CULTURAL DIFFERENCE IN THE
VISUAL INTERFACE:
THE DEVELOPMENT OF INTERFACE
DESIGN PROCESSES
FOR MULTICULTURAL AUDIENCES

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Abstract

Acknowledging cultural differences in the development of visual interface design is an important factor in many multicultural settings. In this case I will be investigating the cultural and ethnic mix of Malaysia, taking official government websites as a case study. In Malaysia, Malays, Chinese and Indians live in a pluralistic society but are treated by the government as separate communities. Each ethnic group has been able to retain its cultural identity through individual languages, religion and traditions. Most of the government websites however, exclusively privilege Malay users through language and cultural elements. Despite this, Malaysia’s brand of multiculturalism endeavours to consider diversity as a positive resource, with government policy promoting tolerance between the ethnic groups to maintain a harmonious and unified society. Vision 2020 has been initiated by the Malay Government to fulfil this goal of promoting intercultural understanding within Malaysia’s multi-ethnic society. This research investigates effective strategies for the development of a truly representative visual interface design within a multicultural context in the spirit of Vision 2020. This project employs Power Distance (PD) and Collectivism-Individualism (CI) from Hofstede’s model of cultural analysis and Aaron Marcus’s approach to multi-dimensional web-interface analysis to identify current representations of multicultural Malaysia. “Cultural Markers” and case study analysis are conducted as methodologies for investigating, theorising developing and designing visual interface design. Several Style Menus are developed to demonstrate different methods of cultural inclusion and accommodate a more accurate expression of revised government policy.
Declaration

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; including a higher degree, to any other university or institution. The content of this thesis (research project) is the result of work which has been carried out since the official commencement date of the approved research programme; and, any editorial and designing work, carried out by a third party is acknowledged.

All website references used during the development of this research project and all screenshots thereof are the property of the website owners and are acknowledged.

Signed

Date

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1. Introduction

This research project develops a design process for multicultural interface design, taking Malaysian government websites as a case study. The use of Malaysia as study site and focus is due to a combination of the researcher’s personal background and the Malaysian government’s current aim of achieving a multicultural society by the year 2020.

Malaysian society has developed through various stages. The British colonial administration imposed an uneasy pluralism on the country. According to Kottak and Kozaitis (2003, pp.48-51), ‘pluralism holds that ethnic and racial difference should be allowed to thrive, so long as such diversity does not threaten dominant values and norms’. The British colonial policy brought in waves of immigrants from China and India to Malaysia in the early nineteenth century. This increased the diversity of a complex mixture of races, ethnicities, religions and languages which have continued to co-habit the area even after the end of colonial rule in 1957. However, the plural society created turbulence in affairs among the different ethnic groups, culminating in a period of racial riots in 1969 between Malays and Chinese. Reacting to these riots, the government determined to restructure policy in ways that would strengthen the economic position of Malays, relative to the increasingly prosperous Chinese and Indians. A new policy favoured poor regions with majority Malay populations and it particularly emphasised plans to reduce the proportion of Malays in agriculture, in order to reduce the main symptom of Malay backwardness. According to Giacchino-Baker (2000a, p.21) ‘this policy of support for the Malay majority ensured this group’s political dominance, by awarding government contracts to Bumiputera (sons of the soil) groups, requiring Bumiputera involvement in economic projects, and providing Malay regions and students with strong economic support’. The policy clearly affirmed the provision of special privileges to the Malays.

Contemporary Malaysia is a multicultural country with three main ethnic groups, each with their own language and religious practices. According to Wan (1983, p.59) ‘Malaysia is unique in its population distribution, where the number of indigenous Malays almost equals that of the immigrant Chinese and Indians put together’. The government is concerned with equal distribution of resources and opportunities for these groups within the nation. In the series of government announcements in ‘Bangsa Malaysia’ (‘Malaysian
Nation’), ‘Smart Partnership’ (Mahathir, 1991) and ‘One System for Malaysia’ (Badawi, 2004), the revised vision of the government is to focus on a multicultural society and equality between the different ethnic groups. These goals have been most recently articulated in a proclamation called Vision 2020, where Malaysia is described as moving forward to a new national identity that is different from the pluralist society of the colonial period (Mahathir, 1991). In fact, the issue of national integration in a multicultural society has never been well resolved in Malaysia. This idea needs to be considered in relation to the population of Malaysia, the structure of the society, and the distinctive characteristics of its ethnic composition and stated government policy. In this research some of the commercial websites demonstrate that they are already well progressed towards those more inclusive government goals; in term of language used and multicultural visual orientation. Ironically those sites that the government actually does have control over, appear not to have progressed at all. The government sectors significantly show the discrepancy between future rhetoric and current action.

Web Design and cultural setting
This research project is concerned with the issue of social and cultural integration and the human computer interface. Culture includes not only ethnicity but also customary behaviours, values and communicative styles. Malaysians from different cultures maintain distinctive characteristics of cultural representation in a variety of forms. The influence of cultural representation on the web user is a complicated variable to measure, because it is difficult to establish which aspects of culture influence user behaviour and to what extent cultural background influences understanding. The multicultural interface is about making websites an effective form of communication, in terms of recognition of cultural differences and sharing comprehensible communications.

Malaysian government official websites currently emphasise a mono-cultural theme, which significantly ignores the cognitive elements that assist the understanding of multicultural users, as they respond to the graphic and textual content. These websites illustrate dominant Malay identity in images, logo and language. In addition, although Bahasa Malay is the official language of the major population group, other languages such as Mandarin and Hindi are not being thoroughly used in the government official websites. This contrasts with some commercial websites which target specific cultural groups though the use of their languages. At the same time, an argument is made that English should be used
on websites across all cultural groups, because it is commonly understood, is not as tied to any specific ethnicity and is as well, the language of globalisation.

Most of the official Malaysian government websites are designed exclusively to privilege one group, but it is often not realised that the websites are culturally inaccessible for other nationwide cultural groups, such as the Chinese and Indians. Web users from a different cultural background may conclude that their culture has been disregarded and will have difficulty identifying with the virtual world of government websites. The identity of Malay and Chinese cultures will be visualised and represented within the web interfaces during the research process. This cultural complexity should be reflected in web design. Thus, Luna et al. (2002, pp.391-410) stated ‘… the cultural schemas we develop are a result of adaptation to the environment we live in and the way we have been taught to see things in our culture. As such, web users from different countries tend to prefer different web site characteristics depending on their distinct needs in terms of navigation, security, product information, customer service, shopping tools, and other features.’ This argument reflects an international as against on intra-national approach concerning the use of appropriate cultural strategies for e-marketplaces. In contrast, my research is more concerned with multicultural communication on the interface, reflecting the current theoretical research in the field of human computer interface. Hence, the key issue is to more fully understand the representation of multicultural values within the human–computer interface and how to facilitate this.

The importance of multi-cultural inclusive visual symbolism for Malaysia’s ethnic groups must be considered, when contemplating the effectiveness of the Malaysian government official websites as a medium of multicultural communication and of more inclusive government rhetoric. An effective interface design will incorporate key elements of these to attract recognition. Government websites play an important role in society through actively demonstrating cultural inclusion and contain an active expression of key future government policies, such as Vision 2020 and Bangsa Malaysia.

The methods undertaken in this research project will be integrated with the design process, focusing on cultural issues in the development of interface design. A number of approaches for different stages of development will be followed, from analysis of existing website interfaces to the final proposal of the design outcome. In addition, the research
focuses on visual forms of communication based on cultural traditions, to which people are accustomed, the notion that culture is the learned behaviour of a group, and that culture rules social and communication practices. These cultural rules shift across different cultures, so that cultural understanding is difficult to map and website interface design must attempt to reflect these complexities in a multicultural context.

Research Aims

The aim of this research is to explore the development of interface design processes for multicultural users, within the context of visual representation that will be culturally sensitive and appropriate. The rationale for this research is to identify the requirements for designing a multicultural interface, based on evidence from both theoretical and practical approaches.

Structure of this research project

The research, firstly, will discuss the issue of multiculturalism in Malaysia. This part of the literature review I have divided into two principal areas: ‘A brief history of Malaysia’ and ‘Multicultural Society in Malaysia’. The first section traces the formation of Malaysian society, following the British colonial period and immigrations that occurred in the past. The nation has since blended different cultures within the society, and the management of this diversity of cultures in the country is considered a prominent issue. The second section will discuss the history of Malaysia in relation to social integration and the concept of multiculturalism that has been proclaimed in the government aims for Vision 2020.

The following chapter surveys current human–computer interface approaches and cultural aspects of interface design. Such an understanding is relevant to cultural representation and leads to more complicated issues of culture and the concerns of globalisation.

This chapter will also introduce the idea of ‘Cultural Markers’ to define the characteristics of the different categories of websites, such as government, non-government commercial (general target audience), non-government Malay target audience and non-government Chinese target audience. This approach can identify interface design elements that reflect the characteristics of the websites and their meanings, to match the expectations of the different cultures. The Cultural Markers include dimensions of Language, Layout, Symbol, Colour, Image and Sound/Music that together create the formulation of the websites. In this section, I identify a set of comprehensive Cultural Markers that assist understanding of
the structure of a number of Malaysian websites, such as non-government commercial websites that are designed to cater for a wide range of users from different cultural groups. Such an approach (studying the non-government commercial website) holds considerable potential for official government websites, and indicates a more appropriate set of strategies for future government website projects toward Vision 2020.

Chapter 4 focuses on Methods, and how the two disciplines of multicultural and interface design can be formulated and integrated into a unified research prototype (which will be discussed in Chapter 5). The research project investigates the official government websites, using the National Library of Malaysia (Perpustakaan Negara Malaysia) as a case study to verify the cultural dimensions used in this research. The website designs show different levels of Geert Hofstede’s cultural dimensions, such as Power Distance (PD), Individualism/Collectivism (IC) and Uncertainty Avoidance (UA). Using these three cultural dimensions will encourage greater depth of analysis of the most pertinent characteristics of official Malaysian government websites, as well as the cultural approaches. The cultural frameworks can be used to clearly identify the mechanisms by which cultures are presented in interface design leading to a better understanding of how website acceptability and recognition occurs among the different cultural groups. At the core of this thesis is the user’s guide designed to communicate the necessary cultural ingredients to be conducted particularly by interface designers and communication designers, who have the responsibility to create an effective interface for multicultural users.

This research project adapts the theory of Aaron Marcus on Metaphors and Appearance, at the same time, incorporating Geert Hofstede’s cultural dimensions for international website design (Marcus 2000, Hofstede 1997). Using principles of both theories, my cross-cultural interface research develops a theoretical foundation and set of principles for better web design. These two models integrate the study with current cross-cultural theory and interface design and use their special insight into Malaysian culture to make the analysis more pertinent. These theories are used as a guideline for developing some research prototypes – the style menus.

In Chapter 5, three main Research Prototypes deriving from my theoretical research are formulated. The Research Prototypes are an important section that leads the research to final outcomes. No design solution is absolute in this area but indicative of the sorts of
representation that might be made in constructing multicultural communications. The particular Research Prototype models provided cover the broad range of assimilation options for designers. Semiotic analysis will be applied to website designs to expose the ideology of sites from the communication design elements and content, rather than technology, marketing and business phases of website development. Semiotic analysis of the design elements that make up the Human Computer Interface (HCI) is not unusual, however it has proven to be much less common in the field of the multi-cultural interface. It should be possible to develop guidelines for specific cultures and contexts, using semiotic analysis which would add value to the design process. The Research Prototypes will provide alternative models for designers that would encourage more effective communication with users. Culture and interface will be demonstrated in the experimental Research Prototypes. The design prototypes will identify cultural representation within interface design for a multicultural website development and demonstrate how this contributes to culturally more inclusive approaches. The guidelines also aim to identify cultural factors that have an impact on visual communication in multicultural interfaces, and to present concepts that primarily consider cultural recognition in the context of multicultural users. Aspects of the multicultural are also investigated in relation to web interface characteristics, metaphor (based on semiotic analysis), cultural context and graphical elements. These components of the visual interface need to be combined in order to assess the significance of the multicultural interface.

The process of designing a Research Prototype is carried out to adapt the aesthetic preferences and patterns of communication which comply with the target audience at a cultural level. Studies (Russo and Boor 1993 and Zahedi et al. 2001) have shown that most users prefer engaging with familiar cultural elements, such as cultural customs, idioms, graphics and so forth, when accessing the World Wide Web.

**Statements: Research Aims and Objectives**

I propose an investigative strategic model (case study and visual research) that can incorporate all the decisive elements of cultural contexts for interface design. The aim of the research is to demonstrate the development of cultural difference in website interface for multicultural audiences.
This research uses the semiotic analysis of cultural visual elements and representations, as a form of inquiry that will contribute to the cognitive development and cultural preferences of users. The incorporation of Style Menus in web interface design will broaden the cultural demographics of the Malaysian government websites for other ethnic groups for whom the website might be designed. The purpose of this research is to explore and integrate culturally-based knowledge, to formulate a model for developing government or commercial websites that better incorporate multicultural users in new media communication.

Research Objectives are:

1. To identify what are the different visual elements among the different cultural ethnic groups.

2. To identify the characteristics of government and non-government websites that are based on cultural markers and semiotic principles.

3. To identify a sophisticated design process, that uses cultural markers and existing cultural theories, combined with the demonstrated prototype to fully explain the process of representation in interface design.

4. To create a Style Menu that suggests different models to be applied in designing visual web interfaces for multicultural audiences. This is to identify and illuminate a variety of guidelines that can be formulated on the visual design elements, such as colour, images and so forth.

5. To implement prototypes that target communication and interface designers. These prototypes provide empirical design guidelines for creating official government websites. It generates a design process for a localised visual web interface, and includes a cross-cultural interface design process.

The conclusion of this research project will provide a summary of the findings for a comprehensive solution, applied to the cultural context areas in interface design. Moreover, the contribution of the research and the possibility of further extension will point to further study in this field, as well as multimedia studies and emotional design aspects.
2. Literature Review – Multiculturalism in Malaysia

A brief history of Malaysia

Malaysia was colonised by the British from the late 18th century to the mid 20th century. It was named Malaya in the period and the British followed in the footsteps of the Portuguese and the Dutch. Francis Light first landed on Penang in 1786. Stamford Raffles established a British base in Singapore, and developed a British Straits Settlement in the nineteenth century. The British influence continued through 1819 to 1957 in Malaya.

Under British colonial rule, an enormous economic change took place in Malaya. According to Andaya and Andaya (1982, p.290) ‘...the British established legal, communications, and administrative systems to ensure the flow of rubber and tin from their enormous plantations, but in the process, they formalized policies that institutionalized an ethnic division of labour’. In that period of time, the social makeup of Malaya was predominantly Malay, with a small group of British. The situation changed in the middle of the nineteenth century, when large numbers of Chinese and Indians immigrated to Malaya due to the demand for labour in tin mining and rubber plantations. This led to cultural pluralism characterised by the compartmentalisation of the different ethnic groups. Patchen (1999, p.1) describes ‘pluralism as a cultural/structural arrangement in which each racial and ethnic group is tolerated and protected within a system of political equality, yet free to practise its own traditions, language, customs, and life style’.

These two ethnic groups spread into tin mining and rubber plantation areas respectively. Wan (1983, p.60) states ‘...it was the influx of the immigrant Chinese and Indians during the colonial period that altered the balance, changing Malaya from a racially homogeneous into a pluralist society. This was accentuated by the colonial policy of divide and rule’.

Although the society changed into a complex mixture, their social activities were still compartmentalised, under the British colonial scheme of ‘divide and rule’. Most of the ethnic groups resided separately, though in close proximity; they did not often live and work together. For example, the British encouraged different ethnic groups to establish their own schools, rather than mixed race schools. In that period of time, the English language was implemented in all the schools, which was taught along with the language of each school’s culture.
In 1942, Japan invaded Malaya, routing the colonial British and dominating the country for a period of nearly four years. The Japanese considered the Chinese enemies and were especially cruel to them in Malaya as they had already been in Mainland China. Many Chinese were arrested and the Chinese community was forced to pay large reimbursements, and thousands of urban Chinese were forcibly relocated to settle in the countryside. The Chinese predominated in the Malay Peoples Anti-Japanese Army (MPAJA), which formed a guerrilla force against the Japanese. According to Giacchino-Baker (2000, p.4)

...after the Japanese surrendered in 1945, the British reinherited a Malaya that was deeply polarized along racial lines in terms of its past policies toward the Japanese and future policies for the country. Some Chinese and a few Malays used the vehicle of the Malaysian Communist Party to bring an end to British colonial rule. A state of war, called the Emergency, lasted for 10 years (1950-1960), with sporadic outbreaks until 1989.

Abraham (1997, p.52) argues that ‘...the Communists never had a broad spectrum of support and that some of the country’s political and racial divisions and disagreements were often conveniently mislabelled as Communist threats’. According to Giacchino-Baker (2000, p.5) ‘...the communal riots of 1969 were a time when the tensions between the Malay and Chinese communities peaked’.

Malaya achieved independence in 1957. The British remained until 1960, when power in Malaya officially passed to the Malay-dominated Alliance Party government. Power was given to Malay sultans and Malay was announced as the official language. Independent Malaysia remained polarised along racial lines and maintained a pluralist society. Two or more elements or groups who live side by side, in one political unit without mixing together are considered a plural society. According to Furnivall (1956, p.304),

...in Burma, as in Java, probably the first thing that strikes the visitor is the medley of peoples – European, Chinese, Indian and native. It is in the strict sense a medley, for they mix but do not combine. Each group holds its own religion, its own culture, its own ideas and ways. As individuals they meet, but only in the market place in buying and selling. There is a plural society, with different sections of the community living side-by-side but isolated, within the same political unit. Even in the economic sphere there is a division of labour on racial lines.

Thus, we can see that during the colonial period, the composition of society was changed creating an imbalance among the groups. In particular, the distribution of income was unequal between racial groups located in rural and urban areas. The majority of Malays
lived in their *kampung* (village) in the agricultural areas, the Chinese in squatter settlements on the nearby mines and plantations, and the Indians worked in labour lines. This composition reflects the gap between agriculture and the industrial-commercial sector, and the specialisation of ethnic groups in different areas of the economy.

At the dawn of independence, Malaysian society could be categorised by a majority of Malays who held political power, with the Chinese and Indian minorities holding economic power, as they were very actively involved in regional trade, manufacturing and tin mining. According to Gullick and Gale (1986, p.52),

... increasing Chinese involvement in the tin industry paralleled their mass immigration in the second half of the 19th century, to meet the demand for labour, eventually leading to the growth of predominantly Chinese urban settlements, and they soon came to dominate this area.

The Chinese were the wealthier group, since they controlled the economy. In contrast, the Malays remained mostly small farmers (Table-1), who were mainly rural, and were poorer, so that they felt threatened and became insecure with their economic position. Although they may still have acknowledged Chinese control of the economy, they often considered their own economic backwardness as intolerable. As Andaya and Andaya (2001, p.292) point out ‘Chinese entrepreneurs had flourished under the government’s laissez-faire policies, and … the income disparity between Malays and Chinese had worsened. Rural areas, where most Malays still lived, remained poor’. According to Fenton (2003, p.140) ‘The country’s multi-ethnic elite, with Malays playing the leading role, diagnosed the problem as “political-economic”, that is lack of economic power compared with the more “modernizing” Chinese. A political problem was to have an economic solution’. The Malays felt the Chinese were increasing their political power without reducing their strong control of the economy, so the Malays found their strength in politics being slowly eroded. The racial riots that happened in 1969 among the Malay and Chinese communities came out of this period of disintegration and polarisation of these two major ethnic groups.
As a consequence of the riots, Malaysians started to lose faith in the belief that democracy works in Malaysia. It was then that Malaysian leaders decided that parliamentary democracy of the Westminster type was not suitable for the country. The Malaysian government set out a policy to adjust the cause of Malay unease, in which they resisted a national ethnic integration, partly because they feared that in ‘open competition’ with urbanised and educated Chinese and Indians, they would come off second best. Fenton (2003, p.139) notes ‘Non-Malays were more urbanized and in a better position to take advantage of independence and modernisation’.

The New Economic Policy (NEP) was implemented following the 1969 Federal election and racial riots. According to Fenton (2003, p.140),

... the NEP was legitimised by the constitutional support for preserving the interests of the Malays, but was also translated into a series of specific measures. These were designed to favour Malays in housing, education, employment and share-ownership until such time as their relative economic disadvantage was overcome.

### Table 1 – Employment by Occupation and Race, 1976 (per cent)

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Bumiputera</th>
<th>Chinese</th>
<th>Indian</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional and technical</td>
<td>47.0</td>
<td>39.5</td>
<td>13.8</td>
<td>2.7</td>
</tr>
<tr>
<td>Administrative and managerial</td>
<td>36.1</td>
<td>62.9</td>
<td>7.8</td>
<td>6.3</td>
</tr>
<tr>
<td>Clerical and related workers</td>
<td>50.6</td>
<td>46.2</td>
<td>17.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Sales and related workers</td>
<td>35.7</td>
<td>51.7</td>
<td>11.1</td>
<td>0.6</td>
</tr>
<tr>
<td>Service workers</td>
<td>14.3</td>
<td>35.5</td>
<td>14.6</td>
<td>1.5</td>
</tr>
<tr>
<td>Agricultural workers</td>
<td>23.0</td>
<td>17.3</td>
<td>9.7</td>
<td>1.3</td>
</tr>
<tr>
<td>Production, transport and other</td>
<td>34.2</td>
<td>55.9</td>
<td>9.6</td>
<td>0.3</td>
</tr>
<tr>
<td>Total</td>
<td>51.8</td>
<td>36.6</td>
<td>13.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Ethnic proportions</td>
<td>52.7</td>
<td>36.6</td>
<td>13.7</td>
<td>0.3</td>
</tr>
</tbody>
</table>

### Proportional Equality Index of Employment by Occupation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Bumiputera</th>
<th>Chinese</th>
<th>Indian</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional and technical</td>
<td>0.89</td>
<td>1.10</td>
<td>1.01</td>
<td>3.38</td>
</tr>
<tr>
<td>Administrative and managerial</td>
<td>0.48</td>
<td>1.79</td>
<td>0.73</td>
<td>8.90</td>
</tr>
<tr>
<td>Clerical and related workers</td>
<td>0.67</td>
<td>1.28</td>
<td>1.61</td>
<td>1.88</td>
</tr>
<tr>
<td>Sales and related workers</td>
<td>0.51</td>
<td>1.72</td>
<td>1.04</td>
<td>0.50</td>
</tr>
<tr>
<td>Service workers</td>
<td>0.84</td>
<td>1.11</td>
<td>1.36</td>
<td>1.88</td>
</tr>
<tr>
<td>Agricultural workers</td>
<td>1.37</td>
<td>0.48</td>
<td>0.91</td>
<td>1.25</td>
</tr>
<tr>
<td>Production, transport and other</td>
<td>0.65</td>
<td>1.56</td>
<td>0.90</td>
<td>0.38</td>
</tr>
<tr>
<td>Total</td>
<td>0.98</td>
<td>1.02</td>
<td>0.99</td>
<td>1.25</td>
</tr>
</tbody>
</table>

Source: Malaysia, Fourth Malaysia Plan, 1981-1990
Note: The proportional equality index is derived by dividing the percentage of employment of each ethnic group in each sector/occupation by the percentage share in population.
Many different economic programmes have been set up to assist the Malays. According to Andaya and Andaya (2001, p.295) ‘… economic policies were largely focused on eradicating poverty in rural areas where a large proportion of Malays lived’. These programmes run parallel to the government’s aim of creating the Malay commercial and industrial community:

1. Majlis Amanah Rakyat (MARA)  
   Provides technical skill training with financial grants for the Malays.

2. The Federal Agricultural Marketing Authority (FAMA)  
   Provides agricultural assistance for Malay groups.

3. The Federal Land Development Authority (FELDA)  
   The Malays comprised 90% of the settlers in 1967.

4. The Malaysian National Corporation (PERNAS)  
   Assists in export and import business that would be handled solely by the Malays.

5. Rubber Industry Small-holders Development Authority (RISDA)  
   Provides funding to rubber smallholders.

In addition, other special privileges of the Malays were established in Article 153 of the Federal Constitution. Four main areas of public policy were legislated to support Malay rights (Wan, 1983, p.77):

1. the system of Malay reservations, reserving certain lands for Malays only
2. the operation of quotas within the public services reserving a certain portion for Malays
3. the operation of quotas for licences and permits for certain businesses, chiefly those related to road transport
4. and special quotas for public scholarships and educational grants.

The NEP provoked unease among the Chinese and Indians, although they were granted citizenship rights. Harper (1996, p.217) notes ‘this citizenship did not amount to a nationality, and the citizenship rights for non-Malays in no way impinged on the special rights of the Malays’. Non-Malays realised that the so-called Malay-biased economic programmes only benefited the Malays and would do nothing to raise their standard of living. They considered this to be an unfair discriminatory policy of the government. The responses included assenting to the fact in silence, treating these policies as a compromise.
to encourage and stimulate a better life, or immigrating to countries that were more democratic, such as the United Kingdom, the United States or Australia, in order to avoid unfair treatment.

**Multicultural Society in Malaysia**

The affirmative action programmes have given impetus to the development of the Malays to form a new middle class; in particular they are moving from administrators and schoolteachers to the roles of managers and professionals working in both private and government sectors. At the same time, the NEP programmes are working rather smoothly for the Malay groups; in particular the Malay-dominated state has been actively promoting market growth that co-operates with the programmes. The rise of the middle class among the Malays is promoting capitalism for the other groups as well. The expeditious pace of the capitalist growth has also allowed the Chinese group to expand its new middle class.

The NEP officially ended in 1991, but the discrimination in favour of Malays remained. According to Australia’s Department of Foreign Affairs and Trade, East Asia Analytical Unit (1995, p.53) ‘...racial hiring policies ensured that Malays enjoyed the lowest unemployment rate, and they continued to be favoured in admission to and graduation from schools and university, in access to government benefits, and in government employment’. In retrospect, the NEP programmes were a success, in terms of achieving their original goals:

- They successfully created a new Malay middle class.
- They largely succeeded in preventing the Malay’s resentment in the political arena.
- There has been no reappearance of racial riots, as in the violence of 1969.

Therefore, it can be argued that the ‘affirmative action’ allowed Malays to develop a living standard equivalent to other ethnic groups within the country. As Fenton (2003, p.140) notes,

> … when ending affirmative action for the indigenous population is ever more readily debated, politics has returned again and again to the argument over persistence of the measures for Malays and other indigenous groups, as against support for the view that they are no longer needed.
Since the late 1980s, the economy of Malaysia has been developing rapidly. The new middle class has experienced a great improvement of their education and lifestyle. They possess their own outgoing cultural dynamic, which has produced a large number of social innovations and adaptations. According to Embong (2001, p.62) ‘...the contemporary new Malaysian middle class is multi-ethnic in composition, with the new Malay middle class constituting a major component’. This new middle class tends to be more integrated as a whole than the rest of Malaysian society. Meanwhile, due to the rapid pace of capitalist growth over the longer term of NEP policies, Chinese and Indian standards of living have also improved, despite the lack of government support.

The improvement of the middle classes of the Malays has created new public realms. According to Tsuruoka (n.d., p.24) ‘the number of Bumiputeras, or native Malays, employed in the professional or managerial classes increased from 408,000 to 750,000 between 1985-1990’. As a result, the Malays have achieved better interaction among people of various ethnic groups. Looking into Malaysian society nowadays, people from different ethnic groups blend with one another at work and in residential areas. Moreover, the three ethnic groups have been involved together in social activities, particularly in highly urbanised regions, such as the Klang Valley around Kuala Lumpur (where about 62 percent of the population resides in urban areas.) Scott et al. (2001, p.11) state ‘cities (or city-regions) have assumed an increased centrality in new formations, becoming ‘nodes’ in global networks.’ Further, Castells and Halls (1994, p.7) point out that ‘cities and urban regions have been understood as altogether ‘more flexible in adapting to the changing conditions of markets, technology, and culture’ in the so-called ‘Information Age’”.

Ohmae (2001, p.33) makes the point that ‘... the rise to prominence of cities and urban regions in informational times has been accompanied by a corresponding decline in the economic, political and social significance of nation-states.’ These changes have created a new era of possibility to open up the ideology of multiculturalism among the ethnic groups, which allows Malaysians (especially the young generation) to understand how important the integration of the different ethnicities in a country is. It allows the different groups to be aware of maintaining harmony, unity and understanding. The growth of a new middle class, influenced by drivers such as economic growth, market expansion and increased education, has created an impact on personal values and practices, especially with regard to understanding of integration and equality. This shift of values creates the possibility for a new kind of political culture in Malaysia, in which the expansion of middle
class ethnic groups has been accompanied by the development of non-governmental organisations (NGOS) and new types of mass media, including the Internet. Moreover, the NGOS have responded by reinforcing state and market expansion through the broad mass media. NGOS have been involved in areas such as human rights, programmes for the elderly and minorities, consumer rights and environmental protection. According to Embong (2001, p.63),

... the emergence of these civic organizations, together with democratic political parties and public intellectuals, have contributed toward the opening up of a more democratic public sphere and the growth of an incipient civil society, giving rise to new solidarities that cross ethnic and religious lines'.

Multiculturalism definitely needs to be carefully cultivated, although it has turned out to be quite an intractable issue to deal with. In particular the Malaysian society has long been ethnically diverse, in both colonial and post-colonial periods. However the ‘diversity’ is understood, different ethnic groups are not ‘embraced’ in quite the same way. According to Giacchino-Baker (2000b),

... the government has adopted and enforced a cohesive philosophy as part of the national plan, entitled Vision 2020. Themes in this national plan include unity among races in Malaysia, recognition of cultural celebrations, and the importance of Bahasa Malaysia as the national language as the national unifying factor.

It must be emphasised that the particular ‘Multiculturalism’ in Malaysia is a different approach to that in first-world countries, where multiculturalism retains a critical edge in some contexts along with ‘diversity’, such as in Australia. Most of the multicultural governance means equal respect for all cultures in term of embracing and looking at nationalism. However, in Malaysia, it might be seen to disturb the ‘primacy’ of Malay culture, as Rex (1983, p.185) pointed out in the period of,

Post-independence there were a number of possible outcomes, one of which is where power is transferred to a “particular ethnic group, usually the majority”, which then exercises coercive power over the rest. A variation on this would be where power is inherited by a multi-ethnic local bourgeoisie.

Paradoxically, for the point of ‘primacy’, it could be concluded that Malaysia’s multiculturalism has been addressed over a prolonged period, which varies from other countries in addressing multiculturalism. Likewise, a rather more controversial argument of multiculturalism is that based on the concept of ‘primacy’, as an issue of AsiaWeek (2000) alleged ‘…Dr Mahatir had failed to recognize that “the old politics of race and religion no
longer work in the new Malaysia’…’ This point is reinforced by *Aliran Monthly* (2000, p.7) the mouthpiece of Aliran ‘… a political lobby for “Justice, Freedom and Solidarity” pleaded for a “NO to racial politics” in Malaysia.

The modern Malaysia needs to formulate a new national identity, because it has always privileged the Malays and neglected the different minority ethnic and cultural groups. According to Bunnell (2002, p.109) ‘From the outset, nationalism in Malaysia was beset with contradictions which arose from seeking to graft European conceptions of an ethnically homogeneous nation-state onto an ethnically-divided society’. The concept of multiculturalism has to value the different cultures with networks and social connections of other communities that allow esteem and recognition within the dominant Malay-centred state of constructions. In fact, the multicultural society brings advantage and prosperity for the country, in economic terms of both globalisation and regionalisation. According to Camroux in his discussion of foreign investment (1994, p.8) ‘… for the latter investors, “Malaysia’s attraction lay not only in its relatively cheap labour force but also in the existence of a class of Chinese-Malaysian entrepreneurs and executives”…’ He (1994, p.9) also points out:

The concentration of multinational corporations in Penang and the federal territory of Kuala Lumpur – two areas in which the Chinese-Malaysians are in a majority – is not accidental. Coming from the same Hokkien and other clan groups as found in Taiwan and Singapore, these Chinese-Malaysian entrepreneurs provide a relay for second-wave NIC investment in Malaysia. As a consequence the pressures coming from globalisation were running, and continue to run, counter to a narrow defence of Malay interests.

In extending Camroux’s statement, it is obvious that the shaping of a new national identity needs to be re-imagined, which places more emphasis on the economy of the country and the status of the country in the global context, than as a political space. It is appropriate for a new national identity to be conceptualised to achieve a greater extent of multiculturalism. Furthermore, the development of information and communications technology (ICT) has been established in the country, such as the high-tech and high-profile Multimedia Super Corridor (MSC). The Multimedia Super Corridor (MSC) is a 50km by 15km zone stretching southwards from Kuala Lumpur to Sepang, where Kuala Lumpur International Airport is located. It brings Malaysia to the level of a global information economy. According to Bunnell (2002, p.112) ‘… Not only has this been understood to necessitate economic liberalisation, but the state has also projected a multicultural image of Malaysia as a discursive strategy for repositioning in regional and
global networks.’ According to Bunnell (2002, p.112) ‘… Mahathir imagined the MSC as an appropriate means of development for an information age in which “borders are disappearing due to the ease of global communications, capital flows, the movements of goods and people and location of operational headquarters”…’ The development of the MSC brings in additionally a scenario of ‘Asian Cultures’ to Malaysia, as the strategically important geographical location of Malaysia and the ethnically diverse society that in the area of the MSC proudly flaunts its multiculturalism, and allows the country to confidently promote the investment of multimedia and high tech information industries.

Mahathir’s (1997) speech in Los Angeles focuses on the idea of ‘multicultural marketing’:

The Malaysians are made up of people of Malay, Indonesian, Indian and Chinese origin. We are only a few hours flight from the major Asian capitals. We have language skills and cultural knowledge that can be very helpful. Most people speak English as well as one or more languages such as different Chinese or Indian dialects, or Malay. …Malaysia will be a highly efficient and effective hub for the region.

It is obvious in identifying the importance of multiculturalism that it can be further extended into the sector of multimedia information, which can build up the country’s economy. Likewise, it makes possible an imagined regional centrality that points to the integration of different ethnic groups. Multiculturalism also can be incorporated into a range of multimedia and information technology products for a variety of cultural and linguistic sectors.

**Malaysian National Culture**

Malaysian national culture can be a hotly disputed subject among Malaysia’s various ethnic groups. The Malays regard the national culture as based on their indigenous majority culture. According to Kahn and Loh (1992, p.1) ‘...a National Cultural Policy extended ‘Bumiputeraism’ (Bumiputra – sons of the soil) to the cultural realm by promoting ‘indigenous’, and especially Malay-Muslim culture as the ‘core’ of national identity’. As a result, the Malaysian government has tended to overlook the non-Malay cultures. On the other hand, these non-Malay cultures are attempting to be included among the components of the national culture, (it is obviously shown in the Malaysian tourism website, http://tourism.gov.my) in order to fully address the multicultural society, to achieve the goal of Vision 2020. (These announcements will be discussed in the next
section). The non-Malay groups have been invited to consider themselves as a dynamic and important part of the nation, who therefore deserves inclusion and recognition.

Tsuruoka (1993, pp.24-25) points out the significance of ‘a full-page advertisement by Bank Bumiputra, the state-owned Malay bank, last year that carried the headline "Bank Bumiputra Salutes the New Generation" and showed three young professional women, a Malay, a Chinese and an Indian all walking together on a city street’. The advertisement addresses a multicultural society, by bringing a message to the nation that each ethnic group is part of the national identity. It is a rare government website that currently shares the sentiment of the above example. Likewise, Fenton (2003, p.147) states,

… of course the term “multicultural” does appear in some discourses in Malaysia, particularly where influenced by Western social science. And the amount of social space granted to Chinese and Indian language and religious affiliations – and buildings – will continue to be fought over. The solution will not be to dislodge the cultural hegemony of Malays and implant a doctrine of cultural equality, rather to sustain the series of compromises that has characterized Malaysian handling of these questions for at least forty-five years.

It depends on what kind of arrangements are better solutions to integration for the plural society, whether it is comprised of cultural or political issues, certain problems still occur and the solutions can never be completely implemented. Fenton (2003, p.138) states,

…. plural societies present particular “versions” of applicability of a multicultural model either as description or as political prescription . . . the politics of ethnic and religious groups are frequently described by the specific term “communalism” . . . meaning that politics is “reduced to” the politics of group identities and the search for advantages, simply for a religious or ethnic community.

In Malaya, national culture had become disordered and weakened during the British colonial period, following the British policy of divide and rule. For example, the English language was increasingly used in the society. Ghazali (1970) notes ‘there was a withering away of the common language in the commercial and business circles of Malaya, to ultimately be identified as the language only of the peasants’.

In 1971 Tun Abdul Razak argued for a distinctive national culture, stating in his speech (Razak, cited in Fenton 2003) ‘...National culture must be based on the traditional culture of the indigenous people of this part of the world, that is, the Melayu-Indonesian cultural area...’
However, there are clearly many different influences on Malaysian national culture, including elements of the dominant foreign cultures namely English, Chinese and Indian cultures. In particular, the British changed Malaysian culture through the imposition of English as the language of colonial Malaysian government institutions, bureaucracies and education. English came to be used in the economic development, social communication and political life of the middle-class in the Malay community. Other elements of the Malay culture were also underestimated and were temporarily overlooked.

Malaysian political leaders believed that the Malay culture as a national identity needed to be clearly redefined and put in an appropriate and respectable position to be accommodated in the changing situation of modern Malaysia. In July 1969, ‘Rukun Negara’ (Razak, cited in Wan, 1983) was formulated as a new policy of pragmatism aimed at integration and national unity.

The five principles of the ‘Rukun Negara’ are:
1. Belief in God (Kepercayaan Kepada Tuhan)
2. Loyalty to King and Country (Kesetiaan Kepada Raja dan Negara)
3. Upholding the Constitution (Keluhuran Perlembagaan)
4. Rule of Law (Kedaulatan Undang-Undang)
5. Good Behaviour and Morality (Kesopanan dan Kesusilaan)

Parallel with it was a declaration of the Malaysian nation being dedicated:

1. To achieving a greater unity of all her people;
2. To maintaining a democratic way of life;
3. To creating a just society in which the wealth of the nation should be equally shared;
4. To ensuring a liberal approach to her rich and diverse cultural traditions;
5. To building a progressive society which shall be oriented to modern science and technology.

It seems clear that creating a coherent national identity will not only raise the social status of the Malays as a politically dominant race, but also bring a closer relationship between the ethnic groups. The primary goal of government policy has been to develop Malay as the dominant culture of the country and gradually assimilate the non-Malays into Malaysian society. But, this idea needs to be reformulated for the current Malaysian society to encourage multiculturalism, which contributes to modernising and diminishing ethnocentricism and create a harmonious and tolerant society. How should this form of
multiculturalism be established? According to Kottak and Kozaitis (n.d., p.48) this can be achieved,

(1) by recognizing a multiplicity of legitimate cultural cores, or centers;
(2) by acknowledging cultural criteria as the source of group formation; and
(3) by promoting democratization and equity among groups . . . Society is seen not as various traditions blending into one heritage, but as the coexistence of many heritages and newly invented traditions within a single nation-state.

However, Fenton (2003, p.140) also argues that ‘… The problem of governance in multicultural societies is then one of how cultural difference is to be accommodated in a single political order. But the much more historically informed term “plural” has raised and raises directly the questions of power, integration and governability.’

The Malaysian culture needs to be ‘modernised’, to address the contemporary multicultural society, in the world context of developing science and technology. It needs to successfully create a unified national identity for the new Malaysian nation.

**Government of Malaysia addresses multicultural society**

The Malaysian government has been addressing multiculturalism through the launch of a range of projects, campaigns and announcements since 1991. Multiculturalism is of benefit to, and has advantages for, the country in creating a united Malaysian nation and developing a stronger Malaysian economy. According to Bunnell (2002, p.114)

‘Malaysia’s “multicultural edge” (as the previously-mentioned New Perspectives Quarterly, 1997 article called it) may also extend to the working of the information economy. Multiculturalism not only makes possible an imagined regional centrality but also, more tangibly, enables the tailoring of IT and multimedia products to a range of (national and transnational) cultural and linguistic markets’.

The following are some of the campaigns and initiatives that the government has recently announced:

Vision 2020
Bangsa Malaysia
Smart Partnerships
One System for Malaysia
Vision 2020

Malaysia is currently aiming to fulfil the nine key challenges of Vision 2020. This vision was formulated in 1991 after the New Economic Policy (NEP) had ended. Vision 2020's focus is on a Malaysian-style of development, and emphasising both spiritual as well as physical dimensions to achieve racial harmony, societal stability and prosperity. The vision is intended to create a united Malaysian nation where the different ethnic groups are able to share a common national identity.

In 1991, Datuk Seri Dr Mahathir Mohamed (1991) outlined the following goals for Malaysia:

By the year 2020, Malaysia can be a united nation, with a confident Malaysian society, infused by strong moral and ethical values, living in a society that is democratic, liberal and tolerant, caring, economically just and equitable, progressive and prosperous, and in full possession of an economy that is competitive, dynamic, robust and resilient.

Vision 2020 provides motivation and aspiration for Malaysians. The two of the nine challenges that have been implemented to emphasise and promote intercultural understanding within Malaysia’s multi-ethnic society are (Vision 2020, 1991):

Challenge 1
... the challenges of establishing a united Malaysian nation with a sense of common and shared destiny. This must be a nation at peace with itself, territorially and ethnically integrated, living in harmony and full and fair partnership, made up of one ‘Bangsa Malaysia’ with political loyalty and dedication to the nation.

Challenge 5
... the challenge of establishing a mature, liberal and tolerant society in which Malaysians of all colours and creeds are free to practise and profess their customs, cultures and religious beliefs and yet feeling that they belong to one nation.

Bangsa Malaysia

In 1991, Dr Mahathir Mohamed declared that he had a vision of creating a ‘Bangsa Malaysia’ (Malaysian nation) by the year 2020, expressing his hope to achieve this as part of Vision 2020. He predicted that the country would achieve a developed status by that time with the formula of an accelerated industrialisation programme.

The Malaysian society would be a just and egalitarian nation, because the Malays would be able to have economically progressed and developed the ability to compete on equal terms with the other ethnic groups. According to Case (2000, p.141) ‘Mahathir outlined a new...
‘Bangsa Malaysia’ enabling the Malays and Chinese to interact fruitfully in order to bring ‘full’ socio-economic development -- measurable in terms of high living standards, ethical principles, a ‘mature democracy’, and ethnic harmony’. Many people believe that the nation should possess a sense of a common and shared destiny, which transcends different racial identities. In order to reflect the ‘Bangsa Malaysia’ vision, Mahathir took a symbolic action to attend Chinese New Year ceremonies in 1993. As reported in the New Straits Times (1993, p.1) ‘Mahathir appeared in a ‘flaming red shirt to reflect the colour of prosperity, not only for the Chinese community, but also that being enjoyed by the country’.

In public speeches in 1995 and 1999, Dr Mahathir Mohamed (1991, 1999) outlined his vision of Malaysian multiculturalism:

It is when every race is equally dissatisfied that one can be sure that every one is having a fair deal. Then there will be relative harmony. As has been noted it is quite impossible to ensure that every race will be satisfied. If this can be made to happen then race becomes irrelevant. At this stage racial politics would become superfluous. Until then it is better to recognize the fact of race and to provide for as much fairness as possible for all. This is what Malaysia has done.

There can be no fully developed Malaysia until we have finally overcome the nine central strategic challenges that have confronted us from the moment of our birth as an independent nation. The first of these is the challenge of establishing a united Malaysian nation with a sense of common and shared destiny.

At the Sixth World Federation of Foochow Associations Convention, in Kuala Lumpur, Deputy Prime Minister Datuk Seri Abdullah Badawi made a speech on 17 December 2000. He (cited in Cheah, 2002, p.70) endorsed a multicultural vision for Malaysia’s future:

We believe that no one community will be sidelined. We believe that every Malaysian has a responsible role to play in nation-building and we believe that it is this unity in diversity that will define a Bangsa Malaysia or Malaysian Nation in the years to come.

In research by Giacchino-Baker (2000), a survey was undertaken on the reaction to “Who Are We?” (Ahmad et al. 1997) in relation to Bangsa Malaysia. The following statements represent some significant responses, expressing a desire for equality of treatment for each racial group:
A Bangsa Malaysia . . . does not have to strip anybody of his/her own individual identity. Having a Malay identity or a Chinese or Indian identity in a Bangsa Malaysia does not have to mean that someone is not a Malay or a Chinese or an Indian any longer.

While everybody seems to accept the fact of the national policy that all Malays and other Bumiputras will have privileges in almost every aspect of life, in my opinion, if this policy continues to be applied, it will be impossible to create a true Malaysia.

I believe this confusion stems from political leaders when they start ... segregating the races in terms of politics, economics and social standing . . . Malays keep complaining that the Chinese are ahead economically . . . while the Malays have been given all the benefits and have become complacent. The Chinese have to work harder to achieve what they can’t get from the government. And the Indians always get the leftover slice of the pie. To make everyone equal let them fight it out to be the best . . . Give what you give to one, to the rest . . . Let the young minds in school learn about . . . and understand each others’ cultures and ways of life and learn to tolerate each other . . . I strongly believe we can be called a Bangsa Malaysia but minus all the politics and finger pointings.

**Smart Partnerships**

Smart Partnerships is one of the campaigns that was promoted by Mahathir Mohamad. The initial idea of this campaign was to describe the strategic cooperation between the state and private sector in business enterprises. Currently, under this campaign, Malay and non-Malay businesses are developing new, complementary relationships and sharing the financial rewards of economic globalization. According to Hefner (2001, p.33)

‘Mahathir is convinced not only of the importance of taking Malaysia “beyond its manufacturing base toward an information-based ‘knowledge economy’”, but also of the necessity of Chinese Malaysian participation to realise this goal. The Prime Minister believes measures must be taken to reassure Chinese that they are full partners in the Malaysian nation’. Yet, crucially, whether or not this is translated into a lowering of ethnic barriers in various societal fields is dependent upon ongoing domestic political contests.’

This is the challenge facing Malaysia today, the ethnic barriers are being lowered in areas of economic development, however they still exist in many important fields, such as education and public services.
The new smart partnerships have provided new opportunities for interethnic civility and participation in the economic field. Hence, they mainly officiate to assist in creating a united Malaysian nation.

The Council for the Promotion of Genuine Joint Ventures (Majlis Galakan Usahasam Tulen – MGUT) was set up in 1995 to promote working together between the Malay and non-Malay business groups. The MGUT (cited in Embong, 2001, p.66) has representatives from:

- The Malaysian Malay Chamber of Commerce (DPMM)
- The Malaysian Associated Chinese Chamber of Commerce and Industry (ACCIM)
- The Malaysian Associated Indian Chamber of Commerce and Industry (MAICCI)
- The Ministry of Entrepreneurial Development

One system for Malaysia
The Prime Minister of Malaysia, Datuk Seri Abdullah Ahmad Badawi (cited in Khan, 2004, pp.1-2) has recently announced that he strongly emphasises ‘One system for Malaysia’, ensuring that the country will not develop two administrative systems, Islamic and non-Islamic.

Malaysia is for all. Today’s Government is shared by all races. It is necessary to take into account the feelings, sensitivities and aspirations of all.

The indications are that Malaysia is attempting to address the situation of being multiracial with sizeable minorities, so that in establishing a unified national identity, it genuinely acknowledges and supports individual ethnic groups.

The new government pronouncements are targeted so that cultural solidarities are no longer seen to fit closely into the old pluralistic model of Malaysian society. Now, Malaysia’s new nation making may be a nascent multiculturalism that is distinct from models in other countries. Khoo (1995, p.25) suggests

…affirmative action is no longer seen to be necessary in Mahathirst Malay nationalist terms given the risen of a Bumiputera capitalist class, to demographic realities which mean that, numerically at least, non-Malays are no longer considered to be such a ‘threat’.

Towards these ends, the Malaysian government has been making efforts to reinforce the inclusion of other ethnic groups.
Summary
In this chapter, I have offered an overview of the emergence of multiculturalism in Malaysia and reviewed the significance of multiculturalism in the government Vision 2020 policy.

Malaysia has become a divided and plural society with the ‘indigenous’ Malays sharing their province with other ethnic groups since the British colonise period. Malaysia is still at the nation-building stage and the government has promoted a few different multicultural theme campaigns and policies to the country. The multicultural goals have also responded to the new technological and economic relations of an information economy. Moreover, economic regionalisation and globalisation have reshaped a Malay-centered vision of the nation.

This review highlights how ethnic identity is an important political issue in the country and that Malaysian identity depends on how multiculturalism is played out. This emerging identity can be both reflected in and constituted by media, including in web interface design.

Web interface plays an important media role in Malaysia and it reflects the political issues broader considerations with the Malay dominant the politic power, and the other ethnic groups occupying an important supporting role to government success in the aspects of economic development.

Most of the Malaysian official government websites tend to address the Malay ethnic group. However, the Tourism official website promotes cultural integration in this country, ethnic distinctions, a rich cultural heritage, and religious tolerance in a predominantly Islamic nation. Ironically, the integration of cultures in the government websites only really appears on Malaysian Tourism official website. Here the multicultural representation matches that of commercial sites, so proves that multiculturalism can be used by the government when that message is seen as politically and socially expedient.

The implication of this research project focuses on development of visual interface design to better address the government policy for Vision 2020 in building up the multicultural society.
3. Literature Review – Culture in Interface Design

Overview
In the previous chapter, government announcements and policies have been presented as evidence that Malaysia is promoting a multicultural society by year 2020. The website is one media most recognisable for bringing and endorses the theme of ‘multiculture’, due to its the mass distribution and functional information delivery. Government websites should be accessible and have appeal across cultures in terms of recognising cultural differences via a visual interface. As a result, the websites are expected to maximise local design elements, particularly in designing multicultural themes. Mitchell (2000, p.197) argues ‘…linguistic translation, however, only scratches the surface of localization: cultural experience may have a greater influence on users’ reactions.’ People from different cultures do have different expectations and needs, and meeting these needs improves the recognition of communication and usability of the multilingual site. In Malaysia, the national culture is constructed around an almost total emphasis on Malay culture. Most of the government websites have a general purpose, which is to provide information to a wide spectrum of the population, unlike corporate sites which are more precisely targeted. What is needed is for there to be either informed solutions or a model template, which can be used for multicultural concepts, in order to improve the Malaysian government official websites. This representation of the national culture is mirrored in other dominant government controlled and influenced media, such as TV. The government funded TV channels are contextualized similar as websites and emphasis a mono-cultural theme, which is exceedingly different from the privately organized TV channels that addressing variety to different groups.

In this section I examine Hofstede’s cultural frameworks and employ Aaron Marcus’s user-interface design components, as an analytical framework for this research project. In addition, I use the concept of ‘cultural markers’, as proposed by Wendy Barber and Albert Badre, to provide better understanding of particular cultural design elements.

Culture Definition
In many studies, researchers have identified the definition of ‘culture’ to enable examinations of ‘cultural differences’ in communication practices. Cultures may be defined
by country, language, religion, social conventions and art, which can be represented through specific signs and symbols. There is indication of increasing acceptance that the definition of culture is concentrating on ‘shared values’. According to the first scholars who focus on shared values, Kroeber and Kluckhohn (1952, p.181)

Culture consists in patterned ways of thinking, feeling and reacting, acquired and transmitted mainly by symbols, constituting the distinctive achievements of human groups, including their embodiment in artifacts; the essential core of culture consists of traditional (i.e., historically derived and selected) ideas and especially their attached values.

The concepts of ‘patterned thinking’ and ‘shared values’ have influenced and been adapted by other scholars such as Triandis (1972), Geertz (1973) and Hofstede (1997). The definition of ‘value’ has arisen and it should be in the context of ‘shared values’. An obvious identification of ‘value’ can be defined through cultural elements to represent itself. Dormann and Chisalita (n.d., p.1) describe ‘Cultural Representation as the basis of cultural differences is considered to reside in the representations used and in the applications and the meaning conveyed by these representations.’ For example, the Chinese give each other a Red Packet (Hongbao) during the Lunar New Year. It is a symbol of celebration, good wishes and good fortune. The Malays hand out cash contained in ‘Green’ envelopes and called Duit Raya during the Hari Raya Aidilfitri in Malaysia. Each group is carrying out similar cultural practices but in different ways. As we can see cultural representation is at the root of cultural differences.

In this thesis I wish to present and support the concept of culture that is not fixed but constantly changing. Change happens over time through the constant process of influence and example as various ethnic groups, living next to each other, normalize differences and demonstrate diverse living strategies. Herskovits (1948, p.635) states:

Change is a constant in human culture. It is, however, always to be studied against a backdrop of cultural stability. Even though changes may appear to be far-reaching to the members of a society where they occur, they seldom affect more than a relatively small part of the total body of custom by which a people live. ... Change, that is, must always be considered in relation to resistance to change.

Cultural change can be demonstrated in many social movements in Malaysia, the dynamic culture allows different ethnic groups or cultures to reform the new century of modernizations and globalizations.
Singh and Pereira (2005, p.29) note ‘… all definitions of culture are the explicit or implicit recognition of three key factors: perception, symbolism and behaviour. Together, they help establish patterned thinking and a shared value system.’

In addition, the word ‘culture’ is used to symbolize the importance of this concept in different intellectual aspects and disciplines. Heaton (1998, p.263) defines culture as ‘a dynamic mix of national/geographic, organizational and professional or disciplinary variables’. As a result, most of the current research into online disciplines defines culture as ethnic culture.

However, culture also can be defined as Sheridan (2001, n.p.) does when discussing web globalization. He states ‘how people from certain cultural orientations view and interpret specific images and messages’. In human-computer interaction, Honold (2000, p.328) states ‘Culture defines members of a group as distinct from members of other groupings … Cultural models are acquired through interaction with the environment. Action and experience on the one hand and cultural models on the other affect one another through the processes of accommodation and assimilation … Culture does not determine the behavior of individuals but it does point to probable modes of perception, thought, and action. Culture is therefore both a structure and a process.’

This research project uses Geert Hofstede’s (1997, p.35) definition of culture – ‘Culture is the collective programming of the mind which distinguishes the members of one group or category of people from another’.

**Geert Hofstede**

Hofstede, a Dutch cultural anthropologist, took survey data about the work and positions of International Business Machine Company (IBM) employees employed in over 50 countries. He identified five dimensions, which distinguished cultures at a national level. His cultural framework has been broadly used to integrate computer studies. The five dimensional models are: Power Distance, Individualism-Collectivism, Uncertainty Avoidance, Masculinity-Femininity, and Long-short Term Orientation. Each dimension
groups together phenomena in a society that were observationally found to happen in combination. The definition of dimensions is: (Hofstede, n.d.)

Power Distance (PD)
PD focuses on the degree of equality, or inequality, between people in the country’s society. A High Power Distance ranking indicates that inequalities of power and wealth have been allowed to grow within the society. These societies are more likely to follow a caste system that does not allow significant upward mobility of its citizens. A Low Power Distance ranking indicates the society de-emphasizes the differences between citizen's power and wealth. In these societies equality and opportunity for everyone is stressed.

Individualism-Collectivism (IDV)
IDV focuses on the degree the society reinforces individual or collective achievement and interpersonal relationships. A High Individualism ranking indicates that individuality and individual rights are paramount within the society. Individuals in these societies may tend to form a larger number of looser relationships. A Low Individualism ranking typifies societies of a more collectivist nature with close ties between individuals. These cultures reinforce extended families and collectives where everyone takes responsibility for fellow members of their group.

Uncertainty Avoidance (UA)
UA focuses on the level of tolerance for uncertainty and ambiguity within the society - i.e. unstructured situations. A High Uncertainty Avoidance ranking indicates the country has a low tolerance for uncertainty and ambiguity. This creates a rule-oriented society that institutes laws, rules, regulations, and controls in order to reduce the amount of uncertainty. A Low Uncertainty Avoidance ranking indicates the country has less concern about ambiguity and uncertainty and has more tolerance for a variety of opinions. This is reflected in a society that is less rule-oriented, more readily accepts change, and takes more and greater risks.

Masculinity-Femininity (MAS)
MAS focuses on the degree the society reinforces, or does not reinforce, the traditional masculine work role model of male achievement, control, and power. A High Masculinity ranking indicates the country experiences a high degree of gender differentiation. In these cultures, males dominate a significant portion of the society and power structure, with females being controlled by male domination. A Low Masculinity ranking indicates the country has a low level of differentiation and discrimination between genders. In these cultures, females are treated equally to males in all aspects of the society.

Long-short Term Orientation (LTO)
LTO focuses on the degree the society embraces, or does not embrace, long-term devotion to traditional, forward thinking values. High Long-Term Orientation ranking indicates the country prescribes to the values of long-term commitments and respect for tradition. This is thought to support a strong work ethic where
long-term rewards are expected as a result of today's hard work. However, business may take longer to develop in this society, particularly for an "outsider". A Low Long-Term Orientation ranking indicates the country does not reinforce the concept of long-term, traditional orientation. In this culture, change can occur more rapidly as long-term traditions and commitments do not become impediments to change.

Hofstede’s cultural dimension research is a significant study in an area with scant resources for a truly international study of comparative cultural characteristics. If we accept his findings we have to assume that his IBM workers were in some way culturally representative of their national groups and in this area Hofstede could only have generalized. I am having acknowledged these shortcomings. I still think there are valid grounds for my use of Hofstede’s criteria. In the first instance, it is clear that his cultural dimensions broadly characterize national culture in term of its 'average pattern of beliefs and values’, the groups of people think in the same way because they share the same learning processes. However, my research tends to make a comparison of Malay and Chinese cultural characteristic and therefore Hofstede’s cultural dimensions have been used to represent this general point of view. Second, Hofstede’s cultural dimensions have been widely reproduced in academic research, especially in web communication fields, thus it has already made a significant contribution to cultural theory on national cultural difference. Third, Hofstede’s cultural dimensions have been found to be applicable to the significant study in web interface. For example, Aaron Marcus (2000) used his model and applied it to international design interfaces; Pavlou & Chai (2002) used Hofstede’s cultural dimensions to successfully show the differences of cross-cultural in Internet diffusion and adoption. Forth, Hofstede’s framework has been discovered to be a valid basis for analysis of regional differences, it can be used as a valuable instrument for Web Marketers to become accustomed their websites to local cultures (Simon, 2001).

I agree with some stages of Hofstede’s cultural framework. However the five dimensions on his research could not all be applied to my research project, as his research is differently targeted. He chooses to see national groups as mono-dimensional cultures. Smith et al. (2003, p.67) state ‘He conceptualized culture as ‘programming of the mind’, in the sense that certain reactions were more likely in certain cultures than in other ones, based on differences between basic values of the members of different cultures.’ It is integrally difficult to apply to a more comprehensive multi-dimensional culture that is carrying different ethic groups in the society. Moreover, he originated the cultural frameworks for
his own purpose, specific to the participant’s needs and business aspects. The question I am seeking to answer here is the extent to which general cultural issues affect websites, recognising cultural difference in the visual interface with the recognition that it is not reconcilable to all interface design. Therefore, only aspects that can be beneficial to the cultural structure of the society, in such case only the dimensions of ‘Power Distance’ and ‘Individualism-Collectivism’ will be investigated in this research.

**Culture in Interface Design**

Cultural theories, such as Hofstede has been used by different disciplines, but seem to have been little used the interface design field. Other research, such as Evers and Day (1997) have evaluated culturally diverse preferences, in particular behavioral consequences of satisfaction with interface design. Evers and Day’s research incorporated perspectives of culture in surveying international students (Asian and Australian) on cross-cultural differences in interface acceptance. The authors concluded culture affects the attitude and behaviours toward the interface design preference in colours, menus, input devices, sounds and multimedia. This research finding concluded that Asians preferred to work with useful and difficult interface, and to Australians, appearance is a major factor. Acceptance of interfaces was also identified in different processes. They found obvious differences between Chinese and Indonesian users in their study. Evers (in Ess 1997, p.20) states;

> Indonesians like soft colours, black and white displays and pop-up menus more than do Chinese. Also, Indonesians seem to like new technology and alternative input and output (e.g., sounds, touch screens, data gloves and multimedia) more than do Chinese. On the other hand, the use of many different colours seems more appropriate for Chinese.

This research helps explain how user’s from different backgrounds responded to interface design, which demonstrated similarity of cultural approach but in different formations. Bourages-Waldegg and Scrivener (1998) investigated culturally determined usability problems on how representations and meaning mediate user actions within shared contexts. These research studies show that culture certainly influences attitudes towards computers and preferences in interface design. The method used in this research involved interviews and usability questionnaires for six students and staff from diverse cultural backgrounds. The study concludes that users from different cultures have different representational preferences in interface design. They also claim that more design
guidelines are being developed as different cultural frameworks are found. This issue would make the design process more complicated as it is difficult to meet a wide range of users’ needs. They indicated that the existing cultural frameworks were inadequate for dealing with localised ideas. Therefore, contemporary designers need to come up with their own appropriate cultural framework, which refers to existing models as a frame of reference in co-operation with other components relevant to interface design. In fact, their approaches guided my research project into an advanced stage of creating Style Menu as guidelines for specific target users.

Khaslavsky (1998) created nine factor variables combining Hall’s, Hofstede’s and Trompenaars’ models to assess culture and design. Khaslavsky’s research evaluated what are the differences between Europe and America, in assuming the similarities of two countries are western nations. Khaslavsky (1998, p.366) concluded ‘A comparative study of French and American culture and mental models reveal many more surprising and significant differences between the two groups that will prove instrumental to understanding the impact of culture on interface design’. This research precisely directed to my research project focuses on the similarities of Asian cultures nevertheless its more nationality wide considerations. Based on the Khaslavsky’s research that provides some of the schemes for implications on the design issues, such as more attentive consideration on conceptual problems, use some of the cultural framework to analysis more information towards the cultural differences and contribute a specific design implications in this field of research.

Culture is also an important issue in web development, as research studies have been addressing cultural differences, arising in the process of designing and creating websites for a particular global cross-cultural audience. There are different aspects to consider in cross-cultural research, such as usability, culturability, design process and cross-cultural elements in Human Computer Interface. Using the website to facilitate communication involves an understanding of intercultural communication. Edward T. Hall is one of the anthropologists who established the original paradigm in this field. Smith et al. (cited in Hall 1959) described ‘Culture as a selective screen through which we see the world, and believed that basic differences in the way that members of different cultures perceived reality were responsible for miscommunications of the most fundamental kind.’
Cultural differences have critically involved the process of design; it seems unrealistic for designers to depend on their personal experience of culture when attempting to design an effective interface design. The need for focusing on design characteristics which are perceptive to demographic and cultural differences has been clearly identified; nevertheless it is often not clear what these are or that might be perceived as being representative. So, this is an issue that is often the most readily overlooked aspect in developing a website. According to Sheridan (2001, n.p.)

Designers do not consider how important the role is that culture plays in the design of the interface. They tend to ignore how the information is classified and also how the semiotics, different colour semantics and other cultural differences affect the user.

On the other hand, referring to the current research studies shows that primarily cultural research has been hard to integrate with cultural interface design. As a case in point, Trompenaars (1993) developed a cultural framework based on problem solving methodology of how human beings interact with the graphical interface. His cultural frameworks (Universalism vs. Particularism; Individualism vs. Collectivism; Neutral vs. Emotional; Specific vs. Diffuse and Achievement vs. Ascription) has been identified by Badre (2000), Sun (2001) and Russo and Boor (1993) that these cultural frameworks are inadequate to design the concepts of the localized interface, because it only identifies some user barriers. Trillo (1997) stated ‘users from different cultures have different associations for the same real world objects and therefore different ideas on how to interact with the objects. An object does not mean anything in itself; it only has the meaning that the user attributes to it.’ As users are facing difficulties in recognising metaphors or elements, offensive cultural graphics could be created. More knowledge is needed on cultural elements and interface understanding, to form a descriptive framework of the multi-culture to which an interface will be addressed.

**Applying to Malaysia**

*Power Distance (PD)*

The ‘Power Distance’ cultural dimension addresses a “behavioural” component of culture. Malaysia rated 104, a higher ranking example of High Power Distance in Hofstede’s Dimensions of Culture. Power Distance implies that in institutions and organisations within Malaysia, people expect and accept that power is distributed unequally. In High
Power Distance, people are more sensitive and the behaviour shows more respect and obedience to senior authority figures. High Power Distance does not apply only in the dominant (Malay) culture. It is also reflected in the other Malaysian sub-cultures (Chinese and Indian) which are also hierarchical, but in different ways. In High Power Distance, people are more accepting of differences because they consider that people ranked in the society are entitled to more privileges. In more democratic cultures, members regard each other as equals. Differences in society should be minimized, subordinates are not afraid to disagree with their superiors and they can expect to be consulted before decisions are made. Most of the works and responsibilities are allocated to the senior or elder person. The value of hierarchy and respect for one’s elders are clearly acknowledged in the manner of Malaysians. Asma and Pedersen (2003, pp.74) identified the hierarchical relationships through the use of names among different cultures in Malaysia:

**Malays** (have no surname)
They have a given name followed by their father’s name  
A Malay man’s name is followed by a b. meaning BIN or son of  
A Malay lady’s name is followed by BT meaning BINTE or daughter of

**Chinese** (have a surname)
It comes first followed by given names

**Indians** (have no surname)
They have a given name followed by their father’s name  
An Indian man is identified as A/L meaning anak lelaki or son of  
An Indian woman is identified as A/P meaning anak perempuan or daughter of

The manifestation of High Power Distance is exemplified in the National Library of Malaysia (PNM) website; which is taken as a case study in this research. In the website, a corporate logo and an official seal of the country are clearly displayed on the top banner of the page; a sign that represents phenomena that tends to focus on centralised political power. Moreover, the library building’s architectural design is metaphorically fashioned on the traditional Malay headgear (*Tengkolok*). Hence, the placement of the structurally symbolic library building in the main body of the page reinforces the concept of High Power Distance, it signifies Malay authority.
In addition, Straub et al. (1997, p.4) state ‘In such high power distance societies, individuals may show deference to authority by refraining from using media that do not allow them face-to-face contact.’ As a result, designing web interfaces for the multicultural society in High Power Distance, in a case such as Malaysia, needs research on how designers can describe authority and hierarchical structure on the web interface, which has practically no direct human contact? In Chapter 5, a few different models will be demonstrated and suggested, which can be achieved in response to the question.

**Individualism-Collectivism**

In all Malaysian cultures, the family is the core of life. The values of group, religion, loyalty and family-based values are trained by parents or elders. Members in cultures which are more group-oriented regard themselves as associated to a group based on some common grounds based on religion, ethnicity and language. Because of their group affiliation, Malaysians obtain their identities through many important others such as parents, friends and relatives. Asma and Pedersen (2003, p.69) demonstrated the concept of the related self:
Malay (Muslim)
A related self “anak siapa itu”
The emphasis is on affective skills more than cognitive skills
Focus on “budi bahasa dan sopan santun” more than ability to think independently and ask critical questions
A refined “halus” person has to conform to group norms: collaborative; cooperation

Chinese (Buddhist)
Related to concept of “jen” or being a civilized person
A belief in transactions with fellow human beings to enhance interpersonal adjustment
Focus on practical ethics “situation-centred” and social controls
Mutual dependence in the family rather than self-reliance and independence
Filial piety and mutual exchange in a cycle of reciprocity

Indian (Hindu)
Personality extends before birth and after death
Concept of KARMA is a relational meaning of personality
Essence of individual is not the surface qualities of self
Goal of maturity is achievement of satisfying and continuous dependency “bandha, sambandha, bandharya” (bond, kinship and bondship)

The Individualism-collectivism cultural dimension also indicates the value of addressing the “behavioural” component of culture. Moreover, it focuses on an individual’s relationship with society or other individuals. Lee and Green (1991) state ‘Societal norms and societal pressure have been shown to have a significant impact on behavioural intention formation in collectivist societies.’ Also, Han and Shavitt (1994) state ‘Research on advertising in such countries shows advertising to be congruent to their cultural identity, with an emphasis on group-consensus appeals, family security, and family ties.’ In collectivist societies, a stronger focus is on the group and individuals are associated with societal chains. The group concept, focusing on group decision-making, takes precedence over the individual values.

Malaysia’s culture emphasises the importance of relationships and group consciousness. According to Asma and Pedersen (2003, pp.66-68), ‘Malaysians also think highly of those who are loyal, moderate in their way, disciplined and obedient … Malaysia is a collectivist society of kita (we) in which people from birth onwards tend to identify themselves with a family, community or organization’. However, there is an argument that can contradict Asma and Pedersen’s statement, if we are referring to the PNM (Perpustakaan Negara Malaysia) website, in fact the website express kami rather than kita, by exclusively
addressing only the Malay ethnic groups and ignoring a wider incorporation of other Malay ethnicities which would be described as *kita*. We might ask what a collectivist society is? According to Singh and Pereira (2005, p.77) ‘…collectivist societies emphasize in-group obligations, interdependence, and preserving the welfare of others.’ The Malaysian government official websites are not emphasising this theme yet, compared to the commercial areas. Advertising in commercial organisations is focusing on the appeal relating to interdependent relationships in the collectivist societies. For example, Tsuruoka (1993, pp.24-25) points out the significance of ‘a full-page advertisement by Bank Bumiputra, the state-owned Malay bank, last year that carried the headline "Bank Bumiputra Salutes the New Generation" and showed three young professional women, a Malay, a Chinese and an Indian all walking together on a city street’.

However, according to Cheng and Schweitzer (1996, p.27) ‘advertisements in collectivist societies depict the use of symbols and pictures of national identity’. Paradoxically, it can be seen on the Malaysian Tourist promotion clip – ‘Truly Asia’, where an international film actress Michelle Yeoh (Malaysian-Chinese), appears as an identity icon of the country, promoting Malaysian tourism.

Figure 2 – Truly Asia, TV Commercial, 2005
Aaron Marcus’s user-interface components

Marcus and Gould (2000) used Hofstede’s model and applied it to international design interfaces, formulating guidelines and rules based on the model. Marcus applies Hofstede’s model to the area of user-interface design, experimenting with the way at how Hofstede’s model could be represented in web design and recommending that each model influences some aspects of user-interface design. The websites have been inclusively chosen from the continents of USA, Europe and Asia; concentrating on a few large organisations, business-to-business websites.

Marcus (2002, n.p.) has identified and defined a set of user-interface components:

Metaphors: fundamental concepts communicated via words, images, sounds, and tactile experiences. Concepts of pages, shopping carts, chatrooms, and blogs (Weblogs) are examples.

Mental models: structures or organizations of data, functions, tasks, roles, and people in groups at work or play. Content, function, media, tool, role, goal and task hierarchies are examples.

Navigation: movement through the mental models, i.e., through content and tools. Examples include dialogue techniques such as menus, windows, dialogue boxes, control panels, icons, and tool palettes.

Interaction: input/output techniques, including feedback. Examples include the choices of keyboards, mice, pens, or microphones for input; the choices of visual display screens, loudspeakers, or headsets for output; and the use of drag-and-drop selection/action sequences.

Appearance: visual, auditory, and tactile characteristics, i.e., perceptual attributes. Examples include choices of colors, fonts, verbal style (e.g., verbose/interse or informal/formal), sound cues, and vibration modes.

These user-interface dimensions take up Hofstede’s model to form a five-by-five matrix that shows the findings of analysis different websites, based on these two research components. The Metaphors (from Aaron Marcus) and the Power Distance (from Hofstede) can all be demonstrated in particular interface design in much the same way that ‘Femininity vs. Masculinity (MAS)’ are evidenced in the tables below:
Femininity vs. Masculinity (MAS) + Metaphors
[Comparing McDonalds website between Finland (low MAS) & Austria (high MAS)]
Low MAS = focus on family and shopping
High MAS = focus on sports and competition-oriented approaches.

Femininity vs. Masculinity (MAS) + Mental Model
[Comparing Siemens website between Norway (low MAS) & Austria (high MAS)]
Low MAS = social structures and relationship-oriented approaches.
High MAS = business structures and goal-oriented approaches.

Femininity vs. Masculinity (MAS) + Navigation
[Comparing Siemens website (in the ‘Contact Page’) between Sweden (low MAS) & Japan (high MAS)]
Low MAS = multiple choices and multi-tasking, or polychromic approaches.
High MAS = limited choices and synchronic approaches.

Femininity vs. Masculinity (MAS) + Interaction
[Comparing McDonalds website between Sweden (low MAS) & Austria (high MAS)]
Low MAS = practical and function-oriented approaches.
High MAS = game and individual-oriented approaches.

Femininity vs. Masculinity (MAS) + Appearance
[Comparing Coca-Cola website between Denmark (low MAS) & Italy (high MAS)]
Low MAS = harmonious colours and shapes, relationship-oriented.
High MAS = saturated colours, reference to competitive sport approaches.

The following table shows how the website categorized into different matrix. (in the countries of USA, Europe and Asia)

<table>
<thead>
<tr>
<th>Business</th>
<th>USA</th>
<th>EU</th>
<th>Asia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sapient (SAP)</td>
<td>Siemens (SIE)</td>
<td>Hitachi (HIT)</td>
</tr>
<tr>
<td></td>
<td>Peoplesoft (PEO)</td>
<td>SAP (SAP)</td>
<td></td>
</tr>
<tr>
<td>Consumer</td>
<td>McDonalds (McD)</td>
<td>IKEA (IKE)</td>
<td>Sony (SON)</td>
</tr>
<tr>
<td></td>
<td>Coca Cola (COC)</td>
<td>Mercedes (MER)</td>
<td>Mazda (MAZ)</td>
</tr>
</tbody>
</table>
The five-by-five matrix of Hofstede and Marcus result as:

<table>
<thead>
<tr>
<th>Metaphors</th>
<th>PD</th>
<th>IDY</th>
<th>MAS</th>
<th>UASA</th>
<th>LTO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SIP</td>
<td>HIT</td>
<td>SIP</td>
<td>SAP</td>
<td>SIP</td>
</tr>
<tr>
<td>Mental Model</td>
<td>MCD</td>
<td>MCD</td>
<td>ISE</td>
<td>ISE</td>
<td>MER</td>
</tr>
<tr>
<td>Navigation</td>
<td>SAP</td>
<td>HIT</td>
<td>SIP</td>
<td>SIP</td>
<td>SIP</td>
</tr>
<tr>
<td>Interaction</td>
<td>MCD</td>
<td>MCD</td>
<td>SIP</td>
<td>HIT</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>COC</td>
<td>SIP</td>
<td>SAP</td>
<td>MER</td>
<td>SIP</td>
</tr>
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<td></td>
<td>MCD</td>
<td>MCD</td>
<td>SIP</td>
<td>SIP</td>
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<tr>
<td></td>
<td>PEO</td>
<td></td>
<td>MCD</td>
<td>MCD</td>
<td></td>
</tr>
</tbody>
</table>

Figure 3 – A Visible Language Analysis of User-Interface Design Components and Culture Dimensions (Marcus, p.2)

Marcus’s user-interface dimensions have been used in relation to web design, with each dimension influencing different aspects of a website. The visual language related to culture is identified. He analysed websites that are well presented in both visual syntax and visual semantics, which are relevant to Hofstede’s cultural dimension applied to interface design. These user-interface dimensions have been fully used in all stages of development in planning, research, analysis, design and evaluation for the cultural visual interface. Marcus and Baumgartner (2004, p.9) state

Applied to the field of user-interface design and working with the term “metaphor”, which refers to the basic concepts communicated through words and images, one can assume that visual metaphors in such high PD countries would show institutions, buildings or objects with a clear hierarchy.

His research compared two Siemens websites in the Netherlands and Malaysia that showed Power Distance differently. Siemens in Malaysia presented the skyline of a city. However in the low PD country such as the Netherlands, Siemens website showed a direct look into the eyes of a person.
Also, we can see the way Power Distance approaches the Appearance in user-interface components. Marcus (2004, p.16) states ‘Countries with high PD might use images of leaders, national/corporate/government themes, slogans, insignia, logos, symbols, typefaces, layouts and colors; official music or anthems and formal speech.’ His research comparing Siemens website in the Netherlands and Malaysia, demonstrated this (2004, p.18) in Figure-4:

The Netherlands website (low PD) presents . . . ‘normal, typical or average’ people within the imagery of the Siemens website. They are enjoying life at the sea. The Malaysia website shows a much more cluttered imagery that combines four photographs into one, mixing shots with official websites, leaders and also ‘normal, typical or average’ people.
Sheridan also used Hofstede’s model to design guidelines on international interfaces. Further research done by Zahedi et al. (2001) and Sun (2001) also used Hofstede’s theory of cultural dimension to develop a conceptually supporting structure for creating an international web design and a model of cultural usability. Sun compared the different cultures in three countries (Germany, Brazil and China) using cultural markers in different contexts.

**Cultural Markers**

Hofstede’s model and Marcus’s user-interface components address specific aspects of visible language related to culture in the interface design. These combinations provide both visual syntax and semantic elements which are associated to culture areas in relation to particulars of presentation. Cultural Markers serves as an equivalent major role in the cultural interface design, combining with the Hofstede and Marcus frameworks to more easily achieve cultural sensitivity for Malaysian society. Barber and Badre (1998) show that there are established interface design elements and features of a website among a given culture. Barber and Badre (1998, p.1) state ‘Cultural Markers are interface design elements and features that are prevalent, and possibly preferred, within a particular cultural group. Such markers signify a cultural affiliation’.

Barber and Badre (1998) identified localised elements based on the websites in different countries, and drew a conclusion on Cultural Markers (Table-1) that they are particular to a given culture. They used this principle to combine culture and usability in web design and determined it as “culturability”, in doing this; they created a new dimension of usability in
web design. They also conducted a systematic usability analysis over several hundred websites from different countries where Cultural Markers were implanted. The main concern was to improve usability for the local users in web design. For instance; their research tested Italian participants using Italian designs and concluded that they preferred Cultural Markers identified for navigation rather than color preferences. However, my research aims to further explore cultural issues and interface dimensions within one country, rather than considerations of usability applied to many countries.

<table>
<thead>
<tr>
<th>HTML Specific</th>
<th>Icons/Metaphors</th>
<th>Colors</th>
<th>Specific Colors</th>
<th>Grouping</th>
</tr>
</thead>
<tbody>
<tr>
<td># of lines</td>
<td>international</td>
<td>red</td>
<td>flag</td>
<td>symmetrical</td>
</tr>
<tr>
<td># of centers</td>
<td>local</td>
<td>blue</td>
<td>graphics</td>
<td>asymmetrical</td>
</tr>
<tr>
<td># of images</td>
<td>clocks</td>
<td>green</td>
<td>pictures</td>
<td>proximity</td>
</tr>
<tr>
<td># of links</td>
<td>newspapers</td>
<td>purple</td>
<td>borders</td>
<td>alignment</td>
</tr>
<tr>
<td># of internal links</td>
<td>pages</td>
<td>pink</td>
<td>background</td>
<td>boundary</td>
</tr>
<tr>
<td># of external links</td>
<td>homes</td>
<td>black</td>
<td>enclosure</td>
<td>enclosure</td>
</tr>
<tr>
<td>visited link color</td>
<td>stamps</td>
<td>yellow</td>
<td>connection</td>
<td>connection</td>
</tr>
<tr>
<td>horizontal bars</td>
<td>envelopes</td>
<td>gold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tables</td>
<td>musical notes</td>
<td>red</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bold</td>
<td>paperclips</td>
<td>blue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>italics</td>
<td>thumbtacks</td>
<td>green</td>
<td></td>
<td></td>
</tr>
<tr>
<td>underlines</td>
<td>other</td>
<td>purple</td>
<td></td>
<td></td>
</tr>
<tr>
<td>frames</td>
<td></td>
<td>pink</td>
<td></td>
<td></td>
</tr>
<tr>
<td>audio</td>
<td></td>
<td>black</td>
<td></td>
<td></td>
</tr>
<tr>
<td>video</td>
<td></td>
<td>yellow</td>
<td></td>
<td></td>
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<tr>
<td>background image</td>
<td></td>
<td>gold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>background color</td>
<td></td>
<td>red</td>
<td></td>
<td></td>
</tr>
<tr>
<td>text color</td>
<td></td>
<td>blue</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2 – Different Categories of Cultural Markers

Sun (2001, p.100) states ‘In multilingual websites, cultural markers work as a layer of context which conveys the contextual information to the international users and helps them establish their familiar cultural frames so that they can understand and navigate through the information product.’ In short, Hofstede’s cultural framework could become useful to interface design combined with other precise methodologies. Hofstede’s cultural dimension is still a major influence in the research fields, and it can be clearly identified that those cultural markers would be applicable to the scenario of Malaysia’s multilingual websites. I will discuss this further in the sections on ‘cultural markers’ and demonstration of the style menus (Chapter 5).
Sun’s research aims to seek social and cultural factors for designing usable web interfaces with exploration of Cultural Markers. He identifies some methods of defining criteria, searching effective strategies and evaluating current practices for the cultural interface design, with a clear focusing on four major categories of cultural markers. They are visuals, colours, language and page layouts. The preliminary of Sun’s research findings are (2001, p.99):

**Culture is an important design element in multilingual web page design.**
When users browse the web pages, they will sub-consciously apply their cultural preferences to evaluate the design of web pages.

**Cultural markers are noticeable in multilingual web design.**
When users browse web pages, they often use the clues of picture, icon, shape, color, texts and tone to judge whether the site targets to them.

**Cultural markers can increase the usability of multilingual web pages.**
Cultural markers have great effects on users’ satisfaction with a specific multilingual web page and can ease users’ navigation.

**Users from different cultures prefer different modes of cultural markers.**
People from different cultural backgrounds prefer different cultural markers.

As the table indicated (Table-3), visuals are more related to Chinese users, and high context cultures share a strong preference for visual pointers. The high context is the one of the cultural frameworks researched by Hall (1983). According to Hall and Hall (1990, p.91) ‘In a high context culture, most of the information is in the physical context or internalized in the person’.

<table>
<thead>
<tr>
<th>Preference for Cultural Markers</th>
<th>Cultures of Origin</th>
<th>Contexts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchical and structured page layout</td>
<td>Germany</td>
<td>Low context</td>
</tr>
<tr>
<td>Attractive colors, more pictures</td>
<td>Brazil</td>
<td>High context</td>
</tr>
<tr>
<td>Visuals related to local culture</td>
<td>China</td>
<td>High context</td>
</tr>
</tbody>
</table>

Table 3 – Preference for Cultural Markers and Cultural Backgrounds
Sun’s research shows that websites use market specific cultural markers to include and get appropriate acceptance from its target audience. Sun (2001, p.99) states ‘Cultural Markers can be regarded as one of the techniques for information visualization on the multilingual websites. They work as a layer of contexts and offer contextual clues for users to access information online.’ As Schriver (1997, p.45) suggests ‘readers need to interact with multiple clues to arrive at an interpretation of a text’. This concept is exactly the same applied to the online user. So, the Cultural Marker can be achieved by cultural sensitivity. It brings closer the interval between the users and organisations, as it is executing the method to design localised websites on the cultural level, peculiarly in multilingual websites. Sheppard & Scholtz (1999) also adapted the concept of Cultural Markers in their experiment. However, the approaches of Sun, and Sheppard and Scholtz in using Cultural Markers obviously have some differences in their methods:

<table>
<thead>
<tr>
<th><strong>Huatong Sun</strong></th>
<th><strong>Sheppard &amp; Scholtz</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Gathered data on user’s opinion data (Interview user experiences).</td>
<td>• Collected performance data via a series of user tasks.</td>
</tr>
<tr>
<td>• Users compared cultural markers between Lotus &amp; Adobe websites.</td>
<td>• Users compared mock websites remodeled from the Edmunds site. (<a href="http://www.edmunds.com">www.edmunds.com</a>)</td>
</tr>
<tr>
<td>• Comparisons of: -global design -design native to that culture -another design for another culture</td>
<td>• Was conducted remotely with different connection methods that affected downloading speeds of graphical cultural markers.</td>
</tr>
<tr>
<td>• Was conducted in the same testing environment.</td>
<td>• Did not address gender differences.</td>
</tr>
<tr>
<td>• Addressed gender differences.</td>
<td></td>
</tr>
</tbody>
</table>

In addition, there are a number of research studies that recognise the major impact of culturally appropriate elements on interface design, besides the researchers that have been previously mentioned. Smith et al. (2003) conducted research on the concept of cultural attractors, to define the interface design elements of the website that reflect the signs and
their meanings to match the expectations of the local culture. This research model is rather close to the scope of my research project that focuses on the major cultural elements: languages, colours, symbols and patterns. The cultural attractors include: colours, colour combinations, banner adverts, trust signs, use of metaphor, language cues, navigation controls and similar visual elements that together create a ‘look and feel’ to match the cultural expectations of the users for a particular domain.

Summary
Understanding cultural differences is an issue that has been increasingly concern in the design web interfaces. In this chapter, some of the literature reviews demonstrate human computer interaction, user interface design theories with cultural studies to develop conceptual frameworks for analyzing the impact of cultural factors on the effectiveness of various user interface designs mainly in the theme of globalisations.

Hofstede’s cultural dimension models are the most often quoted theoretical source in aspects of particular website design. His cultural dimensions endeavored to describe cultural aspects that applied to several countries, and investigated how patterns of action and belief can be influenced by culture in the choice of symbols, rituals and values.

Marcus adapted Hofstede’s cultural dimensions to identify how it could be applied to aspects of user-interface and web design. Marcus demonstrates how Hofstede’s cultural dimensions can be manifest through website interface design. A similar approach done by Barber and Badre (Cultural Markers) examines the effect of cross cultural interface design orientation on web user performance. Cultural Markers provides some indication on design elements that are culturally specific, and it’s related in some groups on native users’ performance and preferences. It is suggesting users prefer websites with cultural markers from their own culture.

The majority of research studies do not sufficiently demonstrate interface design for users from different cultures within the same country, as in the case of Malaysia’s multicultural society. A review of the literature reveals that culture undeniably has an impact on users’ response to interface design. However, most of the previous cross-cultural studies have mainly focused on questionnaires about technology attitudes towards the human computer interaction rather than behavioral data surveys, except for Evers and Day’s research on the
comparison of culturally stimulated design preferences. Evers (1997, p.261) argues that three issues need to be considered:

1. There are few publicly available studies that investigate the effects of localized and non-localised interfaces on users’ perception and understanding

2. Little empirical work has been done investigating the differences in cross-cultural perception and understanding of interface design and

3. Not many studies use methods such as observation or case studies to investigate cross-cultural aspects of interface design.

This research attempts to address these issues. Furthermore, it is not easy for designers to develop a sophisticated understanding of culturally sensitive visual interface design. Although there are a number of examples of existing research on cultural frameworks and theories, it is difficult for designers to identify the appropriate model for a particular multicultural society. Given this lack of supporting guidelines that can make possible the practical development process, my research project can focus on developing a set of broad multicultural guidelines, which combines the theoretical model of cross-cultural design and practical development approaches of creating effective prototypes.
4. Research Methods: Cross-cultural visual interface design process

Introduction

This research project is a case study of the development of a cross-cultural visual interface design to ensure effective communication with particular cultural formations. The Style Menu design will be developed by combining the use of cultural assimilation models with various structural analyses; supported by empirical studies based on the analysis of Malaysian official government and non-government websites.

This interface analysis involves looking at two different phases of visual design related to Malaysian websites. I have divided these research methods into the following two phases:

In phase 1 - ‘Cultural Visual and Structure Elements’, I will demonstrate how cultural visual elements such as colour, language, pattern and image, would be represented for each ethnic group. Mood Boards would be presented to identify the cultural elements for different ethnic groups.

In phase 2 - ‘Interface of Website Characteristics’, I will describe the processes and techniques used to analyse the website characteristics and discuss the results of website analysis according to the literature review. Cultural Markers would be created to analyse the different genre websites in order to categories the website’s characteristics.

Both phases need to be combined in order to achieve the ‘Cross-Cultural Visual Interface Design Process’, which I propose as the method for this research project.

Overview

This research project has used a number of methodologies and approaches. It is based on content analysis integrated with design research, in a case study format. It analyses and explores the rationale of the research methods: such as Mood Boards and Cultural Markers.

Content analysis has been used with the Cultural Markers on case studies (Malaysia websites) to produce Style Menus. Bar-Ilan and Peritz (2002, p.379) state ‘Content
analysis of Web and Internet sources serve as exploratory tools for getting a better understanding of the Internet’s content.’ The Style Menu prototype developed later in this thesis uses these data patterns as a component in their construction. It is envisaged that communication and interface designers will also have template guidelines or a library of images that will support them in designing culturally appropriate visual interfaces for web purposes. Amant (2005, p.79) states:

Prototype … offers one method for understanding how cultural expectations can cause communication problems related to visuals. In essence, prototype theory examines how an individual’s exposure to different visual representations affects the way he or she categorizes objects and images.

Through the parallel application of research methods and content analysis, a cross-cultural visual interface design process is developed. A diagrammatic overview of the research methods follow:

```
Research Techniques
Case Study
Content Analysis

Research Criteria
Cultural Markers

Outcomes
Prototype (Style Menus)
```

Figure 6 – Diagram overview of the research methods

The methods that have been adopted in this research project describe a practical elucidation for a multicultural visual interface design. Such design could potentially deal with the needs of designers for usable guidelines in efficient website incorporation of different cultures. This visual interface prototyping (Style Menu) is developed to be practical and useful in designing interface for multicultural audiences. It is aimed
particularly at providing applications for government departments that do not have in-house visualisation expertise as frequently these departments only have a budget for hiring a professional visual design company.

**Interface design process**

This research project aims to support better cultural representations through a complete design process using a research format, which combines visual information in the form of Mood Boards, diagrams, models and prototypes. The processes will achieve the following:

1. To visualise representations of cultural elements within particular cultures through the Mood Boards.

2. To identify the characteristics of web interface cultural elements using Cultural Markers (Badre, 2000) such as Language, Layout, Symbol, Colors, Image and Sound. It will demonstrate culture specifics of visual design elements from comparison of the characteristics of website interfaces.

3. To understand how interface elements can be formed as cultural communication by using a theoretical principle to recognise cultural signs and their meanings in various cultures.

4. To analyse a variety of websites (Government, Commercial, Malay and Chinese audiences) to recognise and establish which design elements are culturally balanced. This approach will be examined to create key representative prototypes in the Style Menu section.

5. To develop an enhanced ‘Style Menu’ to improve the design process for communication or interface designers, encouraging the implementation of effective methods of cross-cultural visual interface design for multi-cultural audiences.

6. Cultural element representations will be collected and presented in the Mood Boards. However, this collection needs to be updated and comprehensive.

7. The Style Menu will demonstrate the key assimilation formations based on the Cultural Dimension Models and Web Interface Design Models with the PNM
website as a case study. The prototype in the Style Menu section will generate cross-cultural visual interface design through an interactive and visualized presentation.

In conducting this research project, I have called on my professional experience, spanning a number of years in graphic and online design and development, as well as my particular personal background of being a minority member in a multicultural society. My role is one of the design researchers who are leading the research into cultural issues and how cultural elements can be integrated into interface design for a multicultural society. All this has informed my understanding and growing knowledge about design research in this field. I have not only investigated the design research methodology, but have also identified how the design process might be adapted to provide a cross cultural visual interface.

In detailing the research, I will present the design process with some practical examples, such as the case study analysing the content of Malaysian websites. Details of the practical phases of my project methodology will be explained further in two different phases (‘Cultural Visual Elements’ and ‘Interface of Website Characteristics’). It is followed by discussion of the Data Pattern after the Cultural Markers Method review.

Cross-cultural visual interface design process

The research project proposes a design process and strategy that incorporates visual cultural elements, when designing visual interfaces for cross-cultural purposes. These visual cultural elements would be recognised by each ethnic group within the multicultural society of Malaysia. As an extension, its method could also be applied to other cultures. This process will be encouraged by collecting, sorting and negotiating through the universal cultural elements of colour, pattern, language and image. It looks into the principle behind the concept of metaphors. Zahedi et al. (2001, p.84) put forward the question, ‘If significant cultural and individual differences exist among diverse users, what are those differences and how can web document contents be altered to increase user satisfaction and effective communications among such diverse audiences?’.

The design process being suggested has been broken down to a number of phases. It commences with specific analysis of how different cultural websites address the various cultural factors. It addresses cross-cultural visual interface design, particularly in
government official websites. The prototype example can be used to demonstrate for Malaysia government visual interface website design, hence making it possible to provide an effective method of recognising cultural differences.

Qualitative methods including the use of Cultural Markers will be adopted in this research project, to collect and analyse existing website outcomes. This approach tends to be a more creative and innovative way forward for design research. Hanington (2003, p.15) states

‘Innovative methods typically are identified by their participatory nature, creative engagement and outcome, and their relatively specific application to design research … The whole purpose of innovative methods is to allow for creativity in designing methods appropriate to the situation.’

I propose that the “Cross Cultural Visual Interface Design Process” divided into the stages of investigation, theorizing, development and design. The process will go through each of the stages, with some suggested methodologies moving in consecutive order. This design process describes the exploration of how I will approach the case study of websites by defining criteria, finding effective strategies and evaluating current practices.
Figure 7 – Cross Cultural Visual Interface Design Process
Developing Cultural Elements and Cultural Markers Method (CMM)

Phase 1 – ‘Cultural Visual and Structure Elements’
First, the research project has developed a conceptual model based on some selected theories in cultural studies. Subsequently, the project will identify what the visual patterns of cultures are like by collecting Mood Boards to display the different cultural visual elements, (a collection of Malay and Chinese images has been presented to demonstrate cultural differences for this research project). Mood Boards can serve as a visual diary providing a variety of cultural perspectives, and understanding of the cultural elements in terms of design forms such as architecture, handicrafts, textiles and design elements of colour, patterns, signs and symbols. In addition, Mood Boards provide important steps towards a deeper understanding of the target culture necessary for the formulation of cross-cultural visual interface design. Hanington (2003, p.15) states ‘Diaries may be formed using photographs and text generated by users over periods of days or weeks to provide insights into experiences and feelings.’

Malay(mb1)

Figure 8 – Mood Board (Malay Cultural Elements)
Phase 2 – ‘Interface of website characteristics’

Using content analysis of the web site the goal is to identify Cultural Markers in the web interface. Singh and Baack (in Berelson 1952 and Kassarjian 1977) claim ‘content analyses are a reputable and a widely used tool for conducting objective, systematic, and quantitative analysis of communication content.’ Cultural Markers (Badre, 2000) are adapted and modified to analyse examples of four different categories of websites, according to Language, Layout, Symbol, Colors, Image and Sound/Music. The Mood Boards will expose the patterns and variety of cultures in the interface design elements, though comparison and contrast. Barber and Badre (1998, p.1) state

Cultural Markers are interface design elements and features that are prevalent, and possibly preferred, within a particular cultural group. Such markers signify a cultural affiliation. A cultural marker, such as a national symbol, color, or spatial organization, for example, denotes a conventionalized use of the feature in the web-site, not an anomalous feature that occurs infrequently.

The modification of Cultural Markers that will be adapted to this research project is the Cultural Markers Method (CMM), which will be used to establish a systematic structure for the analysis of government and non-government websites in Malaysia as a case study. The
use of the Malaysian websites (case study) focuses on exploring particular cultural values within a real life context.

As a strategy in applied research the case study uses a small number of cases that can be studied by multiple sources of evidence. Gregory (2004, p.323) states that case studies can be adapted to:

… collect, organize and improve those aspects of thought and information which are available concerning design, and to specify and carry out research in those areas of design which are likely to be of value to practical designers and design organizations.

The Cultural Markers Method (CMM) is undertaken to perform an interface analysis of a number of government and non-government websites designed for Malay and Chinese users, taking ten examples for each category. Different cultures will typically use particular, ideal expressive characteristics. The interface of a website can serve as a model for identifying and separating websites that are recognisable and acceptable to a multicultural society. In this method, some of the visual characteristics and navigation features should be identified to establish how they relate to the entire interface of a website in a particular cultural group. To this end, the CMM will be able to demonstrate the presence or absence of certain visual characteristics and to identify the characteristics of the most culturally appropriate and recognised symbols. The elements of analysis for CMM will include a search for the following six characteristics related to a website: – Language, Layout, Symbol, Color, Image and Sound/Music. These elements are important to the cultural web interface. Research studies by Galdo (1996); Fernandes (1994); Russo and Boor (1993) conclude that while designing a website, it is essential to consider aspects such as icons, symbols, colours, language and so forth.

The CMM would enable designers to give hierarchy to the most important features or cultural interface for a particular set of multicultural users. The characteristics of websites have been identified and they serve as groundwork for establishing guidelines used in designing an interface for users from particular cultures within a multicultural society. For instance, the design of a particular characteristic of the website interface, buttons, can signify or reflect a cultural interface for the website. However, the interface should display specific elements which give the website cultural recognition for users from individual cultures. Whether it represents or contains their ‘voice’, is often a matter of the details related to such characteristics.
For instance, handicrafts from the Malay and Chinese cultures are similar by shape, but the patterns for each handicraft are differently designed. It is a case of recognising particular elements in the pattern of the handicraft within the larger form or shape. A smaller detail can become the indication used to distinguish the larger object. (There are others samples shown in the Mood Boards). As a result, the CMM does not only analyse the characteristics of a website, it also includes examining how a particular characteristic is presented within the overall interface design. Each characteristic of the website interface will be analysed in terms of its own related design features and cultural elements.

Figure 10 – These two handicrafts are culturally different, which can be identified by details of the object, although in a similar form/shape.

Once the CMM has been completed and the characteristics of a website identified, a micro research stage will be commenced to analyse within and between the cultural elements, which will provide fuller understanding of the formulation of culture in interface design. For instance, once a menu bar has identified the characteristics which belong to a particular culture, it is necessary to determine what design characteristics of a menu bar are more recognisable or acceptable for visual presentation to a wide range of users.

I focus my examination on six major categories of cultural marker: Language, Layout, Symbol, Color, Image and Sound/Music. These Cultural Markers are different from the Barber and Badre’s one based on the following requirements to identify the applications on websites in Malaysia.
Contents of the Cultural Markers Method

The six criteria guided by structured analysis and considerations for this methodology in the following.

Language
What language is dominant on the site?
How many languages are used on the site?

Layout
Placement of banners – Where is it located on the site (top, bottom, left, right)?
Placement of menu bars – Where is it located on the site (top, bottom, left, right)?
Buttons – Do the buttons contain text or image or both?
Search function – Is there a keyword search available in other language?
Orientation – Layout format (centered, left-right, right-left)?
Motif – What shapes are dominantly displayed / background displayed on the site (squares, circles, triangles, rectangles, others)
Grouping – What method of grouping is used on the site (symmetrical, asymmetrical, proximity, alignment)?

Symbol (Pattern)
Logo – Is it a logo symbol or a logotype?
By-line – Is the logo accompanied by a slogan/tag-line?
Symbol language – How is does the symbol language (logotype) work?
Position – Where is it located on the site (top, bottom, left, right)?
Pattern – Is there a cultural pattern carried in?

Color
What color is dominant for the entire site? (red, blue, green, yellow/gold, white, black, others)
Specific color – What colors are used for the background of the site? How many colors are used?
Image
What ethnicity is depicted?
Is group image used on the site? (Single or mixed ethnicity)
Architecture – Is any state building, building, house, office, cityscape or other used on the site? Does it have a cultural connotation?

Sound/Music
Is there any sound/music on the site?
What sort of sound/music is used? (Bahasa Malay, English, Mandarin, Hindi, others)

Methods of analysis websites
The following is the method to analyse and identify characteristics of the websites adapted in this research. The Cultural Markers together with a combination of the theory of Hofstede’s cultural dimensions and Aaron Marcus’s user-interface components on the four categories are used (only one website has been shown as an example):

Government (National Library of Malaysia website)
Non-government / Commercial – (Celcom website)

- **Symbol**: Logotype, Position: Top Left
- **Color**: White
- **Layout**: Banner: Top, Menu: Top, Orientation: Center, Shape: Square, Grouping: Symmetrical
- **Images**: Group
- **Sound/Music**: None attached

<table>
<thead>
<tr>
<th>Power Distance</th>
<th>Collectivism</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Metaphors</strong></td>
<td><strong>Appearance</strong></td>
</tr>
<tr>
<td>High (Corporate Logo)</td>
<td>Image of groups (cross-cultural image)</td>
</tr>
</tbody>
</table>

Malay audiences – (Bank Muamalat website)

- **Symbol**: Logo (cultural symbolised), Position: Top Left
- **Color**: White, Corporate Color
- **Layout**: Banner: Top, Menu: Top, Orientation: Center, Shape: Square & Curve, Grouping: Symmetrical
- **Images**: One ethnic group (Malay)
- **Sound/Music**: None attached

<table>
<thead>
<tr>
<th>Power Distance</th>
<th>Collectivism</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Metaphors</strong></td>
<td><strong>Appearance</strong></td>
</tr>
<tr>
<td>Medium (cultural symbol) Logo - symbolized ‘mosque’</td>
<td>Pattern - coin (Malay) Shape - Curved form of mosque</td>
</tr>
<tr>
<td>Relationship-oriented (Malay culture)</td>
<td>Image of ethnic group</td>
</tr>
</tbody>
</table>
Summary

The methodologies used in this research project aim at providing a comprehensive insight into cultural representations in interface design. This project focuses on the area of cultural issue studies in design research. It utilises a qualitative case study method and a design process strategy is developed as an outcome. The strategy can be utilised and applied to designing a process of developing interface across a broad range, particularly in the recognition of cultural representations. It involves looking at variations of cultural visual and interface design related to websites.

The objectives of these methodologies are to apply research on cultural representations to the web interface. Based on the results of these methodologies, two main phases have been identified. The first phase involves the development of Mood Boards in identifying what the cultural representations belong to, and how the cultural elements (such as symbol, colour, and pattern) reflect different ethnic groups, beliefs, lifestyles and visual representations. It takes into consideration how cultural visual elements can be applied to visual interface design for multicultural audiences. The designer should be able to identify
the different cultural representation from the provided Mood Boards or they can collect and build their own cultural elements in Mood Boards for reference. Those cultural representations will help and guide the designer in their visual interface design, for similar projects. The second phase conducts a content analysis of the value and other cultural elements as represented in the design materials found in the various categories of Government, Commercial and different ethnic group websites.

Content analysis involves performing a visual interface analysis of all the selected websites. After the website has been identified, various cultures will have a visual preference for what the site should look like. The content analysis can then serve as a guideline for identifying and separating identifiable websites from cultural representations. At this level, certain visual and website features or characteristics are analysed to establish how they relate to the cultural interface design of a website. In performing the analysis, the designers using this methodology should look for presence or absence of certain visual and design features, based on the Cultural Markers Method (CMM) that incorporated with the cultural elements from the identification of Mood Boards. The presence of particular visual elements on a website can indicate that it reflects a cultural interface. A systematic method of reviewing the four categories of websites, could assist both with the understanding of other cultural expectations, and with the visual design of a more recognisable web interface for other cultures. It suggests that web interface can be enhanced with cultural values and visual representations assisting the multicultural user's purposes. Finally, the investigation on Cultural Markers Method can also provide insights into the societal characteristics of a particular ethnic group from specific websites.

Once the Cultural Markers Method has been examined and the websites’ characteristics identified, a Style Menu based on the content analysis of the Cultural Markers Method can be developed. The results of the entire research methodologies will provide further understanding of the processes and methods required to design appropriate visual cultural interfaces. New knowledge that is identified and emerged from the data analysis and literature reviews will contribute to the prototype stage. In summary, these research methodologies recognise the importance of design research, including its strengths and appropriateness to the cycles of the design process: investigation, theorizing, developing and designing.
5. Research Findings

Introduction
This chapter provides the findings by applying the Cultural Markers Method (CMM) to identify website characteristics and some important key concepts as guidelines for the users (the target users will be site-managers, communication designers or web interface designers developing cross-cultural communication in Malaysia). Data patterns were obtained via Cultural Markers Method (CMM) and identification of culturally specific visual elements are represented in Mood Boards as a form of visual referencing in Chapter 4.

Four different website genres and samples of ten for each genre (n=40) were used in the analysis. Elements in individual web sites could fit into more than one category in the CMM’s result and, thus, for example column and row intersections, e.g. language add up to more than 10. The analysis of the CMM suggests multiple guides for cultural representations in interface design. Significant data patterns lead to the creation of three different Style Menus, which match particular cultural formations and demonstrate the visual structures necessary for consideration in any multicultural browser presentations. (The development of Style Menus will be discussed in the next chapter.)

The Cultural Markers Method (CMM): Web interface characteristics
The sample of websites for this CMM analysis is generated from the list categories of websites in Government, Non-government, Malay and Chinese audiences.

The following websites were analysed based on the criteria of CMM:

Government Official Websites:
1 – Department of Agriculture (http://agiolink.moa.my/doa/)
2 – Department of Museum & Antiquities (www.jima.gov.my)
3 – Tourism Malaysia (http://tourism.gov.my)
4 – Ministry of Education Malaysia (www.moe.gov.my)
5 – Malaysia Communications & Multimedia Commission (www.mcmc.gov.my/mcmc)
6 – Ministry of Energy, Communications & Multimedia (www.ktkm.gov.my)
7 – Ministry of Foreign Affairs (www.kln.gov.my)
8 – Immigration Department of Malaysia (www.imi.gov.my)
10 – National Library of Malaysia (www.pnm.my)
Non-Government (Commercial) Websites:
12 – Celcom (www.celcom.com.my)
13 – MPH Bookstore (www.mph.com.my)
14 – Ntv7 TV Channel (www.ntv7.com.my)
15 – Parkson Shopping Center (www.parkson.com.my)
17 – Putra LRT (www.putralrt.com.my)
18 – AirAsia Airline (www.airasia.com)
19 – PADINI Fashion (www.padini.com)
20 – Fotokem Camera Retail (www.fotokem.com.my)

Malay audience websites:
21 – Bank Islam (www.bankislam.com.my)
22 – Bank Muamalat (www.muamalat.com.my)
23 – Utusan Malaysia Newspaper (www.utusan.com.my)
24 – Courts Mammoth (www.courts.com.my)
25 – Kamdar Shopping Center (www.kamdar.com.my)
26 – Bank Simpanan Nasional (www.bsn.com.my)
27 – Seri Malaysia Hotel (www.serimalaysia.com.my)
28 – Berita Harian Newspaper (www.bharian.com.my)
29 – Project My Masjid (www.mymasjid.com.my)
30 – Halal Malaysia (www.halal.com.my)

Chinese audience websites:
32 – Gerakan Party (www.gerakan.org.my)
33 – Poh Kong Jewel (www.pohkongjewel.com)
34 – Public Bank (www.pbebank.com)
35 – Sin Chew Newspaper (www.sinchew.com.my)
36 – Taylor College (www.taylor.edu.my)
37 – MCA Party (www.mca.org.my)
38 – Hong Leong Bank (www.hlf.com.my)
39 – Mentor Chinese Reading (www.mentor.com.my)
40 – Nanyang Newspaper (www.nanyang.com)

The result of Cultural Markers Method (CMM) analysis of website categories

The information amassed through the CMM analysis is created in the form of design guidelines, which will address the characteristics of what constitute an acceptable website for a particular cultural group associated with the interface. The result of the CMM will be based on the four different categories of websites:
<table>
<thead>
<tr>
<th>Cultural Markers</th>
<th>Government</th>
<th>Non Government</th>
<th>Malay Audience</th>
<th>Chinese Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Language</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bahasa Malay</td>
<td>8</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>9</td>
<td>10</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Mandarin</td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td><strong>Layout</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Banner Top</td>
<td>9</td>
<td>8</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Menu</td>
<td>3</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top</td>
<td>9</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top-Left</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Button</td>
<td>9</td>
<td>10</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Search English</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Orientation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left &gt; Right</td>
<td>8</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Center</td>
<td>7</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shape</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Grouping</td>
<td>8</td>
<td>10</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td><strong>Symbol</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Logotype</td>
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<td>7</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Logo symbol</td>
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<tr>
<td>Byline</td>
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<td>6</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Position</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top &gt; Right</td>
<td>8</td>
<td>7</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Top &gt; Left</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Colors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>10</td>
<td>9</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Red</td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Blue</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Background white</td>
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<td>10</td>
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<td><strong>Image</strong></td>
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<tr>
<td>Group</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Malay</td>
<td>2</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chinese</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Indian</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Architecture Building</td>
<td>8</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Texture (Malay)</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Sound/Music</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bahasa Malay</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Table 4 – (The Cultural Markers Method) The summary of the analysis outcomes
Discussion: Findings of the Cultural Markers Method (CMM)

These research findings show that the web interfaces show patterns relating specifically to particular cultural groups. Table- 4 (CMM) indicates mean values of the Cultural Markers for different categories of websites for each of the interface design elements. A comparison of mean differences shows some differences exist between Government and Non-Government (Commercial) websites, for example English is the major language for the Commercial websites whereas for the Government websites, English and Bahasa Malay are almost equally important. Government and Malay audience websites prefer design with top-banners on the site. The majority of differences between Government and the other three categories of websites in this analysis are differences largely concerning menu layout, pattern, images and language of the websites.

These are elaborated below, along with the hypotheses for analysis that guide the research.

Language
The most distinctive aspect of culture is language. The CMM analysis of results showed that English is the most common language used in all websites, particular in Non-Government sites which figured 10/10, although Bahasa Malay is predominantly used in the official government websites. Mandarin is for the specific websites for Chinese audiences.

According to Luna et al. (2002, p. 398) ‘language is a symbol expressing the concepts and values embedded in culturally bound cognitive schemas. Thus, the language used and processed in a particular instance (e.g., while navigating a website) may activate culturally specific concepts and values that another language may not’.

In Malaysia, there is a mixture of languages spoken and used within the three main ethnic groups. Some groups are bilingual and others are multilingual users. Language is seen as more than a functional tool for accurate communication. It is a vehicle for passing on cultural traditions. Special attention should be paid when using languages from roman-based alphabets (Bahasa Malay) to non-roman based alphabets, such as Kanji Character (Mandarin) for the website uses.
Language is an inherent part of everyday life of our culture. The conceptual model of ‘Interpretivist’ approach in text analysis is appropriate when applied to the Malaysian society. Lacity and Janson state (2001, p.138) ‘Interpretivist approaches assume that language use is subjective, so that textual interpretation is influenced by personal experiences and circumstances, requiring extraneous information about the originator and interpreter of the text. Therefore, interpreting and recognizing text information involves personal biases because interpreters may bring their own emotions, attitudes, and cultures into the interpretive process.’

The appearance of language formalises a semiotic through visual recognition, which can be identified easily by users.

Applying the conceptual model to the different languages in Malaysia shows that there are different features activated by the different character of the range of cultural languages. For example, Mandarin and Bahasa Malay involve two different schemas. The bilingual mind contains two language-specific knowledge schemas, as in the case of a Malaysian-Chinese, who speaks both Mandarin and Bahasa Malay. Each of the schemas may be activated alternatively, depending on the language in which bilinguals are addressed.

Most of the Malaysian government official websites tend to be presented in one dominant language (Bahasa Malay). The websites limit the accessibility of the content because of the lack of access to alternative languages. Cyr and Trevor-Smith (cited in Robbins and Stylianou 2002, p.5) state ‘restricted use of language results in limited information about content, then absence of translation also means absence of accessibility to a wide range of Web users.’ If they wish to project an inclusive tone Malaysian government websites should be multilingual or alternatively, in English which is widely used and understood in Malaysia, and is in many ways is a more impartial choice for multicultural audiences.

**Layout**

In this analysis, cultural preferences can be clearly identified in the layout components, such as banner, menu, text buttons and grid design. Yu and Roh (2002, p.2) suggested ‘Appropriate design layout provides web visitors with a contextual and structural model for understanding and accessing information.’ Similar approaches to interface communication have been identified within different cultures, involving website layout and spatial features.
According to the CMM analysis, the Government websites tend to have a layout from left to right. The logo and the title of the organisation have been positioned on the top of the site, which is the format of interface design for a country so highly ranked in Power Distance. The CMM findings suggest the structure and layout of Government sites should be illustrated as:

![Figure 11 – Layout of Government sites.](image1)

In contrast, the Non-government (Commercial) website layout focuses on centralised design components. The title and logo are positioned on the top of the website. The Commercial sites have interest in a broad non-culturally specific market and therefore tend to avoid appealing to one cultural group only. Mooij (2004) notes that in oriental cultures centering is not only favored but it is also a norm when representing visual art and graphics. The CMM findings suggest the structure layout of Non-government site should be illustrated as:

![Figure 12 – Layout of Non-government sites.](image2)
Symbol
Symbols are important elements of cultural meaning and different cultures prefer distinct symbolic representations. Cyr and Trevor-Smith (cited in Barber and Badre 1998) state ‘Symbols are ‘metaphors’ denoting actions of the user’. Symbols have an important role in interface design and can be used across cultures according to type and element. Their research shows that many logotypes used in websites are accessible to different cultural groups. However, most of the symbols that have been used in Malaysian government websites tend to carry only Malay cultural elements.

Colour
Different cultures have their own colour preferences. The CMM analysis identified Red is a significant favorite colour for Chinese (Figure showed 6/10). Barber and Badre (2001) list several colours and their connotations in various cultures. Red, for example, means happiness in China, but danger in the U.S. When colour is applied to interface design, it may have an impact on cultural recognition and user’s expectations and satisfaction. The most common colours have been used in the website seems to be white and blue in this research while Chinese audience websites favour red.

Colour is used symbolically by the different cultural groups to express lifestyle, from clothing to houses and in visual communication. It can be considered as a sign that might be alternate to other things, as Caivano (1998, p.393) states

… the relations between colors and what they can represent, the codes and associations established through colors, and the way color meanings change according to the context of appearance and in relation to human factors, such as culture, age, sex, are explored.

Colour application in web interface design is such an object of interpretation. Murch (1984, pp.25-26) confirms ‘... colour can be a powerful tool to improve the usefulness of an information display in a wide variety of areas, if colour is used properly. Conversely, the inappropriate use of colour can seriously reduce the functionality of a display system.’ Colour may contribute to visual confusion or worse, alienation in adapting to the multicultural society. If an inappropriate colour is used, it could produce a negative result in visual communication through cross-cultural connotations. As a representative element, colour is usually partnered with other characteristics such as shape, texture, visual symbols and pattern.
By way of example, a comparison of the significance of colour within the two major Malaysian cultures reveals that each culture represents prosperity in a unique way. The colour red is widely known as auspicious and prosperous and is held in affection by the Chinese. Green symbolizes growth and peace in Malay culture. Morrison and Conway (2004, n.p.) states ‘The colour green is increasingly associated with the environment. It is also the colour of Islam, which means that it is not a good choice in countries dealing with conflicts over Islam.’

Image (Pattern)

Images are static or animated visual representations of a cultural reality and a powerful means of communication. Images are the visual language of a culture. The images are present in photographs, texture and shape that easily hold the audience’s attention. A semiotic rending of images offers cultural recognition to particular user groups. Smith et al. (2003, p.70) state

   The central notion of semiotic is that users give meanings to a set of computer based signs, that this process of meaning making (called semiosis) is infinite, but strongly influenced by a user’s cultural and social context of use.

Images signify and communicate culture through the process of signification under semiotic theory. Images communicate concepts quickly and effectively and particular cultures look for appropriate markers. The Non-government (Commercial) websites tended to use more inclusive images. Images are used in a majority in Government websites. High Power Distance is clearly identified in these Malaysian Government websites, which tend to reinforce Malay and Islamic motifs that denote Malay signifiers of power and religion. A significant example using pattern to form Malay cultural identity is Petronas Twin Towers (it was acknowledged in 1996 as the tallest building in the world). The shape of the towers floor plan endeavors to incorporate Islamic geometric principles by laying over two rotated squares with small, circular infill. It responds to Islamic architectural traditions, and all within a Malaysian cultural context.
Pattern and Colour contain meanings implanted as a symbol that clearly identifies the system of inherited conceptual. The symbols produce both cultural elements (colour) and mood associations (colour) that affect what is perceived as being cross-cultural interface design by multicultural audiences.

**Sound/Music**

Sound or music are not common cultural markers in Malaysian websites.

**Summary**

These research findings can serve as a process toward increased understanding of ‘Cross-cultural visual interface design’. The CMM method reflected the levels of the recognition in cultural representation. Knowledge of the CMM is an advantage to the designer as it serves as a systematic form of analysis that can be applied to the web interfaces of any particular society. For example, based on the CMM analysis Malaysian Government sites are racially more specific to the Malay ethnic groups and therefore less inclusive than Non-government sites.

The research findings identified some of the significant characteristic of the web interface through CMM analysis, such as Language, Colour and Image. Language is a principal component which needs to be considered in order to identify the characteristics of the
cultural interface. A website’s language should interact with cultural and graphical elements to influence a site user in achieving an inclusive experience. For example, most of the Commercial sites in Malaysia tend to focus on English in order to capture worldly market consumers. If the website’s content includes the language that the user is familiar with, it will increase the ease of navigation, as well as playing a cultural representation. In the CMM analysis – Colour section, Red is a most dominant colour used in Chinese cultural group website. In the Image section, most architecture or building pictures are used in the majority of Government website.

In conclusion, the research findings show that cultural dimensions as represented in CMM analysis are essential factors on cross-cultural interface design. The CMM identified the characteristics of different websites genres in Malaysia to generate cross-cultural visual interfaces and can assist communication and web interface designers to classify and understand culturally specific requirements.
6. Development of Style Menus

Introduction
This chapter will explore the development of the Style Menus in my research project. It will introduce the fundamental design methods of cross cultural communication and then apply them in a visual form to some Style Menus, with demonstration of a case study in the PNM (National Library of Malaysia) website. The following sections are designed to provide design process for designers who wish to design for cross cultural representations.

The Style Menus are divided into three sections (Mood Boards, Cultural Markers Method and Style Menus) and provide a systematic process for dealing with cross cultural interface issues. Before attempting cross cultural communication (visually), I would propose collecting a set of Mood Boards based on cultural ethnicity. Section 1 demonstrates a method for collecting cultural visual representations that the designer should develop. Once the Mood Boards are collected and sorted the designer should be able to identify what characteristics and forms are necessary for the visual representations of cultural groups. Section 2 is based on content analysis of the Cultural Markers Method (CMM) to analyse the characteristics and structures of Malaysian websites. In this section the designer can refer to the Cultural Markers Method to identify the websites within different categories, to assist in their practical designs. Section 3 applies the findings of the Mood Boards and the Cultural Markers Method to many structural cultural elements that are appropriate to interface design: colour, pattern, image and language. By the end of Section 3 designers should understand the design practice process in cross cultural visual interface design for multicultural audiences. They can refer to on hand resources and data analysis of the CMM, combined through the Style Menus that are suitable for them in dealing with cross-cultural visual interface design.
The key to cross-cultural visual interface design is a combination of the processes of Collecting Mood Boards, Analysing the Cultural Markers Method and Developing Style Menus. The processes for development of Style Menus are inter-linked. This chapter goes into considerable detail about design processes, including demonstration of how to presenting cultural elements in Mood Boards and identifying characteristics of web interface in Cultural Markers Methods, as well as some proposed Style Menus for designers, as guidelines to culturally specific web design. I will describe these design processes in the following sections.

**Section 1 – The design process: Mood Boards**

Mood Boards include everything related to cultural visual representations. Mood Boards are commonly used in the design industry as a systematic way of presenting visual components and elements from particular design perspectives. Person (2003, p.2) states ‘Mood boards are a collection of visual images gathered together to represent an emotional response to a design brief.’ This process has been widely used in advertising design to explore images that describe a given theme. In my research project, the Mood Boards process starts with collecting and ordering relevant social and cultural signs and symbols.
useful in the construction of particularly relevant cultural representations. Using this method, designers can identify dynamic visual cues that could represent a set of cultural elements. For instance, (in Figure-15) Malay patterns consistently appeared in the Mood Boards applied to Islamic geometrical shapes. Red could be characterized as a Chinese preference.

![Figure 15 – The Malay images contain Islamic geometric patterns. Red is significant in the images of Chinese culture.](image)

Collection of cultural visual material into mood boards serves to summarise social and cultural representation, to help the designer in the graphic design process, by acting as visual reference documents. This exploration is governed by the need to build a platform that could better express the culturally constructed visual interface using dynamic visual cues.

The Mood Boards, in my research project, have been created with images from the categories of architecture, symbol, pattern, colour and language. These cultural visual elements can demonstrate distinctive characteristics of particular cultural groups. The ‘Mood Board’ section is divided into two Mood Boards with visual elements of Malay and Chinese cultures. In this research project, only Malay and Chinese groups are demonstrated. Mood Boards can of cause be constructed to represent any relevant culture. In the Malaysian context, Indian culture would also need to be represented but I have chosen to represent only two cultures in order to demonstrate the basic principles of
representation and assimilation. The Mood Boards in my research project are only for demonstration and do not form a finished study for the designer.

Different models of Mood Boards have been examined during the process of my research, however only one suggested model is used, to effectively demonstrate the presentation of cultural representations. The Mood Boards I have created are constructed around key organising elements such as colour, pattern, language and image. I have chosen not to label these categories within the cultural grouping as they then detract from the other possible significances contained in the signs (such as colour) which might relate across categorised sections. Refer to Figure- 16, where the arrows indicate the relationship of cultural elements within each component. Each image contains a relationship to other images, in terms of colour, pattern, shape and language, as indicated by the numbers 1, 2, 3 and 4.
Figure 16 – The relationship of cultural elements in the Mood Boards (where the arrows indicate the relationship of cultural elements within each component).
These Mood Boards demonstrate only a limited number of cultural examples; however Mood Boards are flexible and should allow for inclusion of more visual representations during the collection of images over time. Also, if possible the designers should be able to collect other visual cultural elements based on their own collections and cultural groups being addressed. The Mood Boards in this research project are included to provide an overview of the cultural representations. Thumbnails make a well-organised interface by using the screen as a real visual resource, and provide designers with adequate details to make selections, or provide clues and ideas about collecting for different cultures. An interactive design is created, by adding the feature of ‘mouse rollover’ to enlarge each image. By highlighting the thumbnails, preview and detailed view on a large scale are possible.
Section 2 – The design process: Cultural Markers Method (CMM)

The Cultural Markers Method (CMM) is based on Barber and Badre’s research method and principles, so that CMM is a modified version of original research suitable for Malaysian society. Barber and Badre (1998, p.1) state ‘Cultural Markers are interface design elements and features that are prevalent, and possibly preferred, within a particular cultural group. Such markers signify a cultural affiliation’.

The CMM analysis involved 40 different categories of websites in conjunction with selective sites most common and popularly accessed in Malaysia, such as National Library of Malaysia, Celcom Network, AirAsia Airline, Bank Islam and Sin Chew Newspaper. They correspondingly represent several perspectives and industries in society. There are six components that form the Cultural Markers Method in my research project. This method assists in identifying the design practice process, in terms of data patterns, frameworks and guidelines in the next step of developing Style Menus. The six components are: Language, Layout, Symbol, Colour, Image and Sound/Music.

The sample of websites for this CMM analysis was generated from the listed categories of websites for Government, Non-government, Malay and Chinese audiences. Through the following samples it can be visually demonstrated how the characteristics of websites are
established by the use of certain cultural elements and representations. Also, significant Cultural Markers for those website interfaces can be identified.

**Government Official Websites:**
- Department of Agriculture
- Department of Museum & Antiquities
- Tourism Malaysia
- Ministry of Education Malaysia
- Malaysia Communications & Multimedia Commission
- Ministry of Energy, Communications & Multimedia
- Ministry of Foreign Affairs
- Immigration Department of Malaysia
Figure 18 – Government official websites

Non-Government (Commercial) Websites:
- Jaring Network
- Celcom Network
- MPH Bookstore
- NTV 7 - TV Channel
- Parkson Shopping Center
- RHB Bank
Figure 19 – Non-Government (Commercial) websites

Malay audience websites:
Bank Islam

Bank Muamalat
Figure 20 – Malay audience websites

Chinese audience websites:

England Optical Group

Gerakan Party
Chapter 5 (p.67) presents the conclusion to the research findings on the CMM and identifies the visual interface characteristics required to shape structures for the development of Style Menus, in particular Layout design. The designers can create a cross-cultural visual interface according to the proposed layout structure. The significance of the layout structure has been identified in the sample websites. Most of the logos have been positioned at the top of the Government websites, and the layout display is left to right composition. Also, most of them contain rich cultural elements and representations of Malay intended to symbolise Government sectors. On the other hand, the layout of Non-government (Commercial) websites tends to be designed on a centralised format. The
following website samples clearly demonstrate the CMM analysis. Through the CMM analysis, the designers gain an insight into the patterns and codes used for interface development and what has been actually created in terms of cultural interface considerations, such as pattern, language, colour and image. Signs and patterns may not be recognised by the web designer who is not trained to see these phenomena. Finally, I have proposed a better solution to website layout and format, which invites greater social integration through visualised interface design.

CMM applied to Government website:
CMM applied to Non-Government (Commercial) website:

Figure 23 – Layout design for Non-Government websites
Section 3 – Developing concept of Style Menu

Mood Boards and CMM are the design processes which provide the analysis for each Style Menu representing specific forms of cultural integration. Three different Style Menus were created, 1 Specified Cultural Representation, 2 Culturally Integrated Interface, and 3 Standardized Interface Culturally Suppressed.

The Style Menu offers three different styles of visual integration to match the identified cultural formations. Cultural elements are identified in the Mood Board and applied with the Cultural Markers Method (CMM) in the various Style Menus, which allow the web layout to be arranged into different formats. The three Style Menus can assist to demonstrate how different web maps mirror actual cultural formations, in relation to the elements of language, colour, pattern and image. It demonstrates what visual elements of a particular culture are associated with the different interface features used in the case study website: PNM (Perpustakaan Negara Malaysia). The three proposed Style Menus can be used as sample guidelines, or a set of steps, that individuals can follow when creating websites for multicultural audiences. Therefore, I propose this research strategy in cross-cultural visual interface development, to allow designers in Malaysia to conceptualise the structure of formulising cultural interface design for multicultural users.

This is a chart (Figure- 24) presenting an overview of the process of creating Style Menus. There are three attributes that will be discussed: 1 Structural attributes (Navigation & Layout Design), 2 Verbal attributes (Language) and 3 Visual attributes (Colour, Pattern and Image) integrated with the theories of interface design, cultural dimensions and Cultural Markers Method.
As described in the literature review, Hofstede’s Cultural Dimensions, Aaron Marcus’s Interface Components and Cultural Marker Methods are applied to website analysis and the development of cross-cultural visual interface design. The research components identified by Marcus and Hofstede are demonstrated in the Visual Interface Attribute’s of the Style Menus, which are divided into Structure, Verbal and Visual attributes. In the Structural attributes, the Style Menus demonstrate how Style Menus might be navigated, based on the specific requirement of layout design from analysing the data pattern in the CMM. In the Verbal attributes, Language is playing a key part of the role as metaphor for cultural representations. In the Visual attributes, further demonstration can be found in terms of appearance in colour, pattern and image. An overview of how the Style Menus will be presented in my research project follows. The four components of Colour, Pattern, Language and Image are demonstrated to show how the Style Menus might more appropriately represent the varied styles of cultural integration. In addition, navigation diagrams (in visual representations) are respectively demonstrated.
Figure 24 – The structure of Style Menu
Developing the Style Menus

In the creation of Style Menu, thumbnails were sketched based on the mapping from the CMM analysis, documenting how the interface should be represented in the Style Menu. This permitted a close examination of examples, focusing on the content and composition of the presentation of the interface, which is easy for the designer to interact with. In the whole design process, I was able to focus attention on the fine detail of actual examples, in presenting the content of the CD-Rom that was in production. Through this process I was able to establish an appropriate design framework. For instance, how the Mood Boards would be presented on screen and how to construct a linear framework of presenting Style Menus.

Figure 25 – Conceptual development in Style Menus-1 (Malay page), sketched layout interface and icons/symbols development.
Figure 26 – Conceptual development in Style Menus-1 (Chinese page), sketched layout interface and icons/symbols development.
Figure 27 – Conceptual development in Style Menus-2, sketched first draft of layout interface and icons/symbols development.
Analysing the attribute of the Style Menus

Wroblewski (2002, p.175) states ‘When creating Web sites, we rely on the site’s personality to provide emotional impact and a consistent point of view for our audience. The personality of your site provides the answers to the “who” and “why” questions of your audience in a clear descriptive voice’. Appropriate visual interface elements not only create an impact on the audience, they also provide distinction and appeal to the overall visual interface of the website. My research project should be able to identify the following questions: 1. What are the interface elements related to culture? 2. How can the interface elements be presented as components of cultural communication? By answering these questions, my research strategy provides methods to address the construction of Cross-cultural visual interface and enable the identification of visual representations in interface attributes, such as Language, Colour, Pattern and Image. These four attributes of visual interface design will be demonstrated in conjunction with three different Style Menus.
The design objective of the Style Menus is to create meaningful and effective communication that give cultural recognition and meaningful experience to particular cultural audiences.

Graphical features on the web interface are increasingly important to support cultural identity in relation to an increasingly “cross-cultural” globalised media, as well as recognition of the multicultural in countries, such as Malaysia. In addition, most of the graphical features are likely to be more subconscious, in that presentation is a subliminal preference, rather than a specifically identified cultural characteristic, such as language or clothing. Juric et al. (cited in Hall 1983, Hall 1990) state

‘… people from different cultures often have different beliefs, attitudes, and values, normal human misunderstandings which occur in interactions between people of the same culture are magnified by the wider differences in intercultural interaction.’

The four attributes respond to the emotional appeal of the visual interface for the user. These attributes provide a connection for exploration and interaction between the website and the user. This approach tends to maximize the multicultural concept, and allows designers to focus their ability and knowledge on formalising cultural elements in the interface design through the proposed Style Menus.

**Attribute: Colour**

This research project aims to identify the symbolism of colour in different cultures and ethnic groups, inquiring mainly about the uses of colour in decoration, clothing and family life, which can be seen in the different Mood Boards.

By recognising particular colours as cultural markers for each ethnic group, a website can be designed with an appropriate tone, using culturally specific colour schemes. A website can avoid using the favourite colour of each ethnic group (red and green in this case) as each colour means something specific and signifies a specific identity. So it is often better to seek a solution by using appropriate colours that are suitable for all groups, in order to establish general recognition of a website, such as the PNM.

In Style Menu- 3, colour has been utilised by featuring nature and the environment as reflecting the characteristics of Malaysia. The colour of the natural environment has a
common and use shared in the Malaysia. Hutchings (2004, p.61) states ‘Rice coloured yellow with turmeric or saffron is widely used in custom in India, Pakistan and Malaysia.’ (as shown on the top banner). Style Menu- 3 also demonstrates the research of Wiegersma and Vander (1998) that blue is the color chosen most often in their cross-cultural study, as well as the corporate colour that identifies PNM website. Caivano (1998, p.394) states

‘… colors are used as signs, the functioning of color in the natural and cultural environment, the way organisms identify colors for survival and their importance to food gathering, the physiological and psychological effects of color and its contribution to man’s well-being, and the influence of color on behavior.’

Figure 29 – (Style Menu- 3) Blue corresponds to most often used colour for cross-culture.

Galdo and Nielson (1996) established that colour and screen design principles have different psychological and social associations in a variety of cultures. Colour creates a different recognition and reaction in the different users. In Style Menu- 1, Specified Cultural Representation is proposed using specific colours to represent the different target user groups. The prototype uses Green to correspond with the Malays and Red with the Chinese. It signifies a representation of the culture and, acknowledges that we often remember something, through a colour. This Style Menu demonstrates cultural recognition and emotional response from the users.
Colour also can represent different meanings in different cultural groups, but it can identify difference in a similar forms of representation. For example: Chinese give each other a Red Packet (Hongbao) during Lunar New Year. It is a symbol of celebration, good wishes
and good fortune. The Malays hand out cash contained in ‘Green’ envelopes and called *Duit Raya* during the Hari Raya Aidilfitri in Malaysia. Each group carries out similar cultural practices, but in different ways. As demonstrated, cultural representation is at the root of cultural differences. Colour is significant in this cultural context; designers must realise that signs do not strictly belong to one group or another, but can diverge according to the context. Referring to the above example, Green or Red might be a signal in one context, but a symbol in another form. In Style Menu-2 (Culturally Integrated Interface), avoidance of any symbolisation of cultural colour, in particular Red and Green in this case of the PNM website is evident.

Figure 32 – Style Menu-2 (Culturally Integrated Interface).

**Attribute: Pattern**

Pattern is one of the cultural visual representations that provide a physical form of cultural knowledge. Pattern can be attached to anything that comes from a way of life or culturally specific knowledge. Most patterns are culture-specific. When analysing a website, special attention should be given to whether the pattern is understood in a particular culture.

The importance of visual pattern for Malaysia’s ethnic groups must be considered when evaluating the effectiveness of the PNM website, as a medium of multicultural
communication and of more inclusive government rhetoric. An effective web design will incorporate at least key elements of these to attract recognition.

Patterns were designed to fade in and out around each of the different cultural elements in Style Menu-2. The animated pattern provides recognition of cultural elements for the user. Chao et al. (2002, p.189) state ‘… Asian people are polychromic, that is, doing many things at once.’ The pattern plays a supportive role in the cultural representation of Style Menu-2, because in its rendered and animated forms of textures to enhance the cultural recognition.

In contrast, Style Menu-1 Specified Cultural Representation, demonstrates a pattern based on individual cultural representations. In this Style Menu, I have taken into consideration the differences of visual representations in Malay and Chinese groups, as shown in the mosque that symbolises Malay Islamic culture and the traditional fan that symbolises Chinese culture.
Figure 34 – Style Menu- 1 (Specified Cultural Representation) Malay cultural pattern.

Figure 35 – Style Menu- 1 (Specified Cultural Representation) Chinese cultural pattern.
Attribute: Language

According to the Style Menu 2 - Specified Cultural Representation has been designed with an ‘Interpretivist’ approach (as discussed in the Chapter 5: Research Findings). In this menu the main heading and navigation text superimposes three languages in the one interface design, which can reflect the emotion and cultural recognition that allow users to easily identify with the interface. Hence, the appearance of language formalises a semiotic of visual recognition.

![Interpretivist Approach](image)

Figure 36 – ‘Interpretivist’ approach applied on Style Menu-2

Style Menu-3 demonstrates the use of one language (English) as a cross-cultural visual interface in the website. English has been widely used in Malaysia. Although people have different local languages and cultures, the learning of English and its use is common in everyday life. Hence, the English language could be commonly used in the Style Menu-3.
Malaysia is a country based on a collectivist oriented society. Most web interfaces tend to emphasise images of group and community including, family or group-oriented themes. The images are consistent with collectivism as demonstrated in Style Menu-2. Amant (2005, p.77) states ‘cultural differences in visual expectations can affect entire sites that use a particular kind of visual.’

Style Menu- 3 shows a lesser level of Power Distance, in terms of the layout design, particularly in the attributes of Images. The design of Style Menu 3 has been proposed to match Hofstede’s cultural dimension of Power Distance, as Lower Power Distance involving more creative and flexible composition. Style Menu 3 is more deliberately designed in a way that is innovative, aesthetic and unrestricted, so that the visual interface of the website can fulfill the announcement of the Malaysian government on Vision 2020, in encouraging a multicultural society in the nation. Ironically this matches the style mostly used in Malaysian commercial sites, which unlike the government sites are intent on capturing the whole market as directly as possible. Moreover, Style Menu- 3 provides uncomplicated and easy access to the website, and creates an emotional response in users, who have multilingual proficiency, have lived in more than one ethnic group, and have more multicultural knowledge than those who live in and belong to only one ethnic group.
In Style Menu-3, I categorise aspects related to personal cultural knowledge as well as in the knowledge of other cultures and multilingual language proficiencies. The users would have expectations of how they would like the visual interface to be. Hofstede (1997, p.231) ‘Individuals with more cultural knowledge are able to distance themselves from their own cultural assumptions and are aware of the limitations of their inherited cultural “software”’. Therefore, I propose that Style Menu-3 would be designed for users with more cultural knowledge, who have less cultural identification without the loss of effectiveness of culture recognition.

In addition, Style Menu-3 demonstrates the correlation between Collectivism and Power Distance in Hofstede’s cultural dimension. Hofstede (1997, p.56) argues

‘this correlation is the consequence of a third variable: national wealth: If economic development is held constant ... the relationship disappears and there is no longer any consistent correlation between the two dimensions across cultures.’

The aim of this research project is to propose a better communication strategy through the interfaces of the Malaysian government websites. The 2020 policy intends to bring the country into ‘national wealth’ and maintain a Collectivist society. The 2020 policy also imply a reduction of Power Distance in the society. Style Menu 3 is suggesting the components of these issues and demonstrating an enhanced cross-cultural interface model that reflects positive development as a contribution to the nation.

Figure 38 – Style Menu-3 Standardized Interface Culturally Suppressed
Style Menu- 2 demonstrates a Collectivist dimension to the visual interface design. It shows cross-cultural images on the website, emphasising group harmony, trust and ‘we’ relationships. Amant (in Ito and Nakakoji 1996, Kostelnick and Roberts 1998, Marcus 1996) states ‘The cultural expectations of what features an item – or visual representations of an item – should possess, however, can affect the credibility and the acceptability of visual displays.’ The visual attribute, including preferences of different geometric shapes and presentation of images, plays a crucial role in visual recognition for different cultural groups. Visual representation assists the user to emotionally identify so enhance visual interface recognition. Amant (cited in Ferraro 2002, Keegan and Green 2003, Kostelnick and Roberts 1998) states ‘the presence or absence of a single design feature can be enough to affect the credibility of an image or of an overall web site. Different cultures, for example, can associate different meanings with the same colour.’ These associations could affect how individuals from different cultures perceive the meaning of a particular image.

Figure 39 – Style Menu- 2 Culturally Integrated Interface to show cross-cultural images on the website.
Comparison between Perpustakaan Negara Malaysia (PNM) website and the Prototype Style Menus

The Style Menus in this research provides a broad-spectrum of guidelines. It is often difficult to understand how specific Style Menus can be applied to a designer's current situation, or which Style Menus are most appropriate. This is because designers mostly tend to focus on the clients’ expressed needs, rather than functional issues of the design. In order to provide direct and easy Style Menus for them, in many domains, designers actively seek concrete examples of existing design guidelines to assist their work.

For these reasons, my research project investigates various degrees of cultural integration, which can be applied to the most common interactive media: web interface, to demonstrate the different Style Menus in a contemporary visual interface design artifact. My design research reflects the projections of Malaysian Government policy that is addressing the consolidation of a more multicultural society by 2020. It should be noted here that the Malaysian Government is in the early stages of promoting culture integration. As a result I have proposed the three different levels of cultural integration in the Style Menus. Through social and design research, cultural elements have been structured to represent cultural integration and different values of multiculturalism. In fact, it benefits both government policy and design to improve communication between the different cultures.

<table>
<thead>
<tr>
<th></th>
<th>PNM’s website</th>
<th>Style Menu- 1 (Specific Cultural Representation)</th>
<th>Style Menu- 2 (Culturally Integrated Interface)</th>
<th>Style Menu- 3 (Standardized Interface Culturally Suppressed)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Colour</strong></td>
<td>Corporate colour</td>
<td>Cultural colour (separated display)</td>
<td>Specify/Identity colour</td>
<td>Adapting Colour (Hue/Saturation)</td>
</tr>
<tr>
<td><strong>Pattern</strong></td>
<td>Malay cultural pattern</td>
<td>Cultural pattern (separated display)</td>
<td>Integrated Pattern</td>
<td>No Pattern (Universal)</td>
</tr>
<tr>
<td><strong>Language</strong></td>
<td>Language Preferences</td>
<td>Language Preferences</td>
<td>Language Preferences</td>
<td>Common Language</td>
</tr>
<tr>
<td><strong>Image</strong></td>
<td>Malay</td>
<td>Cultural/Mono-cultural image</td>
<td>Multicultural Image (Mixed)</td>
<td>Non-cultural specifications</td>
</tr>
</tbody>
</table>

Table 6 – The differences between PNM’s website and the Style Menus
PNM’s website

Style Menu-1 (Specific Cultural Representation)

Style Menu-2 (Culturally Integrated Interface)

Style Menu-3 (Standardized Interface Culturally Suppressed)

Figure 40 – The different visual interface design between PNM’s website and the Style Menus.
Navigational Diagram in Visual Representation

*Style Menu 1 – Specified Cultural Representation*

The first proposed Style Menu: Specified Cultural Representation is designed following the format of existing websites in Malaysia except that it also addresses each of the other ethnic group separately. The structure of the website is obviously identified as a single-separated linear form of navigation. This Style Menu demonstrates a ‘single-minded’ cultural approach to interface design. The users access the site through the selection in their own preferences, such as Language. The visual interfaces are presented in only one cultural form, which does not provide any integration and communication between the different groups of users.

[Diagram of Style Menu 1]

*M= Malay, C=Chinese, E=English and numbers=pages*

*Style Menu 2 – Culturally Integrated Interface*

Style Menu 2 – Culturally Integrated Interface, proposed integration of the visual interface for different cultural group. The structure of the website uses a non-linear form of navigation in visual interface, which provides users access to the entire website with a language choice and cultural elements displayed. It also matches Kaplan’s (1966) research, showing that South and East Asian writing is characterized by non-linear thinking. The visual interfaces are presented with an integration giving cultural recognition.

[Diagram of Style Menu 2]

*M=Malay, C=Chinese, E=English and numbers=pages*
**Style Menu 3 – Standardized Interface Culturally Suppressed**

The Style Menu 3 – Standardized Interface Culturally Suppressed presents a composite navigation structure, as in navigation linearly, but this is occasionally constrained to linear presentations of web pages. It is also logically organized in a hierarchy to show the data or information when it comes into detailed sections. The visual interfaces are more counterbalanced with cultural recognition of all groups and the visual elements such as colours and layout of the page, tends to include a reduction of the High Power Distance concept, such as the positioning of the PNM logo in the middle of the webpage.

![PNM logo in the middle of the webpage](image)

*Figure 43 – The PNM logo is positioned in the middle of the webpage, in order to minimise the High Power Distance.*

![Navigational Diagram in Visual Representation](image)

*Figure 44 – Navigational Diagram in Visual Representation for Style Menu 3 (E= English, numbers= pages)*
Prototype Presentation (CD-Rom)

Each of the Style Menus suggests the adoption of a unique formation of elements that make up the characteristics of the cultural interface. Amant (cited in Aitchison 1994, Ross and Makin 1999) states ‘humans use a concept known as a prototype to classify the objects they encounter. Such prototypes are visual representations stored in a person’s memory, and they serve as representations of overall classes or categories of objects.’ As a result, the concept of prototype developed in my research project, permits the designer or researcher to use the proposed prototypes to determine and understand the particular formations of visual elements which belong to various categories of web interface. Jagne (2004, p.2) states

‘One of the main factors that contribute to this is that doing cultural studies of their target markets is expensive and time consuming. Therefore, instead of commissioning their own cultural models and theories, designers tend to use those that have already been designed by others.’

The four attributes: Language, Colour, Pattern and Image comprise the essential characteristics of web interface design in relation to the cultural and social factors of visual interface design.

The key to using the Style Menus in the prototype is demonstrating how website content analysis and design has conceptualised the recognition of cultural representations. Galdo & Nielson (1996, n.p.) demonstrated ‘…interface elements affected by culture are problematic because they are representations, which can be understood differently by culturally diverse people’. The prototype can be given to designers in Malaysia; as both an instrument for identifying cultural elements and a method for determining the creation of visual representations of objects and images, which provide the design elements for web interfaces.
This prototype provides an approach to website construction which makes manifest the cultural relations aspects of a site as part of the design process, thereby enabling more inclusive, user-friendly and effective outcomes. The prototype acts to both draw attention to the manifold forms through which cultural representation may occur, and to provide an exemplary methodology for consideration of cultural representation in sites under development. The prototype is not completed in a prescriptive way. Ross and Makin (1999, p.208) state, ‘an object does not need to have every single characteristic in common with a prototype to be judged as being a part of the category represented by that prototype’. The designer who accesses the prototype should be able to understand that the demonstration in my prototype is not the answer for every cross-cultural interface design. In fact, the designer should be able to identify which Style Menu is suitable and appropriate for the project that they are handling. The prototype makes evident the ‘Cross-cultural visual interface design process’ from research (Investigation and Theorizing) to design stages (Developing and Designing), providing guidance in the formation of visual interfaces appropriate to different levels of cultural integration.
This interface design in the CD-Rom tends to be a more precise and simple form of design, presented in an aesthetically simple and rational format. The ‘Introduction’ carries a point-by-point approach in the hope that the instruction in the prototype is clearly explained. The purpose of the entire prototype design serves to communicate the message of this research project and demonstration of Style Menus.

Summary

In this chapter of the research project, I have synthesized cultural dimension theory with website content analysis and developed a conceptual model of Style Menus to provide guidelines for similar web development. These guidelines offer a formula in the visual presentation necessary for the cultural recognition of visual interface design for multicultural audiences. As factors influencing the cultural recognition effectiveness, I have proposed four attributes of Image, Colour, Pattern and Language with the cultural dimensions of Power Distance and Collectivism.

I have hypothesized that the guidelines for cross-cultural visual interface design would improve the effectiveness of cultural recognition of visual interface. I have also demonstrated three different levels of cultural integration in the Style Menus that give options for presenting cultural representations in the visual interface. The different manifestations from highly mono-cultural to the multicultural approach have been

These principles in colour theory and typography can provide a basic knowledge of how the visual characteristics should be presented and interpreted. A deliberate choice of visual elements (image attribute) and interactions (pattern attribute) can demonstrate the message of cross-cultural interface design. For instance, Style Menu-3 is proposed for users with more cultural knowledge and has less cultural identification, without loss of culture recognition in the visual interface design.

In this research project, I have conducted a structural analysis of web content and provided a prototype that contains guidelines for the creation of cross-cultural visual interface design for Malaysia. In operationalising the proposed Style Menus, this approach can be applied to any country where website design acknowledges the principles of cultural dimension through interface design. The Style Menus provide a clear model of visual presentation and visual recognition. The discussion based on the supportive research theories on how to formalize Style Menus has been demonstrated, and how these constructs could be measured. Cultural recognition requires effective communication through its visual representation. Although every user might react differently to a visual interface, this research project provides general structural formations that can assist designers to understand how and what is involved in the visual presentation. As the visual interface community grows in different cultures, the visual interface needs to be improved in terms of the effectiveness of cultural recognition through its visual form. Designers should, then, take their professional experience into account when researching, philosophizing, analyzing and designing cross-cultural visual interface design.

The approach of this experimental research project adopts the semiotic system that has evolved through the representation of cultural elements. The four attributes (language, colour, pattern and image) have been identified and work as a system of signs, which can be understood through semiotic principles. This research project focuses on the formulation of these four attributes and provides an archetype for the study of how visual representation can be formed as an effective method to communicate in cross-cultural interface design for multicultural audiences.
7. Conclusion

Summary

This research project has investigated the cultural content of visual representations in interface design. It provides insights into the cultural and societal characteristics of a particular web visual interface through its Style Menu prototype. It can be applied to assist the designer to create a prototype more sensitive to multicultural policy and which actually reflects government ideological projections. However, this research framework makes serious demands on designers and policy makers to study and understand different cultures in depth and choose an appropriate model from this research for designing a website, which is suited to the audience composition and policy strategies. Patterns of cultural integration are set in large part by policy projections and the cultural markers themselves which derive from the cultures represented. Government departments can further enhance the cultural adaptation of their website for multicultural audiences, by being sensitive to visual representations and how the website visual interface is structured in the web space. Robbins and Stylianou (2002, p.205) state;

Developing an effective multinational Internet presence requires designing websites that operate in a diverse multicultural environment. Globally accessible websites likewise have the potential to inform, and include, various nations around the world in a large scale information sharing in order to reduce any exclusion effects.

Currently, there are limited examples of existing cultural models for cross cultural communications. Some of them have developed a broad range of guidelines for cross cultural user interface design (Markus & Gould, 2000; Sheridan, 2001; Smith et al., 2004). Nevertheless, there is a lack of specific prototypes that can provide a guide for cross cultural visual interface design, such as the Style Menus prototypes in this research project. My research has been narrowed down into a specific focus on a country with a multicultural society, so that its contribution is related to local cultural interface design, and hence case study preferences in different categories of websites were investigated.

I have developed a prototype of Style Menus to demonstrate a selected range of cultural representations, and to identify design processes to support their creation. These design
processes involve analysing cross cultural interface design in terms of similarities and differences in the Style Menus. The Style Menus employed a web-based interface using Macromedia Flash. As development of the research project involving cultural representations was undertaken, I have worked through a process of identifying cultural elements and characteristics of the web interface, using the Cultural Markers Method to match the design context to the most appropriate formation. The outcome is a set of Style Menus that are tailored to the specific needs of the cultural representation relevant to the particular interface design.

The objective of this research project is to apply research and implement Style Menus presenting cultural values and elements suitable for visual interface design to meet specific cultural projections. The Style Menus can be a guideline for designer and researcher to develop a culturally-specific visual interface design on particular websites. Based on the research method and results of this research project, three main Style Menus implications have been identified. The first Style Menu proposed in this study, Specified Cultural Representation; second, Culturally Integrated Interface and the third, Standardized Interface Culturally Suppressed. These three categories form a broad typology of social and cultural integration representing the broadest range of instruments of communication.

This research project provides substantiation to support other works demonstrating that design preferences differ across cultures. The findings present a general description of the cross-cultural visual interface, and provide some guidelines related to specific cultural preferences in visual interface design. As several researchers have pointed out, cross-cultural interface goes far beyond text and translation, to include layout, symbols, navigation, and the use of color.

Most of the guidelines suggest that the entire procedure or references should always be visible. However, this research project proposes depending on the cultural context to consider how to design an appropriate visual interface. It avoids making doctrinal guidelines for designers to follow, so long as they have regard for cultural markers. To an extent this research project on Style Menus provides a flexibility of options for design. If the Style Menu’s attributes (language, colour, pattern and image) do not fully support the cultural representations context, designers can refer to the Mood Boards and check on
different cultural representations and CMM’s, in order to select the accurate cultural elements that are suitable for the visual interface design.

The Style Menus provide a professional way of navigating complex waters for designers of visual cultural interface design, as most designers tend to ask questions about particular aspects that focus on problems they have with their own design, rather than on what the cultural needs of its users are in general. Henninger (2000, p.228) states ‘an effective strategy for developing a user interface is to find an existing interface that has proven effective for users with similar backgrounds and needs and adapt the ideas and methods into the new interface.’ This sort of design in that sense is reproductive. The Style Menus offer the chance of insight into the social and political dimensions of communication.

A design approach that uses Style Menus builds on this method by matching the cycles of the design process: investigating, theorizing, developing and designing. As the visual interfaces are developing, the designers can refer to Style Menus criteria that significantly impact on the interface design appropriate for their cultural audience. The Style Menus are capable of communicating the design process of the visual cultural interface. These Style Menus compliment the research and development phases of the design production process.

By addressing integration as a key cultural issue this prototype attempts to overcome the problem of translating a social issue into a web interface outcome. I am arguing that policy strategies are reflected in the design characteristics of website interface itself. Studying cultural content in interface design can also provide insights into the cultural and societal characteristics of a particular cultural group and help the designers to understand what style of web interface should be developed for particular multicultural audiences. The framework proposed in this research project lays serious demands on designers and researchers to study different cultures in depth before designing for the cross-cultural interface. Thus, to implement this framework, designers or researchers will not only need to be able to identify and incorporate ethical dimensions of cultural values, but will also need to study each culture to find the specific elements (symbols and language use) which are crucial to effective communication. For example, web marketers can further enhance the cultural adaptation of their international websites by being sensitive to spatial
There are some limitations of this research project that need to be underlined. Firstly, the data pattern which results from the present research are limited in their scope, because the four different categories of websites (government, non-government, Malay and Chinese audiences) focused on for analysis, were selected on the basis of random methods without any consideration of product or industry service category. However, the approach is based on the most widely used and popular websites in the country. Therefore, I would recommend that in future research; designers should request updated surveys on the most popular websites for the widest range of users, to further validate their findings on visual interface design.

Secondly, in future research; these research methods might be applied to different countries with a similar approach to designing multicultural visual interface design. One could compare countries with similar and differences values of cultural integration. I believe that this research project using Malaysia as a case study would be applicable to any other country, based on the literature reviews of the cultural dimension models principled by Hofstede, and interface approaches formulated by Marcus. For instance, if New Zealand or Fiji wanted to develop culturally sensitive sites, they could apply this research model with fairly minimal adaptation.

Finally, the Style Menus prototype is a work in progress and development. There are a number of design considerations that need to be incorporated and matched with the different cultural representations and elements, before they can be used as a final design execution. There are two aspects that are key to the Style Menus prototype in the form of cultural markers which need to be collected in order for application to work and social policy needs to be matched to cultural integration diagrams, such as 1. Specified Cultural Representation, 2. Culturally Integrated Interface, and 3. Standardized Interface Culturally Suppressed, in order for the site to match public policy. A detailed study of a cultural recognition framework for analysing cross-cultural differences in visual interface could accompany and strengthen the methodological framework proposed in this research project.
This research project has several implications. First, collecting Cultural Markers is always a complex and demanding process that needs to be handled sensitively and thoroughly. It needs to survey a broad field of national web production, such as Government, Non-government (Commercial), Malay and Chinese in the Malaysian context target users’ websites. Some order needs to be given to markers in presentation, such as Colour, Pattern, Language and Image.

Second, Mood Boards may be familiar to designers in past practice but need greater thoroughness than many commercial applications might demand. These procedures necessary for the development of the Style Menus are transferable to solutions in other web development tasks in related cultural areas.

In conclusion, there are no practical guides yet developed to aid more culturally sensitive development of web interfaces such as these Style Menus. As well, there is very limited information available to designers that indicates how and when to use cultural symbols. It has been identified that visual representation is very important in web interface design (Sun 2001, Barber and Badre 1998, Evers and Day 1997, Bourages-Waldegger and Scrivener 1998). Different cultural elements carry cultural recognition, and this cultural recognition plays an important role in attracting an audience. Using Style Menus (in the research project) is an approach to addressing cross-cultural visual interface design through a combination of methods that can provide solutions to cultural interface design problems. The intention of this approach is to make the design process a proactive one, which can also fulfil the government policy on multicultural issues, such as Vision 2020 in Malaysia. In addition, the Style Menus can be used throughout the entire design process to reflect evolving and context-specific project needs. Judgment must be balanced between cultural difference and cultural representation, providing sufficient flexibility for the designers. It has been shown that a combination of cultural representation and visual interface design are needed to achieve a clearer representation of government policy through the case study developed around the PNM.

**Future Research Directions**

The outcome of this research project suggests various possibilities for further investigation. There is value in conducting a wider scope of studies that consider how web interface features differ in a larger sample, across a number of nationalities, to determine how it can
be applied to other countries in regard to cultural integration of their website designs or indeed to work in a globalised context.

The cultural philosophy of any institution can be read in the Cultural Markers incorporated in a site as well as the inclusiveness or exclusiveness of the cultural representation of particular social groups. The structural analysis of the Style Menus Prototype can be used to more accurately tune the cultural philosophy of governments with cultural institutions such as the PNM (National Library of Malaysia). My research indicates that Commercial sites are more likely to be inclusive, whereas Government sites in the Malaysian context are more ideological in their approach to social representation.

Once a better understanding of design characteristics is established in specific cultures, extension of this research may be applied to design across cultures in other applications such as interactive design and software for mobile devices or even computerized automobile systems.

Cultural knowledge of representation is clearly a key element of user interface design, the application of Mood Boards and Cultural Markers as implied in the Style Menus would reinforce cultural relevance in web design. The cultural knowledge of visual representation is an important addition to the area of user interface design. The proposed Style Menus identify the cultural representation concerned; however I would define cultural recognition as the overall feelings of the user in response to the cultural content within the visual interface. Overall feelings can be interpreted in the way that users visually recognise the interface and satisfactorily access the website. However, the designer should provide minimum basic requirements for the cross-cultural visual interface.

In the future, the prototype (CD-Rom) of the Style Menus can be duplicated into different versions appropriate for designing a cross-cultural visual interface for various users. The CD-Rom can be published in a series or collection for different countries that are not only for designers, but also to provide an understanding for users of how cultural visual communication is formed. Hence, the Style Menus prototype is a work in progress, but it is already demonstrating what is required to improve cultural visual interface design, and what is necessary to match the needs of audiences from multicultural backgrounds.
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