Design of Learning Media for Web-Based Subjects Geography. (Case study: Class XI majoring in social studies at Citra Nusa Senior High School)

W Wahyuni *, R Ahmad S W2, N Hasti3, I Gustiana4, Afifah P Pratiwi5
1,2,3,4,5Departemen Sistem Informasi, Fakultas Teknik dan Ilmu Komputer, Universitas Komputer Indonesia, Jl Dipatiukur no. 112-116 Bandung, Indonesia

Email: *wahyuni@email.unikom.ac.id

Abstract. Learning about geography is very important for students to learn. By knowing the geographical layout, students can find out various kinds of natural resources produced by a place or location. Limited time to explore each topic is also a problem that must be faced to improve their understanding of geography subjects. This research used descriptive qualitative method by collecting detailed, in-depth and actual data. This method is derived from knowledge and facts found in the field. Interactive learning has the potential to create a high-quality learning environment that actively engages students, hopefully increasing interest in understanding better thus the target can be achieved by the teacher. The resulting application can be a good choice for delivering learning material as well as for generating interest in learning as well as students' understanding of geography subject matter so as to enhance student achievement. The information obtained by students is very important so students realize that Indonesia is a producer of many natural resources. The form of development this application is to assist students in understanding the concept of learning material that is presented interactively by the system and is able to understand about all the natural resources produced at that location.

1. Introduction
Design of learning process that uses electronic circuits to deliver content and interactions as learning activities through computer electronic devices is needed to obtain learning materials in order to meet the requirements [1]. Web-based application is one system that uses the internet in its use and can be accessed by all users. One way of electronic learning is with interactive learning media that involve interactions between students, students, and teachers [2] Geography material is a material that must be understood by students because it is related to the environment, natural resources in one area.

To understand the material, a system that can attract the attention of students is needed. Application interaction is a substantial element of learning activities. Interaction, especially for students, must be created and given the widest possible opportunity so that the desired learning objectives, especially students, can be achieved through a certain process of interaction [3]. With current computer technology learning media can be made more interesting but most of the teachers in conveying learning still use conventional learning [4]. Learning media is a combination and integration of text, graphics, sound, animation, video [5]. Education and learning media technology can provide effective results in teaching and learning [6]. Understanding geography learning can use the existing Google Map application, but geography lessons will be added to the natural resources available in one location, in keeping with the school's curriculum. [7]. In addition, learning media must also be used and be an intermediary to channel messages
from the sender to the recipient so that it can stimulate messages, thoughts, feelings and interests of students so that the learning process occurs. This interactive learning media needed with the system so that learning is no longer limited to space and time, learning can be done anytime and anywhere [8].

Design applications that were built can meet user needs and have a value that can facilitate users. A form of convenience obtained from this application is getting information in the form of material and interactions to improve teaching and learning [9]. In addition, students can understand material that is in accordance with the learning objectives to be achieved with different and more interesting techniques. The data collection methods are carried out in accordance with the steps used in building a web-based system [10]. This will affect the results that will be received by the user. More creative teaching methods will trigger teachers to always update the material in accordance with the appropriate conditions, so as to attract the attention of the students.

2. Method
The descriptive analysis was used to analyze the data of product validation and of improvement in learning independence and conceptual understanding. Validation and quality evaluation, the qualitative data were converted and classified into categories indicating levels of appropriateness and quality of the application [11]. Following the preliminary results of the study are obtained from observation, interviewing teachers, students and the school infrastructure (see Figure 1).

![Diagram](image)

**Figure 1.** Research Framework of Design of Learning Media for Web

The design method used in this research is research and development [12] with several stages, namely:

a. **Survey**
   Analyze the needs of learning media for students. The data needed can be based on the applicable curriculum and the objectives to be achieved

b. **Data Collection**
   Gathering information by compiling a list of questions asked of respondents in the form of a sample of a population. Respondents involved were part of the curriculum, teachers and students.

c. **Design**
   Designing media prototypes interactive learning or material as needed students and teachers.
d. Test, Evaluation, and Revision
   Testing is done by running the system and seen whether there is an error or not. If there are errors, the process is corrected again and corrected the errors after validating the product or prototype.

e. Implementation
   Implementation to school students to get advice from prototypes of web-based interactive learning media for senior high school students

3. Results and Discussion
Object orientation method was used to design this geographic application in which each actor interacts with the created system. Actors created should be based on functions contained in the system, so that its use can be maximized. In the use case, it describes the interaction among teacher, student, and system in which systems have several features that can be adjusted by the users. The interaction consists of several interrelated functions (see figure 2).

![Use Case Design of Learning Media for Web-Based](image)

**Figure 2.** Use Case Design of Learning Media for Web-Based

Diagram above shows a series of designed application that users can choose based on their need. Teacher has access to add or update the contents of the available menu. Student can see the search results; therefore, students can access the material (see Figure 3).

![Activity Diagram Design of Learning Media for Web-Based](image)

**Figure 3.** Activity Diagram Design of Learning Media for Web-Based (researcher)
The main display for students in this application contains a map that users can choose by selecting the area they want to know from this geography application, according to their needs by pressing the location button provided (see figure 4).

![Figure 4. Main Display (researcher)](image)

There are various menus that can be chosen by users in this application. Users can choose the material menu and assignments for learning purposes (see Figure 5).
The page above shows a map of the Natuna Islands along with an explanation of Petroleum in Natuna Island. Natuna Island includes some information about petroleum in the Natuna Island by users and they want to know more about the area (see Figure 6).
Applications about learning media contain knowledge related to Indonesian geography. The material described covers the area along with the natural resources managed by these areas [13]. There is a help button that allows users to find information quickly and easily.

4. Conclusion
With this application, we hope that users can easily find information related to learning interactively. This application is equipped with buttons that are easy to use by users so that they can be used properly according to their purpose.

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