The Development of Information Website for Master Program in Vocational Education of Universitas Negeri Semarang

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Article Info

Abstract

This study aims to develop a website of Master Study Programs in Vocational Education of Universitas Negeri Semarang (UNNES). This research used Research and Development methods, and website development design using the Waterfall method. The subjects of the study are students, alumni & managers of the Master Study Program at UNNES vocational education. The object of this study is the website of the UNNES Vocational Education Graduate Study Program. The sample of the research subjects was taken purposively because this research focused more on the research objectives, the website applied in this Study Program. The development of this website was tested by validators of web experts, substance experts, and user validators. The test results from the validator are as follows: (1) the test results of web experts got an average percentage of 90% or can be considered very feasible; (2) the results of testing by a substance expert got an average of 88% (very feasible); (3) the test results by the user got an average of 90% or very good. This study program information website was also tested using the blackbox method which resulted in the average website running well in suitted with the results expected. The reliability of the website was tested using loadimpact, tools for stress testing using 50 virtual users for 5 minutes, the results of which failed rate 0. This study produced a web with broadcast message feature, responsive website theme. The final results of research on website development are categorized as very feasible to be applied.

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INTRODUCTION

The law of higher education (UUPT) number 12 year 2012 explained, study program (major) is a unit of learning and education activities set in particular curriculum and methods in one type of academic education, professional education, and / or vocational education. The program is conducted based on the license issued by the Minister of High education and technology after completing the minimum criteria and requirement of accreditation. This study program must be reaccredited when the license period gets expired or the government will invalidate it.

The rector of Unnes Prof Dr. Fatkhurrahman, M.Hum on Unnes web (unnes.ac.id) explained, the study program is the smallest and the most important unit, because study program become the basis element determined the quality and accelerate the University. Meanwhile, Vice Chancellor for Academic Affairs, UNNES Prof. Dr. Rustono, M. Hum. on the UNNES website explained, the study program (major) determined the quality of faculty, and automatically impact to University. Therefore, the study program become thr most important part of the University progress

According to the Analysis of Study Program Accreditation System in the Framework of Internal Bureaucracy Reform (Ministry of National Education, 2011) there are several factors of problems in carrying out the study program accreditation process: (1) Repetition of Work, this occurs because there is no good documentation system caused people or certain institution conduct the similar works but at different times; (2) Job Complexity, it occurs if in the process there are various stages to complete a particular job; (3) The risk of losing documents, the doumentation process manually will support ineffective and efficient work. This risk should be the priority watch, because it can trigger conflict between service providers and service recipients, between employees and between work units; (4) There is no data integration with other services, integration is intended to integrate data from other services that have similar characteristics, and functions, in order to create excellent service.

The Master Study Program of Vocational Education of UNNES was established in 2012. The establishment of this program aims to improve the professionalism and performance of lecturers, teachers, managers, and policy makers in the field of vocational education. That was in line with government programs and policies in improving vocational education and vocational education. The mission of this study program (major) are (1) producing Masters in Education qualifications graduates mastered science and technology in the field of vocational education; (2) become the center of innovation and invention, information and services in the field of vocational education cooperated with various domestic and foreign educational institutions; (3) assisting the government to improve the quality, access and relevance of vocational education in Indonesia, especially in Central Java; (4) producing research products and services in the field of education and non-education related to vocational education and training in order to improve the quality of life and community life. (Syamwil, 2012).

During the period of 2012 to 2016, the number of students has been fluctuated. However, this study program continues to grow with the number of students until 2016 reaching 99 students, and has graduated 33 people. Most students come from Central Java, the rest are from West Kalimantan, Gorontalo, Aceh, West Java. This prospect is also seen by the number of UMPT participants as many as 18 people in the First Wave. Through good promotion and socialization the number of interested ones is expected to increase (Data of SPMU PPs Unnes 2012-2017). The prospect of the Master Study Program of Vocational Education in Central Java is actually very good, considering that this study program is the only master program of vocational education in Central Java. In addition, this study program is flexible for all areas of expertise, covering the fields of technology and engineering, tourism, economics and business, health and pharmacy, agriculture and fisheries. Students enrolled from many field of study and professions, they are teachers or vocational school teacher candidates, lecturers or prospective community academy lecturers,

polytechnics, academies, and Vocational LPTKs, as well as from companies the Human Resources Development (HRD) section which usually organizes employee training. However, currently students and prospective students are only limited to vocational school teachers and fresh graduates from the former Faculty of Engineering.. (Hadromi, etal, 2017).

Ali (in Ansharullah, etal, 2015) explained that the educational institution is required to improve the used of technology of information and communication to support the renewal strategies of education are fit to compensate for the achievements of progress in the era of globalization. Web-based technology is a technology accessed easily without having additional software in the computer used (Juliantri, Sumaryanto, & Wibawanto, 2017)

Master Study Program of Vocational Education needs to create various promotional efforts to achieve International Reputation. English websites can be used as effective promotional media to introduce study programs to various countries. The website is expected to be an effective and efficient information and promotion center for study programs in delivering information to public both nationally and internationally.

The website is used as one of the media used for promotion. The website activated starts on January 9, 2017. The website has not been indexed by the google search engine, so the visitor of this website still low even the students and alumni have not known the activation of this website. The low number of website visitors is also caused by incomplete content and low of up-to-date data, the display is not compatible with mobile devices, only using bahasa Indonesian. Based on this background, this study was conducted.

The aims of this study are: (1) developing international website in Master Study Program of Vocational Education of UNNES; (2) test the validity of website features information (3) analyzing the effectiveness of the website information from the user's point of view.

METHODS

This study used Research and Development (R&D) method, and Website development using Waterfall method which consist of analysis stage, system and design integration a system testing, operation & maintenance. The object of the study was the website of Master Study Program of Vocational Education of Unnes. The subject of this study were the students, alumni, and management officer. The sample of this study was used purposive sample. In developing the website, it was tested by validadators of web experts, validators of study program substance experts, and user validators.

In a limited trial, the instrument design developed was tested by 4 web experts in this case is a practitioner who is in accordance with the field and has a Masters degree (S2) or has at least 5 years experience on the web development program. The test of the substance expert was conducted out by the management of study programs and alumni, while the test to the user is carried out to students and alumni of study program.

RESULT AND DISCUSSION

This website development research of the Master Study Program of Vocational Education Unnes used the Bord and Gall development procedure.

The data collection stage was collected by collecting data / information about the Master Study Program of Vocational Education and analyzing the needs.In the needs analysis, the needs of supporting devices were determined from both server software and supporting software for the development of the website. The need for software for the web server was using the Debian 8 Linux Operating System (Jessie), with the Apache / 2.4.10 webserver, PHP 5.6.17 and the database using MySQL Version 14.14 Distrib 5.5.47.In the website development stage, the software used for coding

used Geany version 0.19.1 software and for database management used Navicat Premium version 9.0.11 software. The framework used for the development of study programs used the myIgniter Framework, this framework was a Custom PHP Framework for website development. MyIgniter was a combination of Codeigniter with AdminLTE themes, Bootstrap, CRUD Ion and PHP Grocery authentication systems. This CRUD Grocery feature in myIgniter made it easy for website developers to create data tables with the Create-Read-Update-Delete method (CRUD).

Picture 1. Result of reliability tes using loadimpact

The website was developed using 2 templates of backend and frontend. The web template used for the backend uses the AdminLTE theme, this template is the default template of the myIgniter. The template has several features supported by HTML 5 and CSS 3, Responsive Design, 1000+ icons, 6 skins, enhanced for printing, browser compatibility, etc. On the frontend side of the study program website, used the Piccolo template, this template can be downloaded from the free-css.com website. Piccolo template supports HTML 5, Responsive, supports CSS and JQuery.

To find out the reliability of the website, stress testing was conducted using loadimpact with 50 virtual users for 5 minutes, the result of which failed rate 0 can be seen in Figure 1. To find out the website menus or website functions, it run according to the supposed blackbox test by making a test case . Case tests carried out were 36 menu items and 31 menu items in accordance with the expected results and 5 menu were match with the studies expected, they are partner login menu, student data menu, student document upload menu, lecturer data menu, menu upload lecturer documents. These 5 menu items should be corrected according to their function.

Table 1. The Result of Validation Test by Web Expert

No	Aspects	Items	Max Score	Res pon dents	Standard Score	Achieved Score	Persen tage
1	Accuracy of website development software	5	5	4	100	92	92%
2	Accessibility	5	5	4	100	88	88%
3	Process and Data Flows	8	5	4	160	139	87%
4	Website layout	6	5	4	120	114	95%
5	Website sustainability	2	5	4	40	36	90%
6	Website compatibility	2	5	4	40	38	95%
7	Website stability	2	5	4	40	34	85%
Total					600	541	90%

The web testing by website expert validators) obtains an average percentage of 90% with detailed aspects of choosing the type of website development software by 92%, easy access to the website obtained 88%, process aspects and data flow of 87% , website lay out by 95%, website sustainability by 90%, website compatibility by 95%, and website stability aspect by 85%. The results of testing by web experts (Table 1) get an average percentage of 90% or can be considered very feasible.

The Testing of study program substance experts on the website was obtained on average from various aspects by 88% (website suitability).

Table 2. The result of Substance Expert of Study Program

No	Aspects	Items	Max Score	Res pon dents	Standard Score	Achieved Score	Persen tage
1	Web Suitability	4	5	3	60	54	90%
2	Web Completeness	5	5	3	75	66	88%
3	Web Accessibility	6	5	3	90	77	86%
Total					225	197	88%

Aspect was 90%, website completeness process was 88%, website accessibility aspect was 86%). Test results by study program substance experts (Table 2) get an average of 88% (very feasible). Website testing from users earns an average percentage of 90% (website suitability aspect is 90%, website access aspect is 89%, data collection aspect is 89%, and website layout aspect is 90%). User testing results (Table 3) obtain an average of 90% or very good. This research produced a broadcast message feature and responsive website theme. The final results of research on website development were categorized as very feasible to be applied.

In the evaluation process of the website information, this also obtained some input and suggestion from stakeholders such as creating a manual book to make it easier for users to operate the website, how to sustain the website, and on the bilingual feature who will translate the website content into two the language provided. Responding to this input, this study attaches a guidebook for study program. To obtain the website sustainable, it is necessary to carry out regeneration or

knowledge transfer who will manage the website. Furthermore, regarding with English content, it is necessary to select stakeholders who are English experts to conduct English content.

Table 3. Users Testing Result

No	Aspects	Items	Max Score	Respondents	Standard Score	Achieved Score	Persentage
1	Web Suitability	4	5	27	540	485	90%
2	Web Accessibility	5	5	27	675	601	89%
3	Accesibility on Data Collection	5	5	27	675	602	89%
4	Web lay out	6	5	27	810	733	90%
Total					2700	2421	90%

CONCLUSION

Based on the results, it can be concluded that the form of study program information development included 5 stages, it were needs analysis, software design selection, coding or programming, testing and operation. Expert Validation Results on website features information was declared feasible by web application experts and study program substance experts. User validation results regarding the effectiveness of the website from the user's point of view were stated to be very good or effective.

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