IOP Conf. Series: Materials Science and Engineering **180** (2017) 012078 doi:10.1088/1757-899X/180/1/012078

Structure and Content Analysis for Vocational High School Website in Indonesia

H Subagja[1]*, A G Abdullah[1], B Trisno[1] and A B D Nandiyanto[2]

[1]Department of Electrical Engineering Education, Universitas Pendidikan Indonesia, Jln. Setiabudhi No. 229, Bandung, West Java 40154, Indonesia.

[2]Departemen Pendidikan Kimia, Universitas Pendidikan Indonesia, Jln. Setiabudhi No. 229, Bandung, West Java 40154, Indonesia.

*handa.subagja@student.upi.edu

Abstract. Statistics about the condition of the school's website in Indonesia is still difficult. This study aims to determine website quality in terms of completeness of content's criteria of Vocational High School (VHS) in West Java, Indonesia. The method used is the content analysis and survey. Content analysis is reviewing the documents comprising the general category, while the survey is a observation process to get the facts from 272 school websites. Aspects of the structure and content of school website are including institutional information, educators and education personnel, curriculum, student, infrastructure, school achievement, and public access. The results of this study showed the average quality of the VHS website in West Java is still low. The recommendations are needed to improve the quality of the school website.

1. Introduction

Number of Internet users in Indonesia reached 88 million people by the end of 2014. Based on the population, the highest number of internet users in the province of West Java, as many as 16.4 million users. The use of the internet today indirectly had an impact on the world of education. The survey results stated that there are four main reasons Indonesian people use the internet service, the first to access a social utility or communication as much as 72%, the second for the source of daily information as much as 65%, the third to follow development of era as much as 51% and last for educational facilities at 29,3% [1].

Based on the results of a survey conducted by Association of Indonesian Internet Service Provider, Internet use in educational facilities have a low percentage. This indicates that the use of the Internet in Indonesia is still dominated by entertainment destination that lacks a role in the progress of human resources. The lack of use of internet service in accessing educational facilities are also felt by website of VHS and caused a lot of information that is less spread. One effort that can be done to increase user interest in accessing internet services relating to the means of education is to improve the quality of

website of VHS. The higher the quality of a website, it will be more and more users are accessing the web.

Required of ideal criteria of VHS website that the process improvement of the quality website can run well and in accordance with the quality of the website available in each VHS in West Java. Therefore, the solution to these problems is providing information on the quality of VHS website in West Java.

2. Literature Review

2.1. Website

Website is a collection of pages of information on the internet about a specific subject published by individuals or organizations [3]. Website may contain information such as news, the status of the individual, recipes, and more. In it there is text, images, video, and sound. A good website can provide accurate information to visitors and to attract visitors to the site [10].

Information provided by the website should ideally be able to meet the expectations of users with a site structure that is easily understood [4]. The website should give the user something that can not be found on other websites to gain competitive advantage based on quality. Parents who visit web sites tend to be confused and frustrated when they do not get the required information [16].

A good website is defined by seven elements, including: (1) Visual Design: If using a website design with the latest trends, visitors will find it easier to find the information needed; (2) Time Loading: website loading time is the amount of time needed by the browser to display the entire content of the web page. Website loading time is very important because it can affect the satisfaction of visitors; (3) Interactivity: interactive is the ability to accommodate the response from visitors; (4) Content: reason of visitors visiting the website is the content of the website. A good website is a website that has good content as well; (5) Accessibility and Compatibility: web design can be accessed by visitors who had disabilities (physical, technological, etc.). Moreover, when they wanted to create a website must be ensured that the website made it suitable for use in many browsers and computer operating systems; (6) Functionality: good functionality means fast loading time, cross-platform and browser independent; (7) Purpose: the system's ability to facilitate the use and operation [10].

A website is said to be useful if users could find or obtain what they need and understand from the website. The usefulness of a website is defined by five components, including: (1) Learnability: ease of use and learning time; (2) Efficiency: the speed performance; (3) Memorability: memory; (4) Errors: error rate; (5) Satisfaction: the satisfaction of visitors [9].

2.2. Vocational Education

2.2.1. Definition of Vocational Education. Vocational Education is part of the education system that prepares a person to master certain skills, so being able to work in the kind of work that has been learned in business or industry [11]. Skilled workforce can contribute to the growth of the business and industrial world. The skilled personnel will be involved directly in the process of production and services, so it will have a very significant role in determining the level of product quality.

2.2.2. Function, Aim, Benefit of Vocational Education. Vocational education has a dual function even multifunction if planned and implemented carefully, steady, controlled in accordance with the development of age of learners. The outcome of the vocational education will contribute to national development goals. Vocational education functions which are (1) socialization; (2) Social Control; (3) Selection and Allocation; (4) Assimilation and Conservation of Cultural; (5) Promoting the change for the betterment of education [6]. The purpose of vocational education is formulated as follows: (1) To meet the needs for labour; (2) To improve educational options for each individual; (3) Encouraging motivation to learn continuously. Listening to these formulations that by organizing vocational

education is prioritized so that people get vocational training in order to be appropriate manpower needs of the labour market [6]. The benefits of vocational education can be felt by learners, the world of work and society in general. (1) The benefits to the students are: to improve the quality of self, an increase in income, the provision of further education preparation, preparing themselves for the public and the nation, the adaptation to the environment; (2) The benefits to the world of work are: can obtain a high-quality workforce, can ease business costs, can help to promote and develop business; (3) The benefits to society are: to improve the welfare of society, can improve national productivity [11].

2.3. Information Systems

2.3.1. Definition of Information Systems. The information system is a set of interrelated elements or components that collect (input), manipulate (process), store, and disseminate (output) data and information, as well as provide a corrective reaction (the feedback mechanism) to meet the goals [13]. The feedback mechanism is the component that helps organizations to achieve their goals, such as increasing profits or improve customer service. Flowchart of information systems can be seen in **Figure 1**.

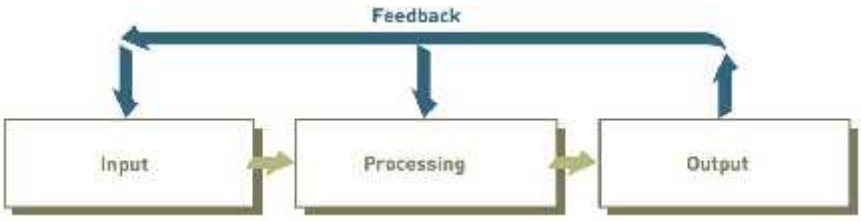

Figure 1. Flowchart of Information Systems.

2.3.2. Components of Information Systems. The components of the information system is hardware, software, procedures, users and data base [7].

2.3.3. Development Method of Information Systems. Linear sequential model is often called classical life cycle or waterfall model is a paradigms of software engineering are the oldest and most widely used. This model proposes an approach to software development that is systematic and sekunsial that beginning on the level and progress of the whole system of analysis, design, code, test, and maintenance [8]. Linear sequential model consists of six phases are: Engineering and Modeling of Information Systems, Analysis of Systems Requirements of Information Systems, Design, Coding, Testing and Maintenance.

2.4. School Website

Website is one of the best technologies in the information system applications. One website that is widely used is the school's website. Some of the main use of the school website including promotion of program expertise, academic research, e-learning support for students, communication to the general public and advertising vacancies at schools or universities [15].

Website is an integral part of school education. In Taiwan, every school, at whatever level, nearly 100% have their own web sites. school website not only allows students and parents to learn about the activities at the school, but also simplifies administrative processes, improve efficiency, and gradually promote the teaching of the digital environment [14].

In accordance with criteria established by Dinas Pendidikan Provinsi Jawa Barat, the school website in this case is a website of VHS, should provide a clear structure and is updated regularly, and should include information on institutional information, information of educators and education personnel, curriculum information, student information, infrastructure information, school achievement information, and public access [5].

3. Research Methods

The research was conducted on September 1 to 12, 2016. The research place in Laboratorium Elektronika Industri, Fakultas Pendidikan Teknologi dan Kejuruan, Universitas Pendidikan Indonesia.

Design Research using qualitative research, which is to analyze the availability of content on the website of State Vocational High School (VHSN) in West Java. The method used in this study is a content analysis method and surveys. Content analysis is examine the documents in the form of general categories [14], and the survey conducted by making observations to get the facts of the existing symptoms and seeking factual information about the availability of content on school websites criteria. The case studies in this research is VHSN in West Java.

In this study does not use the samples as the data examined, but using 100% of population data so that the data examined in more accurate and has an error rate of 0%. The population in this study were all websites of VHSN in West Java.

Data collection is divided into two, namely primary and secondary data collection. Primary data were collected in Dinas Pendidikan Provinsi Jawa Barat about the number of vocational high schools (VHS) in West Java and the criteria the school's website, while the secondary data collection was done by using a search on the internet media. In qualitative research, which became the instrument or tool of research is the researchers themselves. Researchers become a human instument which aims to set the focus of research, selecting informants as a resource, collecting data, assessing data quality, data analysis, interpret the data and make inferences [12].

Research procedures are described step by step as follows: the first stage is to identify problems related to the analysis of website VHS in West Java, specify the purpose of the study will be used as a basic reference in the study and from the literature from various reliable sources such as the international journal Institute of Electrical and Electronics Engineers (IEEE), books, and articles about the school website. The second stage is to conduct primary data collection in Dinas Pendidikan Provinsi Jawa Barat for information about VHS in West Java and content criteria for the ideal VHS website. The third stage is to conduct a secondary data collection, namely to verify the data from the results of the primary data collection via the Internet. Data verified including domain the school's website, the creation of websites, the information of field of expertise, availability criteria the school website content. The fourth stage of data processing using a computer program IBM SPSS (Statistical Product and Service Solution) version 24 in determining the value and frequency of the variables. The fifth stage is to analyze the data from the data processing is then drawn conclusions, implications and recommendations concerning the analysis of VHSN website in West Java, according to the research objectives. In general, the research procedure can be seen in **Figure 2**.

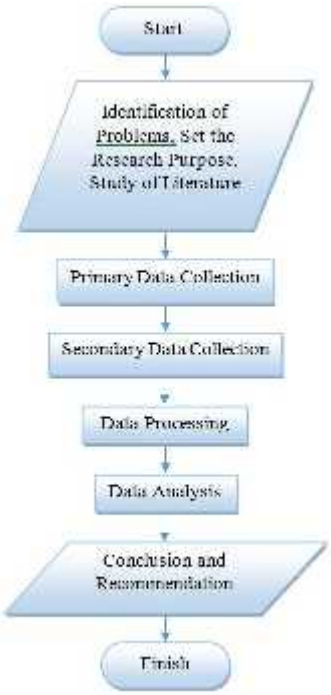

Figure 2. Flowchart of Research Procedure.

4. Results and Discussion

4.1. Classification of Website Domain

Based on research results with verify the data on all webpages VHSN in West Java using descriptive analysis of frequency, obtained the classification website domain in **Table 1**.

Table 1. Classification of Website Domain.

No	Website Domain	Frequency
1	Do not have website	59
2	Official (.sch.id)	115
3	Unofficial (.org)	2
4	Unofficial (.siap-sekolah.com)	30
5	Unofficial (.mysch.id)	9
6	Unofficial (.hol.es)	1
7	Unofficial (.blogspot.co.id)	24
8	Unofficial (.wordpress.com)	8
9	Unofficial (.info)	1
10	Unofficial (.com)	11
11	Unofficial (.sch-id.net)	5
12	Unofficial (.page.tl)	1
13	Unofficial (.net)	4
14	Unofficial (.weebly.com)	2
Total		272

Based on **Table 1**, was recorded amount VHSN website in West Java as much as 272 web. The number of schools that do not have a website there are as many as 21.7% were in Cianjur District as

dominant area in West Java. The number of schools that have an official website as much as 42.3% were in Bandung City as dominant area in West Java. Meanwhile, the number of schools that have unofficial website as much as 36.03% is in Cianjur District as dominant area in West Java.

Cianjur District is the area with the highest number of VHSN in West Java that does not have an official website, this happens because of Cianjur is one area that has the lowest human development index in West Java [2].

4.2. The Creation of Website

Based on research results with verify the data on all webpages VHSN in West Java using descriptive analysis of frequency, obtained the creation of website in **Table 2**.

Table 2. The Creation of Website.

No	Years Made	Frequency
1	2008	1
2	2010	3
3	2011	10
4	2012	13
5	2013	9
6	2014	21
7	2015	24
8	2016	56
9	Nothing	135
Total		272

Based on **Table 2**, the number of schools that have a year of website production as much as 50.4%, and that does not have the year of production there is as much as 49.6%. From the table shows that the highest frequency is 2016, which means 20.6% VHSN in West Java recently started creating websites for that year.

4.3. Information of Field of Expertise

Based on research results with verify the data on all webpages VHSN in West Java using descriptive analysis of frequency, obtained the information of field of expertise in **Table 3.**

Table 3. Information of Field of Expertise.

No	Field of Expertise	Frequency
1	Technology and Engineering	14
2	Technology of Information and Communication	1
3	Arts, Crafts and Tourism	3
4	Agribusiness and Agroindustry	9
5	Multi Field (more than one field of expertise)	131
6	Undefined	114
Total		272

Based on **Table 3**, the number of websites that have information of field of expertise as much as 58.1%, and that does not have the information of field of expertise as much as 41.9%. From the table shows that 48.2% VHSN in West Java has more than one field of expertise at each school website.

4.4. School Website Content Criteria

Based on research results with verify the data on all webpages VHSN in West Java using descriptive analysis of frequency, obtained the percentage availability of school website content criteria in **Table 4.**

Tabel 4. School Website Content Criteria.

No.	Content Criteria of Website VHS		Availability	
1.	Institutional Information	School Profile	72,8%	57,275%
		Web Structure	74,3%	
		School Administrators	32,4%	
		Structure of School Organization	49,6%	
2.	Information of Teachers and Education Personnel	Data of Teacher	53,3%	48,700%
		Data of Education Personnel	44,1%	
3.	Curriculum Information	Expertise Opened	58,5%	38,467%
		Eight Implementation of National Education Standards	5,8%	
		Implementation of Intra and Extra-curricular	51,1%	
4.	Student Information	Data of Student	39,3%	41,200%
		Student Academic Achievement	43,0%	
5.	Information of Facilities and Infrastructure	Learning Room of Theory and Practice	49,6%	44,700%
		Sport Facilities	44,1%	
		Extra-curricular Facilities	40,8%	
		Learning Equipment	48,2%	
		Extra-curricular Service Infrastructure	40,8%	
6.	School Achievement Information	Academic Achievement	40,1%	41,400%
		Contest Achievement	42,7%	
7.	Public Access	Receive and Send E-mail	46,4%	30,900%
		Information of Registration	49,6%	
		Development of Teaching Factory/ Unit of Production/ Entrepreneurship	4,4%	
		Access of Digital Communications	23,2%	

5. Conclusion

Most VHSN in West Java has had a school website with official domain (.sch.id), but the use of unofficial domain is still quite widely used. Bandung City is the area that has most official school website in West Java, while the Cianjur District is the area that has the most unofficial school websites and most do not have a school website in West Java.

Most VHSN in West Java just starting made website in 2016, and the most of field of expertise in VHSN in West Java is multi-field or have more than one field of expertise in each school.

Result show average of website VHSN in West Java has a completeness of content criteria is below standard. The criteria is meant are institutional information, information of teacher and education personnel, curriculum information, student information, information of facilities and infrastructure, school achievement information and public access.

Reference

[1] APJII. (2015). *Profil Pengguna Internet Indonesia 2014*. Jakarta: Asosiasi Penyedia Jasa Internet Indonesia.

[2] Badan Pusat Statistik Provinsi Jawa Barat. (2016). *Indeks Pembangunan Manusia Metode Baru Provinsi Jawa Barat dan Kabupaten/Kota Tahun 2010-2014*. [*Online*]. Diakses dari http://jabar.bps.go.id/linkTabelStatis/view/id/95

[3] Cambridge, D. (2015). *Meaning of "website" in the English Dictionary*. [*Online*]. Diakses dari http://dictionary.cambridge.org/dictionary/business-english/website

[4] D, Christian. (2010). *Examining The Behavioral Intentions of Older People as Virtual Tourist in the Context of a Second Life Destination.* South Carolina: Clemson University.

[5] Dinas Pendidikan Provinsi Jawa Barat. (2016). *Kriteria Umum Website Sekolah*. Bandung: Disdikjabar.

[6] Djojonegoro, W. (1988). *Pengembangan Sumber Daya Manusia Melalui Sekolah.* Jakarta: PT. Jayakarta Agung Offcit.

[7] Kadir, A. (2014). *Pengenalan Sistem Informasi Edisi Revisi.* Yogyakarta: CV. Andi Offset.

[8] Nasikin, K. (2011). Pengembangan Sistem Informasi Akademis Dan Keuangan Di Man 2 Pati. *Journal Speed – Sentra Penelitian Engineering dan Edukasi*, 3(3), pp.20–26.

[9] Nielsen, J. (2016). *Usability 101: Introduction to Usability.* [*Online*]. Diakses dari https://www.nngroup.com/articles/usability-101-introduction-to-usability/

[10] Primastomo, A., L, E. U. C., Areanto, F., Hadiwijaya, G. & Noviana, R. (2015). Analysis of Virtual Worker Website freelancer.com. *2015 International Conference on Information, Communication Technology and System (ICTS)*, pp.175–180.

[11] Riyanto, A. A. (2009). *Kurikulum Pendidikan Teknologi Dan Kejuruan, Pengembangan Serta Implementasinya.* Bandung: Universitas Pendidikan Indonesia.

[12] Somantri, G.R. (2005). Memahami Metode Kualitatif. *Makara, Sosial Humaniora*, 9(2), pp.57–65.

[13] Stair, R. M. & Reynolds, G. W. (2016). *Fundamentals of Information Systems.* Boston: Cengage Learning.

[14] Sung, H. (2012). Analysis of vocational high school websites in taiwan. *2012 International Symposium on Computer, Consumer and Control*, pp.431–434.

[15] Suwawi, D.D.J., Darwiyanto, E. & Rochmani, M. (2015). Evaluation of Academic Website Using ISO/IEC 9126. *2015 3rd International Conference on Information and Communication Technology (ICoICT)*, pp.222–227.

[16] Vasudavan, H. (2015). A Preliminary Study on Designing Tour Website for Older People. *2015 IEEE Student Conference on Research and Development (SCOReD)*, pp.670–675.