

IMPLEMENT JACOB NIELSEN HEURISTIC ON DEVELOP
SISTEM PENGURUSAN GURU GANTI SELANGOR
ESPGGS

NURUL WAHIDAH MOHD ZIN

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Faculty of Systems Computer & Software Engineering
Universiti Malaysia Pahang

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ABSTRAK

Pada masa kini pengguna ingin menggunakan laman sesawang kerana laman sesawang merupakan satu medium yang lebih mudah untuk mendapatkan pelbagai maklumat. Walau bagaimanapun untuk pereka bentuk laman sesawang pelbagai garis panduan atau prinsip mesti dipatuhi. Untuk mencapai matlamat itu, penyelidikan yang dilakukan dengan mengedarkan kaji soal selidik kepada dua puluh orang yang telah dipilih secara rawaknya. Kajian soal selidik ini memberi tumpuan kepada prinsip heuristik. Pada amnya kajian soal selidik telah dapat mengumpulkan tujuh prinsip utama yang akan dilaksanakan ke atas pembangunan sisitem pengurusan guru gani selangor espggs. Antara heuristik yang akan digunakan ialah “visibility of system status, match between system and real world, consistency and standards, user control and freedom, consistent and standard and help user recognize, diagnose and recover from error, help and documentation and aesthetic and minimalist design”

ABSTRACT

Nowadays people intend to use webpage which are easier to get a wide range of information. . However to design a good user interface there are guidelines or principle must be followed. In order to achieve the objective, research has been done by distribute questionnaire to twenty people randomly selected. The questionnaires focus on heuristic principle. On the research there are seven principles that will be covered on development which are visibility of system status, match between system and real world, consistency and standards, user control and freedom, consistent and standard and help user recognize, diagnose and recover from error, help and documentation and aesthetic and minimalist design. A software prototype methodology will be applied during the development process.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Jabatan Pelajaran Negeri Selangor (JPNS) was established under the Education Ordinance 1950. JPNS represents the Ministry of Education (MOE) to coordinate all matters that related to the management and administration of secondary schools and primary school in Selangor. JPNS was headed by Director of Education and assisted by Deputy Director of education. Besides that, JPNS also provide District Education Office (PPD) in order to coordinate the program and activities which is headed by District Education. Therefore, they need to have a website or service that offers a broad array of resources and services such as Sistem Pengurusan Guru Ganti Selangor ESPGGS which can be used as a communication platform.

However, in today's modern era the usability of a user interface becomes extraordinary important. We cannot underestimate the measuring of the usability because it can reveal the qualities of the product as well as lack of functionality, which usually arise during the design phase. Therefore, usability needs to be considered together when developing the system. To conduct the evaluation, the method used in this project is heuristic evaluation which is based on Nielsen's set of usability heuristics to implement a thorough and in-depth assessment. Table 1.1 shows the ten general principles of Nielsen for user interface design ^[1].

Table 1.1: Nielsen's Ten Heuristics

Heuristic	Description
Visibility of system status	The system should always keep users informed about what is going on, through appropriate feedback within reasonable time ^[1] .
Match between system and the real world	The system should speak the users' language with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real- world conventions, making information appear in a natural and logical order ^[1] .
User control and freedom	Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo ^[1] .
Consistency and standards	Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions ^[1] .
Error prevention	Even better than good error messages is a careful design which prevents a problem from occurring in the first place ^[1] .

Heuristic	Description
Recognition rather than recall	Make objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate ^[1] .
Flexibility and efficiency of use	Accelerators which unseen by the novice user; may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions ^[1] .
Aesthetic and minimalist design	Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility ^[1] .
Help users recognize, diagnose, and recover from errors	Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution ^[1] .
Help and documentation	Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large ^[1] .

Nevertheless, heuristic evaluation is a medium for filtering the design user interface. Therefore, to know how the user would interact with the system. Usability testing is useful way to overcome the problem with test prototype of the system with user participant. Usability testing is the process of measuring how well people can use a product such as webpage, software or hardware by direct observation and talking to actual or potential users of product. Usability defined as the ease of use, learnability, efficiency, and error tolerability of a particular product ^[2]. The objective of the usability testing is to identify usability problem in a user interface design. With this testing, we can find out whether the user able to complete the tasks successfully with the time taken to complete the tasks and how satisfied participants are with the system. This information is required to improve user performance.

1.2 Problem Statement

Until now, all District Education Office (PPD) in Selangor has no computerized system to help manage and coordinate their organization that related with replacement teacher. All District Education Office (PPD) in Selangor have a same condition and step to appointing applicant as replacement teacher. All tasks are handled physically in a manual system. All information and details of the replacement teacher or teacher on holiday is manually filled and it is kept in a file. Then, PPD instructor stored all those information in a place such as rack. The risk of losing the data is very high because all data kept in a file. The other problem is District Education Office (PPD) has trouble to finding replacement teacher because the applicant need to fulfill all manual form and follow a condition to applied as replacement teacher. If the applicant left of one condition the application is was rejected or the applicant need to come and make correction. Using manual system, applicant may take time to complete the application.

1.3 Objectives

The objective of this project is:

- I. To develop Sistem Pengurusan Guru Ganti Selangor ESPGGS.
- II. To implement HCI to the design of Sistem Pengurusan Guru Ganti Selangor ESPGGS webpage.
- III. To evaluate Sistem Pengurusan Guru Ganti Selangor ESPGGS with usability testing by using questionnaire form.

1.4 Project Scope

The scopes of the project that have been identified are:

- I. This project comes with administrator site management system. All District Education Office (PPD) in Selangor is a person that controls the content of the webpage.
- II. Another user of this system is school staff in every school at Selangor either secondary or primary school. The staff will use a system to apply teacher on leave.
- III. Applicant is third user on this system that visits the webpage to gather information or apply replacement teacher.
- IV. Malay is the main language to be implemented on the system.
- V. Conduct a usability testing on Sistem Pengurusan Guru Ganti Selangor ESPGGS in order to ensure that the proposed system is adapted to end-user and their tasks.
- VI. Concept will use on this system is web based application. The software to be use in developing this system is :
 - a. Hypertext Preprocessor Language (PHP)
 - b. MySQL for database
 - c. Apache as the platform
 - d. Macromedia Dreamweaver for interface design

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter is about literature review which will discuss the existing system and the technique/method/equipment or the technology that is used on the existing system.

2.0.1 Studies about Website and Human Computer Interaction (HCI)

World Wide Web (WWW) is known as web is a hypertext documents can access through internet over the world. Nowadays people intend to use web (WWW) of communication medium or the best ways to promote products or service to international audiences. There some kind of website on the internet such as portal, blog site, e-commerce and etc. Web Portal is the web site presents information from diverse source in a unified way. Generally web portal synonymous with gateway to a World Wide Web site or intended to be a major starting site for user when connected to the web. [3] Portal providing collect of information that useful and linking to various site such as email, calendaring, news, research data, etc in a uniform format, with a efficiency and consistence look. Using web all thing become easier to use. Human Computer Interaction is the heart of web. HCI is to make the use of software, device or web as simple and easy to understand as possible in order to improve the efficiency and effectiveness of the actions.

2.1 Studies on the Existing System of Government Portal

The website of Jabatan Perkhidmatan Awam Malaysia ^[4] is the one of government webpage that had been selected with the simple design. The images shows in Figure 2.1 until Figure 2.7 are part of the webpage that make the page interesting and convenient for the viewers. The survey parts are being show in the images within following paragraphs, along with the descriptions.

Figure 2.1 shows the header of the website. The header is first thing people will look when visit the website. Designing header are no limits creativity and no rules in order to make header look beautiful. The website uses a simple header to show the name of department. Apart of that, the header also shows the logo that represents identity of the agency. When the viewers look at the logo, the viewers will know about the purpose of the website.



Figure 2.1: Header of Jabatan Perkhidmatan Awam Malaysia

The Figure 2.2 allowed the viewers to choose language, fonts, and background colors of the whole page. The languages that viewers capable choose are Malay or English because Malay is the main language use in Malaysia meanwhile English is international language use in the world. Besides that, viewers also allowed to choose different background colors to look more interesting and attract the viewers to search the webpage. Resizable font also provided that allowed viewer the increases or decrees a font size.



Figure 2.2: Language, fonts and background colors options

The Figure 2.3 shows the webpage use horizontal navigation to facilitate a more organized structure of menus that provided. Effective navigation is important to guide viewers from doing something wrong or getting loss on the webpage, it also can conduct viewers direct to page that want to visit.



Figure 2.3: Horizontal navigation

The Figure 2.5 shows the webpage provided effective searching in order to offers search facilities to viewers find specifically tailored to viewer's needs. Meanwhile viewers sometimes face a problem when find specific thing even with good navigation. On the webpage, it was offered searching important item based on specific menu such as “Pekeliling”, “Surat Edaran”, “Surat Pekeliling”, “Direktori Pegawai”, “Soalan Lazim”, and “Borang”.

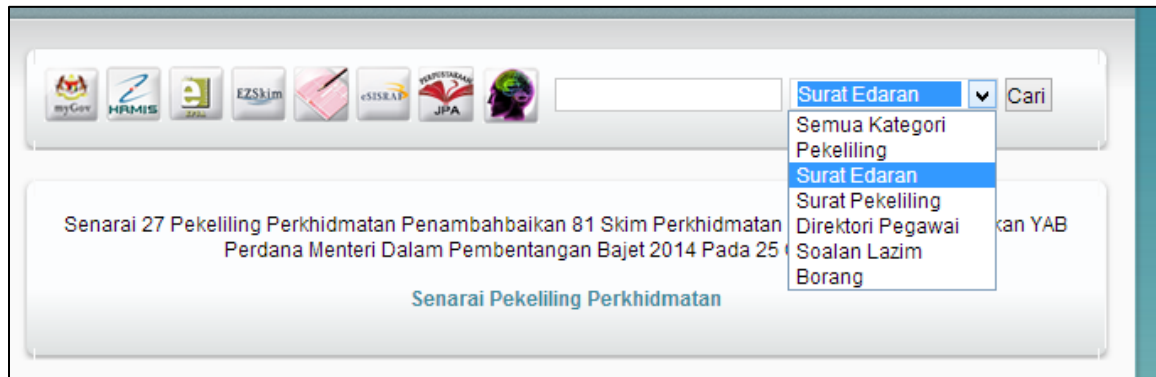


Figure 2.5: Searching Option

Figure 2.6 and Figure 2.7 shows the webpage provide facilities sub agencies gateway, quick links, JPA internal user, single sign-on, and additional features linked that related with JPA webpage. So that viewers easy to gather others webpage information from one main webpage.



Figure 2.6: Sub Agencies Gateway Link