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THROUGH SUSTAINABLE ICT

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Plenary Panels II : Economy

CONTRIBUTION OF WEBSITE QUALITY OF SMA NEGERI 6 BANDUNG TO USER SATISFACTION USING ANALYTICAL HIERARCHY PROCESS (AHP) METHOD

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Abstract

In this study, there are several issues that identified, namely: (1) There is website content that does not update so it can not meet the needs of users; (2) Sometimes the website error when accessed; (3) long website response; (4) The appearance of the website is boring / unappealing website design; (5) Features of the website less easy to users when they use them. The reasons behind this research, because there are attempt of SMA Negeri 6 Bandung to create a representative school website. However, in this website is still found various problems, constraints, and users dissatisfaction and the findings are still not able to reveal the phenomenon and a variety of symptoms that occur in a comprehensive manner. Therefore, a study to discover the whole picture, the symptoms that really happened, and logical conclusions, is urgently needed.

This study uses survey. The sampling technique used is simple random sampling. Data collection techniques are observation method and questionnaires distributed directly by the researcher. The questionnaire in this study is likert scale questionnaire with 5 scale option.

Based on this research, it turns out the users feedback against the website quality of SMA Negeri 6 Bandung can be considered quite good. This is evident from the 41.9% of respondents agreed to the whole statement in the study questionnaire, as well as the calculation of % actual score of the respondents is 61.18%. However, users still not satisfied yet with the implementation website quality. This is evident from level average of users satisfaction against implementation of the overall website quality, which is only 0.727. This dissatisfaction may be influenced by a variety of problems that are real and their existence felt by the users. Another thing that is equally important, it turns out the website quality of SMA Negeri 6 Bandung contributes to users satisfaction. The value of contribution of website quality against users satisfaction is 32.6%. The remaining 67.4%, which also contributes to users satisfaction, is other factors not examined in this study.

Keywords: website quality, users satisfaction, AHP method, sampling technique, simple random sampling

I. INTRODUCTION

A. Background

One of the educational institutions in Indonesia is high school (SMA). To be able to compete with other SMA and become a leader in the information technology era, many SMA are making various efforts. One such effort is create a school website that reliable, effective and attractive. It is also realized by the SMA Negeri 6 Bandung. As one of the top school, with number of human resources for the academic year 2012/2013 an unusually large (consisting of 65 teachers and 1085 students), SMA Negeri 6 Bandung tries creating a representative school website and can protect all the elements of SMA Negeri 6 Bandung. The website has a variety of content such as school profiles, news of SMA Negeri 6 Bandung or even around the world of education, articles, syllabi for teachers, learning materials for the students, school calendars, school pictures and photos of events held at the school , and so forth. The website look is designed to facilitate teachers, students, and the general public to get a variety of materials, information, and issues concerning education and SMA Negeri 6 Bandung itself. With this website then the flow of information, both internally and externally in schools, can be more effectively and efficiently.

No matter how good something is certainly not free from various shortcomings. Although Website of SMA Negeri 6 Bandung is designed for a good cause and worthy of appreciation, it turns out there are still problems. Constraints such as website content is not all up to date, Sometimes the website error when accessed, web page response is long, The appearance of the website is boring, and the website features are less easy of use, appears as a problem has been identified. Another thing that should also be a concern, based on observations in the field, the majority of users are also not satisfied with the ongoing school website.

Although from exposure above is found the various findings, such as the advantages, problems, constraints, and so forth, but it is not enough to explain various phenomena and the range of symptoms that occur. Therefore, a study to reveal the whole picture,

the symptoms that really happened, and logical conclusions, is needed.

B. Problem Identification

Problem Identification is based on research background and facts on the ground. Researcher managed to identify the problem, namely:

a. There is website content that does not update so it can not meet the needs of users.
b. Sometimes the website error when accessed.
c. Long website response.
d. The appearance of the website is boring/ unappealing website design.
e. Features of the website less easy to users when they use them.

C. Problem Formulation

Based on the research background, the formulation of the problem posed is:

a. How does the website quality of SMA Negeri 6 Bandung that is currently running.
b. How does the level of user satisfaction on the implementation of website quality of SMA Negeri 6 Bandung.
c. How much contribution of the website quality of SMA Negeri 6 Bandung to user satisfaction.

D. Problem Limitation

As for problem limitation in this research is:

a. Website user as respondents in this study is limited only to teachers and students of class X and class XI SMA Negeri 6 Bandung, school year 2012/2013, and is still active learning activities in school. Especially for class XII, for distributing questionnaires research conducted after the national exam (UN), the automated class XII no longer active doing learning activities in school. Therefore, the class XII school year 2012/2013, is not included in this study.
b. In this study, of the eight indicators are used as a basis for examining the quality of the website, such as usability, navigation system, graphic design, contents, compatibility, loading time, accessibility, and interactivity, only three indicators are investigated. As for the three indicators, namely loading time, contents, and usability. It is based on the results of data processing AHP providing recommendations and considerations of the researcher's own ability to conduct research.

II. LITERATURE, THINKING FRAMEWORK AND HYPOTHESIS

A. Concept of Quality

Many scholars have tried to define quality in terms of point of view respectively. For instance, Feigenbaum (2011:10) which revealed that: "Quality is the totality of features and characteristics that are capable of satisfying the needs, stated or not stated, the needs also include product durability, reliability, accuracy, ease of operation and repair, as well as the attributes values other. Some of the attributes can be measured objectively. From the marketing point of view, the quality must be measured with respect to the perceived quality of the buyers ".

Not to forget, Some theories about the quality of the most popular is that developed by Deming, Crosby and Juran (Roza et al., 2012:5). Following explanation the experts: "According to Deming, the quality is whatever needs and wants of the consumer. Crosby perceives quality as a zero of defect, completeness and conformance to requirements. Juran defines quality as conformance to specification, when viewed from the perspective of the manufacturer. While objectively quality according to Juran is a specific standard where availability, performance, reliability, ease of maintenance, and characteristics can be measured".

So based on the opinions of various experts above, it can be concluded that the quality is the product totality where the availability, performance, reliability, ease of maintenance, and characteristics of the product can be measured, so later be able to satisfy the needs and desires of consumers.

B. Concept of Website

The website has a vital role in the communication media. Because of his role, a lot of experts, organizations, and technology observers give definition to the existence of a website. Wahana Computer (Basuki, 2009:4) for example provide an understanding of website as follows: " It is a collection of HTML of personal or company documents containing information in the Web Server (computer systems in an organization, which functions as a server (a computer unit that serves to storing information and for managing computer networks) to facility the World Wide web or the Web, and can be accessed by all internet users)".

Kursuswebsitesurabaya (2012) also provide an understanding of the website that is "A number of web pages that have interrelated topics, sometimes accompanied by the image files, video, or other file types".

From opinion of the experts and the organizations above, it can be concluded that the website is a collection of HTML documents that have interrelated topics (sometimes accompanied by images files, video,

or other file types) stored in the web server and can be viewed or accessed by Internet users from all over the world.

C. Criteria for a Good Website

According to Suyanto (2009:61-69), the criteria for a good website that is:

a. Usability

Usability involves the question "whether users can find a way to use the website effectively (doing things right)" or usability is as a user experience in interacting with applications or websites until users can operate it easily and quickly. Website must meet five conditions to achieve the ideal level of usability, namely: (1) Easy to learn, (2) Efficient in use, (3) Easy to remember, (4) low error rate, (5) user satisfaction.

b. Navigation System (Structure)

Navigation helps visitors to find the easy way when exploring a web site. Navigation can be displayed in a variety of media, ie text, image, or animation. As for a good navigation conditions, namely: (1) Easy to learn, (2) Stay Consistent, (3) Allows feedback, (4) It comes in the context; (5) Offering other alternatives, (6) requires the calculation of time and action; (7) Provide a clear visual message; (8) Using clearly labeled and easy to understand; (9) Supporting the goals and user behavior.

c. Graphic Design (Visual Design)

Visual satisfaction of a user subjectively involves how the visual designer of website brings user's eyes enjoy and explore the website through the layout, colors, shapes, and typography. Graphic makes page become beautiful but can also slow down access with increasing of the file size. Good design at least has a good color composition and consistent, consistent graph layout, text is easy to read, use of graphics that reinforce the text, and overall form a harmonious pattern.

d. Contents

Good content will be interesting, relevant, and appropriate for the target audience of the website. Writing style and language used should be appropriate to the target audience and the web. Avoid mistakes in writing, including grammar and punctuation on each page, header, and its title. Create a list of explanation for specific terms. Content must be relevant to the purpose of the site. If there is a multimedia content, try to relate to the content of the website.

e. Compatibility

Website should be compatible with its various display devices (browser), should provide an alternative for browsers that can not view the site.

f. Loading Time

According to Jeffrey Veen of webmonkey.com: 'We only have 3 seconds to convince a user to not close the window or go to other sites. So put something' on the screen within 3 seconds and make that thing interesting". A website that appears more quickly, it will likely be visited again, especially if the content and appearance are attractive.

g. Accessibility

Web pages must be able used by everyone, both children, parents, and young people, including the disabled. There are various obstacles found from side of the user to be able to enjoy the web page. To physical barriers, how to maximize the use of content when one or more senses is turned off or reduced its work, especially for users with lack the sense of sight. Moreover there are also the infrastructural bottlenecks, such as slow Internet access, computer specs, browser use, and others that can affect an individual's access.

h. Interactivity

Interactivity is what that involves users website as a "user experience" with the website itself. Base of interactivity are hyperlinks (links) and feedback mechanism. Use hyperlinks to bring visitors to the news source, the topic further, related topics, or other things. Like the link that says "More info about this", Glossary, Related Links, and others. As for the feed back mechanism, for example, are critiques, Comments, Question, Pooling /Survey. Other forms may also like search (search intra-site), tools (tools used by visitors to reach their goals come to our site), Games, Chat, discussion forums, and so on.

D. Concept of Satisfaction

Experts have long observed symptoms on consumer satisfaction and from the result of these observations, Appear variety of theories about satisfaction. Eg According Supranto (Paramarta, 2008:46), which states that: "Satisfaction is the level of one's feelings after comparing perceived performance with its expectations. So the level of satisfaction is a function of between distinction of perceived performance with desired expectations. If performance is below expectations, then customers will be disappointed, but if performance exceeds expectations, the customer is very satisfied. "While Buttle et al. (Hermawan, 2011:11) define satisfaction as: "The response to the fulfillment of the customers towards a consumption experience, or a small part of that experience. Customer satisfaction is a fun response from customers because of that be expected is fulfilled, while dissatisfaction is a response in the form of a disappointment because the expected is not met.

From the explanation regarding the definition of satisfaction above, it can be concluded that satisfaction is a response of consumer / user after comparing the performance of the product with the desired expectations of the consumer / user. The responses usually have varying degrees that based on experience the consumer / user towards a product.

E. Concept of Analytical Hierarchy Process (AHP)

AHP is one of the methods in decision support systems (SPK). AHP is a method of analysis used to solve the problem of decision-making with the main tools in the form of a hierarchy and its main input in the form of human perception. The working principle of AHP is a simplification of a complex issue that is not structured, strategic, and dynamic become a sections and arranged in a hierarchy (Marimin and Maghfiroh, 2011:91).

AHP allows users to give the relative weight value of a compound criteria or compound alternative towards a criteria. The weighting is done intuitively and done by doing pairwise comparisons.

Data collection instrument specifically for the AHP, usually called the comparison questionnaire. These instruments were distributed to the experts / admins are competent and concerned with the object of research.

F. Thinking Framework

In measuring the quality of the website, there should be indicators that become a benchmark in the quality measurement. Website quality indicators for this study, taken from a good website criteria. So also with satisfaction, as well there should be indicators to see what the benchmark in researching satisfaction. Indicators of satisfaction on this research, based on the concept of satisfaction and experts opinion. To be clear, the thinking framework can be seen in the following :

Website Quality of SMA Negeri 6 Bandung (Independent Variable):
1. Usability
2. Navigation system (structure)
3. Graphic design (visual design)
4. Contens
5. Compatibility
6. Loading time
7. Accessibility
8. Interactivity

(Suyanto, 2009; 61-69)

User Satisfaction (Dependent Variable):
1. Perceived performance
2. Expectations

(Sumarwan et al, 2011; 143-144)

The operational variables are :

Concept Variable	Indicator	Measurement
The Website Qual (*Independent variable*) (Suyanto, 2009:6	*Loading Time*	The level of time used spent by the website for *page loading*
		The level of web page velocity when it's opened
	Contents	The level of appropriateness between materi served and visitor target
		The level of appropriateness between writing and language style and visitor target
		The updated level of website content
	usability	The level of appropriateness in placing any components in web page
		User friendly
		The efficient level
		The error level
User Satisfaction (*Dependent Variable*) (Sumarwan et al,	The function of product	The function of *loading time website* felt by user
		The function of *website content* felt by user
		The function of website *usability* felt by user
	Expectation	The user expectation regarding website loading time
		The user expectation regarding website content
		The user expectation regarding website usability

G. Research Hypothesis

The research hypothesis proposed in this study are:
a. The null hypothesis (H_0)

   Website Quality of SMA Negeri 6 Bandung does not contribute to user satisfaction.
b. Research hypothesis (H_1)

   Website Quality of SMA Negeri 6 Bandung contributes to user satisfaction.

3. RESEARCH METHODS

A. Population and Research Sample

The population numbered 830 people, consisting of all teachers, all students of class X, and all students of class XI SMA Negeri 6 Bandung, school year 2012/2013.

Due to the number of the population is quite big, it was decided to carry out the determination of sample size that able to represent the population. As for the formula used to determine the ideal sample size, is as follows:

$$n = \frac{N}{Nd^2 + 1}$$

(Soedibjo, 2013:141)

Using the formula above, wherein the desired precision (d) is 0.1 and the population size (N) is 830 people, then obtained a sample size amount to 90 respondents.

Sampling technique used is simple random sampling. The sampling technique is applied to the 40 students of class X, 40 students of class XI, and 10 teachers.

B. Data Collection Techniques

In this study, data collection techniques by observation and questionnaires distributed directly by the researcher to the respondents. Questionnaires distributed in the form of a likert scale questionnaire with 5 scale option.

C. Data Analysis Techniques

Analysis Techniques performed in this study using descriptive analysis and inferential analysis. In addition, this study also use association analysis to see the relatedness between the independent variable (website quality of SMA Negeri 6 Bandung) with the dependent variable (user satisfaction).

4. RESEARCH RESULTS AND DISCUSSION

A. Calculation results of AHP

Data obtained from the questionnaires comparisons that have been propagated, processed with the help Software of Expert Choice 2000. As for result of data processing AHP, from eight indicators of website quality, obtained three quality indicators become priority for research. The three indicators are Loading time (eigen value = 0.276), Contents (eigen value = 0.176), and Usability (eigen value = 0.174).

B. Descriptive Analysis

Based on the average of percentage of respondents approval to the website quality of SMA Negeri 6 Bandung, overall is obtained 41.9% respondents categorized agree to all the statements in the questionnaire study. Based on the calculation of the % actual score, the overall results are obtained 63.18%. With this it can be concluded that the response of respondents to the website quality of SMA Negeri 6 Bandung categorized quite good.

Based on the average level of user satisfaction on the implementation of overall website quality, obtained value (0.727) <1. Thus, it appears that the users are not satisfied with the implementation of website quality of SMA Negeri 6 Bandung.

C. Correlation Between Variables Research

From the result of data processing, obtained Pearson correlation value amount to 0.571. Therefore, the relationship between the independent variable with dependent variables categorized quite strong.

D. Test of Research Hypothesis

By using statistical software SPSS 16, obtained P-value or the Sig. of 0.000. Accordance with the opinion Uyanto (2009:102), if P-value < α then H_0 rejected and if the P-value $\geq \alpha$ then H_0 can not be denied.

Because the P-value (0.000) < α (0,1), it can be inferred H_0 rejected and H_1 accepted. Therefore, it can be said that the website quality of SMA Negeri 6 Bandung contributes to user satisfaction.

E. Coefficient of Determination

The coefficient of determination obtained in the study is 32.6%. Thus, it can be concluded that the website quality of SMA Negeri 6 Bandung contributes for 32.6% to the user satisfaction. As for the rest

67.4%, which also contribute to user satisfaction, are the other factors not examined in this study. The Other factors may be the quality of the website that are not investigated such as navigation system, graphic design, compatibility, accessibility, and interactivity.

5. CONCLUSION AND SUGGESTION

A. Conclusion

The conclusions of this research are:
a. User response to the implementation of website quality of SMA Negeri 6 Bandung categorized quite good (overall percentage average of respondents approval = 41.9% and % overall actual score = 63.18%).
b. However, the implementation has not been able to make the user satisfied (average of overall user satisfaction score (0.727) < 1). It can be caused by various phenomena or problems that are real and many users experience them.
c. The website quality of SMA Negeri 6 Bandung being implemented, can also be said contribute to user satisfaction (value sig. (0,000) < α (0,1)). The value of this contributions amounted to 32.6%. The remaining 67.4%, which also contributes, are other factors not examined in this study such as navigation systems, graphic design, compatibility, accessibility, and interactivity.

B. Suggestion

Following the suggestions in this study:
a. The problems that exist, such as the : There is website content that does not update, sometimes the website error when accessed, long website response, features of the website less easy to users, should not be ignored. Efforts can be suggested are: (1) update all website content regularly so that the overall website is always up to date, (2) Attempt to use small animation and graphics in order that the response of the web pages is faster, (3) repair and avoid the error link, the page is not yet available, pages in the making process (under construction), the link to the content are empty, the images do not appear, the text is truncated or ill-fitting on a web page, etc, so that the error condition can be minimized; (4) Strive features on the website is easily recognizable, practical, and appropriate to the needs in order that those features can be easily used by the user.
b. Due to this study only examines website quality for indicators loading time, contents, and usability, the problem where the appearance of the website is boring / unappealing website design, yet confirmed. Therefore, it is advisable if there are interested in conducting research on the

website quality of SMA Negeri 6 Bandung, can conduct research with other indicators such as navigation system, graphic design, compatibility, accessibility, and interactivity, so that the scope of research is broader than before and the problems regarding the website appearance can be revealed based on a scientific approach.

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ICO-ApICT 2013

The rapid development of ICT has enabled the technology to underpin many aspects of life. Various scientific fields tend to use an apply ICT to make the operation more effective and easier. Today, the use of ICT is ranging from engineering, economics, politics, law, literature to art, utilizing it in various forms and requirements.

With ICT, those fields can optimize their work and even get new opportunities in the developing the endeavor to reach beyond current possibilities. This is possible due to the effective and efficient manner of the ICT. With this technology, distance, time, will be no longer a boundary to support further areas of optimized scientific resources.

This seminar is intended to summarize the research idea as well as to promote other forms of real implementation of the use and role of ICT in the field of engineering, economics, politics, law, literature and art.