The study of Dewan Bahasa dan Pustaka website based on MAMPU Guidelines

By

Puteri Farah Najwa Binti Megat Ahmed Tahwil

Dissertation submitted in partial fulfillment of
the requirements for the
Bachelor of Technology (Honours)
(Business Information System)

JULY 2007

UNIVERSITI TEKNOLOGI PETRONAS
BANDAR SERI ISKANDAR
31750 TRONOH,
PERAK DARUL RIDZUAN

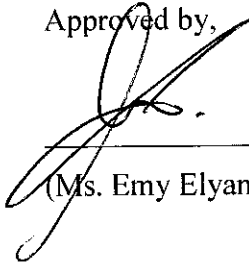# CERTIFICATION OF APPROVAL

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A project dissertation submitted to the

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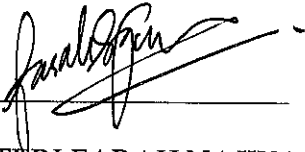
(BUSINESS INFORMATION SYSTEM)

Approved by,

_____

(Ms. Emy Elyanee Binti Mustapha)

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TRONOH, PERAK

JULY 2007

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

PUTERI FARAH NAJWA BINTI MEGAT AHMED TAHWIL

ABSTRACT

The purpose of this project is to develop a study and research on the effectiveness of a particular e-government website which is Dewan Bahasa dan Pustaka (DBP) based on the guidelines developed by MAMPU. This report will begin with the introduction of the project which covers the background of the Dewan Bahasa dan Pustaka, MAMPU and the findings of problems with the Dewan Bahasa dan Pustaka websites.

E-government websites are the gateways for the public to access information and services provide by the government in the Information Age. The objective and scope of this study will also be covered in the next chapters as well as the literature review.

The methods that will be used in order to improve on DBP website as well as the Results and Discussion of the project will be discussed. This paper will end with the conclusions of the findings. The contents of this document were achieved through the consolidation and references of materials published by various e-Government units around the globe.

ACKNOWLEDGEMENT

I would like to express my gratitude and greatest appreciation to many individuals who have helped, assisted, guided and supported me in completing my Final Year Project. First and foremost, I would like to thank my beloved parents and family for their full support, motivation and encouragement. To my supervisor Ms. Emy Elyanee Mustapha, thank you for her guidance and endless advice, the knowledge offered and the time spent in helping me understanding and improving this project.

I would also like to take this opportunity to show my up most appreciation to my colleagues and Mr. Ahmad Zafriza bin Abdul Ghaffar, for their cooperation and assistance. Last but not least, many thanks to all the people who were involved in the making of this project. All the contributions made will always be remembered. I sincerely would like to apologize for any mistakes made intentionally or unintentionally throughout this project.

Thank you to all of you.

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ABBREVIATIONS

DBP	Dewan Bahasa dan Pustaka
MAMPU	Malaysian Administration Modernization and Management Planning Unit
HCI	Human Computer Interaction
e-Government	Electronic Government
ICT	Information and Communications Technology
GUI	Graphical User Interface
UI	User Interface

VCR	Videocassette Recorder
HTML	Hypertext Markup Language
IRC	Information Resource Center
ISO	International Organization for Standardization
W3C	World Wide Web Consortium

CHAPTER 1

INTRODUCTION

1. Background Study

Dewan Bahasa dan Pustaka

Dewan Bahasa dan Pustaka (DBP) or formerly known as 'Balai Pustaka' was formed on the 22nd of June 1956 in Johor Bharu, Johore as subsidiary firm under the Ministry of Education. The sole function of DBP is to broaden and establish the usage of Bahasa Melayu as the Official National Language of Malaya which was going through the process of independence at that point of time. At the initial stage, DBP began its missionary quest from Bukit Timbalan, Johor Bharu.

Harvesting from the Congress of Language and Persuratan Melayu III that was held in Singapore and Johor Bharu respectively from 16 -21 September 1956, the government accepted the congress proposal as to rename Balai Pustaka to Dewan Bahasa dan Pustaka Along with it upgrading to a body that are comprises of its own council members.

In 1957, DBP was moved to an old hospital building in Jalan Young. This migration is a step to ease up execution of its objectives and mission with announcement of Bahasa Melayu as the National Language and soon as the official National Language.

1959 marked the year which DBP was duly upgraded to a statutory body through the Ordinance of Dewan Bahasa dan Pustaka 1959. with this status, DBP was given the absolute autonomy power to; (i) to draft the specific policy; (ii) making arrangement for language and literature development programme; and (iii) conducting publishing and competitive book sales activities according to the ethical guidelines of professional publishing business.

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On 31 January 1962, DBP was moved to its own building at Jalan Lapangan Terbang Lama (currently known as Jalan Dewan Bahasa) and open 2 more of its branches in Kota Kinbalu and Kuching respectively, followed by 3 more branches in the Peninsula Coast in Penang, Kelantan and Johor Bharu. DBP publishes the Kamus Dewan, for many years the prestige dictionary of the Malaysian national language. [1]

Dewan Bahasa dan Pustaka has expanded their horizon by providing services online. With this service they can manage their services conveniently and effectively. Figure 1.1, 1.2 and 1.3 show the main page of the official website of DBP.

Figure 1.1 – 1st half of the main page

2

Tayangan Teledrama RTM "Lepaskan Kembali Aku Ke Laut" (Adaptasi Novel Ke Drama)	18/08/07 - 16/09/07	Ditayangkan sekali dalam seminggu
Peraduan Baca Puisi Pelbagai Kaum Peringkat IPT Kali Ke-7 Sempena BBSN 2007 (Peringkat Akhir)	12/09/07	Auditorium DBP
Karnival Gemilang Jawi Peringkat Wilayah Persekutuan 2007 (7:30 pagi - 2.00 petang)	12/09/07	Sekolah Menengah Kebangsaan Agama Kuala Lumpur
Gema Puisi Ramadan Bersama Pemimpin	16/09/07	Kampong Air Merah, Mersing, Johor
Bengkel Penyemakan Ke-26 Draf Kamus Thai-Melayu Dewan	21/09/07 - 25/09/07	Hotel Renaissance, Kota Bharu, Kelantan
Bengkel Penyemaan Ke-19 Draf Kamus Perancis Melayu Dewan	22/10/07 - 26/10/07	Hotel, Mines Palace Beach & Spa, Seri Kembangan, Selangor.
Bengkel Pantun 2007 [Brosur]	23/10/07 - 24/10/07	Dewan Seminar, Tingkat 2, Menara DBP, Kuala Lumpur.
Pertandingan Berbalas Pantun Antara Kementerian Kali Ke-4 Sempena BBSN 2007 [Brosur]	29/10/07 - 01/11/07	Auditorium DBP, Kuala Lumpur.
Seminar Antarabangsa Kesusasteraan Asia Tenggara (Masa: 8:30 pagi - 5:30 petang)	27/11/07 - 28/11/07	Dewan Seminar, Menara DBP.

* Tertakluk kepada perubahan.**Maklumat lanjut sila hubungi Abang Patdeli Abang Muhi (03 -21482008), Encik Razali Che Mat (03-21482948)/Puan Rossilawaty Sheriff (03-21484645)

DIREKTORI PENULIS WILAYAH UTARA
... klik di sini

HADIAH KARYA ILMIAH DBP 2007
... klik di sini

PERADUAN MENULIS/MENGISAH SEMULA CERITA RAKYAT SARAWAK 2007
... Klik di sini

PERTANDINGAN MENCIPTA LAGU KANAK-KANAK 2007
... Klik di sini

Pertandingan Mencipta lagu
Kanak-kanak 2007

Figure 1.2 – 2nd half of the main page

PERTANDINGAN MENCIPTA LAGU KANAK-KANAK 2007
... Klik di sini

Pertandingan Mencipta lagu
Kanak-kanak 2007
29 Oktober 2007

DBP Usaha Lahirkan Penulis Pelapis Melalui
PROGRAM PEMBINAAN PENULIS
....klik untuk selanjutnya

TUNAS PUJANGGA 07
Pencarian Pengarang Remaja Terunggul
Peringkat Kebangsaan

Tarikh Tutup Penyertaan
14 Julai 2007

Kumpulan Pantun Lisan Melayu

Sayang galah hujungnya tirus,
Hendak mengait sarang merpati;
Demi Allah sumpah putus,
Sudah berjanji wajib tepati.

sumber: *Buku Kurik Kundi Merah Saga* (Kumpulan Pantun Lisan Melayu) Edisi Kedua, Terbitan DBP, Harga: RM 44.00. Koleksi Pantun [Klik di sini]

Kami beriltizam untuk menghasilkan keluaran bahasa Melayu sebagai bahasa kebangsaan dan bahasa rasmi negara ini yang baku, bermutu dan berwibawa melalui perkhidmatan yang cekap, cepat dan cemerlang. Dengan mengutamakan keperluan pengguna, kami menjanjikan keluaran dan perkhidmatan yang mendukung peluasan fungsi teras kami, iaitu BAHASA, SASTERA dan PENERBITAN, seperti yang berikut: [selanjutnya]

Jumlah Capaian Sejak Jun 2004
336141

Muat Turun Aplikasi
Get Adobe Reader

Figure 1.3– 3rd half of the main page

The list of their main services is mentioned below:

1. Language advice service / Khidmat Nasihat Bahasa

   - Language inquiries / Pertanyaan Bahasa
   - Advertisement approval / Pengesahan Iklan
   - Language Correction/ Pantau Tegur Bahasa
   - Word Suggestion / Cadangan Perkataan

2. Encyclopedia/ Ensiklopedia
3. Online Dictionary / Kamus
4. Online Thesaurus / Istilah
5. Bahasa Sukuan
6. Korpus Bahasa Melayu
7. Purchasing books online / Membeli Buku Online
8. Writer's section / Ingin Menulis
9. Online public catalog / Katalog Awam dalam talian
10. Comments & suggestions / Komen dan Cadangan

Malaysian Administration Modernization and Management Planning Unit (MAMPU)

MAMPU is a leading organization in mobilizing the modernization of Malaysian Public Service. In implementing its responsibility, MAMPU focuses on initiatives that could upgrade the quality, efficiency, effectiveness, and integrity of Malaysian Public Service. All these initiatives encompass the areas of quality acculturation, organizational development, the management integrity, ICT development, and cooperation as well as smart partnership between public sector and private sector. These efforts are necessary as to improve the government delivery service system to satisfy various clients' needs.

The revised initiatives implemented by MAMPU need to be informed widely to help government agencies to obtain complete and accurate information on the steps of modernization and improvisation that need to be carried out at respective levels. These

webpage guidelines is to meet such demands by presenting information on the role, functions, and services that are managed by MAMPU, a federal agency, in modernizing the Public Service.

Information on these webpage guidelines is organized and categorized according to main services offered to MAMPU's clients, especially government agencies. Visitors may explore the information on MAMPU's services such as consultancy management, inspectorate management, MS ISO 9000 standard, performance appraisal, management integrity, office automation, and needs for planning and development of ICT towards empowering the capacity of government agencies to deliver the services efficiently and effectively.

1.1 Problem Statement

Egovernment refers to the delivery of information and services online through the Internet. It enhances the citizen's access to government information and services, and can provide new ways to increase citizen's participation in the democratic process.

In Malaysia especially in Government sector the amount of portal usage is very low. According to Local Government Department Director (The Star, July 8, 2004), a total of 41 local councils are either without a website or have an incomplete one which is no use to public while another 92 councils have five or fewer online application systems. Only 11 of the 144 local councils throughout the country are found to be established with more than five application systems in place such as e-complaints, e-assessments, e-licensing, e-compounds, e-business, and e-community [2].

This shows that most local governments are still left behind the internet technology such as portal application. Local government needs web-based system such as portal to assist their daily transaction. The 11 councils that have applied the online application were way ahead of others in term of leadership and revenue. The councils earned gross income up to RM 100 million a year compared to RM 2 million for others. Furthermore, the online application will make easier for public to interact with the councils.

The reasons behind the very small numbers of the local government that applied the online application such as portal is because they are not familiar with the portal concept, lack of expertise in developing the portal and also they have no reference about the portal construction to be followed.

As the country pushes towards an e-economy, the government is investing a considerable amount of time and money on developing the e-government concept. E-government will be the backbone of government's spending in ICT which amounts to be about USD2.2 billion. In line with that many government agencies have set up websites to respond to the call by the Federal government to promote e-government. While Web-based e-commerce is experiencing dramatic growth, concerns about Web security and privacy loss can potentially limit this growth. This study looks at the 2 main concerns that users have when it comes to the use of websites to do transactions, ie. security and privacy. Using a structured questionnaire a total of 137 responses were received. The findings indicate that security (β= 0.551, $p<0.01$) and privacy (β= 0.516, $p<0.01$) concerns are positively related to intention to use. If the user perceives that security and privacy is low then his/her intention to use the G2C (government to consumer) website for transactions will be lower and vice-versa. The implication for the developers of G2C websites are that these two concerns about the website has to be addressed if the initiatives are to take off in the near future [3].

The main focus of the project is Dewan Bahasa dan Pustaka website. After some observations on one of the government websites which is Dewan Bahasa dan Pustaka (www.dbp.gov.my/lamandbp), I have found several flaws with the interface design as well as the usability accessibility of the website that do not meet with the criteria set by MAMPU. This will be explained more under research and discussion section.

From this observation, I also found that the website is not user friendly where I found that the loading speed is slow. It takes too much time to load from one page to another. Besides an unattractive design of the website, I have also found that there is a navigation problem where there are certain pages that have no Home button and I had to click back

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several times to go back to the main page. Easy navigation is essential to keeping prospective users at the website. Plus, there is no use of Cookie Crumbs to show visitors where they are on the site at any point.

The main page of the website is loaded with too many things. There is no control in contents and is not properly organized on the main home page. There we too much of scrolling down to see the rest of the page. They should keep pages short. Visitors should be able to see the important information, especially on the website home page, without too much of scrolling down. Studies show that more than half of the web surfers never scroll down past the first screen of information, so the benefits, site description, and USP should be provided at the top of the page.

Next, I found that this website has very poor universal accessibility. Universal Accessibility refers to the practice of making Web pages accessible to people using a wide range of user agent software and devices, not just standard Web browsers. This is especially important for people with disabilities for example, visual impairment including blindness, various common types of low vision and poor eyesight, various types of colour blindness.The design of the DBP website does not include any functions for the disables. I have also found that there is a security problem with the Intranet site which is used by the staffs of Dewan Bahasa dan Pustaka. When a staff log in into their user ID, if they forget to log off at the end of the session, the user's page will no be logged off automatically which means that the next user who uses the computer will be able to go through the previous user's page.

Through examination and observation, there are no particular standards in developing an e-government website. Human Computer Interaction (HCI) principles are being neglected in developing most of government websites. A study found that the reasons for e-government websites are not well-liked are due to its lack of right information provided in the system, and also was found that it is not user friendly which discourage citizens to browse government websites.

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1.2 Objective and Scopes of Study

1.2.1 Objective

The purpose of this project is to develop a study and research on the effectiveness of Dewan Bahasa dan Pustaka website based on the guidelines developed by a newly established agency known as the Malaysian Administration Modernization and Management Planning Unit (MAMPU) from the HCI principles point of view. As a leading organization in mobilizing the modernization of Malaysian Public Service, MAMPU has come out with guidelines to develop government websites and systems in Malaysia. There are certain standards that have been set by MAMPU as guidelines in developing any government website in Malaysia.

The objective of the guideline is to create a greater awareness in agencies of the various components that form portals and it also aims to create a thought process in the initial stages when a portal solution is being considered. The idea of this study is to do research on these guidelines as well as measuring the accuracy and efficiency of it based on researches and feedback receive from the users. The main objective and the product that will be produced at the end of this project is the development of a prototype of DBP website as a guide to e-government web builder that follows MAMPU guidelines.

1.2.1.1 MAMPU Guidelines Objective

The nature of these guidelines is:-

(a) Informing the concept and execution of myGovernment as an information gateway for the public sector;

(b) Clarifies the management of the web portal at the public sector stage and agency stage; and

(c) Providing the guidelines to the public sector agencies in developing and setting up the web portal for the respective agencies.

This guideline comprises of the following matters:-

(a) Introduction to myGovernment;

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(b)   Management of the public sector's web portal and management at the agency stage;

(c)   Global best practices in developing web portal;

(d)   Guidelines in developing and setting up web portal public sector agencies which include basic principal in developing the web portal, aspect of the website, aspect of the portal and safety measures and steps for the web portal; and

(e)   Checklist for fast reference in developing and setting up the web portal. [4]

1.2.2 Scopes of Study

1. **Plan the scope of the project**: The project is to be completed within 1 year period which equivalent to 2 semesters (part A and part B respectively). People who will be involved in this project would be DBP website users (various age)

2. **Analyze the current website and MAMPU guidelines**: Dewan Bahasa dan Pustaka website (www.dbp.gov.my) will be observed and studied in terms of efficiency, functionality, user friendliness, usability study, user satisfaction levels, and the response time. MAMPU guidelines will be studied and identify whether DBP website met with the criteria set by MAMPU.

3. **Information Gathering**: Throughout this phase, all the feedbacks and information from DBP website users will be gathered through the processes of surveys,

4. **Design**: The prototype of DBP website will be designed, focusing on the Interface design of the website based on feedbacks received from users as well as MAMPU guidelines.

5. **Implementation**: The prototype of DBP website will be developed, focusing on the Interface design of the website based on feedbacks received from users as well as MAMPU guidelines. Once it is completed, another session of testing of the new prototype will be conducted to gain feedbacks from users.

6. **Enhancement**: When the testing phase is done, the prototype will be enhanced according to the feedbacks received from users.

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CHAPTER 2

LITERATURE REVIEW AND STUDY

2. A Pattern Language for Human-Computer Interface Design

2.0.1 The Need for a Human-Computer Interface Pattern Language

There is plenty of good literature out there on the high-level principles of good interface design, and it is getting ever better as this young field matures. We all know by now that we ought to use direct manipulation, immediate feedback, proper affordances, judicious use of sound and animation, protection from accidental mistakes, gentle error messages, and so on. But if you're a novice designer, it's hard even to remember all these principles, let alone use them effectively. And it's difficult sometimes to make the tradeoffs among these principles when they come into conflict; we often have to figure out the best solution by guessing, or by resorting to other means.

2.0.2 Test it with users

One excellent way to verify your guesses, of course, is to test your design with potential users. Lots have been written on usability testing and other field methods, and it's all important. Before the design phase begins, we must understand our users' concerns and learn to empathize with them; their feedback guides and inspires us while we explore different design possibilities; and late in a project, they help us refine and build the chosen design. In the field of human-computer interfaces, we have learned -- faster than in many other fields -- the value of an iterative design process that directly involves the end users.

But how do you come up with those initial designs? Once you understand where the user is coming from and what the artifact needs to do, what comes next? What further questions do you ask? What assumptions should you make? How do you put it all together into a design that might work? This creative leap is always harder than it

sounds. And it costs us far less, in terms of time and usability testing, to make good guesses and design choices right at the beginning.

2.0.3 Follow the style guides

Then there are GUI style guides, both the toolkit-standard ones and custom company-wide style guides. They work fine if you want your company's applications to all look and behave just so, or if you want to make sure you're following the accepted conventions of the toolkit you happen to be working with. Sometimes it's important to know these details. But they are transient -- toolkits, trends, and operating systems come and go, and as soon as the world gets comfortable with one, another arises to take its place. Remember the transition from Windows 3.1 to Windows 95?

Furthermore, by constraining yourself to the relatively small number of tools that most toolkits give you, and to the ways of using them that convention dictates, you limit the expressiveness of your interface to that which is currently acceptable. ("I used a combo box there because that's what everyone does.") And no style guide can infallibly tell you how to strike a balance between two opposing high-level principles.

2.0.4 Do what other people do

I have seen inexperienced user interface designers work through design decisions by depending on other people's designs, rather than on their own design skill. They ask themselves questions like, "What techniques or layouts have I seen lately that do what I'm trying to do?" or even "What do the standard Microsoft packages do?" This approach isn't that bad, really -- observation of successful interfaces is part of the learning process, and at least they're not trying to reinvent everything from scratch. (The worst user interfaces reinvent everything in bizarre ways. So do the best ones; take a look atKai's Power Tools.)

But this can be a scattershot approach. The designer's experience may be limited to software of certain types, or made by certain companies, and they may not be closely related to the kind of software being designed. Furthermore, the other interfaces that the

designer draws from may not be good ones in the first place. So the designer ends up with an impoverished decision-making ability, despite all good intentions.

(A familiar scenario occurs if the designer is really a software developer by vocation. His or her sphere of experience probably includes mostly developers' tools and the Web, neither of which may have anything to do with the user interface they are designing. We've all seen the results!)

Of course, experienced designers don't entirely escape this mode of thinking, either. Reinventing techniques isn't really practical most of the time -- consciously or subconsciously, they apply what they know, and reuse good solutions they've seen before. The difference lies partly in the depth of experience from which they draw: a seasoned designer has seen, analyzed, or built interfaces of many diverse kinds. And it also lies in the skill with which they apply that experience. They don't clumsily or timidly copy a technique, afraid they'll somehow ruin it by changing it; rather, they understand the design principles and process enough to confidently adapt a good idea to a new use in a new context. They understand what works and what doesn't -- the common ground -- across different media and contexts.

How can the HCI community help inexperienced designers move away from clumsy designs and labor-intensive processes towards this state of confidence and skill, without spending years learning it all the hard way?

To begin with, we could start building a human-computer interface pattern language. A language of this sort is a set of interrelated patterns, which share similar assumptions, terminologies, and contexts. At its best, such a language would both aid individual interface designers in their day-to-day work (as the *Design Patterns* book clearly does for many software engineers), and also help the whole industry develop better tools and paradigms.

More specifically, it would help individuals build better interfaces by:

- Capturing the collective wisdom of other designers in a way that can be immediately used, even by less-experienced designers. When difficult design problems arise, and there are conflicts between basic design principles, a pattern solution may be found that is appropriate for that particular context.

- Giving us a common language that we can speak with our fellow designers, with our interdisciplinary design teams, and with our customers. Participatory design may especially benefit when designers and users can talk about the same concepts, in the same terms, with fewer misunderstandings.

- Allowing one to think "outside the toolkit," by creatively applying familiar patterns in new ways. One of the great paradoxes of design is that one's creativity is often improved by imposing constraints on what one may create. By constraining a designer to work within the pattern, but with flexibility in visual appearance and interaction details, new specific solutions may emerge that are better than those commonly found in today's software.

- Helping to keep one focused on essential values, such as simplicity, fidelity to a consistent model, aesthetic beauty, and emotional comfort.

- Expressing design invariants that can be encoded in software, while allowing the specific solution details to vary as necessary (through design/test/evaluate iterations, for example, or over time as software slowly evolves through different versions). It's too much to expect that all patterns will work this way, since the point is good design, not good programming; but sometimes it works out.

Likewise, a good pattern language can benefit the HCI design community:

- It would be a new, more meaningful vocabulary for talking about why certain interfaces do or don't work. We talk now about the wonders of wizards, popup menus, and combo boxes, when they almost certainly won't be around in twenty years -- but the patterns behind them, that make them work, will still be valid (and were already valid a century ago, in some cases).

- It would enable us to more methodically draw on expertise in related fields, such as book design, consumer electronics, the design of control panels (for cars, airplanes, power plants), video games, the Web and hypertext, and speech-driven

interfaces. If a pattern holds true in both UI design and another field, we can learn the specifics of implementation in that other field and imagine how we could apply them to our interfaces. Of course, many of us have already done that, though without the use of the term "patterns" -- but imagine how much more effective we could be if we think about it at the right level of abstraction!

- By isolating the qualities that make certain trendy metaphors, idioms, and widgets work so well, we can learn from them and then move beyond them, without losing their lessons from our collective memory. How many excellent interface ideas have been lost because they became unfashionable, or because they never gained wide acceptance due to economic forces or bad implementations?

- They may serve as a solid practical foundation on which to build new user interface tools or concepts, such as virtual reality, sound-based interfaces, or next-generation Web sites. If we know what patterns work in other diverse fields, then we can better direct our efforts towards creating good artifacts in the new ones. It would be a shame to start developing a new design idea, say a new 3D interface, and waste vast amounts of effort rediscovering the same good old design patterns that have always worked in the familiar 2D spaces.

2.0.5 A Sample Pattern Language

The pattern language presented here is merely a start. It does not yet fulfill all the above goals, though the patterns were developed with them in mind. The ones defined here need refinement, and more patterns should be added over time, since this is far from a complete set.

Each pattern description defines a context of use, a problem the designer needs to solve, a set of "forces" pushing the designer in different directions, and a primary rule and sometimes additional secondary rules -- on how those forces might be resolved to best solve the problem. Examples are also provided, both good and bad; sometimes the bad examples show inappropriate uses of the pattern, and other times they show a situation in which the pattern should have been used but wasn't.

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Note that the pattern names and problem descriptions avoid the use of GUI-centric terms whenever possible (e.g. mice, menus, dialogs), so that you may more easily think about them being used outside the GUI world. Most of them do work that way. That was a condition of acceptance into this language: if a pattern is invariant across such different forms as paper, hardware, video games, and desktop GUIs, there must be truth in it. In fact, some patterns, such as User's Annotations, are not even in common usage yet in desktop GUIs.

Please read these patterns actively. Think about other examples that you might have seen, both from the world of desktop GUIs and from other fields. Consider how you would use them to design a new interface, or redesign an existing one (VCRs almost always provide entertaining cases of poor design). Look at an interface you like, and see if what you like about it can be captured by some of these patterns -- keep in mind that a pattern language can serve not only as rules for building a design, but also as a system for deconstructing an artifact and classifying its pieces. Finally, imagine how you might apply the pattern in a fully three-dimensional interface, or in a "Star Trek" interface, or some other new or fantastic technology. Would it work there? Why or why not?

Christopher Alexander posits that good patterns improve with time and widespread use. The object-oriented software development community has discovered that this is true, since there are now lots of people in that field developing their own pattern languages and reviewing them with others. The patterns in the original *Design Patterns* book have been augmented and refined, as is done in John Vlissides' *Pattern Hatching*. There is vigorous discussion going on at conferences, in magazine columns, over mailing lists, and in local special-interest groups worldwide.

The HCI design world could start engaging in similar discussions. If you have thought about patterns as they relate to user interface design or development, write about it. If you have additions to or criticisms of the patterns defined here, speak up, so that these can be improved. Read the literature on patterns and develop your own language, in contrast to this one.

Above all, use these patterns if you find them at all helpful. A pattern language is ultimately worth only what its users can get out of it. There is always room for improvement in the design process for conventional GUIs, and recent developments in HTML and Java are giving us the means to build much more creative Web and desktop interfaces than we had in the past, both technically and in terms of user acceptance of "unusual" interfaces.

If the success of patterns in architecture and software engineering is any indication, both our industry and our customers will benefit greatly from this effort [5].

2.1 What is Usability?

Usability measures the quality of a user's experience when interacting with a product or system, whether a Web site, a software application, mobile technology, or any user-operated device. In general, usability refers to how well users can learn and use a product to achieve their goals and how satisfied they are with that process. Usability, as defined by Joseph Dumas and Janice (Ginny) Redish, means that people who use the product can do so quickly and easily to accomplish their tasks. "Usability is not a quality that can be spread out to cover a poor design like a layer of peanut butter"(Clayton Lewis- 2001) [6]. Usability may also consider such factors as cost-effectiveness and usefulness.

Two international standards further define usability and human-centered design as

"The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of user." - ISO 9241-11. Another is, "Human-centered design is characterized by: the active involvement of users and a clear understanding of user and task requirements; an appropriate allocation of function between users and technology; the iteration of design solutions; multi-disciplinary design." - ISO 13407 [7]

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2.2 Government Website: Is there data to support usability

Government Web sites are being used more frequently and by more citizens than ever before. The use of government Web sites to obtain information increased 50 percent from 2002 to 2003, according to a recent Pew Internet and American Life Report on e-government. In fact, according to the Pew Report (The Pew Research Center is a nonpartisan "fact tank" that provides information on the issues, attitudes and trends shaping America and the world), one of the top online activities in 2004 was using government Web sites. In 2004, approximately 97 million people used government Web sites.

Users have to struggle to find the information they need on Web sites. Of these 97 million Americans, 46 percent said they encountered problems on government Web sites. These Americans say their top problem is not being able to find the right information, according to the Pew Internet and American Life Project [8]. Research by User Interface Engineering, Inc. shows that people cannot find the information they seek on Web sites about 60 percent of the time [9]. This can lead to wasted time, reduced productivity, increased frustration, and loss of repeat visits and money.

Users are very impatient. According to Jakob Nielsen, "Studies of user behavior on the Web find a low tolerance for difficult designs or slow sites. People don't want to wait. And they don't want to learn how to use a home page. There's no such thing as a training class or a manual for a Web site. People have to be able to grasp the functioning of the site immediately after scanning the home page—for a few seconds at most." [10]

2.2.1 Why is usability important to government?

The federal government is the largest single producer, collector, consumer, and disseminator of information in the United States. More and more citizens are reaching out to government to find information and services to improve their daily lives. The PEW Research Center found that 97 million Americans, or 77 percent of Internet users, took

advantage of e-government in 2003, whether that meant going to government Web sites or emailing government officials. This represented a growth of 50 percent from 2002 [8].

Given its large presence in citizens' daily lives, it essential that government agencies not only involve citizens in developing online Web sites, but also measure and report how a Web site is meeting users' needs. Usability helps people to do this; By embracing usability now, government agencies will be helping themselves operate more effectively and efficiently in the future and prepare for the following:

- Visits to government Web sites will continue to grow in the future. More visits = more work, questions, emails, complaints, and phone calls, especially if the site isn't easy to learn, use, or responsive to users' needs.

- Federal Web managers will be held to a higher standard as government initiatives like the E-Government Act and the President's Management Agenda request agencies to show citizen-centric approaches and implement performance-based measures.

- Resources are diminishing. We're being asked to do more with less. Designing Web sites the right way the first time sets a foundation for more efficient improvements long-term [7].

2.3 Structure and Navigation

A well-designed navigation system is crucial to the success of a website. In real world navigation we rely heavily on contextual clues like landmarks or maps with "You are here" indicators to avoid getting lost. Also, real world travel is progressive and linear as we move from point to point. There are no natural landmarks on the web and visitors can move from anywhere to anywhere with the click of a mouse. Consequentially, it is very easy to get lost in a website. Helping the user go where they want to go and find what they want to find should be a prime aim of all websites. Website navigation should not be dependent on non-W3C Format material and should be accessible to users of assistive technologies [12]

people with "temporary disabilities" such as a broken arm, and people with changing abilities due to aging [15].

There are guidelines in order to implement these features. One of the guidelines is to provide equivalent alternatives to auditory and visual content. Provide content that, when presented to the user, conveys essentially the same function or purpose as auditory or visual content.

Although some people cannot use images, movies, sounds, applets, etc. directly, they may still use pages that include *equivalent* information to the visual or auditory content. The equivalent information must serve the same purpose as the visual or auditory content. Thus, a text equivalent for an image of an upward arrow that links to a table of contents could be "Go to table of contents". In some cases, an equivalent should also describe the appearance of visual content (e.g., for complex charts, billboards, or diagrams) or the sound of auditory content (e.g., for audio samples used in education).

This guideline emphasizes the importance of providing *text equivalents* of non-text content (images, pre-recorded audio, video). The power of text equivalents lies in their capacity to be rendered in ways that are accessible to people from various disability groups using a variety of technologies. Text can be readily output to speech synthesizers and *Braille displays*, and can be presented visually (in a variety of sizes) on computer displays and paper. Synthesized speech is critical for individuals who are blind and for many people with the reading difficulties that often accompany cognitive disabilities, learning disabilities, and deafness. Braille is essential for individuals who are both deaf and blind, as well as many individuals whose only sensory disability is blindness. Text displayed visually benefits users who are deaf as well as the majority of Web users.

Providing non-text equivalents (e.g., pictures, videos, and pre-recorded audio) of text is also beneficial to some users, especially nonreaders or people who have difficulty reading. In movies or visual presentations, visual action such as body language or other visual cues may not be accompanied by enough audio information to convey the same

information. Unless verbal descriptions of this visual information are provided, people who cannot see (or look at) the visual content will not be able to perceive it [16].

2.5 Why Web Credibility?

The migration from paper-based services to electronic version has opened wide the potential of e-government application. Hence, several state governments in Malaysia have started to have their online presence. However, designing a credible government website is a fairly complicated matter, let alone the measurement of its impact to the citizens. Credibility is emerging as a key element of success in the on-line environment, especially for a site involved with the government.

Prompted by demands for a more credible e-government site, players involved in setting up the government websites have been struggling with how to come up with a highly credible site. For example, the visitor who browses an e-government site can easily access the credibility of the information presented through text writing style and its relevancy. Sometimes, in certain cases, the sites that are controlled by the government may contain inaccurate and misleading information. For this reason, the web designers faced increasing demands to boost the credibility of the sites [17]. Other web credibility decisive factors are navigation, content, reliability and technicality [18]. These factors, even though seems general, may affect the credibility of the site.

A survey done by Stanford Persuasive Technology Lab [19] shows that a clear answer to questions submitted by users makes websites more credible. The survey involved 1,481 users in Finland and the United States. Other significant factors were the links' precision and absence of typographical errors. One main related study on e-government website usability was done by Tolbert and Mossberger [20]. They try to understand how individuals evaluate e-government content and credibility. It is important to assess and evaluate the factors related with e-government website. This is to ensure that the information and materials presented on the site satisfy citizens' needs. Moreover, the user has the desire to know the source of information found in a web page. It is good for e-government website to provide users with such information that are crucial.

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Other than that, there are several other issues that influence how information on the web can be used effectively. The information provider especially the webmaster for e-government website must be careful, since the user can differentiate the material that is credible from that which is not. Generally, the user feels that a web site loses credibility when it has errors and technical problems. Distracting advertisements and banners also decreases its credibility.

2.5.1 Web Credibility Factors

Fogg et al. [21] proposed five areas that affect the credibility of a Web site. The factors are as follows:

- *Real-world Presence:* Designers can enhance the credibility of a Web site by conveying an organization's real world presence such as the physical address and phone number to users.

- *Small Errors:* An organization must take care to eliminate even small errors to ensure credibility of their web site.

- *User Navigation:* Usability of site in terms of navigation can enhance the site's perceived credibility.

- *Advertisement:* Only place advertisement on web pages in ways that it does not distract readers.

- *Technical Problems:* The site must perform as users expect. Slow download time for instance affects site credibility.

In another study Fogg et al. [22] mentioned that while evaluating the credibility of a web site, participants commented on the design look of the site most frequently compared to another factors. Complete list of the factors that they claimed affects site credibility is presented in Table 2 below.

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Table 2 : List of Credibility Factors [4]

Topic of Credibility	Incidence
Design Look	46.1%
Information Design/Structure	28.5%
Information Focus	25.1%
Company Motive	15.5%
Usefulness of Information	14.8%
Accuracy of Information	14.3%
Name Recognition & Reputation	14.1%
Advertising	13.8%
Bias of Information	11.6%
Tone of the Writing	9%
Identity of Site Sponsor	8.8%
Functionality of Site	8.6%
Customer Service	6.4%
Past Experience with Site	4.6%
Information Clarity	3.7%
Performance on a Test	3.6%
Readability	3.6%
Affiliations	3.4%

The percentage shows the incidence of the factors as reported by 2,684 respondents. Meanwhile, another credibility cue may include real-world feel [23]. It refers to indication of the government physical location i.e. the office building and how they can be contacted. The citizens need to know real people behind the website to be contacted should they have any questions.

CHAPTER 3

METHODOLOGY/PROJECT WORK

3.0 Introduction

The research phase will be a combination of both qualitative and quantitative research methods. Qualitative involves an in-depth understanding of human behaviour and the reason that govern the human behaviour. The process of measurement is central to quantitative research because it provides the fundamental connection between empirical observation and mathematical expression of quantitative relationship. The methodology part is based on the Design Methodology where it encompasses the methods that have been used and will be used during the research phase to collect all data and useful information for the study down to the process of designing the webpage. It also shows the development from the first phase down to the final product [11].

3.1 Design Methodology

Any projects can be managed better when it is segmented into a hierarchy of chunks such as phases, stages, activities, task and steps. This project as it goes along will develop and refine a highly rigorous methodology for highly interactive website design. This methodology will enable us to create a design of the prototype that will meet the user requirements and it comprises of five very important steps which are analyze, design, develop, evaluate and integrate.
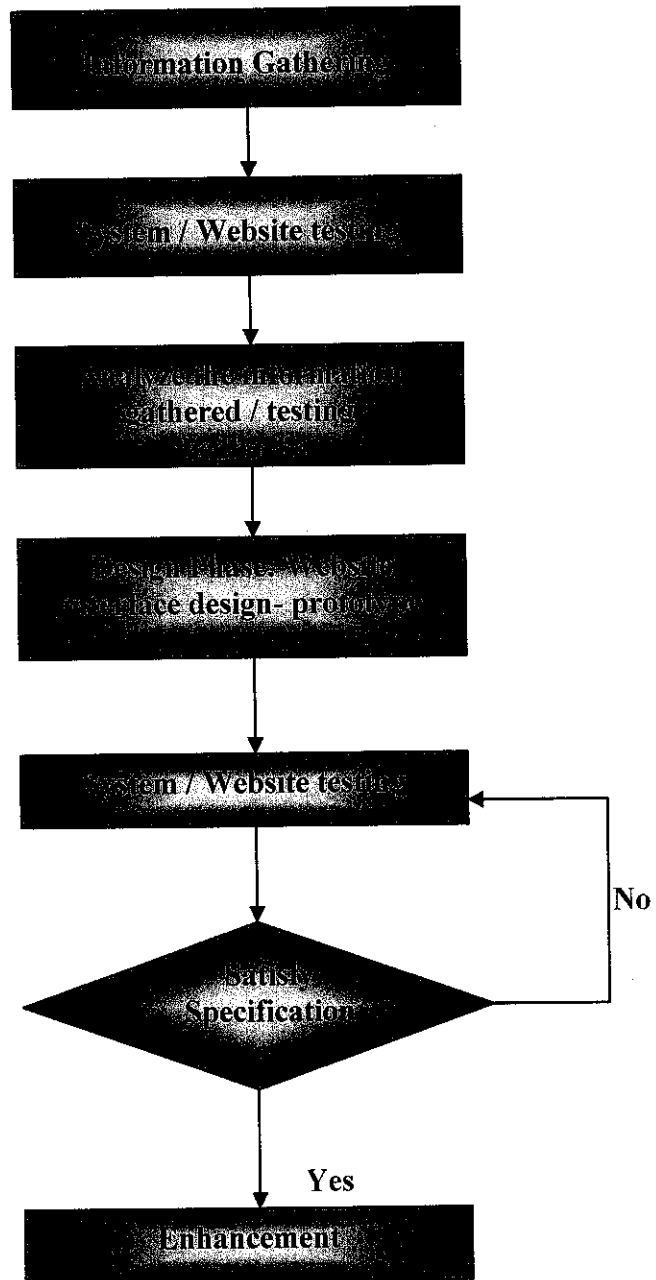
Figure 3.1: Project Workflow

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3.1.1 Information Gathering

The first phase of this project is to gather as much as possible information that can be used for this project. There are two types of questionnaires designs conducted which are the Questionnaires Part I and the Questionnaires Part II. Questionnaires Part I comprises of two sets (Set 1 and Set 2) are conducted before the development of the prototype and Questionnaires Part II (Similar as Set 2 in Part I) are conducted after a successful development of the prototype. The first part of questionnaires are distributed to 20 external users of the website to qualify test participants to collect demographic information and to assess their level of computer and Internet experience as well as their feedbacks on Dewan Bahasa dan Pustaka website. The second part of questionnaires however will test on the newly developed prototype. Task Scenarios Part I are conducted after the Questionnaires Part I and Task Scenarios Part II after Questionnaires Part II. Besides that, the website has been thoroughly studied under the usability testing with cross-reference with MAMPU guidelines.

3.1.2 Analyze the information gathered

The second phase would be the study of all the information that has been gathered based on the evaluation of usability testing in order to generate the qualitative and quantitative data. The guidelines that are used as reference to develop the interface design are studied thoroughly. As the project goes along, as many information will be gathered in order to help develop the best prototype.

3.1.3 Design Phase: Website interface design

During the fourth phase of the project, an instructional design document is created. This is to ensure the entire website designs are designed according to the guidelines developed by MAMPU. All the information gathered through questionnaires and surveys as well as task scenarios conducted will be used in the development of the prototype as well as the enhancement.

3.1.4 System / Website testing

The second phase of the testing will enquire the original website to be tested and the fifth phase of the project will enquire the new prototype of the website to be tested by users in order to evaluate whether it has been improved according to the users feedbacks. Usability testing will be conducted during these two phases on the current website as well as the new prototype of the website by the users. On the second phase of the project which is the first part of the website testing, an evaluation tool was used which is BOBBY (result is shown under Result and Discussion of chapter 4). Bobby is a tool designed to test whether or not a website complies with accessibility guidelines for the visually impaired. Automated tools can check many accessibility issues but not all, therefore some human intervention is required to ensure a website is accessible.

3.1.5 Enhancement

During this phase, after the development of the prototype and another testing phase, the prototype will be enhanced based on the feedbacks from users and result from the testing. To enhance this project in the future, e-government website should continuously be upgraded according to the new technology introduced concentrating on the users' needs.

3.2 Other means of Research

The internet plays the main role in this research project. All information gathered is highly related to Human Computer Interaction areas and therefore the books in the campus's Information Resource Center (IRC) alone will not be sufficient to supply all information needed. MAMPU Guidelines were searched and studied throughout this project. Discussions and interviews with industry experts will be done informally through e-mails and formally through one-on-one interview. However, only small amount of information managed to be gathered by using this interview method because most of the times the interviewed person have to adhere to the data security of their company and therefore cannot give the specific reply towards the interviewed questions.

Another method used in order to gain sufficient information to develop this project is by conducting survey by providing questionnaires to user. For this project, there will be two

types of questionnaires; the pre-questionnaires and the post-questionnaires. Furthermore, a usability testing will be needed to help gather information about how users are using this web-based government services and whether they experience difficulties performing simple and more complex tasks using the website according to its interface design based on MAMPU guidelines. The test will be designed to allow in extracting mostly quantifiable, verifiable data.

3.3 Required Level of Computer Expertise

The level of computer expertise requires on users are that they know how to turn on a computer, connect to the Internet, and launch a Web browser. Besides that the users also are expected to be familiar with basic Web navigation techniques, including how to move forward and backward through pages, how to click links in a Web page, and how to enter URLs.

3.4 Task Scenario

A task scenario is an instance of a use case, a step-by-step description of an actual, detailed procedure that a user followed to accomplish some task. It captures the sequence of steps required to get a task done. 2 sets of task scenario are created to test the issues discussed. Each scenario was designed to require within 5-20 minutes completing. The scenarios constructed to be as real world as possible, containing multiple related tasks based on the scenario designed. 5 selected participants were involved in this 60 minutes task scenario. The questions and tasks in the task scenario are based on MAMPU guidelines. Task Scenarios Part II are conducted after the development of the prototype. The Appendix contains the actual scenarios.

Task Scenarios Part I:

Scenario 1: To explore DBP website concentrating on the main page and give their first impression about the website based on the tasks given.
(Time limit: 15 minutes

Scenario 2: To use the online services provided by DBP
(Time limit: 10 minutes)

Scenario 3: To find out whether there is any function for the disable people
(Time limit: 5 minutes)

Scenario 4: To get the links that brought them to answer the question of the fourth scenario.
(Time limit: 10 minutes)

Scenario 5: To find the basic mandatory feature of the website
(Time limit: 20 minutes)

Time Limits: 60 minutes are given to the participants to complete all 5 scenarios given.

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Task Scenarios Part II:

Scenario 1: To explore DBP website concentrating on the main
           page and give their impression about the
           website based on the tasks given.
           (Time limit: 15 minutes

Scenario 2: To use and explore DBP prototype and give their
           first impression on the interface design of the
           prototype.
           (Time limit: 15 minutes)

Scenario 3: To find out whether the choices of color, font size,
           icons meet users expectations.
           (Time limit: 10 minutes)

Scenario 4: To use the links and find out how easy to navigate the
           website. To find the basic mandatory feature of the
           website
           (Time limit: 20 minutes)

Time Limits: 60 minutes are given to the participants to complete all 4 scenarios given.

3.5 Questionnaires design

3.5.1 Questionnaire Part I

Two sets of questionnaires have been designed to qualify potential test participants and to collect subjective feedback from the test participants. This is performed to gain feedbacks from users in order to improve the design of the website. There are three sections of the first set of questionnaire. First is Section A which is to qualify test participants, a series of

questions designed to collect demographic information, Section B is to assess their level of computer and Internet experience and Section C is to find our their uses of Dewan Bahasa dan Pustaka Services via internet. The second set of questionnaire which will be conducted after the usability testing of the original website, is focus on the website capabilities, their impressions about the navigation, speed and responsiveness, and their overall satisfaction of the original website. Similar questions will be asked on the prototype after it has been developed.

3.5.2 Questionnaire Part II

Another questionnaire was designed to gain the user's opinions and feedbacks on the new prototype of DBP website that has been developed. Similar questions as the questionnaire Set 2 conducted in Part I will be asked after the second phase of Usability testing. The test participants will have to rate the new prototype based on the website capabilities, their impressions about the navigation, speed and responsiveness, and their overall satisfaction with the new website interface.

CHAPTER 4

RESULTS AND DISCUSSION

4.0 Introduction

For this phase, the main discussion will be focused on methods that were used to discover the problems that have been used during the process of developing the project. The results from the Questionnaires Part I which was conducted on 20 external users for Section A, B and C will also be discussed and elaborated within this chapter as well as the results from the Questionnaires Part II (which focus on the prototype). Besides that, the results on the Task Scenarios Part I and II which was created based on MAMPU guidelines, conducted on 5 participants will also be discussed. Comparisons between both Questionnaires and Task Scenarios results are made. Next would be the result on BOBBY, the evaluation tool. Then, the observation or study result of the website based on the criteria or guidelines by MAMPU. The last part that will be discussed is the final product which is the prototype of the website.

4.1 Types of data collected

4.1.1 Qualitative data and Quantitative data

Qualitative research is one of the two major approaches to research methodology in social sciences. Qualitative research involves an in-depth understanding of human behaviour and the reasons that govern human behaviour. Qualitative data consists of records of subjective impressions and opinions. Some of the other information was qualitative, consisting of opinions about the e-government website (DBP) main page interface, the speed and etc. Some of the information gathered was quantitative (time spent on task, the percentage of participants succeeding or failing a task, etc.) Quantitative data consists of 'hard,' measurable results that is to determine how the test participants performed compared to established benchmarks. Some of the **quantitative** information collected also comprises the demographic data of the participants as well their level of computer and Internet Experience.

4.1.2 Quantitative data collected during testing

The information below was collected for the period of system testing:

- Time completing each task given
- Number of test participants completing tasks within allocated time given
- Number of test participants completing tasks with extra time

4.1.3 Qualitative data collected during testing

While conducting and after conducting the test, some "qualitative" data were gathered, consisting mainly of commentary recorded during testing. This commentary provides additional insight into some of the e-government website usability difficulties.

- Facial expressions of the participants
- Spontaneous verbal expressions (comments)
- Verbal comments when test participants "though out loud"

4.2 Usability criteria

Besides following the criteria set by MAMPU, I have also referred to the Shneiderman's "Eight Golden Rules of Interface Design" and still using it as a reference in developing the prototype of DBP website.

To improve the usability of an application it is important to have a well designed interface. Shneiderman's "Eight Golden Rules of Interface Design" are a guide to good interaction design.

1. Strive for consistency.

Consistent sequences of actions should be required in similar situations; identical terminology should be used in prompts, menus, and help screens; and consistent commands should be employed throughout.

2. Enable frequent users to use shortcuts.

As the frequency of use increases, so do the user's desires to reduce the number of

interactions and to increase the pace of interaction. Abbreviations, function keys, hidden commands, and macro facilities are very helpful to an expert user.

3. Offer informative feedback.

For every operator action, there should be some system feedback. For frequent and minor actions, the response can be modest, while for infrequent and major actions, the response should be more substantial.

4. Design dialog to yield closure.

Sequences of actions should be organized into groups with a beginning, middle, and end. The informative feedback at the completion of a group of actions gives the operators the satisfaction of accomplishment, a sense of relief, the signal to drop contingency plans and options from their minds, and an indication that the way is clear to prepare for the next group of actions.

5. Offer simple error handling.

As much as possible, design the system so the user cannot make a serious error. If an error is made, the system should be able to detect the error and offer simple, comprehensible mechanisms for handling the error.

6. Permit easy reversal of actions.

This feature relieves anxiety, since the user knows that errors can be undone; it thus encourages exploration of unfamiliar options. The units of reversibility may be a single action, a data entry, or a complete group of actions.

7. Support internal locus of control.

Experienced operators strongly desire the sense that they are in charge of the system and that the system responds to their actions. Design the system to make users the initiators of actions rather than the responders.

8. Reduce short-term memory load.

The limitation of human information processing in short-term memory requires that

displays be kept simple, multiple page displays be consolidated, window-motion frequency be reduced, and sufficient training time be allotted for codes, mnemonics, and sequences of actions.

4.3 QUESTIONNAIRE: PART I

4.3.1 Feedback on Questionnaires Part I: Set 1: Section B (on DBP website)

I collected detailed feedbacks from 20 participants regarding on their demographic information and to assess their level of computer and Internet experience. Following are summarized results collected from the Questionnaires Part I: Set 1: Section B. However, only the main ones will be discussed.
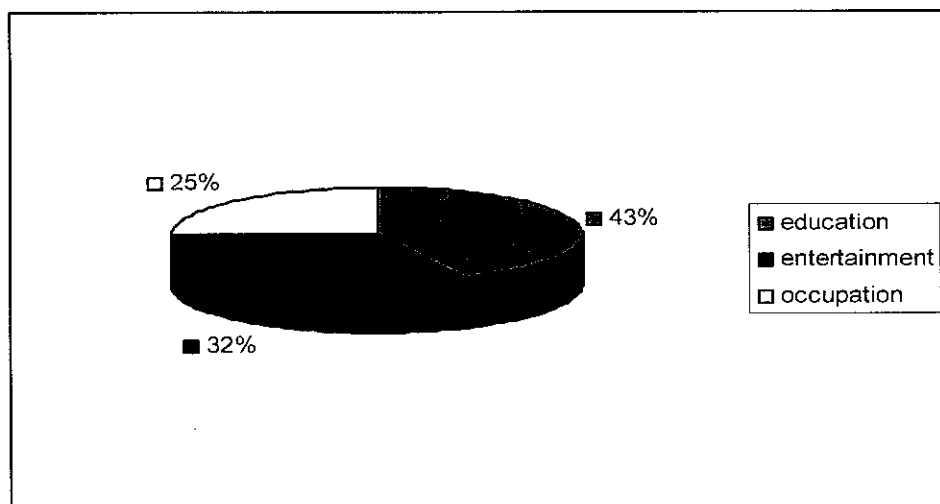
Figure 4.1: Main Information Users Search the Internet

Figure 4.1 displays the result from question 2 Section B on the questionnaire. It shows the result on the range of the main information that users search on the Internet. Result indicates that 43% of the users search on the Internet for **Educational** purposes. 32% for **Entertainment** and 25 % on **Occupation**. This concludes that the most of the Internet users are students.
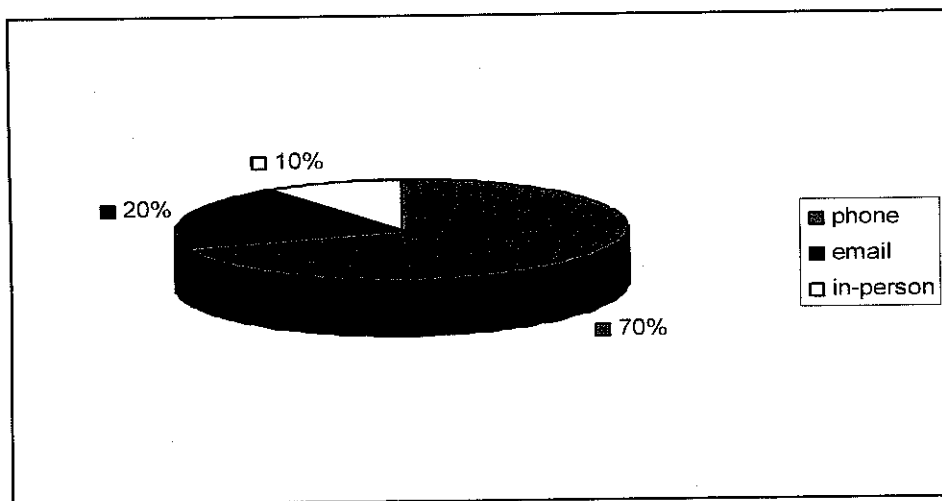
Figure 4.2: The Means in Communicating with Government Officers or Offices

Figure 4.2 displays the result from question 4 Section B. It shows the result on the means or ways in communicating with government officers or offices. The result indicates that 70% of the users will make contact through the **phone** rather than any other means. 20% prefer to contact through **email** and 10% will deal **in person**. Based on the result, it concludes that the reason why people prefer to call is because the user will get the information directly by calling rather than any other means of communication.
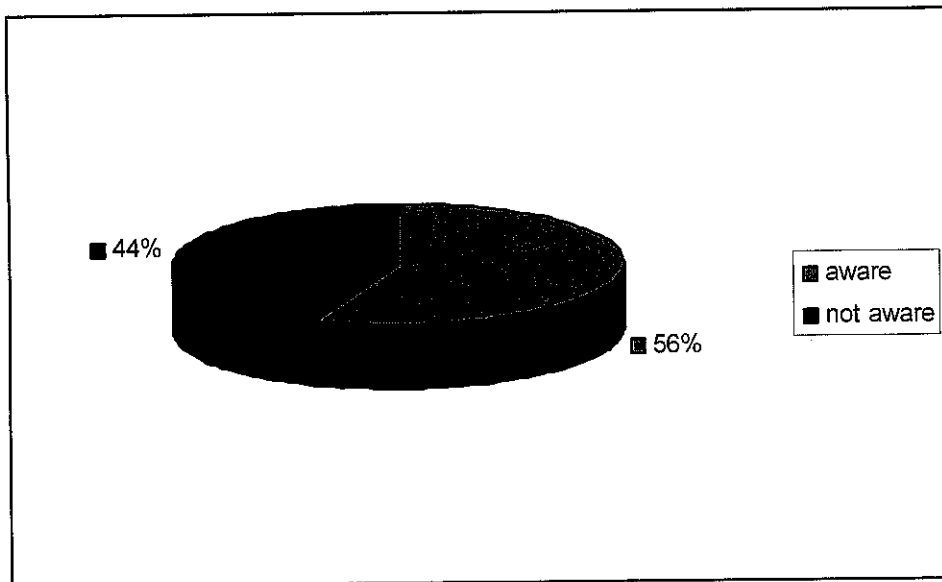
Figure 4.3: The Awareness of E-Government Services Online

Figure 4.3 displays the result from question 5 Section B. It shows that 56% of the participants are **aware** of the e-Government service through Internet. However, there are still quite a number of people **do not quite know** the existence of e-Government services through Internet which is 44%. Based on the result, e-Government needs to improve their ways in promoting e-government websites so that everybody will be alert and realize the conveniences of these online services.
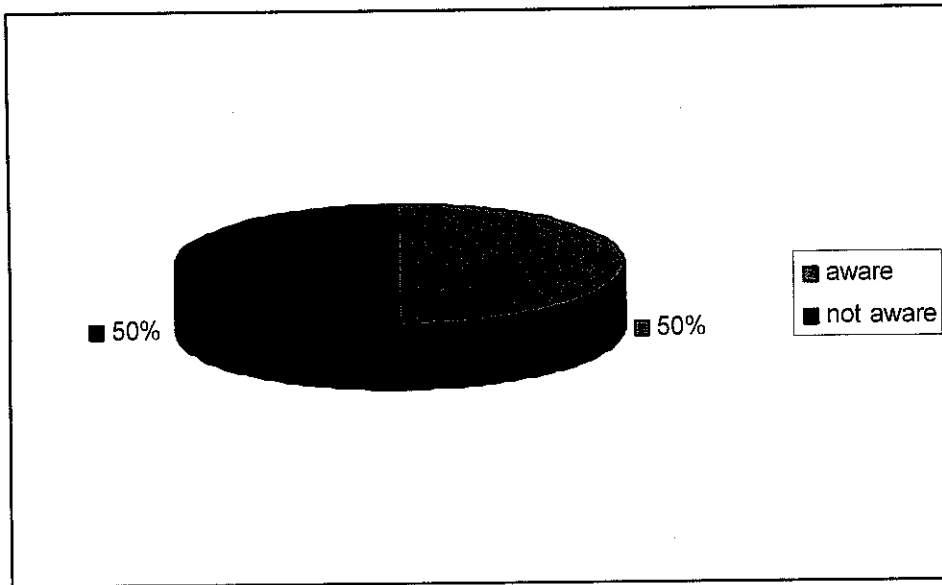
Figure 4.4: The Awareness of DBP Services Online

Figure 4.4 displays the result on question 8 Section B. It shows that 50% of the participants are **aware** of Dewan Bahasa dan Pustaka (DBP) services online. Another 50% are **not aware** of this services provided on the internet. This concludes that DBP has to find ways to advertise their online services more so that it will be more acknowledged and recognized by the citizens.

4.3.2 Feedback on Questionnaires Part I: Set 2 (on DBP website)

I collected detailed feedbacks from 8 participants after the usability testing conducted. This questionnaire are concentrating on Dewan Bahasa dan Pustaka website. Following are the results collected from the Questionnaires Part I: Set 2. However, only the main ones will be discussed.

1. On the following scale, rate your impression of Dewan Bahasa dan Pustaka website speed and responsiveness:

Test Participant	Too slow	Moderately Slow	Neither fast nor slow	Moderately fast	Very fast
1			X		
2			X		
3				X	
4			X		
5				X	
6				X	
7				X	
8				X	

Conclusion: *The speed and responsiveness if DBP website is moderately fast*

2. On the following scale, rate your impression of the interface design of the website?

Test Participant	Very bad	Bad	Neither good nor bad	Good	Very Good
1		X			
2			X		
3		X			
4			X		
5		X			
6			X		
7				X	
8		X			

Conclusion: *The interface design of the website is bad and not organized. There is no control in content. Too many information in one page.*

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3. On the following scale, rate how easy and clear the main information are being displayed on the website. Eg. DBP's mailing list

Test Participant	Very hard	Hard	Neither easy nor hard	Easy	Very Easy
1		X			
2			X		
3				X	
4				X	
5			X		
6			X		
7				X	
8		X			

Conclusion: *It is neither easy nor hard to find the important information on the website. However, this needs to be improved to make user's life easier. The important information should be positioned at a clear and obvious place.*

4. Will you use Dewan Bahasa dan Pustaka website in the future?

Test Participant	Never	Rarely	Sometimes	Fairly frequently	Very frequently
1	X				
2				X	
3			X		
4			X		
5			X		
6		X			
7		X			
8				X	

Conclusion: *Dewan Bahasa dan Pustaka has a moderate number of visitors. To increase on the number, there should be improvements on the layout design and control in content of the webpage.*

5. On the following scale, rate how highly would you recommend Dewan Bahasa dan Pustaka website to your friends and associates:

Test Participant	Strongly would NOT recommend	Would Not recommend	Don't feel strongly either way	Would recommend	Would strongly recommend
1	X				
2				X	
3			X		
4			X		
5			X		
6		X			
7		X			
8				X	

Conclusion: *Majority of the visitor who visited the website don't feel the need for them to promote dbp.gov.my. This is probably due to the lack of usability of the website.*

4.4 QUESTIONNAIRE: PART II

4.4.1 Feedback on Questionnaires Part II (on prototype)

I collected detailed feedbacks from 8 participants after the second phase of usability testing being conducted. This questionnaire is concentrating on the prototype of Dewan Bahasa dan Pustaka. Following are the results collected from the post-test questionnaires. However, only the main ones will be discussed.

1. On the following scale, rate your impression of Dewan Bahasa dan Pustaka website prototype interface design.

Test Participant	Very bad	Bad	Neither good nor bad	Good	Very Good
1				X	
2				X	
3					X
4				X	
5				X	
6				X	

				x	
7				x	
8					x

Conclusion: *Majority of the users agree that the prototype interface design is good and much better compared to the original website design.*

2. On the following scale, rate your impression of Dewan Bahasa dan Pustaka website prototype speed and responsiveness:

Test Participant	Too slow	Moderately Slow	Neither fast nor slow	Moderately fast	Very fast
1				x	
2				x	
3				x	
4					x
5				x	
6			x		
7				x	
8				x	

Conclusion: *The speed and responsiveness of the prototype is moderately fast.*

3. On the following scale, rate how easy and clear the main information are being displayed on the website.

Test Participant	Very hard	Hard	Neither easy nor hard	Easy	Very Easy
1				x	
2					x
3				x	
4					x
5					x
6					x
7					x
8				x	

Conclusion: *Majority of the users think that it was very easy for them to find the specified information as the position of the info are more organized and not hard to find.*

4. Will you use Dewan Bahasa dan Pustaka website in the future, if the actual website interface is changed to the new prototype?

Test Participant	Never	Rarely	Sometimes	Fairly frequently	Very frequently
1			x		
2				x	
3			x		
4			x		
5			x		
6			x		
7				x	
8		x			

Conclusion: *Dewan Bahasa dan Pustaka has a moderate number of visitors. After the improvements of the layout design and control in content of the webpage is made, the users would definitely visit the website again.*

5. On the following scale, rate how highly would you recommend Dewan Bahasa dan Pustaka website to your friends and associates if the actual website interface is changed to the new prototype?:

Test Participant	Strongly would NOT recommend	Would Not recommend	Don't feel strongly either way	Would recommend	Would strongly recommend
1				x	
2				x	
3				x	
4				x	
5					x
6				x	
7					x
8				x	

Conclusion: *Majority of the users would definitely recommend the newly improved DBP website to their friends and associates as the new layout design is more user friendly and interactive.*

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4.5 TASK SCENARIOS: PART I Result (on DBP website)

5 chosen participants have completed the task scenarios conducted. Here are the results on the test. The tasks are developed based on MAMPU guidelines, focusing on the basic mandatory features of a website.

4.5.1 Timing Results

The test participants completed the task scenarios as outlined in the following table.

Table 3: Timing Result of the Task Scenarios Part I

	Scenario 1 (15 mins)	Scenario 2 (10 mins)	Scenario 3 (5 mins)	Scenario 4 (10 mins)	Scenario 5 (20 mins)	Total Time (60 mins)
Test Participant 1	14:23	8:03	2:00	10:00	19:16	53:42
Test Participant 2	12:10	6:45	1:35	14:00	21:33	50:13
Test Participant 3	15:00	10:02	1:00	8:31	15:00	49:33
Test Participant 4	10:00	7:20	1.45	11:11	14:31	44:47
Test Participant 5	17:00	15:23	2:00	7:00	22:00	63:23

Explanation on exceeded time limits

- Test participant 5 exceeded the time limit on Scenario 1, 2, and 5 because system response time was very slow due to the server at the time of testing.

4.5.2 Result on the Scenarios and Conclusion of findings

	Following are free-form comments from the test participants.
What was your first impression towards the layout and the design of the main page?	• ***Test participant 1***: OK. But too many things on the main page. • ***Test participant 2***: Crowded. Hard to focus on one thing. • ***Test participant 3***: Organized but too crowded. Not one defining center.

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	• *Test participant 4*: It looks complicated and too many information. • *Test participant 5*: Colors blend nicely with the title, information on the main page is too much, confusing – first time user point of view. Should be properly organized. **Conclusion:** *The main page is too crowded and should only include important information. It also need to be organized properly*
What was the first thing that catches your eyes?	• *Test participant 1*: Perkhidmatan Menu Utama • *Test participant 2*: The moving notice board (Berita/Pengumuman) • *Test participant 3*: Header and top of banner • *Test participant 4*: Picture of Datin Seri Rosmah Mansor • *Test participant 5*: The title and its background **Conclusion:** *The first thing that the user will notice would be the official logo of DBP as well as the title*
What do you think of the font size and type of the website?	• *Test participant 1*: Yes, it is easy. • *Test participant 2*: No, it is not easy to read. It's very scattered and compact. I have to strain my eyes. • *Test participant 3*: Just ok. • *Test participant 4*: Font size is ok. • *Test participant 5*: It is readable, but as I said too much items on the main page, thus it could be difficult to read at a glance **Conclusion:** *The use of color and the type of the font size is basically just nice. The only thing that will help for the users to read easier would be the amount of content on the page.*

Click on one of the services in the main menu Try to use the service that you chose. How do you find the service?	• *Test participant 1*: **(Dictionary)** - Met expectation • *Test participant 2*: **(Language advice service)** – it is quite fast. Very satisfying. However the interface needs improvement. Very dull and boring • *Test participant 3*: **(Dictionary and Encyclopedia)** – it gave me the answers that I need. One problem, it is extremely slow to load • *Test participant 4*: **(Dictionary)** - it is quite slow, however the content is satisfying and meet expectation. • *Test participant 5*: **(Encyclopedia)** – service quite slow due to the connection. Typed the word "dunia" but the meaning could not be found. Probably the subject not specific enough. **Conclusion:** *Dictionary service would be the most popular among the other services provided. However, the loading time of the services is very slow and the interface design of each menu needs to be improved.*
Go back to the main page. Explore the main page and find out whether there is any function for disable people provided on the website. If no, do you think it's feasible to include this function? Why?	• *Test participant 1*: No, I think it is feasible to include it. Disable people deserve to get fair treatment. • *Test participant 2:* No, and yes I think it is feasible as they can use the website as a tool to help them in many ways. • *Test participant 3:* No, I can't find them. I think it is unnecessary because not many disable people surf the net and not many people surf dbp.gov.my • *Test participant 4:* No, can't find any. Yes, it is feasible. • *Test participant 5:* No, can't find and No, it is not feasible to include this because the blinds can't see. **Conclusion:** *To conclude, the functions for disables should be implemented and are feasible. This would be a great feature to be included in a government website. This proves that the government really implements the universal accessibility in*

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	developing website.
Find whether the website includes 'search engine' function. If yes, try to use the function and give your feedback.	• *Test participant 1:* Yes, it has search engine function but it is not that accurate. It's just OK. • *Test participant 2:* Yes, I try to search the profile for Uthman Awang the author. The search engine is not helpful at all. Not much related information regarding Uthman Awang. I can find better search through google. • *Test participant 3:* Yes, it takes less than a minute to come up with searches. They even have advanced search option. • *Test participant 4:* Yes the result are quite precise • *Test participant 5:* Yes and again search for the word "dunia" and the result was quite good because it categorized the findings in different segments. Eg. Bahasa sukuan, Pantun/Puisi, Kamus. This is very good indeed. **Conclusion:** *The search engine feature should be included in every websites including the government websites. It is very convenient and makes life easier. However, the search result should be accurate and precise.*
You are a first time user and assuming that you want to find DBP's mailing address and the map to DBP as well as the number of the office main line for feedbacks. Was it hard or easy for you to find these information? How long did it take you to find it?	• *Test participant 1:* No it was easy; it took me less than a minute. • *Test participant 2:* Easy to find, less than 30 seconds • *Test participant 3:* Less than a minute. I went through the drop down menus at first, didn't think it would be at the main page. • *Test participant 4:* Yes, less than a minute • *Test participant 5:* It was easy but I could not find the map to DBP **Conclusion:** *The information on DBP mailing address etc are*

	easy to find. It should remain at the position or it could be at a new position where the users can clearly and directly see without having to go through the whole page
Are there any functions for dual language? If no do you think it's appropriate to include this function? State your reason below.	• **Test participant 1:** No and yes appropriate. So many users can use it, foreigners might want to know what DBP is all about. The website should be user friendly. • **Test participant 2:** No dual language function and yes it is appropriate, so that multi-races and international people can use the services provided by DBP. • **Test participant 3:** No cannot be found, and yes a dual language is always a good option. After all, it is a language website. • **Test participant 4:** Not there, and yes it is appropriate as to enable foreigners to access the website • **Test participant 5:** Not available, and Yes it is appropriate so that new learners could better appreciate this feature **Conclusion:** *Dual language should always be appropriate especially for government websites. It is to encourage foreigners to visit the website and find and learn about our government agencies as well as gaining information about the agency.*

4.6 TASK SCENARIOS: PART II Result (on prototype)

5 chosen participants have completed the tasks scenario conducted. Here are the results on the test. The tasks are developed based on MAMPU guidelines, focusing on the basic mandatory features of a website.

4.6.1 Timing Results

The test participants completed the task scenarios as outlined in the following table:

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Table 4: Timing Result of the Task Scenarios Part II

	Scenario 1 (15 mins)	Scenario 2 (15 mins)	Scenario 3 (10 mins)	Scenario 4 (20 mins)	Total Time (60 mins)
Test Participant 1	15:00	9:23	2:37	15:00	42:00
Test Participant 2	15:00	12:35	3:19	16:22	47:16
Test Participant 3	13:12	14:00	4:18	15:00	46:30
Test Participant 4	11:10	11:00	6:50	18:06	47:06
Test Participant 5	15:00	8:34	5:00	17:10	45:44

4.6.2 Result on the Scenarios and Conclusion on findings

	Following are free-form comments from the test participants.
After observing the original website and the prototype, state the main differences of these two based on the interface design.	• *Test participant 1*: Prototype is clearer, more focused in terms of information grouping, design looks more modern and contemporary and the information is easier to look for compared to the original website which has more than 1 interface style, too many colors and fonts that clutters the design and layout. • *Test participant 2*: Prototype is much better, not cluttered like the original website, more organized, more attractive and user friendly. • *Test participant 3*: Prototype is more captivating, interesting, simple, more organized and easy to understand and browse through, and the layout is not as complex as the original website. There are too much information too look at in the original website. • *Test participant 4*: Prototype is simpler and organized and more user friendly interface. • *Test participant 5*: The information provided in the original

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	website is too cluttered and not well organized and it's hard to navigate. The prototype is way much better to navigate. **Conclusion:** *The interface design of the prototype is well organized, simple, information provided are not cluttered, user friendly design, easy to navigate, great choice of color and fonts, attractive as compared to the original website.*
Your first impression towards the layout and design on the new main page of the prototype. Is it suitable for a government website?	• *Test participant 1:* Finally the Government has realized that design is an important role in establishing the corporate image and taking the web platform as an information medium seriously. And yes, it is suitable for a government website. • *Test participant 2:* Noticed the difference of organization of the information and easier to use. Definitely more suitable for government websites. • *Test participant 3:* Yes, I think it is suitable for a government website. • *Test participant 4:* Yes, I think it is suitable for a government website and it is interesting. • *Test participant 5:* I was impressed on the first look at the prototype design. The color really suits well with the website and very representative. **Conclusion: The whole design and layout of the new main page is very suitable for a government website and it is attractive.**
The first thing that catches your eyes while exploring the main page.	• *Test participant 1:* The clean and simple design of layout, combination of colors used and the seamless animation of the interface. • *Test participant 2:* The options in the website • *Test participant 3:* The 'Latest News' frame.

	• **Test participant 4**: The header design of the website which displays the name and logo of the agency. • **Test participant 5**: The color of the layout. **Conclusion:** *The new layout of the main page is simple and clearer for the users to view as it does not require scrolling action for them to see the whole of the main page.*
What do you think of the font size and color?	• **Test participant 1**: Font size is suitable for a corporate look and feel, it is legible to read and the choices of color are clean and pure as compared to the original website. Looks more professional and the color used really complement the design as a whole. • **Test participant 2**: The font size is fairly bigger and clearer, the color is fairly coordinated. • **Test participant 3**: The font size is just nice, does not strain the eyes and the choices of color are really satisfying. • **Test participant 4**: The font size is just nice and I really like the choices of color. • **Test participant 5**: The font size is easy to read, so as the choices of color. **Conclusion:** *Good choices of color and the font size is really easy to read and does not strain the eyes.*
You are a first time user and assuming that you want to find DBP's mailing address and the map to DBP as well as the number of the office main line for feedbacks. Was it easy or hard to find	• **Test participant 1**: Actually no, it was quite easy to find. Just look at the category and there you go. • **Test participant 2**: Yes, it was easy as it is clearly stated in the right hand side of the main page options. • **Test participant 3**: It was not hard at all. The website is well organized. • **Test participant 4**: It was not hard at all as the icon for the

these information?	map is really helping.
	• **Test participant 5**: It was very easy as it is placed on the front page of the website.
	Conclusion: *The information is clearly labeled and positioned as the main features, menus, and information displayed on the main page is well organized, therefore it is easy for the users to find any sort of information required.*
How long did it take you to find the above information?	• **Test participant 1**: Less than 5 seconds.
	• **Test participant 2**: Just a few seconds.
	• **Test participant 3**: Just by 1 click I can get all the information needed. It took me about 5 seconds or less.
	• **Test participant 4**: Just by 2 clicks and I got it.
	• **Test participant 5**: It took me 10 seconds.
	Conclusion: *Information required are easy to find within just a few seconds.*
Briefly describe your experience while navigating the website. Did you encounter any problem during the navigation time? Is the interface user friendly enough for you?	• **Test participant 1**: No problem occurred, it was smooth sailing. It is a very user friendly interface and does not complicate findings.
	• **Test participant 2**: I did not encounter any problem while navigating and yes the interface is very user friendly.
	• **Test participant 3**: No problem at all. I can navigate easily without any confusion.
	• **Test participant 4**: No problem encountered and the interface is really user friendly.
	• **Test participant 5**: I did not encounter any problem during the navigation as the interface is user friendly.
	Conclusion: *The interface design is very user friendly and the navigation is easy and does not complicate the findings.*

|	
What other information can you find on the website and do all the information included suitable for a government website? Does the prototype include enough information?	• **_Test participant 1_**: All information and links are government related, important and it is more than enough. Too much ingredient spoils the soup. The purpose was focused and clear. • **_Test participant 2_**: Yes all the necessary information are included. • **_Test participant 3_**: All the information that I want to know about the agency is easy to find. • **_Test participant 4_**: All the information needed is already provided. I think it is enough as it is. • **_Test participant 5_**: I can get as much information on Bahasa Melayu and it is suitable for a government website as it is informative. **Conclusion:** *All information and links are government related, and all the necessary information and services are well included.*

4.7 Comparison between Results on Part I and Part II

4.7.1 Questionnaires Part I (Section C) versus Questionnaires Part II

The results between questionnaires Part I: Set 2 and Questionnaires Part II will be compared. Following are the comparison graphs made to indicate the findings on the original website as opposed to the newly developed prototype and the conclusions.

- **On the scale of 1 to 5, rate the interface design of the website.**

1: Very Bad
2: Bad
3: Neither Good nor Bad
4: Good
5: Very Good

Rate on interface design

Scale (P1–P8)

- PART I: DBP website
- PART II: Prototype
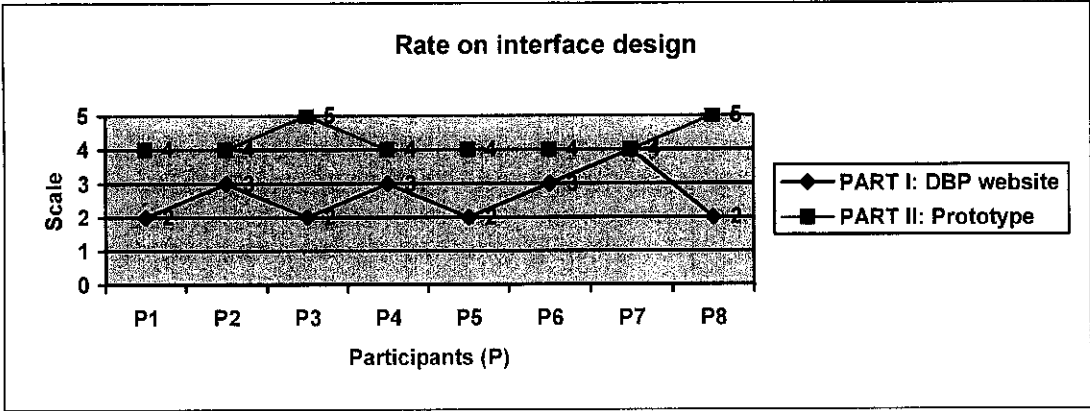
Participants (P)

Conclusion: Result on Part II indicated so as to most of the participants feel that the interface design of the newly developed prototype is good with the average rate: 4 as compared to the original website. The result on Part I show the average rate of the interface design is 2 which means bad.

- **On the scale of 1 to 5, rate the speed and responsiveness of the website**

1: Too slow
2: Moderately slow
3: Neither fast nor slow
4: Moderately fast
5: Very fast

Rate on speed and responsiveness

Scale (P1–P8)

- PART I: DBP website
- PART II: Prototype
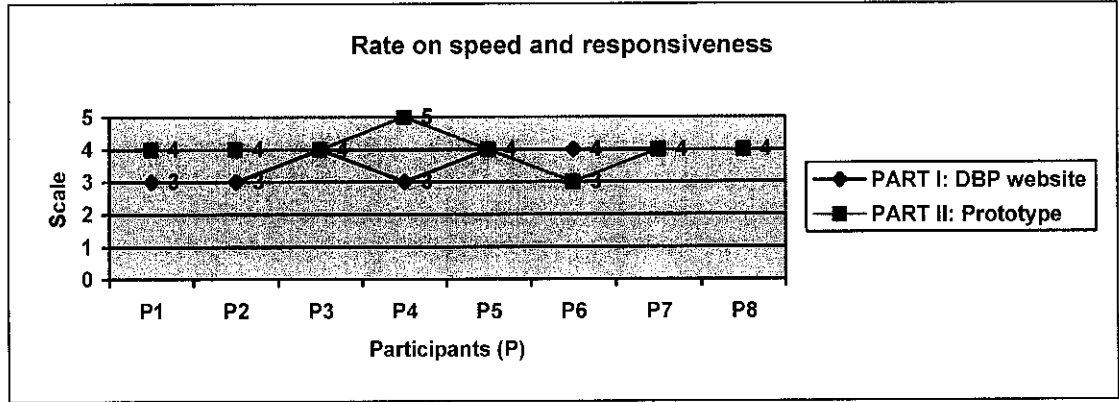
Participants (P)

Conclusion: Result on Part I and Part II indicated so as to most of the participants discovered that the speed and responsiveness of the original website and the newly developed prototype is moderately fast with the average rating of 4.

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- **On the scale of 1 to 5, rate how easy and clear the main information are being displayed on the website.**

1: Very hard
2: Hard
3: Neither easy nor hard
4: Easy
5: Very easy
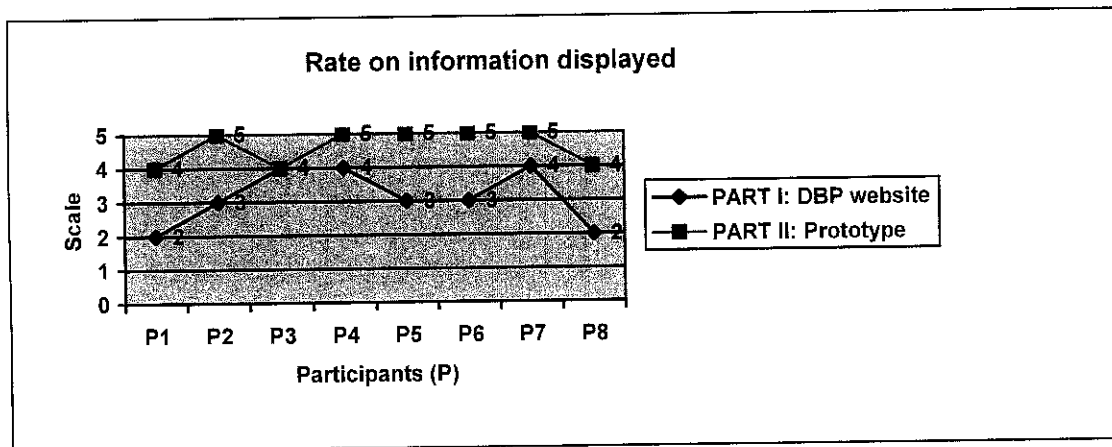
Rate on information displayed

Conclusion: Result on Part II indicated so as to most of the participants discovered that the information being displayed on the newly developed prototype is very easy to find and clearer with the average rating of 5 as compared to the result on Part I which focus on the original website. The result on Part I indicated that the information on the original website is easy to find but not that clear, with the average rating of 3.

- **On the scale of 1 to 5, rate the interest whether to use the website again in the future.**

1: Never
2: Rarely
3: Sometimes
4: Fairly frequently
5: Very frequently

Rate on interest in using the website again

Scale / Participants (P)

PART I: DBP website
PART II: Prototype
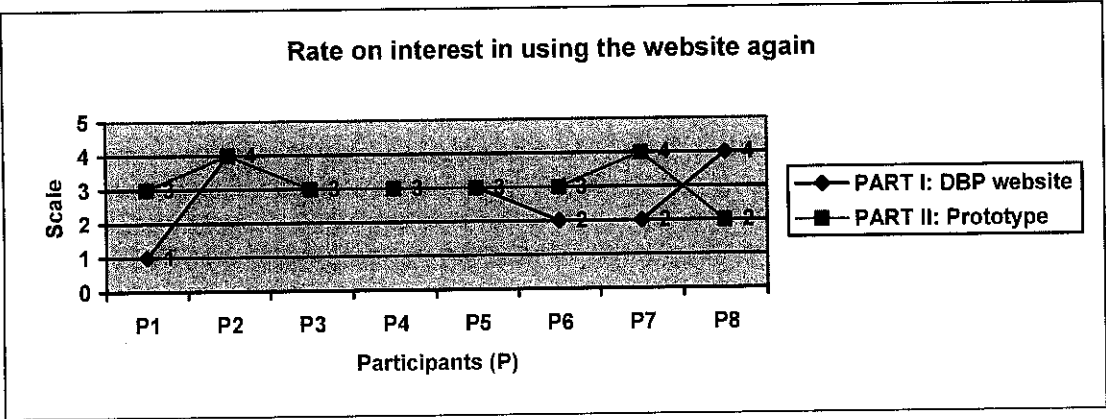
Conclusion: Both of the result on Part I and Part II indicated so as to most of the participants would sometime visit the website again with the average rating of 3. This shows that DBP should take higher incentive to improve on the alternatives in promoting their website to public.

- **On the scale of 1 to 5, rate how highly you would recommend the website to your friends and associates.**

1: Strongly would not recommend
2: Would not recommend
3: Don't feel strongly either way
4: Would recommend
5: Would strongly recommend

Rate on the recommendation of the website

Scale / Participants (P)

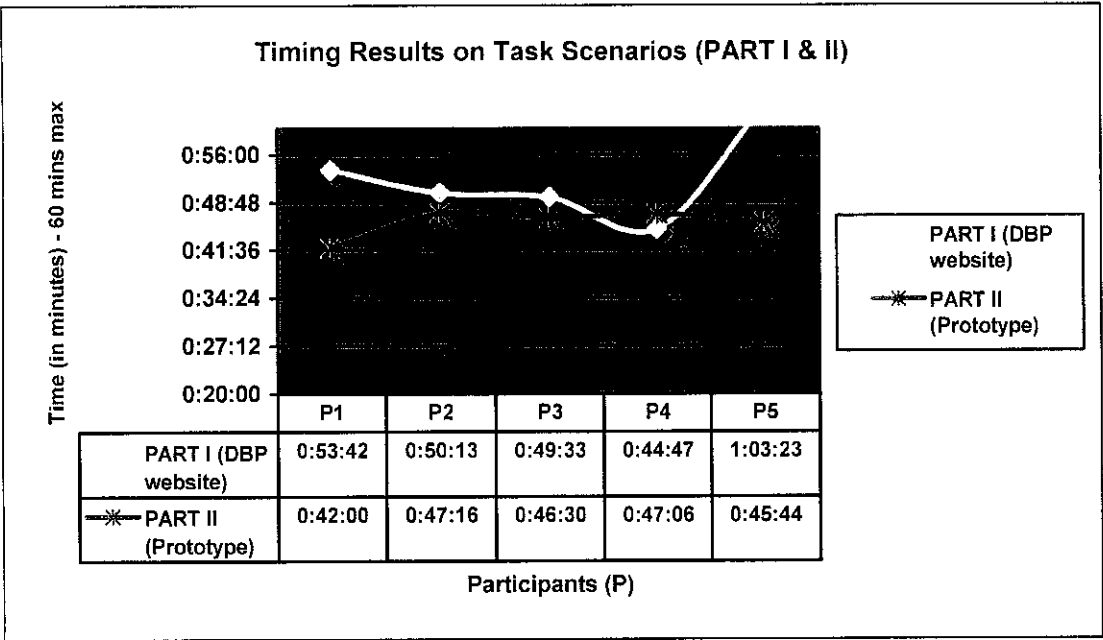PART I: DBP website
PART II: Prototype
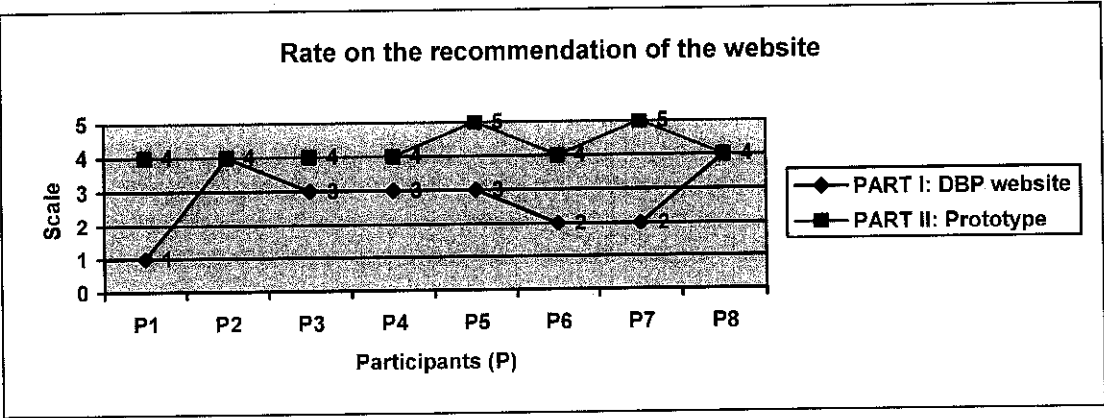
Conclusion: The result on Part II indicated so as to most of the participants would definitely recommend the website (if the website interface design is changed to the new prototype) with the average rating of 4. However, according to

the result on Part I which the result was based on the original website, it indicated that participants do not feel strongly either way in recommending the website to their peers with the average rating of 3.

4.7.2 Task Scenarios Part I versus Task Scenarios Part II (Timing result)

The timing results between Task Scenarios Part I (DBP website) and Task Scenarios Part II (prototype) will be compared. Following are the comparison graphs made to indicate the findings on the original website as opposed to the newly developed prototype and the conclusion.
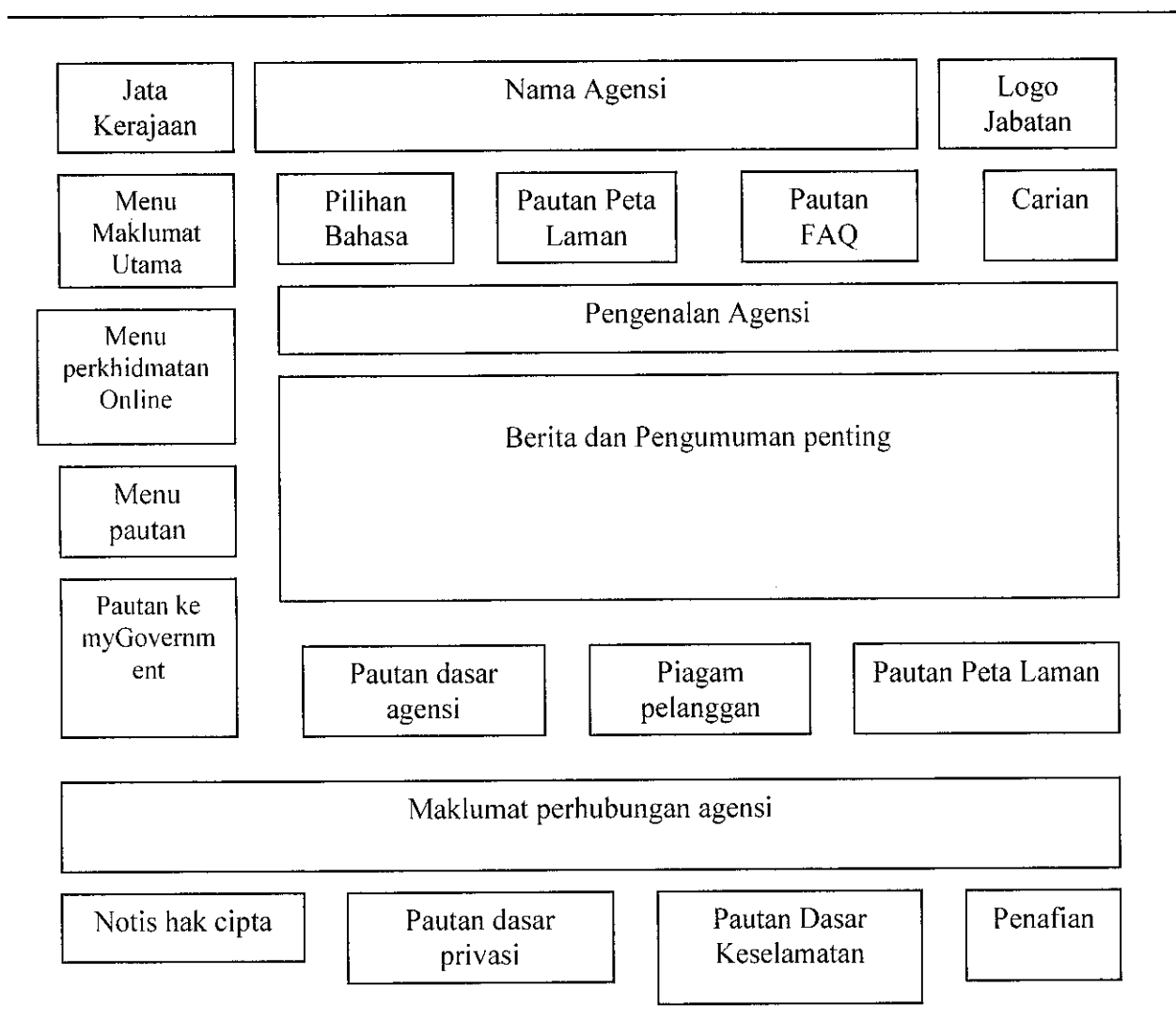
Timing Results on Task Scenarios (PART I & II)

	P1	P2	P3	P4	P5
PART I (DBP website)	0:53:42	0:50:13	0:49:33	0:44:47	1:03:23
—✶—PART II (Prototype)	0:42:00	0:47:16	0:46:30	0:47:06	0:45:44

Time (in minutes) - 60 mins max

Participants (P)

Legend: PART I (DBP website); —✶—PART II (Prototype)

Conclusion: The participants managed to complete the tasks given within less than 50 minutes with the average of 45 minutes and 40 seconds during the Task Scenario Part II. This result is faster as compared to the result on Task Scenario Part I with the average of 51 minutes and 8 seconds. This is due to the slow connection and the system response time during the testing which lead to the exceeding of time limit during Task Scenario I. The maximum time given was 60 minutes.

4.8 Results on BOBBY – Evaluation Tool (DBP website during first phase of testing)

Based on the evaluation done using the evaluation tool – BOBBY, I can conclude that dbp.gov.my is not updated frequently as the result shows the last update date was on the 31st of July 2006. Besides that, there are no broken links or broken anchors. However result found that there was an incompatibility between the code and multiple versions of browser software. There was also no custom quality standard where there are pages that do not meet site or corporate content or coding standards. The actual result is provided in the appendices section.

4.9 Observation result on the website based on MAMPU guidelines and users feedbacks.

A thorough observation has been done on DBP website and the result found that the website has successfully designed according to guidelines set by MAMPU which covers the management of agency's website, basic principle in website development, basic mandatory feature of a website, additional feature of a website, basic feature of a website, and additional feature of a portal. They have included all these features. However, after doing surveys and tasks scenario, the results show that even though DBP implemented these features, they have actually failed to satisfy the users. For example, the way they provide the information did not meet users' requirements. Further more, most of the important information that users tend to seek are hard to find. About where to position the information is very important for the designers to take note. Next would be the content of the main page should not be stuffed into one whole page. It should be properly organized. Below is an example of a layout which MAMPU provided in the guidelines which include the mandatory feature of a government website. This will be a guide in developing the new prototype for DBP.

Jata Kerajaan	Nama Agensi		Logo Jabatan

Menu Maklumat Utama	Pilihan Bahasa	Pautan Peta Laman	Pautan FAQ	Carian

Menu perkhidmatan Online

Pengenalan Agensi

Menu pautan

Berita dan Pengumuman penting

Pautan ke myGovernment

Pautan dasar agensi	Piagam pelanggan	Pautan Peta Laman

Maklumat perhubungan agensi

Notis hak cipta	Pautan dasar privasi	Pautan Dasar Keselamatan	Penafian

Besides that, there is one criterion set by MAMPU that they did not meet. They did not add a certain function on their website which has been set by MAMPU which is the W3C Disability Accessibility. To my opinion, this feature is feasible and should be implemented in the website. Universal accessibility is important. However, this function is set under the additional feature of the website where the DBP has the options to include it or not.

4.10 Prototype

The prototype was developed using Adobe Photoshop CS3 and Adobe Flash CS3. The prototype was being developed based on the MAMPU Guidelines under section 6.3

where it is focus on the guidelines in developing and setting up web portal public sector agencies which include basic principal in developing the web portal, aspect of the website, aspect of the portal and safety measures and steps for the web portal.

Figure 4.5: Prototype-main page

This prototype of DBP website-main page is divided into three sections where the left side of the website where all the services of DBP are placed. The middle section is the section for the most recent activities or new in Dewan Bahasa. All the important features of DBP are placed on the right side of the main page. All the main menus which contain important information on DBP are placed at the most top of the page as well as the most down part of the page and its is appeared constant.
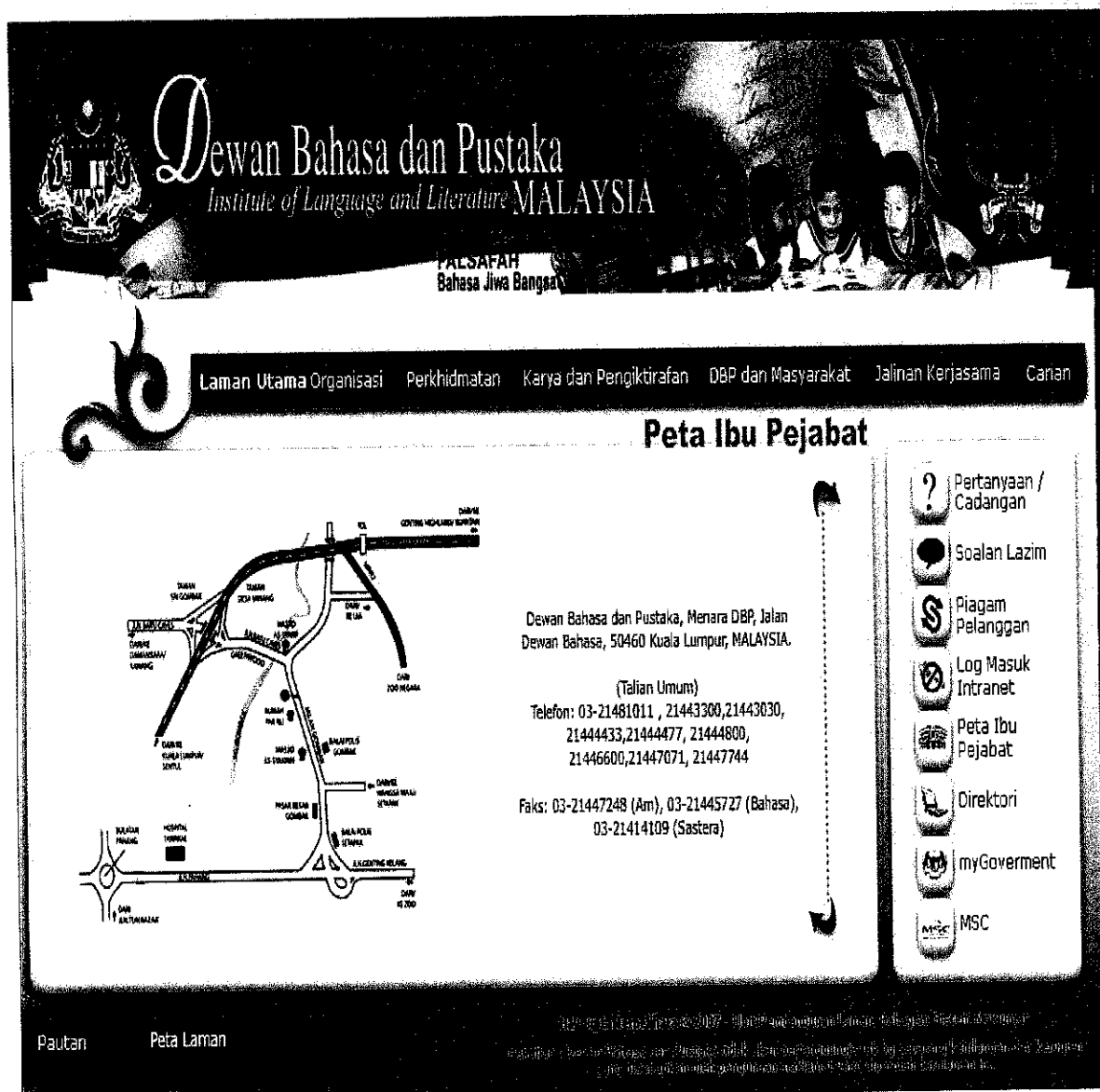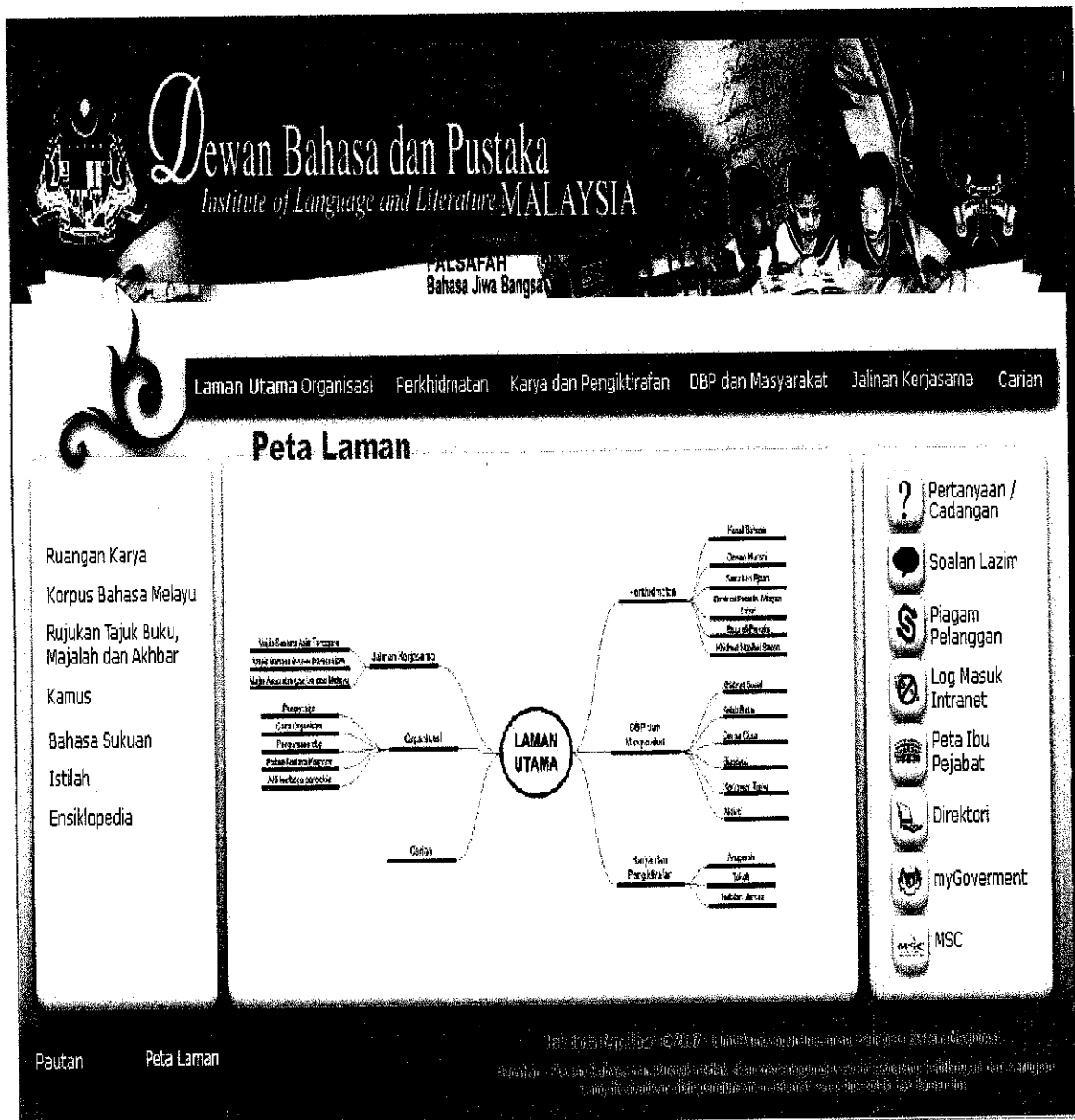
Figure 4.6: Prototype- Peta Ibu Pejabat
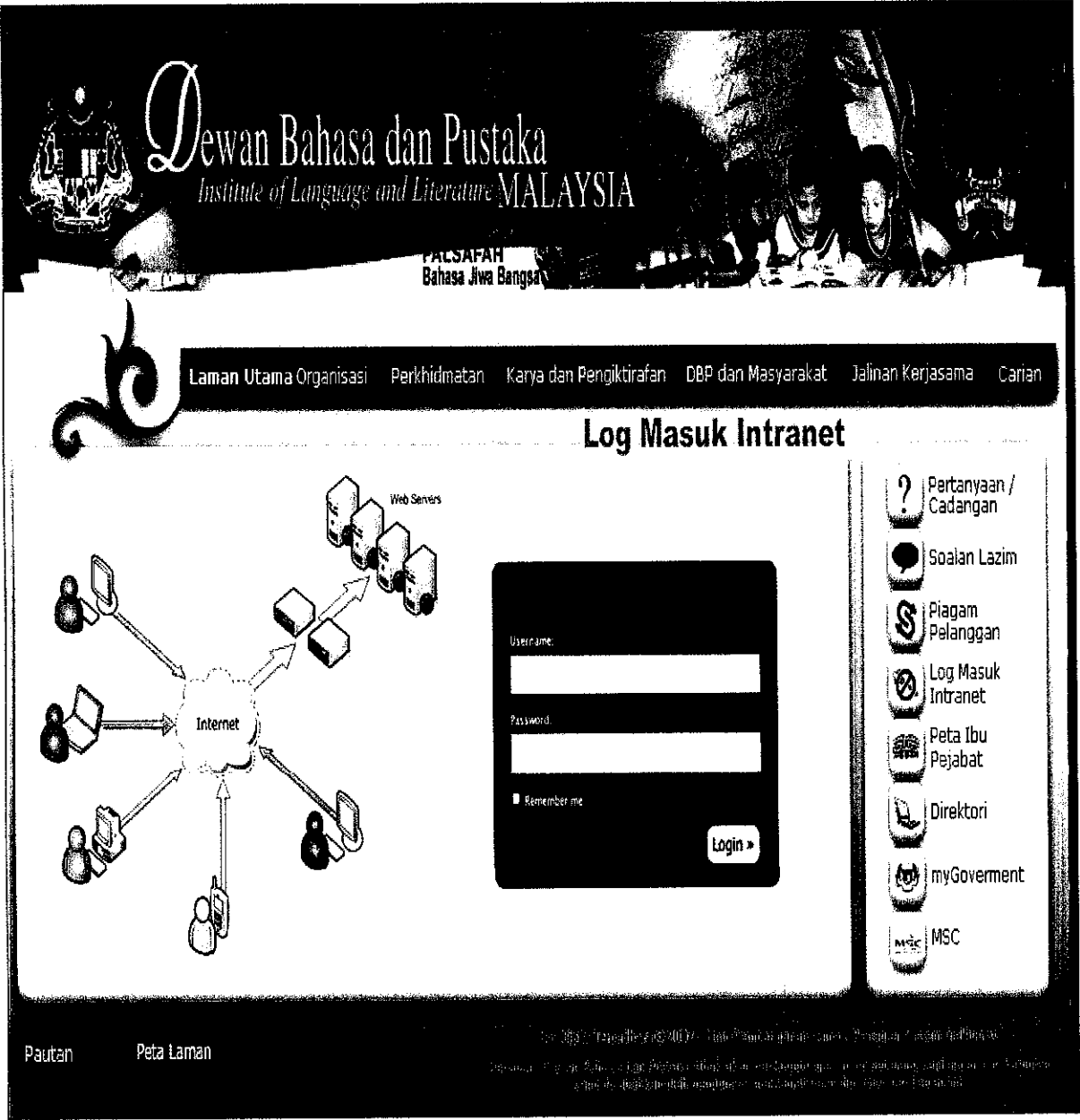
Figure 4.7: Prototype- Peta Laman

Figure 4.8: Prototype- Log Masuk Intranet (for Intranet users)

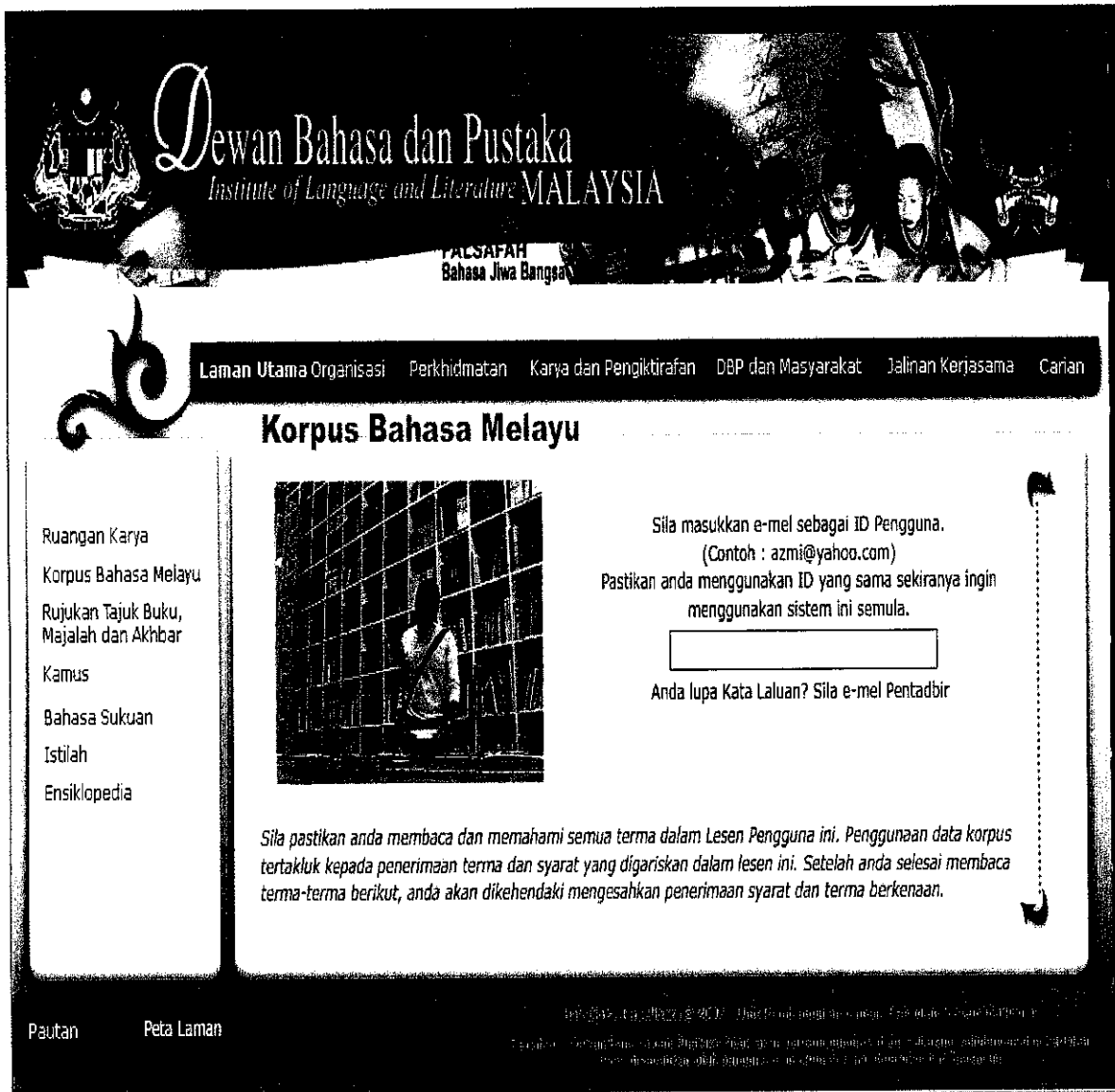**Figure 4.9: Prototype- Korpus Bahasa Melayu**

CHAPTER 5

CONCLUSION

5.0 Overview

Chapter 5 will conclude the research that have been made and to recommend base from the finding.

5.1 Conclusion

To conclude, Dewan Bahasa dan Pustaka have implemented and met certain criteria set by MAMPU in developing their website. They have followed most of the features to be included in their website. However, they have failed to implement it correctly, the site is not credible and this affects the users of the website. A credible site should be updated frequently. The icons together with the menu must be carefully designed. This factor is vital towards site credibility. The professional look and sleek design of the site element such as button and images is another contributor towards a certain site credibility. In the hyperlinks section of the DBP website, too many links were listed, making the list look too cluttered.

It is crucial for the government to improve on their websites to ensure that their sites appearance have strong credibility. In the near future, analysis of differences in web credibility perceptions by gender, age, income, experience level, and nationality can be done. In conclusion, the state governments should exploit this opportunity to improve their site credibility. A highly credible site could attract worldwide audience. It could lead to inward investment for their firms. To do so, the information on the site has to portray firm achievements and promote any related developments as well as their services.

The idea of implementing the guidelines set by MAMPU is to create greater awareness in agencies of various components that form portals, aims to create a thought process in the

initial stages when a portal solution is being considered and to deliver strategic thrust stated in ICT Strategic Plan. The nature of these guidelines is to inform the concept and execution of myGovernment as an information gateway for the public sector and also to clarify the management of the web portal at the public sector stage and agency stage and to provide the guidelines to the public sector agencies in developing and setting up the web portal for the respective agencies. These guidelines will be one of the solutions for developing an effective e-government website which may help to encourage more people to visit e-government websites and in this case Dewan Bahasa dan Pustaka (DBP) website.

This project also educates people to study on what are the most suitable criteria and guidelines to design a good e-government website based on the Human Computer Interaction (HCI) perspectives besides the guidelines developed by MAMPU. Optimistically, the final product of this project will be able to improve the status and reputation of DBP website in order to encourage citizens to browse and make use of the website to complete their daily tasks.

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APPENDICES

APPENDIX 1:
QUESTIONNAIRES

Questionnaire Part I: Set 1

Section A:

RESPONDENT BACKGROUND

Instruction
Please tick [] in the box given.

1. Age range

	12 – 22 years
	23 – 33 years
	34 – 44 years
	45 – 55 years
	56 – 66 years

2. Gender

	Male
	Female

3. Race

	Malay		Indian
	Chinese		Others

4. Employment Category

	Banking or finance
	Administration
	Education sector
	Executive
	Business
	Student
	Supported by partner
	Others (please specific) : _____

5. Which state are you currently working/studying in ?

_____

Section B :

INTERNET USAGE AND GOVERNMENT SERVICES IN MALAYSIA

Instruction
Please tick [] in the box given.

1. How frequent do you access the internet? (Please tick only once for this question)

	Never
	Rarely
	Fairly
	Often
	Very Often

2. What is the main reason of you accessing the internet?

	Entertainment
	Leisure
	Occupation
	Education
	Online Purchase
	Others (Please justify) : _____

3. Where do you normally access Internet?

	Home
	Office
	Cyber Cafe
	School Computer Lab
	Others (Please specify) : _____

4. In what means do you normally make contact with government offices or the officers?

	Phone
	In person
	Letter
	E-mail
	Others (Please specify): _____

5. Are you aware of government services through the Internet (e-government) initiatives in Malaysia?

	Yes
	No

If your answer is no, skip question 6 to question 7 and proceed with the next questions

6. Have you ever used any of e-Government services?

	Yes (Please state which service was used and the reason):
	_____
	_____
	No (Justify your reason):
	_____
	_____

7. What kind of information are you looking for in the e-government website?

	Directory
	Information and Policies
	Services
	Government machinery
	Job vacancies
	Public complaints
	Government tender
	Tourism in Malaysia
	Weather
	Promotion and transfers

8. Are you aware of DBP services through the internet?

	Yes
	No

If your answer is no, you may end this questionnaire.

Section C:

USE OF DEWAN BAHASA SERVICES VIA INTERNET

1. Have you ever use the services provided in the DBP website?

	Yes
	No

2. Please tick the services that you have used before? For this question you may tick more than one answer)

	Language advice service / Khidmat Nasihat Bahasa • Language inquiries / Pertanyaan Bahasa • Advertisement approval / Pengesahan Iklan • Language Correction/ Pantau Tegur Bahasa • Word Suggestion / Cadangan Perkataan
	Online Dictionary / Kamus
	Encyclopedia / Ensiklopedia
	Online Thesaurus / Istilah
	Bahasa Sukuan
	Korpus Bahasa Melayu
	Purchasing books online / Membeli buku online
	Writer's section / Ingin Menulis
	Online public catalog / Katalog Awam dalam talian
	Comments & suggestions / Komen dan Cadangan

3. Have you ever purchase anything through DBP's website using their e-commerce site?

	Yes
	No

4. What do you normally purchase?

	Text Books
	Magazines and Journals
	Religion Books
	Language Books
	Others (Please specify): _____

5. Do you find the service convenient? Why?

_____

_____

6. Do you find the links & other information useful for you? Why?

_____

_____

7. Do you think that the website needs an English version or translation? Why?

_____

_____

_____

8. Do you think that the current DBP website needs an improvement?

	Yes
	No

If your answer is Yes, please state some suggestions on which area should it be improved?

_____

_____

_____

End of questionnaire. Thank you very much for your time and cooperation.

Questionnaire Part I: Set 2

Thank your for completing the usability test. Please answer the following questions about your experience with e-government website (Dewan Bahasa dan Pustaka). I will use your answers as feedbacks for a better recommendation.

A study has been conducted stating that one of the reason e-government is not popular is because of lack of information on the websites that discourage citizens to browse government websites. The objective of this survey is to study the e-government websites in terms of its web design using HCI principles as well as gathering information on citizen experience in browsing government websites and using e-government services.

1. On the following scale, rate your impression of e-government website (Dewan Bahasa dan Pustaka website) speed and responsiveness:

- o Very slow
- o Moderately slow
- o Neither fast nor slow
- o Moderately fast
- o Very fast

2. On the following scale, rate your impression of the interface design of the website?

- o Very Bad
- o Bad
- o Neither Good nor Bad
- o Good
- o Very Good

3. On the following scale, rate how easy and clear the main information are being displayed on the website. Eg. DBP's mailing list

- o Very hard
- o Hard
- o Neither easy nor hard
- o Easy
- o Very easy

4. On the following scale, rate your need for / interest in having E-Government website capabilities:

- o No interest/need
- o Low interest/need
- o Don't feel strongly either way
- o Moderate interest/need

o   High interest/need

5. Will you use Dewan Bahasa dan Pustaka website in the future?

o   Never
o   Rarely
o   Sometimes
o   Fairly frequently
o   Very frequently

6. On the following scale, rate how highly you would recommend e-government website (Dewan Bahasa dan Pustaka) to your friends and associates:

o   Strongly would NOT recommend
o   Would Not recommend
o   Don't feel strongly either way
o   Would recommend
o   Would strongly recommend

7. What did you like MOST about Dewan Bahasa dan Pustaka website?

_____

_____

_____

8. What did you like LEAST about Dewan Bahasa dan Pustaka website?

_____

_____

9. What would you change about Dewan Bahasa dan Pustaka website?

_____

_____

10. Optional: Please add any other comments about Dewan Bahasa dan Pustaka website that might be useful in helping to improve this E-Government website:

_____

_____

_____

Questionnaire Part II:

Thank your for completing the usability test. Please answer the following questions about your experience with the Dewan Bahasa dan Pustaka Website Prototype. I will use your answers as feedbacks for a better recommendation.

A study has been conducted stating that one of the reason e-government is not popular is because of lack of information on the websites that discourage citizens to browse government websites. The objective of this survey is to study the e-government websites in terms of its web design using HCI principles as well as gathering information on citizen experience in browsing government websites and using e-government services.

1. On the following scale, rate your impression of the prototype speed and responsiveness:

- o Very slow
- o Moderately slow
- o Neither fast nor slow
- o Moderately fast
- o Very fast

2. On the following scale, rate your impression of the interface design of the prototype?

- o Very Bad
- o Bad
- o Neither Good nor Bad
- o Good
- o Very Good

3. On the following scale, rate how easy and clear the main information are being displayed on the prototype. Eg. DBP's mailing list

- o Very hard
- o Hard
- o Neither easy nor hard
- o Easy
- o Very easy

4. On the following scale, rate your need for / interest in having E-Government website capabilities:

- o No interest/need
- o Low interest/need
- o Don't feel strongly either way
- o Moderate interest/need

o High interest/need

5. Will you use Dewan Bahasa dan Pustaka website Prototype in the future?

- o Never
- o Rarely
- o Sometimes
- o Fairly frequently
- o Very frequently

6. On the following scale, rate how highly you would recommend the website (if it is changed to the prototype) to your friends and associates:

- o Strongly would NOT recommend
- o Would Not recommend
- o Don't feel strongly either way
- o Would recommend
- o Would strongly recommend

7. What did you like MOST about Dewan Bahasa dan Pustaka prototype?

_____

_____

_____

8. What did you like LEAST about Dewan Bahasa dan Pustaka prototype?

_____

_____

9. What would you change about Dewan Bahasa dan Pustaka prototype?

_____

_____

_____

10. Optional: Please add any other comments about Dewan Bahasa dan Pustaka prototype that might be useful in helping to improve this E-Government website:

_____

_____

_____

APPENDIX 2:
TASK SCENARIO

TASK SCENARIO PART I

---

*Scenario 1: To explore DBP website concentrating on the main
page and give their first impression about the
website based on the tasks given.*
(Time limit: 15 minutes

Scenario 2: To use the online services provided by DBP
(Time limit: 10 minutes)

---

*Scenario 3: To find out whether there is any function for the
disable people*
(Time limit: 5 minutes)

---

*Scenario 4: To get the links that brought them to answer the
question of the fourth scenario.*
(Time limit: 10 minutes)

Scenario 5: To find the basic mandatory feature of the website
(Time limit: 20 minutes)

Time Limits: 60 minutes are given to the participants to complete all 5 scenarios given.

Scenario 1

Task A:
Using your web browser, go to the following website address:
www.dbp.gov.my

Task B:
Explore the website within 5 minutes before proceeding to the next step. Enjoy the observation!

Task C:
What was your first impression towards the layout and the design of the main page? Please state your answer below.

_____

_____

_____

_____

Task D:
What was the first thing that catches your eye while exploring the main page of the website?

_____

_____

Task E:
What items, features or ads did you look at? What was your observation about what you saw?

_____

_____

_____

Task F:
What do you think of the font size and type of the website? Is it easy to read?

_____

_____

Task G:
Do you find the activities information of DBP on the main page useful? It is up-to-date?
o   Yes
o   No

Task H:
On the following scale, rate your impression on the speed and responsiveness of DBP website:

- o Very slow
- o Moderately slow
- o Neither fast nor slow
- o Moderately fast
- o Very fast

Scenario 2:

Task A:
Go back to the main page. Click on one of the services provided on the main menu.

Task B:
Try to use the service that you have chosen. How do you find the service? Is it satisfying? Does it meet your expectation? State your answer.

_____
_____
_____
_____

Task C:

Scenario 3:

Task A:
Go back to the main page. Explore the main page and find out whether there is any function for the disable people provided on the website. If no, do you think it's feasible to include this function? Why?

_____
_____
_____

Scenario 4:

Assuming that you are a student who is doing a research on Dewan Bahasa dan Pustaka. You are required to include as many information as you can.

Task A:

What kind of information do you think you will seek on the website in order for you to do the research report? Please list down below.

_____

_____

_____

_____

Task B:
Can you find any information that you have listed above on the website? If yes how many did you manage to find? Was it hard?

_____

_____

_____

_____

Scenario 5

Task A:
Go back to the main menu. Find the hit counter (Jumlah Capaian) of the website and state how many users have visited the website since it was first established.

_____

Task B:
Find whether the website includes 'search engine' function. If yes, try to use the function and give your feedback.

_____

_____

_____

Task C:
You are a first time user and assuming that you want to find DBP's mailing address and the map to DBP as well as the number of the office main line for feedbacks. Was it hard or easy for you to find these information? How long did it take you to find it?

_____

_____

Task D:
Are there any functions for dual language?
o   Yes
o   No

Task E:

By looking through all the links on main page, can you identify a link to myGovernment website?
o   Yes
o   No

Task F:
Are there any links to other government agencies?
o   Yes
o   No

Task G:
Find the link to the site map (peta laman) on the main page. How long does it take you to find it? Was it hard? Is it obvious or is it hidden? State your answer.

_____

_____

_____

Task H:
Can you spot the main logo of the agency by just looking at the main menu once?
o   Yes
o   No

Task J:
Should the introduction of DBP be included on the main page?
o   Yes
o   No

If yes please specify your reason.

_____

_____

TASK SCENARIO PART II

Scenario 1: *To explore DBP website concentrating on the main*
          page and give their impression about the
          website based on the tasks given.
          (Time limit: 15 minutes

Scenario 2: *To use and explore DBP prototype and give their*
          first impression on the interface design of the
          prototype.
          (Time limit: 15 minutes)

Scenario 3: *To find out whether the choices of color, font size,*
          icons meet users expectations.
          (Time limit: 10 minutes)

Scenario 4: *To use the links and find out how easy to navigate the*
          website. To find the basic mandatory feature of the
          website
          (Time limit: 20 minutes)

Time Limits: 60 minutes are given to the participants to complete all 4 scenarios given.

Scenario 1

Task A:
Using your web browser, go to the following website address:
www.dbp.gov.my

Task B:
Explore the website within 10 minutes before proceeding to the next step. Enjoy the observation!

Scenario 2:

Task A:
Open the folder title DBP prototype on your desktop and click on the index file. This is the prototype of Dewan Bahasa dan Pustaka website. (Please note that it is not a working system. The purpose of this activity is to find out whether this prototype meets users satisfaction in terms of its usability).

Task B:
Explore the website within 5 minutes before proceeding to the next step. Enjoy the observation!

Task C:
After observing the original website as well as the prototype, what are the main differences of these two that you can tell?

_____

_____

_____

_____

Task D:
What was your first impression towards the layout and the design of the new main page? Is it suitable for a government website? Please state your answer below.

_____

_____

_____

Task E:
What was the first thing that catches your eye while exploring the new main page of the website?

_____

_____

Scenario 3:

Task A:
What do you think of the font size of the website? Is it easy to read?

_____

_____

Task B:
What do you think of the use of color of the website? Are you satisfied?

_____

_____

Task C:
What do you think of the icon used to represent DBP main features on the right hand side of the prototype on the main page?

_____

_____

Task D:

On the following scale, rate your impression on the speed and responsiveness of the DBP website prototype:

- o Very slow
- o Moderately slow
- o Neither fast nor slow
- o Moderately fast
- o Very fast

Scenario 4:

Task A:
You are a first time user and assuming that you want to find DBP's mailing address and the map to DBP as well as the number of the office main line for feedbacks. Was it hard or easy for you to find these information?

_____

_____

_____

Task B:
Did it require you to click on many links before you get to the above information? How long did it take you to find it?

_____

_____

_____

Task C:
Does having many links distract you?

- o Yes
- o No

Please justify based on your answer.

_____

_____

Task D:

Go back to the main page. Click on any of the services provided on the main menu on the left side.

Task E:

Briefly describe your experience while navigating on the website. Did you encounter any problem during the navigation time? Is the interface user friendly enough for you?

_____

_____

_____

_____

Task F:
What other information can you find on the website? Is it suitable for a government website? Does the prototype include enough information?

_____

_____

Task G:

By looking through all the links on main page, can you identify a link to myGovernment website?

o   Yes
o   No

Task H:

Are there any links to other government agencies?

o   Yes
o   No

Task I:

Find the link to the site map (peta laman) on the main page. How long did it take you to find it? Was it hard? Is it obvious or is it hidden? State your answer.

_____

_____

_____

Task J:

Can you spot the main logo of the agency by just looking at the main menu once?

o   Yes
o   No

APPENDIX 3:
BOBBY
(AUTO EVALUATION TOOL)

Check another page:

http://www.dbp.gov.my

Go!

sults for http://www.dbp.gov.my ➮

ⁱ last checked on Thu 19/04/2007 at 1:11pm.

General	Quality	Accessibility	Privacy	Expand All | Collapse All

Quality	Accessibility	Privacy	Traffic	User Feedback
This page has warnings	**Guideline Status** W3C WCAG P1 ▽ W3C WCAG P2 ⊗ ▽ W3C WCAG P3 ⊗ ▽	To measure compliance with privacy policy, Watchfire WebXM can check for privacy statement links. (Learn more)	To help prioritize site repairs, Watchfire WebXM can integrate traffic data with scan results. (Learn more)	To help prioritize site repairs, Watchfire WebXM can integrate user feedback with scan results. (Learn more)

Properties

File size:	1.16 kB
Total download size:	1.16 kB / 00:00:00 on 56.6 connection
File (MIME) type:	text/html
Last updated:	7/31/2006 9:52:37 PM (261 days ago)
Clickstream information:	Watchfire WebXM can indicate if this page is on a top clickstream. (learn more)
Number of page exits	Watchfire WebXM can indicate the number of visitors who exited your site at this page. (learn more)

Metadata Summary

Title:	::::: Laman Dewan Bahasa dan Pustaka Malaysia :::::
Author:	▽ No author
Description:	▽ No description
Keywords:	▽ No keywords
All metadata:	2

Page Content

Style sheets:	0
Images:	0
Server-side image maps:	0
Inline multimedia elements:	0

ge Links

Links in:
To help in site maintenance, Watchfire WebXM and WebQA can identify all of the pages that link to is page (learn more)
Links out: 3
Link path from a starting URL:

Check another page:

http://www.dbp.gov.my

Go!

Show Advanced / Accessibility Options Terms of use

sults for http://www.dbp.gov.my ↪

last checked on Thu 19/04/2007 at 1:11pm.

| General | Quality | Accessibility | Privacy | Expand All | Collapse All |

Content Defects

Broken links:	✓ 0	
Broken anchors:	✓ 0	
Links to local files:	✓ 0	
Spelling errors:	❧ Watchfire WebXM and WebQA can find spelling errors in your web content (learn more)	

Search and Navigation

Page click depth:	❧ Watchfire WebXM and WebQA can indicate how many clicks this page is from your home page (learn more)
Elements missing Alt text:	✓ 0

Page Efficiency

Elements missing height and width attributes:	✓ 0
Warnings when accessing this page:	✓ 0

Browser Compatibility

Browser compatibility issues:	❧ Watchfire WebXM and WebQA can identify incompatibilities between the code of this page and multiple versions of browser software (learn more)
First-party cookies denied for default Internet Explorer privacy setting:	✓ 0

Custom Quality Standards

❧ Watchfire WebXM and WebQA can identify pages that do not meet site or corporate content or coding standards (learn more)

---

ge Links

Links in:
♭ To help in site maintenance, Watchfire WebXM and WebQA can identify all of the pages that link to is page (learn more)

Links out: 3

Link path from a starting URL:
♭ To help in site maintenance, Watchfire WebXM and WebQA can identify the URL path that links to is page (learn more)

Now that you've tried **WebXACT** on a page, find out how Watchfire can help your entire site!

To learn more, choose a product:

Check another page:

http://www.dbp.gov.my

Go

Show Advanced / Accessibility Options Terms of use

sults for http://www.dbp.gov.my

last checked on Thu 19/04/2007 at 1:11pm.

| General | Quality | Accessibility | Privacy | Expand All | Collapse All |

This page **does not comply** with all of the automatic and manual checkpoints of the W3C Web Content Accessibility Guidelines, and **requires repairs and manual verification.**

	Automatic Checkpoints			Manual Checkpoints		
	Status	Errors	Instances	Status	Warnings	Instances
Priority 1	✓	0	0	⚠	5	5
Priority 2	✕	2	2	⚠	13	14
Priority 3	✕	1	1	⚠	9	9

Priority 1 Checkpoints

Collapse Section ⌃ | Top of Page ☐

⚠ **Warnings**
5 tests, 5 instances on page

Guideline		Instances	Line Numbers
4.1	Identify any changes in the document's language.		
6.3	Make sure pages are still usable if programmatic objects do not function.	1	11
7.1	Make sure that the page does not cause the screen to flicker rapidly.		
8.1	Provide accessible alternatives to the information in scripts, applets, or objects.	1	11
14.1	Use the simplest and most straightforward language that is possible.		

Priority 2 Checkpoints

Collapse Section ⌃ | Top of Page ☐

✕ **Errors**
2 tests, 2 instances on page

Guideline		Instances	Line Numbers
3.2	Use a public text identifier in a DOCTYPE statement.		
13.1	Create link phrases that make sense when read out of context.	1	23

⚠ **Warnings**
13 tests, 14 instances on page

Guideline		Instances	Line Numbers
3.1	Where it's possible to mark up		

content instead of using images, use a markup language.

3.2 Make sure your document validates to formal published grammars.

3.3 Use style sheets to control layout and presentation wherever possible.

6.4 If objects use event handlers, make sure they do not require use of a mouse.

9.2 Make sure that all elements that have their own interface are operable without a mouse.   1   11

10.1 If scripts create pop-up windows or change the active window, make sure that the user is aware this is happening.   1   11

11.1 Use the latest technology specification available whenever possible.

11.2 Avoid use of obsolete language features if possible.   2   26, 27

12.3 Group related elements when possible.

13.1 Make sure that all link phrases make sense when read out of context.

13.1 Add a descriptive title to links when needed.

13.3 Provide the user with a site map or table of contents , a description of the general layout of the site, the access features used, and instructions on how to use them.

13.4 Provide a clear, consistent navigation structure.

Priority 3 Checkpoints

Collapse Section ▲ | Top of Page ☐

⊗ Errors
1 tests, 1 instances on page

Expand Code Fragments▾

Guideline	Instances	Line Numbers
4.3 Identify the language of the text.	1	1

▽ Warnings
9 tests, 9 instances on page

Guideline	Instances	Line Numbers

4.2 Use the ABBR and ACRONYM elements to denote and expand any abbreviations and acronyms that are present.

9.4 Consider specifying a logical tab order among form controls, links, and objects.

9.5 Consider adding keyboard shortcuts to frequently used links.

11.3 <u>Allow users to customize</u> their experience of the web page.

13.5 <u>Provide navigation bars</u> for easy access to the navigation structure.

13.8 <u>Provide distinguishing information</u> at the beginning of headings, paragraphs, lists, etc.

13.9 If this document is part of a collection, <u>provide metadata</u> that identifies this document's location in the collection.

14.2 Where appropriate, <u>use icons or graphics</u> (with accessible alternatives) to facilitate comprehension of the page.

14.3 <u>Use a consistent style</u> of presentation between pages.

ustom Accessibility Standards

🔥 Watchfire WebXM and WebQA can identify pages that do not meet custom accessibility standards (<u>learn more</u>)

ge Links

Links in:
🔥 To help in site maintenance, Watchfire WebXM and WebQA can identify all of the pages that link to is page (<u>learn more</u>)
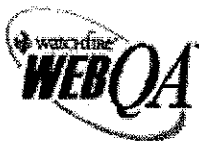
Links out: 3

Link path from a starting URL:
🔥 To help in site maintenance, Watchfire WebXM and WebQA can identify the URL path that links to ... is page (<u>learn more</u>)

Now that you've tried **WebXACT** on a page, find out how Watchfire can help your entire site!

To learn more, choose a product:

*WEB*XM

*WEB*QA

ms marked with a Watchfire flame 🔥 indicate additional information that can be collected by Watchfire WebXM or WebQA.

Check another page:

http://www.dbp.gov.my

Go!

Show Advanced / Accessibility Options Terms of use

sults for http://www.dbp.gov.my ⇨

last checked on Thu 19/04/2007 at 1:11pm.

General	Quality	Accessibility	Privacy	Expand All	Collapse All

Data Collection

Page encryption level:	🛡 0 bit
Forms:	ⓘ 0
Forms using GET:	✓ 0
Controls:	ⓘ 0
Custom data collection standard 1:	✦ Watchfire WebXM can identify pages that do not meet custom data collection standards (learn more)
Privacy Statement Links	✦ Watchfire WebXM can identify pages that do not contain a privacy statement (learn more)

Visitor Tracking and P3P Compliance

Cookies set by this pageCookies set by this page:	ⓘ 0
First-party cookies denied for default Internet Explorer privacy setting:	✓ 0
Third-party cookies:	✓ 0
P3P compact policy:	🛡 No P3P compact policy
Web beacons (graphics from external sites):	✓ 0

Third-Party Content

▸ Third-party links:	🛡 3

Custom Privacy Standards

✦ Watchfire WebXM and WebQA can identify pages that do not meet site or corporate privacy content or coding standards (learn more)

ǀe Links

.inks in:
᾽ To help in site maintenance, Watchfire WebXM and WebQA can identify all of the pages that link to
ᴤ page (learn more)

.inks out: 3

.ink path from a starting URL:
᾽ To help in site maintenance, Watchfire WebXM and WebQA can identify the URL path that links to
ᴤ page (learn more)

Now that you've tried **WebXACT** on a page, find out how Watchfire can help your entire site!

To learn more, choose a product: