BORANG PENGESAHAN STATUS TESIS*

JUDUL: <u>RECONSTRUCTED OF THE DEPARTMENT WEBSITE BY</u>
<u>IMPLEMENTING WEB DESIGN GUIDELINES</u>

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DECLARATION

I hereby declare that this project report entitled

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is written by me and is my own effort and that no part has been plagiarized without citations.

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SUPERVISOR   : .... Date : 07/ 11 / 2007

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Abstract

Web usability measures the quality of an end-user's experience when interacting with online software. The usability engineering process should be considered throughout the Web site design process, so that users' abilities to find information and satisfaction with Web site improve significantly. Testing and fixing a website after it has been built is inefficient and unlikely to produce good results. The purpose of the study is to reconstruct the FTMK website by implementing web design guidelines, which are mainly on page design and site design aspects. The guidelines were analyzed and customized to ensure they are relevant to the design of information-oriented sites. Apart from the web design, enhancements are made to improve functionality of the website by including new modules such as web content management for administrator, search tool, feedback form, and news update. The website is reconstructed by implementing web technologies such as Apache Server, PHP, CSS, JavaScript and HTML. Web data is maintained in MySQL database server. A post user acceptance test was conducted to measure the effectiveness of the design improvements. Our post results show that by applying usability in the initial design can greatly increase user's satisfaction and can reduce extensive redesign and maintenance.

Abstrak

Keperluan kemudahan penggunaan laman web mengukur kualiti dari pengalaman pengguna apabila berhubung dengan perisian pada talian internet. Proses kejuruteraan kemudahan selalunya dikenali dengan proses rekaan laman web.Ujian dan pembaikan laman web selepas ianya dibina adalah langkah tidak sepatutnya untuk menghasilkan keputusan yang baik. Tujuan pembangunan semula laman web FTMK dengan menggunakan garis panduan laman web adalah untuk memberikan contoh kepada pembangun laman web dan pengguna betapa pentingnya garis panduan kemudahan laman web.Garis panduan ini akan diguna bagi meningkatkan laman web FTMK sekarang dan ianya akan menjadi contoh kepada pembangun laman web dan pengguna. Fungsi utaman yang terdapat di dalam laman web FTMK ini ialah *Admin Login*, memasukkan informasi, ubahsuai informasi, buang informasi, carian staf, carian subjek, *upload* gambar dan borang *feedback*. Hypertext Preprocessor (PHP5), JavaScript, Cascading Styles Sheets (CSS), MySQL, Apache, dan bahasa pengaturcaraan lain digunakan untuk membangunkan semula laman web FTMK dengan harapan ianya akan memberikan contoh terbaik penggunaan garis panduan web.

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LIST OF ABBREVIATIONS

FTMK	-	Faculty of Information Technology and Communication
UTeM	-	Universiti Teknikal Malaysia Melaka
WYSIWYG	-	What You See Is What You Get
HHS	-	Health and Human Services
ESL	-	English as a Second Language
CSS	-	Cascading Style Sheets
HTML	-	Hypertext Markup Language
FLV	-	Flash video.
PHP	-	Hypertext Preprocessor
SDLC	-	Software Development Life Cycle
DFD	-	Data Flow Diagram
ERD	-	Entity Relationship Diagram.
MySQL	-	Multi-user SQL database management system
LAN	-	Local Area Network

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CHAPTER I

INTRODUCTION

1.1 Background

The design for graphical user interface for software, which encompasses screen based tools with which users interact, is a close precursor to Web design. Anyone who has used a computer for some time will be familiar, perhaps unconsciously, with the conventions in this kind of design. The other similarity with software is the web sites generally require the assistance of software engineers to be able to move from design solution to implementation. Users should be considered throughout the website design process. Usability should not be an afterthought. Testing and fixing a website after it has been built is inefficient and unlikely to produce good results.

The purpose of this project is to introduce fundamental guidelines that are necessary to be followed in building website. The guidelines presented in this project are compiled from selected usability studies. FTMK website is chosen as case study, where the current academic site will be reconstructed to fulfill the proposed guidelines. This is followed by user acceptance testing to evaluate the web design improvements made in this study.

1.2 Problem Statement

There are few problems identified from current approaches to improve the current state of the web.

1.2.1 Lack of generic usability guidelines

1.2.1.1 Poorly designed

Most of designers build the site to make it more attractive without thinking about users need; without proper design guidelines, user will face difficulty when using the web. A well documented guideline will help web developer to build the website with more interactive, user-friendly, more usable and reliable.

1.2.1.2 Content and requirement not as end user expected

Sometimes the content of the website looks bored and this can bring the difficulty for users to look around the other content in the website itself. The place of the website content also important, without proper guidelines, the content can be useless. The website also will be useless when the requirements of the website is far too high for users to look around.

1.2.1.3 User cannot reach the information from the web

The information of the web is the most important thing in website; user cannot get the information from the website if the website itself cannot help the users to reach it. With proper guidelines, users can read the information easily and better understanding.

1.2.2 Variety of design guidelines

There are so many design guidelines for building the website but to bring the best guidelines for the usability of the website is not easy. There are so many factors to looks for. Most of the guidelines are based on personal opinion of a few experts and do not provide references to support them. Further, a propriety guideline cannot be used to build other websites. Thus, it is necessary to come up with basic web design guidelines which can be implemented and then extended to suit a website theme. The guidelines should be backup with the test criteria and results to support the design improvements applied.

1.3 Goal Statement and Objectives

Below are listed the objectives to be achieved from this study:

1.3.1 Identify comprehensive web design guidelines.

Research on existing guidelines study will be conducted on current research findings that can provide web designers with ideas to increase the usability and appeal of web sites.

Through the initial study, the basic web design criteria relevant to chosen website theme will be identified and documented. Although most of the proposed criteria in this study will not surprise experienced designers, the document guidelines with case study will be helpful as a reference, checklist and brainstorming tool. The guidelines consists of several aspects of website designs, including amount of test and links, the fonts, colors, graphics, consisting across pages and so on.

1.3.2 Reconstructing the website chosen by implementing proposed guidelines.

With all the guidelines ready to use, the guidelines will be applied to reconstruct the current FTMK (Faculty of Information Technology and Communication) website. This include enhancements on page design and site design aspects.

1.3.3 Conducting usability testing to analyze web design improvements made to the case study.

The newly designed FTMK Website will be evaluated with end users to justify the proposed guidelines.

1.4   Scope

1.4.1   Data

The data refers to the current FTMK web application. The FTMK website has been developed using client-side and server-side scripting with back-end database support. To make this web more useful than before, there will be more changes on the layout, content presentation and the functionalities of the website.

1.4.2   User

The users in this study refer to the persons involved in website evaluation. They are randomly selected students, lecturers and administrative staffs. Some of the prospective students also will be involved in the user acceptance test.

1.4.3 Functionality

The design and the presentation of the website are still important to attract people to go around the website. When talking about the page design, the thing such as response timers, linking, style sheets and frames much are always aware of. The other things for these web design usability is how to do a writing in the website, the navigation and information architecture and readability and legibility of the content in the website.

1.5 Project Significance

There will be lots of benefits if user used the proper guidelines with the usability criteria. All, user can get the benefits from these new guidelines. Some of the benefits are listed below:

1.5.1 Enhance the usability of current website.

When the guidelines are applied to the current website of FTMK, it will help to enhance the quality and the usability of the website. The website will have more high quality content with the minimal download time and of course, its ease to use and fulfills user's requirements.

1.5.2 Well documented web design guidelines.

There are numerous design guidelines and study results to provide guidance on the way to design websites so that they are usable and accessible. However, practitioners experience difficulty in applying guidelines, at least in the format in which they are typically presented; they are often discussed and sometimes conflict with one another.

This study contributes a well documented fundamental web design guidelines acts as reference for designers to develop a website.

Although most of the contents from the proposed guidelines are found in variety of usability studies, user especially web designers get more specific guidelines to refer to. The guidelines can help web designers to design the web more productive and easy for other web designers to refer because the website has its own guidelines.

1.6   Expected Output

1.6.1   Rebuild the case study.

The case study (FTMK website) will be rebuilt and all part in the guidelines will directly apply to the case study. The case study that has been rebuilt will be the example for others web designers and users on how to improve the usability and functionalities of the website.

1.6.2   Guidelines for designing website

With all the things about the guidelines done, it will be applied to the case study (FTMK website) and this guideline can also be used as fundamental reference in designing other websites. These guidelines will be helpful especially for new web designers.

1.7 Conclusion

Given the unique nature and staggering rate of growth of the Web, it is clear that usability is an issue that is becoming increasingly important for Web site owners and designers to address. To a certain extent, Web site users expect instant gratification. Successful Web sites then, whether they be commercial or informational, will increasingly be those that meet the usability criteria of being clear, appealing and easy to use.

To meet these objectives, there are many usability methodologies available that can be used quickly, cheaply and easily to provide fast and useful information to improve Web site usability. For best results it is recommended that a variety of methodologies be used and that Web site development and design be treated as an iterative and ongoing process.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1   Introduction

This chapter will discuss on literature review conducted and methodology used to develop the web usability guidelines. A literature review is a body of text that aims to review the critical points of current knowledge on a particular topic. The chapter will explore on areas covered by 'The Development of Web Usability guidelines' which will provide definitions and framework for a piece of research on 'The Development of Web Usability guidelines', covering page design, and Navigation and Information Architecture technology.

Methodology is known as body of methods, rules, and postulates employed by a discipline or a particular procedure or set of procedures. The common idea of methodology is the collection of related resources, the comparative study, and the individual critique of the ideas and methods that are used in a given discipline or field of interest. The approach for meeting the goals and objectives for this project will include review of related studies and analysis.

The use of methodology helps to produce a better quality product to ensure that users' requirements are successful. Therefore, a good methodology chosen will be a

systematic guidance on how to develop software successfully, where the guidance manifest with proven approaches, best practices, guidelines, techniques and sequences.

2.2   Definitions

Usability is a term of used that can bring people to employ a particular tool or other human made object in order to achieve a particular goal. It is an example of a non-functional requirement. As with other non-functional requirements, usability cannot be directly measured but must be quantified by means of indirect measures or attributes such as, for example, the number of reported problems with ease-of-use of a system.In order to make something more efficient to use and easier to learn, some guideline need to be made to ensure that the goal is accomplish. According to Usability consultant Jakob Nielsen and computer science professor Ben Shneiderman,[1] usability is part of usefulness and composed of; Learnability, Efficiency of use, Memorability, Few and noncatastrophic errors and Subjective satisfaction.

2.2.1   What is a Guideline?

According to wikipedia [2], a guideline is any document that aims to streamline particular processes according to a set routine. By definition, following a guideline is never mandatory (protocol would be a better term for a mandatory procedure). Guidelines are an essential part of the larger process of governance.Guidelines may be issued by and used by any organization (governmental or private) to make the actions of its employees or divisions more predictable, and presumably of higher quality.

Web usability guidelines are some list of guide that must be followed during web developing process. All the guidelines come from all type of old guidelines and some of them are the new guidelines to suit the current website on the net. This guideline is some

sort of format for the website to ensure that web designers or web developers to follow it. The guidelines can be useful for web developers when they need to change the design of the website or to study about the website in the future. Users will get more benefits; simply stated, if the customers can't find a product, then he or she will not buy it.

Jakob Nielsen stated that there are about eight problems that haven't changed in website and one of them is pop-up windows that are the most hated advertising techniques in the net. With the right web guidelines users can work with the website more comfortable and can understand more clearly and faster than ever.

2.2.2   What is Usability study?

Usability study is something which for measuring how well people can use some human-made object (such as a web page, a computer interface, a document, or a device) for its intended purpose, for example. usability study measures the usability of the object. Usability study focuses on a particular object or a small set of objects, where general human-computer interaction studies attempt to formulate universal principles.If usability study can't find difficulties, such as people having difficulty understanding instructions, accessing pages, wasting time, manipulating parts, or interpreting feedback, then developers should improve the design and test it again. During usability study, the aim is to observe people using the product in as realistic a situation as possible, to discover errors and areas of improvement. Designers commonly focus excessively on creating designs that look "cool", compromising usability and functionality. This is often caused by pressure from the people in charge, forcing designers to develop systems based on management expectations instead of people's needs. A designer's primary function should be more than appearance, including making things work with people.

Usability study generally involves measuring on how well the subjects respond in four areas: time, accuracy, recall and emotional response. According to Jokob Nielsen

on his research; "Elaborate usability test are a waste of resources. The best results come from testing no more than 5 users and running as many small tests as you can afford".

2.3 Related Works on Designing Web.

2.3.1 Research done by Jakob Nielsen. [3]

Jakob Nielsen is the author and editor of 10 other books, including the new Homepage Usability: 50 websites Deconstructed. He has also written more than 80 research papers on usability engineering, user interface design and hypertext. In Nielsen research, he separates the design into three parts which is Page Design, Content Design and Site Design.

Table 2.1: Some of Jakob Nielsen Web usability Guidelines

Page Design	
Response Times	**Data Lives Forever**: Mark up the information as close to the standard as possible and try to create information with persistent value.
	Predictable Response Times: Stabilize response times will result in a usability improvement.
	The Best sites are fast: The sites that get the most traffic are more than twice as fast as the sites built by big, famous companies from the old economy.
	Faster URLs: Links to a directory should include the final slash in the URL when embedded in pages.
Linking	**Link Descriptions:** The departure page must include sufficient information to enable users to decide what link to follow next.
	Link Titles: Bad links are less likely to be followed and users will