of e-learning media with the Adobe Flash program is intended to make learning more effective and interactive by presenting up-to-date material and information. Presentation of e-learning media by utilizing the Adobe Flash program is appropriate for use as learning media. Based on the background description above, it encourages the writer to conduct development research.

2. RESEARCH METHOD

The type of research used in this research is development research or what is known as Research and Development (R & D). Research and development (R&D) is the process of developing and validating educational products [17], [18]. Research and development methods are research methods used to produce certain products, and test the effectiveness of these products. In this study using the development model designed and developed by Dick and Carey. The selection of this development model is considered appropriate because it contains clear and systematic steps so that it is easy to implement. Having a revision stage is a very good thing because if an error occurs, it can be corrected immediately.

This development research was carried out at the State Senior High School 1 Kontakmacan. SMA Negeri 1 Kontakmacan was chosen as the research location with the consideration that the school had

implemented the 2013 curriculum and had adequate computer equipment facilities, and there were interesting problems to study.

Data collection techniques are used to obtain the data needed in research for further analysis. The data collection techniques used in this are observation and questionnaires (questionnaire). Questionnaire is a data collection technique that is carried out by giving a set of questions or written statements to respondents to answer [19]–[21]. The research instruments used in this study were material expert questionnaires, media expert questionnaires, and user response questionnaires. The media expert's instrument grid can be seen in the table below.

Table 1. Material expert questionnaire grid

No	Aspect	Indicator	Amount
1	Material accuracy	Presentation of material	4
		Material delivery concept	3
		The material presented is contextual	4
		The material presented is easy to understand	4
2	Curriculum	Clarity of learning objectives	2
		Goal consistency	3
		Material structure and evaluation	3
3	Thinking skills	The material presented encourages creative and innovative thinking	4
		The material presented encourages critical thinking	4
		Total	31

Furthermore, media expert questionnaires were also used. The media expert questionnaire grid can be seen in the table below.

Table 2. Media expert questionnaire grid

No	Aspect	Indicators	Amount
1	Design	Writing	3
		Color	3
		Display Adobe Flash Program	4
		E-Learning background	3
2	Navigation	Navigation Effectiveness	2
		Use of Navigation	1
3	Program operation	Ease of Use	
		Total	2

Then, a user response questionnaire or usage test is also used. The user response questionnaire grid can be seen in the table below.

Table 3. User response questionnaire grid

No	Aspect	Indicator	Amount
1	Product Operation Ease	Instructions for use	3
		Menu	1
		Navigation	4
2	Product Visualization	Button Layouts	1
		Writing	3
		Color	2
		Layout	3
		Adobe Flash Design	3
3	Material	Material Presented Clearly	4
		The material presented is easy to understand	3
		Material Presented Contextually and Systematically	4
		Material According to the 2013 Curriculum	3
4	Product Presentation	Material in the Product Fosters Learning Enthusiasm	2
		Presentation of Material Demands Creativity	1
		Total	38

The analysis technique to determine the feasibility of e-learning media with the Adobe Flash program uses questionnaire assessment data from material experts, media experts, and product trials on students. Each aspect of the assessment consists of indicators that are given the mode in the questionnaire. This research and

development uses data analysis techniques with ratings based on a Likert scale. On the Likert scale, the rating score is between 1-5 with assessment criteria from very poor to very good. Assessment uses a Likert scale in the form of ordinal data so that the conclusion uses mode (Aldila, Yuda, et al., 2020; Aldila & Rini, 2023; Putri et al., 2022).

3. RESULTS AND DISCUSSION

In this section, it is explained the results of research and at the same time is given the comprehensive The geography learning model that is used in SMA Negeri 1 Kontakmacan is a contextual teaching and learning model. Contextual learning is done by associating the material being taught with real conditions in the surrounding environment. This is intended so that students are able to make connections between the knowledge they have and its application in everyday life. In practice, learning is interspersed with discussions and uses the appearance of supporting learning media. The media-assisted discussion involved several groups of students in the class. Contextual learning with the help of media is expected to be able to provide an overview to students in learning and understanding the material.

Learning media is a teacher's tool in conducting learning so that the material is more easily understood by students. Clarity in the delivery of material and the use of appropriate learning media are important things that can support the success of the learning process. Through the media, students have a real picture because they don't just imagine in their minds which sometimes become abstract.

The material for geographic research steps is one of the geography materials for class X. This material is new material after the implementation of the 2013 curriculum. The material for geographic research steps includes broad and complex material. There are many new explanations that have not been understood by students, so it requires media as a tool so that material explanations can be well received and understood by students.

In the research and development of this media, it is used to determine the feasibility of e-learning media with the Adobe Flash program and to determine the effectiveness of the media in increasing student learning outcomes. The stages carried out in this research and development are needs analysis to determine the characteristics of user needs for media, initial product development is used as an initial design in product manufacturing, and product trials are carried out to determine the feasibility of e-learning media with the Adobe Flash program. on improving student learning outcomes.

Needs analysis data (need assessment) was obtained from questionnaire data that was distributed to students in class X IPS 1, X IPS 2, X IPS 3, and X IPS 4 randomly, totaling 41 students. Retrieval of needs analysis data is used to find out initial information related to experience using media and responses to media development. Experience using the media is used to determine the experience of students in using media that supports the learning process. Based on the needs analysis questionnaire regarding the experience of using media, it is known that students are included in the category of frequently using and utilizing learning media related to computer devices and internet networks.

Tabel 1. Pengalaman Menggunakan Media

No	Experience Using Media	Number of Students	Percentage
1	Never	0	0%
2	Sometimes	7	17%
3	Once	9	22%
4	Often	25	61%
Jumlah		41	100%

Based on the table above it can be seen that 61% or 25 students often use media, 22% or 9 students have used media, 17% or 7 students sometimes use media, and no students have never used media at all. using media. Based on the results of the experiences of students in using the media above, it can be concluded that the media has often been used and utilized by students. Analysis of the needs for the development of learning media is carried out to determine the needs and interests of students in the learning media being developed. Based on this needs analysis questionnaire, it is known that students agree with the development of learning media.

Table 2. Learning Media Development Needs

No	Learning Media Development Needs	Number of Students	Percent
1	Don't agree	0	0%
2	Doubtful	3	7%
3	Agree	29	71%
4	Strongly agree	9	22%
Amount		41	100%

Based on the table above, it can be seen that 22% or 9 students strongly agree with the development of learning media, 71% or 29 students agree with the development of learning media, 7% or 3 students are unsure about the development of learning media, and there were no students who disagreed with the development of learning media. Based on the results above, in general, students agree with the development of e-learning media with the Adobe Flash program related to class X material on basic competencies. geographic research steps.

Furthermore, the development of e-learning media products with the Adobe Flash program. E-learning media products with the Adobe Flash program are designed in such a way as to support contextual learning models. The delivery of material using a contextual learning model takes material from e-learning with the Adobe Flash program which is shown through real pictures and videos related to geographic problems in the surrounding environment. The elements contained in the media as a whole are made to be able to support the delivery of material with a contextual learning model.

The contextual learning model in a teaching system is based on the notion that meaning emerges from the relationship between content (material) and context. Display media that is equipped with real pictures and videos in the surrounding environment is able to support the delivery of learning material. The more connections students find in a broad context, the more meaningful the understanding of the content (material) is. The process carried out by students in understanding the material will be easier because students' thoughts have a clear picture. If the delivery of material is not delivered in a real context, sometimes it can cause students to have abstract thoughts.

Learning by using a contextual learning model involves students directly in associating subject matter with real-life contexts in the surrounding environment. Students in teaching and learning activities are involved to think actively to link between the material of geographic research steps with a supportive real view. In this study, contextual learning assisted by e-learning media with the Adobe Flash program includes images, videos, and maps related to geographical phenomena in the surrounding environment. Contextual learning is done by taking material in e-learning which is shown through pictures, maps, and videos. The following is an example of the display of supporting material images.

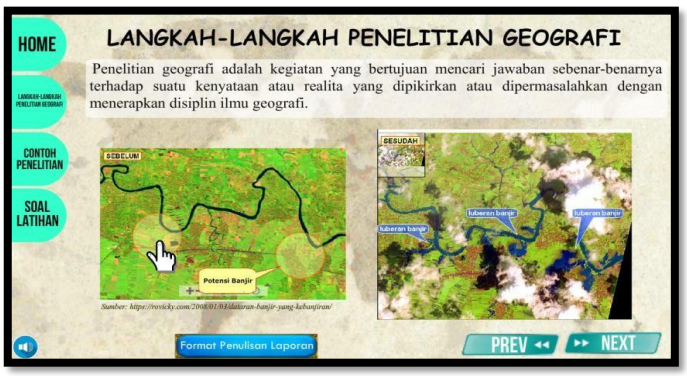

Figure 1. Display of the phenomenon of flooding

The feasibility of e-learning media with the Adobe Flash program can be determined through expert validation, educator validation, and student assessment. The first step is expert validation which includes media experts and material experts. Validation from experts is needed to assess and evaluate e-learning media with the Adobe Flash program related to aspects of the media and materials contained in the product. The next stage is validation from educators and students. Assessment by students through small group trials (small group evaluation). Evaluation of e-learning media with the Adobe Flash program is carried out by giving an assessment score using a Likert scale that has been presented in the column of the assessment sheet according to the aspects of product eligibility criteria.

The feasibility of e-learning media with the Adobe Flash program by media experts was obtained from a media expert validation questionnaire using the Likert scale parameter. The media expert validation questionnaire includes an assessment of aspects related to the media. The media expert in this research is Drs. Djoko Subandriyo, M.Pd and Dr. Abdulganiyu Alasela Amosa with the consideration of being a competent lecturer in the discipline of geography related to the concept of learning media and educational technology then submitted his willingness to be willing to become a media validator.

The lecturer as a media validator who has agreed to carry out the next validation will see and study the media that has been developed. The way to be able to see the media is to access it directly via the url address e-geosragen.com, then select the learning media in basic competency 3.3 steps of geographic research. The media validator who has finished operating and trying to use the media then conducts an assessment on the assessment sheet relating to the aspects of the media available. The aspects assessed by media experts include design

aspects, navigation aspects, and program operation aspects. Validation by media experts is needed so that researchers get input in the form of criticism and suggestions that support the development of e-learning media with the Adobe Flash program.

It can be seen that the evaluation of e-learning media with the Adobe Flash program by media experts obtained mode 4 in the design aspect, mode 4 in the navigation aspect, and mode 4 in the program operation aspect. Media expert validation assessment obtained mode 4 on all three aspects, which means the media has good criteria. Evaluation by media experts is then carried out in relation to input in the form of criticism and suggestions. Evaluation is intended if in the media there are criteria that are not quite right, improvements can be made for improvement. Evaluation in this study conveyed that the product developed related to the media aspect was good so no improvement was needed. The conclusion of the media expert validation in this study is that the developed media is suitable for use without revision.

The feasibility of e-learning media with the Adobe Flash program by material experts was obtained from a material expert validation questionnaire using Likert scale parameters. The material expert validation questionnaire includes an assessment of the material aspects contained in the media. The geography material in the developed media product is class X material for basic competence 3.3 geographic research steps. The material expert in this study is Dr. Yasin Yusup, S.Si, M.Si with the consideration that he is a competent lecturer in the disciplines of geography related to basic competency material 3.3 steps of geographic research. The next step is to submit his willingness to be willing to become a material validator.

The lecturer as a material validator who has agreed to carry out validation will then see and study the material in the product. The way to be able to study the material in the media is by accessing it directly via the url address e-geosragen.com. Material experts who have finished operating and studying the material in the media then make an assessment on the assessment sheet related to the available material aspects. Aspects assessed by material experts include aspects of the accuracy of the material, aspects of the curriculum, and aspects of thinking skills. Validation by material experts is needed so that researchers get input in the form of criticism and suggestions that support material improvement in the development of e-learning media with the Adobe Flash program.

It can be seen that the material expert's assessment of the material in e-learning media with the Adobe Flash program obtained mode 4 on the accuracy of the material, mode 4 on the curriculum aspect, and mode 4 on the aspect of thinking skills. The material expert validation assessment obtained mode 4 on all three aspects, which means that the media has good criteria. Assessment by material experts is then carried out by evaluating material related to the media so that input in the form of criticism and suggestions is obtained. Evaluation is intended if the criteria in the material are not quite right, it can be donefix for improvement. The conclusion of the validation by material experts stated that the product developed was feasible to use with revisions according to suggestions. In this evaluation, material experts hold discussions with researchers related to material in the media.

The feasibility of e-learning media with the Adobe Flash program by students in the second stage is a small group evaluation. In this study, a small group tryout was conducted by 8 students in class X social science 3. The selection of subjects in this trial used a proportional random sampling technique and asked for advice from the subject teacher so that various student characters were obtained evenly.

In this small group trial, the researcher first provided an explanation regarding e-learning media with the Adobe Flash program as well as ways to be able to access and operate it. Then students make observations and study the material contained therein. The implementation of small group trials was attended by students enthusiastically. Students who have finished making observations then fill out the assessment sheet that has been provided. The assessment relates to aspects of product ease of operation, product visualization aspects, material aspects, and product presentation aspects.

Assessment of students through small group trials is intended so that researchers receive input in the form of supporting criticism and suggestions. After the assessment, an evaluation is needed related to the learning media that has been observed. Students can write on the evaluation sheet if there are criteria that are not suitable and need to be corrected. The assessment in this small group trial was used as a prior reference

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It can be seen that in small group trials of e-learning media with the Adobe Flash program, mode 4 was obtained in the aspect of product ease of operation, mode 4 in the product visualization aspect, mode 4 in the material aspect, and mode 4 in the product presentation aspect. In the small group trial, mode 4 was obtained in all four aspects, which means that the media has good criteria. Evaluation in small group trials is then evaluated if there are criteria that are not suitable, improvements can be made. Evaluation of this small group trial did not find criteria that were inappropriate and needed improvement. Learning media is said to be appropriate and appropriate for use in learning. The conclusion of the small group trial in this study is that the developed media is suitable for use without revision.

Based on the results of the analysis and discussion above, it shows that e-learning media with the Adobe Flash program in a contextual learning model are appropriate and effective for use in the learning process in class X IPS geography subject. The development and use of e-learning media with the Adobe Flash program in a contextual learning model can improve student learning outcomes. This learning media can be used as an alternative in creating interactive, fun, and optimal learning, especially in basic competency material 3.3 steps of geographic research. E-learning media with the Adobe Flash program can also be used by students as independent learning media to explore and understand the material.

4. CONCLUSION

Based on the data analysis and discussion in this development research, it can be concluded that the experience of students in using media shows that most students have often used media related to computer devices and internet networks. Then related to the need for media development, the result was that most students agreed with the development of e-learning media with the Adobe Flash program. This development research shows that e-learning media with the Adobe Flash program can be used as a tool in delivering geography material for class X basic competence 3.3 geographic research steps so that developers are required to be able to design more innovative and interactive media by adjusting the characteristics of the needs of students so the researchers recommend this e-learning media to be used.

ACKNOWLEDGEMENTS

The author would like to thank all parties who helped carry out this research and the research team who helped complete this research.

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