E-Catalog Application Development for Public Facility using Website Usability Evaluation Tool

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Abstract--The interaction between user and computer is a factor that should be considered in building a website. Most users often judge a system's interface, instead of the function. A good website should ideally have the ease of use (usability) that makes users easier access to the information presented. But in fact, the lack of reusability factor to be considered in designing a website. Bad user interface design is usually a reason for not using an application or software. In addition, bad user interface could make a fatal mistake. The design should be user-centered. Therefore, there is an evaluation process conducted by users on the design results. Webuse (Website Usability Evaluation Tool) is a method that can help a web developer or web designer know the level of usability not only in terms of design but also in terms of content organization, navigation and link, and performance and effectiveness. We build an e-catalog of public facilities in the city of Yogyakarta by applying the Webuse concept. Result shows that these public facilities have good usability level.

Keywords-catalog; public facilities; Webuse

I. INTRODUCTION

The internet is growing so rapidly; it has become a primary need for anyone to get information. Any information can be obtained from the internet. Information is usually available in the form of a website, but not all websites have good performance, so that internet speed can be disrupted due to the low performance of the website.

Websites that are not able to run quickly will experience a decrease in the number of inspectors who are a source of income for the website. Even worse, it could be the cause of closing the website because there are no more visitors.

The interaction between users and computers is a factor that deserves attention in building a website. Most users often judge a system from an interface, not from its function. How is the layout, the choice of colors used, menus, buttons, and so on. A good website ideally has ease in use (usability) so that it makes it easier for users to access the information presented. But in reality, usability is a factor that is less attention in designing a website.

Poor user interface design is often a reason not to use an application or software. Besides that, a bad interface causes users to make fatal errors. That is why there is an evaluation process that is carried out by the user towards the design results.

II. PURPOSE

The purpose of the research that will be carried out is to build an e-catalog of public facilities in the city of Yogyakarta by applying the WEBUSE concept so that we can know the usability value of the website. In addition, it can find out what factors can increase usability values based on the application of the WEBUSE concept.

III. METHODOLOGY

In this study the SDLC (System Development Life Cycle) process is used as a system development method with the waterfall model. This method is a method that is often used in general, in the following order as shown I Figure 1[1].
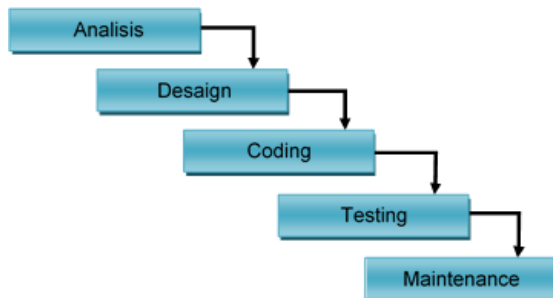

Figure 1. Waterfall Method

A. Analysis

This stage is an analysis of system requirements. Analysis is done to describe the system to be built, what data is needed. The data collected can be through interviews, research, documentation, or literature studies.

In this study, the analysis process uses literature study methods, and interviews. Literature study is one of the methods used in this study. Form of information search by taking information from papers, scientific works, books or information from the internet. This method is also used to support the theoretical foundation used. While the interview is an oral question and answer process to get the information needed in this study.

The stages of analysis itself are divided into two, namely functional analysis and non-functional analysis. Functional analysis is an analysis of system processes and functionality. While the non-functional analysis relates to the needs of the parties who will use the system to be built.

B. Design

This design process will describe the need for a software design that can be estimated before the coding process is carried out. In other words, design is a design stage for software requirements before the coding process begins. Your own design can be in the form of database design, DFD, ERD or pages that will be accessed later.

DFD (Data Flow Diagram) is a graphic technique that describes information flow and transformation that is applied when data moves from input to output [2].

ERD used to model data structures and relationships between data. ERD tests the model by ignoring the process that must be done [3].

Website design is made using PHP, PHP (short for PHP Hypertext Preprocessor) is one of the server-side programming languages specifically designed for web applications. PHP can be inserted between the HTML language (Hyper Text Mark-up Language) and because it includes server-side language, the PHP language will be executed on the server, so that what is sent to the browser is the "finished result" in HTML and the PHP code will not be visible[4].

C. Coding

Translation of designs in computer languages is done at this stage. This stage includes the direct stages in making the system itself. In other words, coding is the process of implementing the results of the design model of the system. In this final project programming is done using the PHP programming language with MySQL as the database.

D. Testing

Testing is a system testing phase that aims to determine the performance and performance of the system. Finding errors with the system then making repairs.

This study uses black box testing techniques. Black box testing techniques focus on system functionality. Black box trials try to find errors in several categories, among others[5].

- Incorrect or missing functions

- Interface error

- Error in data structure or access to external database

- Performance error

- Error initialization and termination

E. Maintenance

This stage is the corrective maintenance stage. Corrective maintenance is the maintenance of the system by making repairs to errors that occur in the system.

IV. RESULT AND DISCUSSION

A. Analysis Result

The following are the results of the system design based on system requirements analysis:

- The website has provided a login / login form or registration form by selecting the 'enter / register' menu.

- The website provides a search form with a size that is large enough so that the expected search form is easy to find

- The system has provided facilities to members to add, edit or delete facility data reviewed by the member. In addition, members can also delete comments on facilities reviewed by the member

- In addition to admin who can process data members, members themselves have the right to process the data that is owned by members such as profile data (identity data), account data (passwords, usernames) along with facilities data that he has.

- The system has given the 'value web' menu which contains the questionnaire for members as a usability test page. It consists of twelve questions which are reflections of each Webuse usability category such as content organization, navigation & links, interface design, and performance & effectiveness. The list of questionnaires has been shown in Table 1-4 which are usability testing tables.

- The system has provided the results of the report from filling out the questionnaire conducted by the member, both of the value of each category or the value of each question that has been filled. The results are in the form of points and the meaning of the points is good, bad, bad, ordinary, or very good. In addition, suggestions from members can be seen and accommodated as reference material to develop this web.

A. Usability Test Result

There are four usability categories that will be measured in value, namely:

- *Content Organization*

Content organizations are website criteria or rating categories such as data grouping, content structure and so on. It is shown in Table 1.

TABLE I. CONTENT ORGANIZATION

No.	Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
1	The content on this website is well organized	2	25	2	1	0	30
2	The information presented can be displayed by category.	5	24	1	0	0	30
3	Information is displayed according to the solid and concise manner so that I rarely use the scroll left and right.	7	16	5	2	0	30
Total		14	65	8	3	0	
Merit		1.00	0.75	0.50	0.25	0	90
(Total*Merit)		14.00	48.75	4.00	0.75	0	
∑Merit = ∑(Total*Merit)		14+48+4+0.75+0=67.5					
X=∑Merit/total		(67.5/90)=0.75					

- *Navigation & Links*

Navigation & links are related website assessment categories in the ease of finding menus or links and so on. It is shown in Table 2.

TABLE II. NAVIGATION AND LINKS

No.	Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
1	I easily 'browse' this website by using a link or back / back button	5	22	2	1	0	30
2	I know where I am or what page I am in	8	17	3	2	0	30
3	Laying menus or links is easily recognized	4	21	3	2	0	30
Total		17	60	8	3	0	
Merit		1.00	0.75	0.50	0.25	0	90
(Total*Merit)		17.00	45	4.00	1.25	0	
∑Merit = ∑(Total*Meri		17+45+4+1+1.25+0=67.25					
X=∑Merit/total		(67.25/90)=0.747					

- *Interface Design*

Questions included in this category are related to coloring, layouts, etc. It is shown in Table 3.

TABLE III.   INTERFACE DESIGN

No.	Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
1	I am comfortable with the color composition in this website	6	13	9	2	0	30
2	Website layout is easy to understand	4	21	5	0	0	30
3	This website display is consistent	6	20	4	0	0	30
Total		16	54	18	2	0	
Merit		1.00	0.75	0.50	0.25	0	90
(Total*Merit)		16.00	45.5	9.00	0.50	0	
∑Merit = ∑(Total*Merit)		16+40.5+9+0.5+0=66					
X=∑Merit/total		(676/90)=0.733					

- *Performance & effectiveness*

Organizational Content is part of a website related to data grouping, template structure and so on. It is shown in Table 4.

TABLE IV.   PERFORMANCE AND EFFECTIVENESS

No.	Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
1	I can access this website at any time	7	13	9	1	0	30
2	The response from the action that I did gave results I expected	2	17	10	1	0	30
3	There is a tooltip (description) on the icon display making it easier for me to understand the function of the icon	5	19	5	1	0	30
Total		14	49	24	3	0	
Merit		1.00	0.75	0.50	0.25	0	90
(Total*Merit)		14.00	36.75	12.00	0.75	0	
∑Merit = ∑(Total*Merit)		14+36.75+12+0.75+0=63.5					
X=∑Merit/total		(63.5/90)=0.706					

V.   CONCLUSION

From the activities carried out by the author during the design to implementation, this public facility catalog system was successfully built by applying the WEBUSE concept. The four WEBUSE categories namely content organization, navigation & links, interface design, and performance & effectiveness are things that need to be considered because they are used as assessment categories used to evaluate this website.

Based on the usability test results it can be concluded that for each WEBUSE category from e-catalog this public facility has a good usability level. By knowing the usability level of each existing category, we can increase the level in the category that needs to be upgraded.

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