Building English Learning Application in University Based on Web and Mobile

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Abstract. This study aims to determine the effectiveness of English in universities by using web-based and mobile applications. Method used was descriptive method and case study at one private university in Bandung with data collection techniques carried out by random sampling and questionnaire, carried out by taking observation data, interviewing students, literature studies that support problem solving theory. Results showed that, web and mobile-based English learning is expected to help students to be able to receive studies outside the hours set by the campus, as well as related to academics such as searching for literature and writing scientific papers. This is due to the application can cut time in learning and the use of learning applications is very helpful for students.

1. Introduction
In a global competition called Era Industry 4.0 English language skills are one of the 3 main factors supporting Human Resources to be able to compete in the competitive field of the Global Industry. Unfortunately, the English education curriculum is still low in quality and time. A method is needed to encourage the desire and opportunity to learn English, which is one of the best ways with the help of technology such as the internet and smartphones. According to Soegoto, that the Internet is a proactive media where consumers will find out what information they want. It was continued that the increase in internet usage and connectivity made it easier for interaction between one library and another. The library are not only accessed within the scope of LAN or WAN only but has become a super library that is accessed by humans throughout the world [1]. Seeing the huge internet potential, it is very good to be used to improve learning in this case, especially in English language learning web-based assisted with the library network. From there, an online learning system can be developed. According to Lockee and Gros, the online learning system has become one of the important learning and learning models in the last few decades and has become an effective and efficient method of learning. The increasing number of internet users using smartphones and tablets around the world has supported the implementation of online learning or better known as e-learning. Not only at a high level of education such as in high schools or universities, but also in Vocational schools and language schools have used it [2].

In a case study at the Satya Wacana Christian University Language and Literature Faculty, Salatiga said that by interviewing 4 lecturers and 20 students as a sample, it was found that there were still many papers or papers based on assignments, quizzes and tests. The use of paper-based raises constraints, namely according to the lecturer, if there are quizzes or assignments in Grammar courses, it will take a lot of time in the examination and assessment process. The second is to take time in the
process of inputting values into the Excel file, which will be made in the form of values used by the lecturer as a report. Third, the use of paper that should be reduced to preserve the environment. These things can be avoided by applying technology as an alternative. The use of technology has been applied but not as optimal as some lecturers have done using social media and blogs for discussion facilities. Based on interviews with several lecturers in the Language and Literature Faculty, that courses such as Grammar require students to practice a lot so it is necessary to have interesting and easy learning media for students [3]. According to the results of a study and survey conducted by Pearson Learning Company, it shows that more than 90% of elementary to middle school students in the US already have their own mobile devices and use them to complete their tasks with the help of these devices. They believe that mobile devices will become a way of learning in the future. The majority of 69% of students expect to be able to use mobile devices in the classroom. The study also revealed that 90% of students believe that their mobile devices can become a more enjoyable learning process [4]. Tavangarian states that E-Learning is a structured distance learning system. He states E-Learning also gives experience and understanding during learning process. Each person gains knowledge and benefits from E-learning system [5]. According to Sharp we need to pay attention to user’s needs to design products and consider user desires so we can make products more interesting and liked by users without decreasing the value, functions and purpose of the product [6].

The purpose of E-Learning is an effective solution for those who have limited space and time but still want to continue learning. However, for access problems it is still uncertain honesty because user authentication usually only uses incoming credentials. Thus, students have the opportunity to cheat [7]. Then it needs a credible authentication and security system. Empirical studies by Hussein et al. show it. The design and layout of e-learning management systems is very influential on student learning abilities. Thus well-designed e-learning content can make it easier to learn online and increase motivation to use the app [8]. The design tool used to explain the system from a typing model point of view is the process of building a system model based on user needs, without explaining in detail the input, process or output [9,10]. With this English Learning mobile application, it is expected to be able to overcome the existing problems. With this application allows students to study English lectures with unlimited time and place. For lecturers and lecturers, they can manage lecture materials periodically and flexibly. Lecturers can also receive information immediately and then calculate the value online.

2. Method

2.1 Data Collection Methodology

The method used in Building English Learning Application in University Based on Web and Mobile for data collection used descriptive research as a method. Saeful explained that descriptive research is a research method intended to describe the phenomena that exist, which take place at this time or in the past [11]. Indonesian computer universities are the place for case studies in data collection. Data collection techniques were carried out by random sampling and questionnaires. Performed by taking observation data, interviewing students, literature studies that support problem solving theory.

2.2 Software Development Method

Software development methods in this study used the waterfall model. Waterfall models take basic process activities such as specifications, development, validation, and evolution and represent them as different process phases such as requirements specifications, software design, implementation, testing [12]. The stages in the waterfall model consist of requirements definition, system and software design, implementation and unit testing, integration and system testing, operation and Maintenance [13].
3. Results and Discussion

3.1 English Learning Flow Analysis

English learning flow analysis is a process of teaching activities carried out by lecturers to students. This flow aims to give a more detailed picture of how to deliver the subject matter delivered by the lecturer to students. In the current flow of material, the lecturer delivered the subject matter with the lecture method. While students receive material delivery from the lecturer by listening and recording what is delivered by the lecturer. The procedure for the process of giving material that is currently running can be seen in the Figure 1.

![English Learning Flow Analysis Diagram](image)

**Figure 1.** English Learning Flow Analysis

3.2 Analysis of English Language Learning Exercises

Analysis of English Language Learning Exercises is a process of giving practice questions to the students. This flow aims to give a more detailed picture of how to deliver training on the subject matter delivered by the lecturer to students. In the flow of giving practice questions, the lecturer...
directs students to do problem training from the lecturer. The procedure for the process of giving exercise that is currently running can be seen in the Figure 2.

| College Student | Lecturer |
|-----------------|----------|
| working on english exercises | English practice questions |
| Collect english exercises | Check english exercises |
| provide an answer sheet | Give Value |

**Figure 2.** Analysis of English Language Learning Exercises

3.3 Use Case Diagram

Use case diagram aims to describe the system from the user's point of view, as well as explain who the actors involved in the system and the interaction in it. Use case diagrams can be seen in Figure 3. In this application the actors involved are students and lecturers.
3.4 Activity Diagram

Activity Diagrams are used to describe activities that are in a system, which is a depiction of the activities of the case that is in the Use Case Diagram. Activity diagram for building English learning application consist of login activity diagram, course activity diagram, test activity diagram dan evaluation activity diagram. The following is a description of the system in the activity diagram based on the current system in the use case and scenario. The following is the activity diagram login based on the use case that has been discussed can be seen in Figure 4.
3.5. **Interface Design**

The interface is a graphical display that relates directly to the user [14]. There are 4 interface designs in Building Applications for Learning English at the University Based on Web and Mobile including designing the login interface, designing the course interface, designing the test interface and designing the evaluation interface. The following is the interface design for the test can be seen in Figure 5.

![Figure 5. Interface Design for Test](image)

4. Conclusion

With this English mobile application, we can find out that the effectiveness of language learning using applications when compared to conventional learning. Time and energy and paper spent on English learning can be minimized by implementing this mobile and web-based learning. It is also expected to help students to receive studies outside the hours set by the campus, as well as related to academics such as searching for literature and writing scientific papers. Of course, the use of this learning application is very helpful for students.

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