Web-Based Learning Media of Population and Environmental Educational Subject

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ABSTRACT

This study aims to develop learning media for population and environmental education courses based of web learning. The background of this research is the times that require the learning process to be able to follow the digital direction. This study aims to produce web-based learning media in population and environmental education courses, determine student responses and determine the average student learning outcomes. The research method used is the ADDIE development design. The product of this research is addressed to dnature.unsri.my.id. The response to student learning outcomes using the web directory shows an increase compared to the average learning outcomes without using web learning media.

Keywords: Web, Population and Environmental Education, Learning Media.

1. INTRODUCTION

Natural resources can be managed sustainably and sustainably if the community understands and has knowledge of the importance of environmental conservation and management in a sustainable manner. As an effort to change the perspective and behavior of all components of society in order to have better awareness and awareness of the importance of environmental sustainability, the environment should be the main focus in the world of education [1].

Environmental education is one of the important factors to reduce environmental damage and is an important means of producing human resources who can implement the principles of sustainable development. Environmental education is carried out as an effort to increase public understanding and concern in seeking solutions and prevention of problems caused by environmental damage, the impacts of which we can feel together, such as various natural disasters that have recently occurred both in parts of Indonesia and. Educational activities environment requires a method or approach appropriate to the characteristics of the problem and the target group at hand.

Environmental education will not change the situation and environmental conditions that are damaged for the better. However, providing environmental training to students will produce a society that is aware of the importance of a balanced environment for a perfect life. However, environmental education cannot be done in a short time, but requires a process to create human resources who care about the environment. On that basis, environmental education must be provided as early as possible, in order to reduce environmental damage.

For example, the disaster of forest fires and land clearing by burning which always occurs from year to year, this is due to the lack of awareness of the community around the forest area to protect the environment in terms of land clearing. The existence of environmental education is an effort to introduce school students to the actual environment that is already in the 5K program, Beauty, Neatness, Cleanliness, Personality and Security [2].

Depdiknas [3] states that to build a balanced level of understanding about the active role of humans in the midst of environmental preservation, it can develop optimally, especially in relation to the way of teaching lessons and the atmosphere of learning. This is where the importance of environmental education can be applied to solve problems that occur in the environment. Knowledge of population is very important to be used as a lesson because it is difficult for us to measure the growth of human population and its impact on nature. this is in accordance with the opinion of Giorgi Boni [4]

The assessment of the number of people exposed to natural hazards, especially in countries with strong urban growth, is difficult to be updated at the same rate as land use develops.

The PKLH course is one of the courses given in the civic education of Sriwijaya University as a compulsory subject that must be taken by Sriwijaya University S1-PPKn students. From the preliminary study carried out by distributing questionnaires to several PPKn students, it was found that the existing problems with learning about population and the environment as general subjects tended to be conventional in nature so they had to be developed so that they could be more interesting and provide broad benefits. Providing learning about population and the environment to students in the digital-based era of industrial revolution 4.0 must be something close and attractive to students. This is where lecturers as educators must innovate so that learning becomes more interesting and the content taught is actually in accordance with the latest situation developments, for this it is important to develop a web-based learning development that is attractive and close to the daily lives of the millennial generation. Learning through the web can also be a solution in the midst of the Covid-19 pandemic so that it can become an effective and efficient learning medium.

Technology and learning are now two inseparable things. The very rapid development of information technology enables a person to explore data and information effectively and practically. The development of science and technology has also brought rapid changes in the aspects of human life to find and get information easily so that it is not constrained by space and time. This development has been indicated in various countries, institutions, and experts of various interests, including for education or learning. Various experiments to develop learning education tools continue to be done [5].

One of the learning resources that can improve the quality of learning is the existence of learning media as a learning resource that can help students improve the quality of learning. Learning media itself is each person, material. Tools or events that can create conditions that allow students to accept knowledge, skills and attitudes. Technology in education is better known as learning media. Learning technology appears often with the times. If in the past, learning only relied on teachers and students, then in this age of advancement in mobile internet technology, learning technology is indispensable. This reinforces online learning from home during the pandemic, as noted by Yang [6] The COVID-19 pandemic has dramatically changed the general population's life worldwide. People may spend more time on social media because of policies like "work at home". Nowadays, the class size and the growing number of undergraduate students generate

unprecedented problems of management, monitoring and evaluation of learning. From this point of view technologies may provide opportunities which deserve to be investigated for their potential to contribute to solve problems related to the management of large size classes [7].

Web-based learning media is a web-based educational service that enables the realization of edutainment using the internet media. Web-based learning media can connect learning between educators and students in an online learning room. Conventional learning problems compared to web-based learning can be viewed in terms of the limited interactivity of educators and students, flexibility in terms of providing time, space and teaching materials as well as accessibility of learning material sources. Web-based learning media is created to overcome these problems. The development of web-based learning media is very appropriate because with a learning system that involves various media (multimedia) such as text, images, audio, video, animation and digital e-books in learning, teachers can present subject matter that is more interesting, not monotonous. and facilitate delivery to students. Students have alternative learning resources that can be used for independent study and help them to better understand the material being taught.

Based on the analysis of the constraints and problems that arise in learning, appropriate and useful solutions are needed so that learning PKLH courses can achieve the desired goals and competencies. Through learning that utilizes technology and learning media, it should provide the widest possible access and opportunity for students to build their own knowledge by accessing existing learning resources through learning media so that learning objectives will be easily achieved. Efforts to provide access to adequate learning resources can be made through web-based learning media.

This concept, known as e-learning or web-based learning media, has an effect on the transformation of learning to digital form, both in content and in the system. Web-based learning media is an innovation that has a very big contribution to changes in the learning process, the learning process is no longer just listening to material descriptions from educators but students also do other activities such as observing, doing, demonstrating and others. Surjono [11] argues that web-based learning media or e-learning are now becoming very popular because of their flexibility and effectiveness as a way of delivering learning material via the internet that can be accessed anytime and from anywhere. Through web-based learning media and adequate resources, learning materials can be accessed anytime and anywhere. Learning materials can be enriched with various learning resources including multimedia and can be updated quickly by the teacher,

so PKLH learning can also take advantage of the advantages of this web-based learning media.

PPKn Study Program FKIP Sriwijaya University already has a study program website. However, its use is still limited to displaying school profiles and has not implemented web-based learning media that specifically presents learning materials, whereas according to Cholisin [9], web-based learning often has many benefits for students. If designed properly and appropriately, web-based learning can be fun learning and has an element of high interactivity so that students can remember more of the subject matter being taught.

Depdiknas [10] state that the use of multimedia in learning resources provides benefits for students and teachers. This research clearly shows that multimedia technology has great potential to assist learning and visualization of student learning in understanding the concept of material. Web-based PKLH learning will have advantages that can provide flexibility, interactivity, speed and visualization in the learning process. Further research conducted at found that students who use the web in their learning are proven to be two times faster learning time than classical students, 80% of these students perform well and very good, and 66% of them do not need printed materials (hard copy). In addition, research conducted by Ngalimun [12] shows that the development of web-based learning media is appropriate for use in the learning process because it can increase the average learning outcomes of students from 43% to 86% by Classical completeness level of 4% to 90% so that the developed web-based learning media proved to be effective in improving student learning outcomes.

Learning that involves all the senses of students makes learning more meaningful and is expected to be a solution to the problems faced by participants and students. In addition, the learning process is not only fixed in the classroom, students can also access learning media via computers, smartphones or tablets outside the classroom as long as they are connected to the internet [13].

Web-based learning media is expected to be a learning solution to make it easier for students to achieve the desired goals. The characteristics possessed by web-based learning media such as interactivity, flexibility, accessibility and enrichment will make the learning problems faced will be easier to overcome which in the end will have a positive impact on improving student learning outcomes [8]. Through the development of web-based learning media, developers will simultaneously provide solutions to the needs of learning media in the digital era. The development of web learning media is intended for all PKLH course materials so that the web will function as e-learning for PKLH courses.

Based on the description of the problems and solutions offered by researchers by carrying out research and development of web-based learning media in the Population and Environmental Education (PKLH) course, this website is named with "D'Nature" which will become a characteristic of the web in the course. PKLH in PPKn Study Program FKIP Sriwijaya University.

Based on the results of problem identification and the solutions offered, the following problems are formulated, namely: (1) How is the application of web-based learning media d'nature in the PKLH course PPKn FKIP Sriwijaya University, (2) How to design web-based learning media, (3) How the media web-based learning results of development, (4) What is the potential impact of learning media for the D'Nature web-based PKLH course in the PPKn study program FKIP Sriwijaya University? Learning media for the PKLH course based on the D'Nature web is expected to provide solutions to the problems identified.

According to Saputro [14] a website or site can be defined as a collection of pages that display information on text data, still or moving image data, animation data, sound, video and / or a combination of all of them, both static and dynamic which form one a series of interconnected buildings, each linked by a network of courtyards. In addition, according to Adelheid [15] a website is a collection of site pages summarized in a domain or sub-domain which is located in the world wide on the internet. Furthermore, Arief [16] explained that the Web is an application that contains multimedia documents (text, images, sound, animation, video) in it that uses the HTTP (hypertext transfer protocol) protocol and to access them. using software called a browser.

Web-based learning is a learning activity that utilizes website media that can be accessed via the internet network. Web-based learning or also known as "web based learning" is one type of application of electronic learning (e-learning). According to Giyatmi [17], web-based learning is not the same as conventional learning. Web-based learning has the following characteristics: (1) interactivity (interactivity); the availability of more communication channels, either direct (synchronous), such as chat or messenger or indirect (asynchronous) such as forums, mailing lists or guest books, (2) In dependency (Independence); flexibility in the aspect of providing time, place, teaching and teaching materials. This causes learning to be more student centered (student centered learning), (3) accessibility (accessibility); learning resources become more accessible through distribution on the internet network with wider access than the distribution of learning resources in conventional learning, (4) enrichment (enrichment); learning activities, presentation of lecture materials and training materials

as enrichment, allow the use of information technology tools such as video streaming, simulation and animation. The four characteristics above are what distinguishes web-based learning from conventional learning activities.

2. METHOD

The subjects of this study were students of Civics Education Study Program of Faculty of Teacher Training and Education of Sriwijaya University FKIP Sriwijaya University of 2019 academic year from Palembang and Indralaya classes who were taking Population and Environmental Education course. The development of web-based learning media for PKLH courses is no different from the development of other learning media, namely using development theory (Research and development), with the development design used is the Dick & Carey model [18].

3. RESULTS AND DISCUSSIONS

The data collection process in the field conforms to the Dick & Carey model. Here's a picture of the Dick & Carey model.
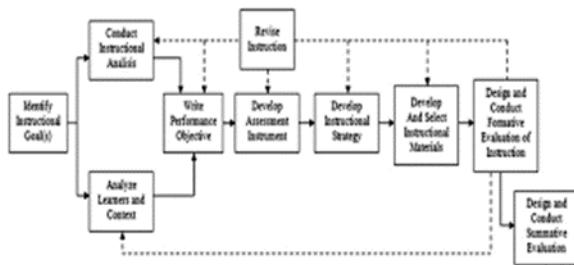

Figure 1. Dick & Carey Model

Stage 1 is Identifying Instructional. At this stage the researcher carried out a process of identifying general learning objectives that were adjusted to the RPS of PKLH courses and using needs analysis in the lecture process.

Stage 2 is Instructional Conducting. After the researcher analyzes the general objectives of learning, it is then continued with the learning analysis stage, namely the process of determining the relevant skills and knowledge needed by students to achieve competence in the specified PKLH courses.

Stage 3 is Identifying Entry Behavior, Characteristic. At this stage, a student must have a list of competencies before learning begins.

Stage 4 Writing Performance Objectives. The results obtained by researchers at this stage are the formulation of specific objectives based on the results of learning analysis on the formulation of general learning objectives and identification of characteristics and initial abilities of students.

Stage 5 is the Developing Criterion-Referenced Test. The results obtained from this stage are cognitive test instruments.

Stage 6 is the Developing Instructional Strategy. The PKLH course has an allocated time of 2 credits or the equivalent of 100 minutes of teaching hours, and is a theoretical course that is given continuously every week.

Stage 7, namely Developing and Selecting Instruction. For the development of web-based learning media using wordpress. As follows:

a. Software

At this stage, the researcher analyzes functional matters that need to be posted on the web for the Population and Environmental Education course.

b. Design

At this stage, a process is carried out to change the needs that have been described, there is a needs analysis stage as follows:

Figure 2. Front design of Web D'Nature
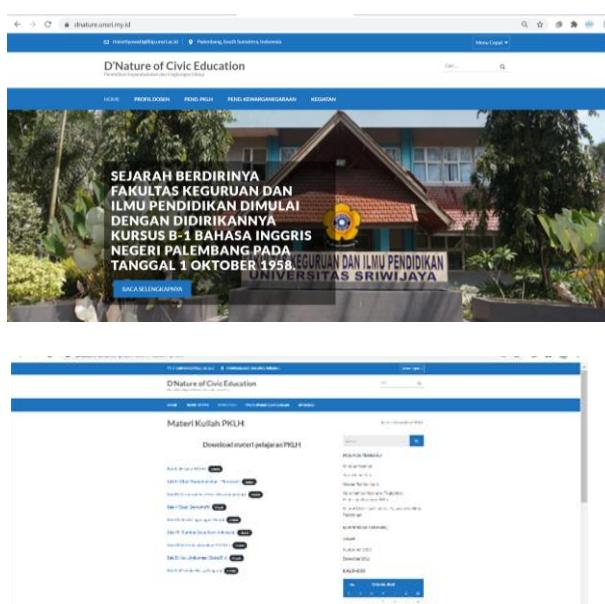
Figure 3. Design of Material Page

The next stage in this research is to conduct trials on students to see the effectiveness of the development of this global web-based learning media. Testing on

students by giving prestest, teaching using web dnature then giving post tests to students.

Table 1. Recapitulation of Posttest and Pretest Results.

No	Nama	Hasil Pretest	Hasil Posttest
1	A	60	90
2	B	70	80
3	C	70	100
4	D	60	80
5	E	50	100
6	F	50	100
7	G	60	90
8	H	50	100
9	I	60	90
10	J	60	90
11	K	50	80
12	L	50	90
13	M	60	90
14	N	60	90
15	O	50	90
16	P	70	90
17	Q	70	100
18	R	60	100
19	S	50	80
20	T	50	90

Based on the table 1, it can be seen that the average pre-test score is 58 with the post test result of 91, so the prediction of the results is 33 points. This 33-point increase indicates that the D'Nature web has a potential impact on improving learning effectiveness.

The development of D'Anature web learning media has gone through three stages, namely preliminary studies, product development, and product testing. In the preliminary study stage, the researchers conducted discussions with peers to get proper information about the learning media to be developed, according to the opinions expressed by Seels and Glasgow in Puspa [19], there are several principles of media selection, namely: 1) meaningful selection objectives what is the purpose of using the media. Whether the media is for student learning (student learning), for general information, or for the evaluation of conceptual learning or analysis [20], the expected target is the availability of facilities that support the media used; 2) Media Characteristics. Each media has certain characteristics, both in terms of its effectiveness, how to manufacture it, and how to use it. Some teachers are interested in the media, but making it is very difficult and takes a long time. Some teachers

also experience problems in making media due to the high price of the application [21].

At the development stage, consider the ease of access as well as the information contained in the web documentary. The learning media d'nature web with the address "dnature.unsri.my.id" is a web that can be accessed on various platforms such as Windows, Android, Mac, Linux, and Ipad, making it easier for students to access it. At the stage of the material and media expert validation test, the web D'Anature was declared feasible to be tested. The importance of accessibility to digital resources is now widely acknowledged. The W3C WAI has played a significant role in promoting the importance of accessibility and developing a framework for accessible Web resources. The accessibility of e-learning provides additional challenges that may not be faced when providing access to other Web resources [22].

The next stage is testing using three stages of the trial, namely the one to one stage, small group, and field evaluation. In the one to one stage, 76.25% of the results showed that the D'Nature web was easily accessible and effectively used in the learning process, by paying attention to the input given by students in the one to one stage the researcher revised then continued with the small group stage. The small group stage resulted in 91.87% of the results stating that the D'Anature web learning media was effective for use in the learning process. Then the final stage is carried out, namely the field evaluation stage, at this stage the researcher conducts three stages, namely observation, testing, and giving a questionnaire. From a series of activities carried out, it was found that the learning outcomes increased, namely with a difference of 30 points the post test results were higher than the pretest. Thus, this shows that the web D'nature is feasible to be used as a learning medium and then developed again to provide wider benefits. This is in accordance with Roberto's statement [26] that learning media using the internet are preferred by the younger generation in Spain, web-based learning media and games are the learning media most preferred by the younger generation.

Good learning media can increase student motivation and learning outcomes, this is because the learning media helps students understand learning material, so learning media is very important thing according to the statement from Nurbaiti [24] Learning media is an important element to determine the success of learning activities. Learning media is used to deliver a message and stimulate mind, feeling, attention, and interest of students that it will support the learning process in deliberate, intended, and controlled. So, In the development of technology, it is not doubtful that internet has an important role as the spreading information. The convenience of technology will bring

the advantages and positive effects if it is used clearly and positively [25].

4. CONCLUSION

The development of D'Anature web learning media has gone through three stages, namely preliminary studies, product development, and product testing. In the preliminary study stage, the researchers conducted discussions with peers to get proper information about the learning media to be developed. The learning media d'nature web with the address "dnature.unsri.my.id" is a web that can be accessed on various platforms. The next stage is testing using three stages of the trial, namely the one to one stage, small group, and field evaluation. In the one to one stage, 76.25% of the results showed that the D'Nature web was easily accessible and effectively used in the learning process, by paying attention to the input given by students in the one to one stage the researcher revised then continued with the small group stage. The small group stage resulted in 91.87% of the results stating that the D'Anature web learning media was effective for use in the learning process. Then the final stage is carried out, namely the field evaluation stage, at this stage the researcher conducts three stages, namely observation, testing, and giving a questionnaire. From a series of activities carried out, it was found that the learning outcomes increased, namely with a difference of 30 points the post test results were higher than the pretest. Thus, this shows that the web D'nature is feasible to be used as a learning medium and then developed again to provide wider benefits.

AUTHORS' CONTRIBUTIONS

The correspondence author with other authors jointly carried out this research. the correspondence author acts as the research organizer and provides direction for the course of the research. The second and third authors conducted the validation and product trials in the field, after that the authors jointly compile the research results.

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