

# Usability and Acceptability of the Web-Based Model of Instruction at Universitas Negeri Padang

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**Abstract**—The purpose of this study was to find out the usability and acceptability of web-based learning. This is important because these two variables are a prerequisite for the success of any web-based instruction. The research results reported in this article are the results of the initial steps of R & D in the development of the flipped classroom model of instruction using the Borg and Gall procedure at Universitas Negeri Padang. The usability of the WBI has measured with a useability scale that consists of three indicators namely: (1) the ownership of mobile devices by lecturers and students, (2) the availability of facilities owned by UNP, and (3) the willingness of lecturers to use and develop this technology in learning. The acceptability of the WBI was measured by using the agreement scale consisting of four components namely: (1) the students' knowledge of the advantages of the web-based instruction (WBI), (2) the benefits gained in the use of the WBI, (3) the interest of students and lecturers towards the WBI features, and (4) difficulties experienced by students in learning and lecturers in managing to learn using the WBI. This research included 225 students and 25 lectures as respondents. From the survey, it was found that usability is whether viewed from the tools owned by the students, the facilities owned by the university, and the ability of the lecturer to develop mobile-based learning is adequate.

**Keywords**—usability; acceptability; web-based instruction; model of instruction

## I. INTRODUCTION

Ask students and lecturers who are on campus if they have phones or tablets. Almost all of them will say yes, and many of them will even say that they have more than one. Then observe what they do while sitting anywhere on campus, almost all of them using their cellphones or tablets. Even when studying in class, some of them still try to use this communication tool.

Students born from the beginning of the 1990s can be called the digital generation. Marc Prensky calls them digital natives, those who are born and grow in the era of digital technology [1]. They have been introduced to digital devices early and can use them. Try to imagine children who are only around 3-4 years old can already use a computer keyboard to browse the internet. Likewise, they can easily use cellphones to call their mothers or fathers outside their homes.

The development of digital technology is truly extraordinary. It affects all aspects of people's lives. In higher education, new student admissions, academic administration, implementation of learning, and learning assessment systems have used digital technologies. Many people argue that the use of digital technology in the management of universities become a must [2,3].

When the internet was introduced, it made a new revolution in almost all aspects of human life. The internet also influences the method of instructional practices at many levels and kinds of educational institutions. A global class, for instance, helped by internet with its potential features that can have multimedia documents, hypermedia capability, allows distance learning where many students can interact with each other at any time and almost anywhere.

Web-based instruction (WBI) can be defined as the application of web technology in the instructional process. It refers to the utilization of online resources, applications, and software for enhancing instruction and course delivery methods [4]. In simple terms, it can be said that all instructional process is done by utilizing internet technology and as long as the learning process is felt to occur by those who follow it, then it can be called web-based instruction.

WBI, because of its characteristics, can reach a large number of students [5], suitable for a variety of individual differences aspects, to increase knowledge in higher education [6]. Besides, WBI also promotes many opportunities for interactivity of instruction [7].

The word usability refers to the quality of being able to be reached or entered and also can refer to the quality of being easy to access. Web-usability refers to the extent to which people can access and understand websites [8].

Try searching for articles on ERIC with the keyword "acceptability of web" or "acceptability of internet", moreover those that are more specific like "acceptability of web-based instruction", will find no articles that talk about "acceptability", except one, the article entitled "Acceptability and Appeal of a Web-based Smoking Prevention Intervention for Adolescents" written by Amy E. Parlove, Joan E. Cowderly, and Sarah L. Hoerauf [9].

The word acceptability can mean the quality of being accepted. To find out students' opinions about an instructional environment such as methods, models, media, and learning strategies, Kelly has developed an instrument called adjective rating scale (ARS) (Kelly, 1976).

**II. METHODS**

This article is the result of the first step of research and development (R & D) that uses the Borg and Gall procedure. The aspects examined in this step concern the usability and acceptability of web-based instruction.

Usability aspects involve ownership of mobile devices, costs provided for Internet connection, and availability of network facilities owned by the UNP, as well as the experience of using mobile devices for learning. Data on usability were collected with a usability questionnaire consisting of twelve questions with alternative answers 'yes' and 'no'. Because the data is factual, it was not tested for the validity and reliability of the questionnaire.

Acceptability of web-based instruction was measured by acceptability scale which consists of four aspects, namely: (a) knowledge; (b) benefits; (c) attraction; and (d) level of difficulty. The acceptability scale has four answer choices, namely "strongly agree", "agree", "disagree", and "strongly disagree". The validity of the acceptability scale contents is guaranteed through the making of acceptability scale grids. The validity of the items was searched using Pearson correlation techniques, and the results were twenty of twenty-four items valid. While for internal reliability used Cronbach alpha with a coefficient of 0.905.

Data were collected from 225 students and 25 lecturers of three faculties, namely: The Faculty of Economics, the Faculty of Sports Sciences, and the Faculty of Engineering. Collected data were analyzed with descriptive statistics which include mean, standard deviation, graph, and mean comparison

**III. RESULTS AND DISCUSSION**

From the point of usability, it can be said that the implementation of web-based instructional at UNP can be accessed easily. This is shown by all students and lecturers sampled having mobile devices that can access all types of messages (text, images, audio, and video) used in the web-based instructional system. All students and lecturers claim that they always use their mobile devices to access messages like this.

TABLE I. STUDENT RESPONSES ABOUT VARIOUS USABILITY INDICATORS OF WEB-BASED LEARNING

No.	Question	Student Answer (%)	
		Yes	No
1	Do you have a computer?	86	14
2	Do you have a smartphone?	100	0
3	Do you have internet access?	100	100
4	Do you provide funds to be able to access the internet?	100	0
5	Did you know that UNP has an e-learning system (platform)?	100	0
6	Have you ever attended lectures using e-learning at UNP?	100	0
7	Can you use the UNP e-learning system outside of class hours?	27	73
8	Did you use e-learning in the last semester?	100	0
9	Can you access the internet from your college class?	80	20
10	Is UNP's e-learning learning going well?	76	24
11	Can you access UNP e-learning from outside the campus?	68	32
12	Are the computer labs in your Faculty adequate?	22	78

Besides, all students and lecturers claimed to provide some money to buy Internet packages. The average amount of money provided by lecturers is more than that provided by students (Fig. 1)

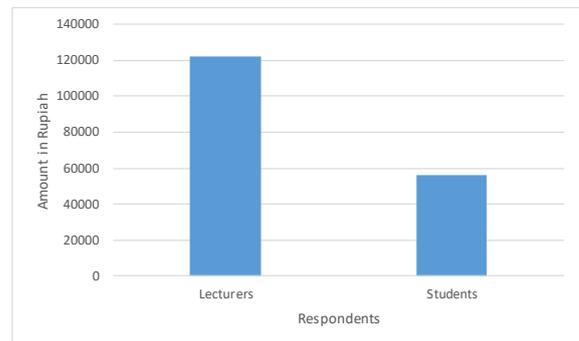


Fig.1. Comparison of internet budget per month between lecturers and students

Judging from the availability of facilities and network quality possessed by the University, all students and lecturers argue that the university has learning facilities that can be used for sufficient web-based instruction with good quality. This is supported by the fact that indeed the UNP currently has a server with a large capacity and with a bandwidth of more than 2.5 Gbps. And this can be accessed through the Internet easily.

Furthermore, regarding the acceptability of web-based instruction use from four aspects, namely: 1) respondent's knowledge about, 2) learning benefits, 3) attractiveness, and 4) difficulty learning with blended mobile learning. The average score of lecturers and students for the four acceptability

indicators of the web-based instruction model is presented in Table II and Figure 2.

TABLE II. STUDENTS' AND LECTURERS' SCORE OF WBI ACCEPTABILITY

Respondents	N	Indicators of Acceptability			
		Knowledge	Practical Value	Emotional Value	Difficulty
Lecturers	25	4,27	4,04	3,86	4,04
Students	225	3,94	3,86	3,59	3,52

Lecturer scores for the four acceptability indicators of the web-based instruction are higher than student scores. If the analysis is continued with the significance of the difference in scores between lecturers and students it is found out that the knowledge aspects and the level of difficulty of the differences between the lecturers and students are significant with F values respectively 7, 60, and 10.29.

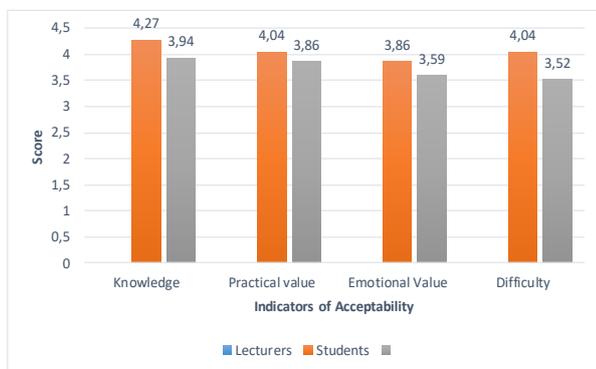


Fig. 2. Lecturers-students and lecturers acceptability of WBI

The implementation of the WBI is expected to be implemented well at the Universitas Negeri Pasdang if it meets at least two main requirements, namely usability and acceptability. Web-based instruction has a very broad capacity to provide services to students.

For the situation in Indonesia, WBI is one of the most promising learning models for increasing enrollment rates and at the same time for equitable distribution of higher education which is still a problem.

Now with the advancement of information and communication technology and also supported by legislation the opportunity to increase access and equal distribution of education is significantly wide open. Indeed, according to the law that applies a high ranking cannot use 100% e-learning. But by combining face-to-face learning with online learning with a 50: 50 portions, students can be doubled, one number is a very significant increase.

Now with a total of around 5 million students, only about 29% of the population aged 19-24 can enjoy higher education. Implementation of WBI can increase to 10 million people, of course, it can mean that the higher education enrollment rate becomes almost 60%, a very significant situation. Of course, building a new learning model with a large scale is certainly

not easy. But now the technology is in hand. Regulations that protect it also exist. It's just the willingness to dare to do it. The period with more state institutions of higher education and many other private universities that are great Indonesian cannot afford to do so.

IV. CONCLUSION

From the research findings and discussions, it can be concluded that usability is whether viewed from the tools owned by the students, the facilities owned by the university, and the ability of the lecturer to develop the web-based instruction is adequate

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