CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The 'Elderly' are defined as people aged 60 years old and above. During the Conference of World Assembly On Ageing held in Vienna, 1982, the United Nations defines the elderly as '60 years and above' which was accepted as the cut-off in deliberating ageing trends (Mat & Taha, 2003). Malaysia, like other developing nations, has a trend of increasing population of elderly people versus a decreasing population of newborns as the current generation of people tends to have fewer children than the earlier generation. A survey result conducted by Senior Voice magazine (2005, p.3) which was released by National Council of Senior Citizens Organizations Malaysia (NACSCOM) has stated that there were 1.8 million elderly citizens in 2005 and by year 2020 this number is estimated to increase to 3.8 million. This marks an increase of 52.63% within a span of merely 15 years. Due to this alarming trend, Malaysian policy makers have adopted this estimation to be officially used for planning for the future senior citizens (Mat & Taha, 2003).

The following sections of this literature review cover the topics on the benefit of the Internet for the elderly, elderly and website issues, web design guidelines for elderly and the existing travel websites for the elderly.

2.2 Benefit of the Internet for the Elderly

In the current technologically savvy era, most of us need to stay connected to the Internet daily because of its various benefits. Usually it is to accomplish everyday tasks such as paying bills, banking, checking balances in credit facilities or simply using it to talk to our loved ones overseas and browsing entertainment (Hawthorn, 2000). This is no different for the elderly who use the Internet as they too know the benefits of using the Internet very well. In fact, many know how to keep in touch with their children and grandchildren who are working or studying abroad.

Noticeably, many elderly people in current times prefer to have their own activities and be socially independent (Adam et al., 2005). There are many retired seniors who love to travel as they now have the time to do so. All they have to do is log on to the Internet, browse travel destinations and purchase their tickets. Many of them also use the Internet to get information about activities such as community gatherings and alumni meetings. The elderly further keeps themselves updated through emails and Websites set by their associations. The Communications Market 2007 (August) reported that 16% of Briton aged 65 and above are online 42 hours monthly and it is said to be more than other groups of age. This is due to the time they have after retirement. This is to avoid seniors who are immobile isolating themselves. Through online activities they can always mingle with people in the same shoes. It can be done through chatting, talking over VOIP phones, playing games online and posting their profiles to other people to make friends. Thus these sort of online activities keep their mind occupied and refreshed. For those of them

who have chronic illness, some concerned healthcare providers have even provided special features on their websites such as message boards and online surveys to diagnose their condition remotely (Demiris, 2001).

2.3 Elderly and Website Issues

The following section highlights three problems related to the elderly and website design. The three are the functional impairment of the elderly, 'experience, environment and education of elderly' and the ignorance of the website designers.

2.3.1 Functional Impairment of Elderly

This section discusses the functional impairment of the elderly and its effect on browsing the Internet. The Longman dictionary of contemporary English (2005, p. 655 and p. 812), defined 'functional' as capabilities to work correctly and defined 'impairment' as a condition when a part (mental/visual/cognitive/hearing) of a person's mind or body is damaged or does not work well.

In Table 2.1 Holt, (2000) summarizes the functional impairments faced by the elderly. It discusses four types of functional impairment that is the visual, intellectual, hearing and motor skills. However, the issues focused on this review are the visual and intellectual impairment.

Table 2.1: Functional Impairment of Elderly and Their Effect on Computer Usage

(Source from Holt, 2000)

Visual

- **Forcing Ability:** Fast moving objects harder to follow. Presbyopia (far sighted ness) develops.

- **Seeing Dark And Light:** Adaptation to dark decreases. Sensitivity to glare increases due to decreasing transparency of the lens

- **Seeing Colours:** Colours in the green-blue-violet range become harder to distinguish

Intellectual

- **Response Time:** More time is needed to consolidate information. Response time is complicated by having to perform multiple tasks.

- **Learning Rate:** The rate of storing new information and retrieving old information may slow down.

- **Concentration:** It may become harder to ignore irrelevant stimuli and thoughts.

Hearing: Hearing high frequencies and distinguishing speech may become more difficult.

Motor Skills: Chronic conditions such as arthritis may make small movements, such as those needed for typing or using a mouse.

Many elderly would like to continue their life as they have always done, but they cannot due to these declines. Research has stated that the elderly have problems using present websites especially those that have small buttons, multitasking windows and strategic

interfaces because they need good memory power and eye sight (Zajicek, 2001). The most obvious characteristic of physical impairment among elderly is reduction in eye sight. It is proven that there is 50% reduction in the amount of perceived light at age 50 compared to age 20 and it increases to 66% at age 60, due to this it is highly recommended to instill high contrast between the text and the background (Zhao, 2001). Websites with complex features slow down the elderly because of the additional 'thinking time' that are needed to move on to the next step (Demiris et al., 2001). Most of them forget their initial move almost immediately. This makes it very difficult for them to go through the sequence of the website (Zajicek et al., 2000; Meyer et al., 1997). These setbacks are due to the intellectual impairment as described in the table above.

2.3.2 Experience, Environment and Education of Elderly

Besides functional impairments, website design should further take into consideration the user's educational background, experience with computers as well as their environment or living standard of the elderly. Experience of the elderly is important to be included in the web design requirements. There should be some insight into this factor before proceeding with the design. Characterization such as "Novice" or true beginner, advanced beginner, competent performer or Expert" should be taken into account (McCracken et al., 2004; Fox, 2004). It was found that elderly people with better performance in Internet usage has had more experience before (Chadwick, 2003). Thus findings on the level of experience of the targeted users or in this case the elderly can determine the structure of the website (McCracken et al., 2004: p42).

The environment of the elderly also needs to be considered such as income and social background. Many of them hesitate to pick up and use new technology as they perceive it to be expensive as it is not essential for their living standard. However, users from a higher income background have a positive attitude towards computer technology (Alpay et al., 2004). Zajicek et al., 2000 have stated in their research that retirement, loss of income, loss of physical capabilities, impairment of certain senses are all factors which control an elderly person's environment. As such, this particular scope must be considered when designing for the elderly.

Finally, the educational background of the elderly has to be given equal priority. Since most websites that are published are in English, translation into other languages has to be considered against the targeted elderly groups' language proficiency.

2.3.3 Ignorance of the Website Designers

In the market today, very few products are sold with elderly people as target users. However, even the existing ones for the elderly, are frequently poorly designed and have problems of functionality, usability, quality and safety (INCLUDE, 2000). The designers are the most responsible persons for these problems. Usability problem through ignorance of designers can be in many forms for example a page layout which often causes eye strain for the elderly (L. Hanson, 2001). Besides this, the interface which is supposed to be simple for the elderly, are often complicated and cluttered which causes them to perform badly and hinders them away from browsing the Internet (Dickinson et al., 2005).

It is very common among the new generation web designers to have the perception that the elderly are as perfect as them (Nielsen, 2002). It is important for designers to be conscious of the decrease in functionality among the elderly that causes them to delay in their performance online. To ensure the web pages are accessible and usable to the elderly users the designers should design interfaces to be consistent with the motor capabilities of the elderly users. Such as providing increased font size buttons in all web pages because of the eye site decrease in elderly users. This has to be overcome by designers through following guidelines recommended for elderly website. There are many productions of guidelines for Web designing but many of its points overlap and stress the same point although phrased differently (Kurniawan & Zaphiris, 2005). Thus, by simply making adjustments to the website, they can easily encourage the elderly web users to use the website with confidence (Holt, 2000).

2.4 Web Design Guidelines for the Elderly

The following section discusses briefly on four published web design guidelines for the elderly which are 'Creating Senior-Friendly Web Sites (Holt, 2000)', 'Universal Usability Web Design Guidelines for the Elderly (Haizia, 2001)', 'National Institute of Aging and National Library of Medicine Checklist (NIA & NLM, 2002)' and 'Research Derived Web Design Guidelines (Kurniawan & Zaphiris, 2005)'. All four web design guidelines are included in Appendix E.

2.4.1 Creating Senior-Friendly Web Sites (Holt, 2000)

Creating senior-friendly web sites is a study done by Barbara Holt (2000) at the Centre for Medicare Education. Holt's studies emphasized on essential requirements for adopting the condition of the computers an elderly user would be using. She has emphasized that decline in senses among elderly has to be considered when designing websites. She also stressed that this can affect their motivation and ability to use computers and the Internet. Considering this factors she has developed a checklist for a senior friendly web site. She has divided her guidelines into four categories which consist of page design, layout, content and multimedia.

2.4.2 Universal Usability Web Design Guidelines for the Elderly (Age 65 and Older) (Zhao, 2001)

Haixia Zhao (2001), from University of Maryland carried out a usability study on web design issues concerning the elderly and recommended several guidelines. He has emphasized on a universal usability for web design guidelines for the elderly. Through understanding implications of age related changes in functional abilities he has derived guidelines to accommodate the elderly (age 65 and above). In this study, firstly he has highlighted issues of technological accessibility impediments related to income and education. Secondly issues on technological usability impediments related to physical, mental and cognitive impairments are addressed. Considering this factors his guidelines are divided into seven categories which includes colour, font, navigation mechanism, sound, content, layout and style and education.

2.4.3 National Institute of Aging and National Library of Medicine Checklist (NIA & NLM, 2002)

The National Institute of Aging (2002) from USA has produced a checklist especially for designers designing web for the elderly. National Institute of Aging has sponsored many basic and applied cognitive aging studies, focus groups, usability tests and researches on how age related changes affect the usage of computers among the elderly for the past two decades to produce this checklist. The checklist of guidelines for web designing are divided into four main categories which are designing readable text, presentation of information, incorporation of other media and increasing the ease of navigation. Many important guidelines are highlighted by this study.
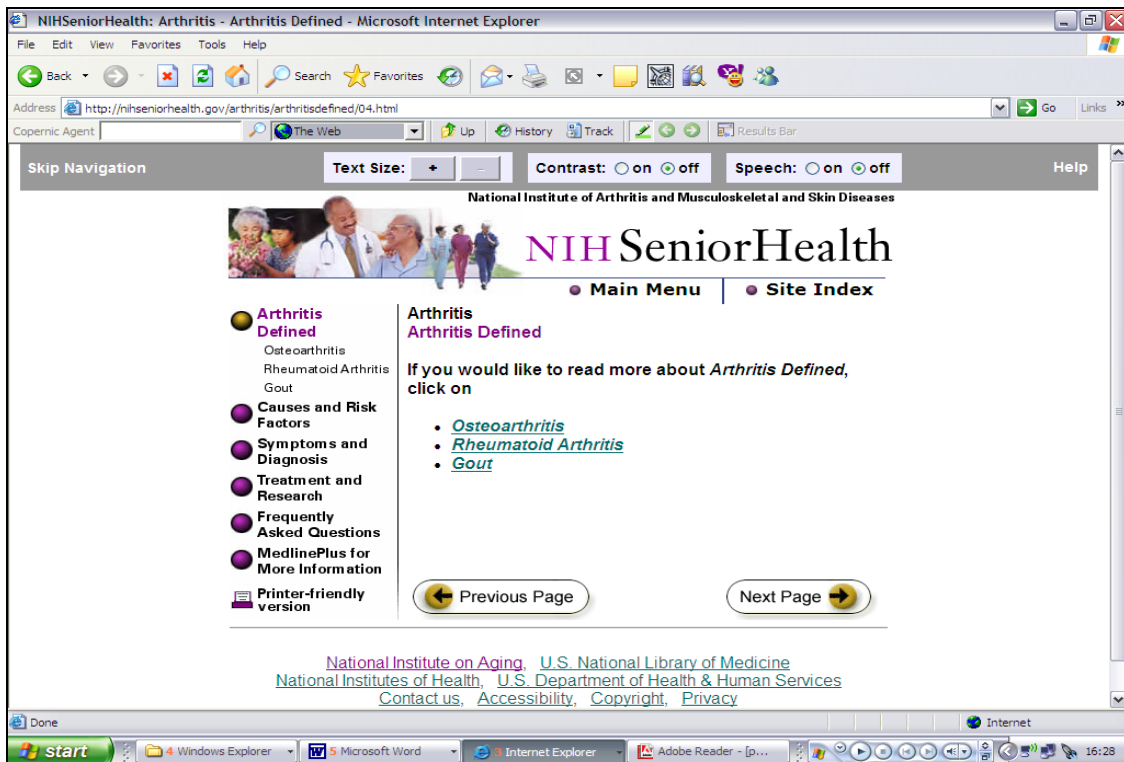

Figure 2.1: National Institute of Health Web Page

Figure 2.1 shows the National Institute of Health web page which was totally designed following the guidelines that were produced through their research. Each component of this website has the features that are stated in their guidelines.

2.4.4 Research-Derived Web Design Guidelines for Older People (Kurniawan & Zaphiris, 2005)

Kurniawan and Zaphiris have derived 38 guidelines for designing websites for the elderly. These research based guidelines are derived using user centered design approach. Card sorting and affinity diagrams are the approaches used to derive a refined set of guidelines. The guidelines are also validated through expert and user verifications. The guidelines are divided into 11 different categories. The categories are target design, use of graphics, navigation, browser window features, content layout design, links, user cognitive design, use of colour and background, text design, search engine, user feedback and support.

2.5 Guidelines Summary

The first research is carried out by Centre for Medicare education by Holt (2000), titled "Creating Senior-Friendly Web Sites" shows guidelines for the elderly in four different categories. Next is the research by Zhao (2001) titled "Universal Usability Web Design Guidelines for the Elderly (Age 65 and Older)" from University of Maryland. In this research, serious concerns are given to elderly people's technological skills impediments related to physical, mental, and cognitive impairments. Then it was followed by a study funded by National Institute of Aging (NIA & NLM, 2002). It was conducted over a period of two decades and produced a checklist for designing website for the elderly. The last research guideline was by Kurniawan and Zaphiris (2005) entitled "Research Derived

Web Design Guidelines for the Elderly". The guidelines are derived using user centered design method.

A compilation of the four guidelines gathered are tabulated in Table 2.2. It is divided into four categories consisting of 63 guidelines. This categorization was done to group together similar design features. The four categories are Content, Layout and Style, Navigation Mechanism and Multimedia and Animation. The categories are further divided into subcategories.

The Content category is the most important guideline category because it is the essence of the website and has the information that will be conveyed to the elderly. It covers the aspects of colours, fonts and content design. Its subcategories include typeface, type of colours, size and content design which covers a major part of the checklist for the design of the web page. This category also states requirements for distinguishable background colours and fonts, font colour, size and type. In addition the need for simple language, consistent words, help and feedback also influences the aspects of help and feedback.

The Layout and Style category covers the aspects of the information architecture as a whole. It emphasizes on consistent style throughout the pages of the website. Clarity of functions, menus and labels are defined here. It also specifies the characteristics of a page layout which is preferred by the elderly as well as visualization and labelling.

The Navigation Mechanism category is basically all about how navigational icons are placed consistently throughout the web page. Also specified here are characteristics for that could be used as hyperlinks.

The Multimedia and Animation category is rather self explanatory. As the title suggests, it covers the physical outlook of the web page. Graphics, audio and animation are also described in this category. It also includes the usage of moving objects, background sound effects, narration and video.

The tick '✓' in each cell of the table indicates the presence of the feature in the research guideline. Meanwhile, the absence is indicated by a cross ('X').

Table 2.2: Summary of Four Existing Research Guidelines for the Elderly

GUIDELINES CATEGORY RESEACHERS	Holt (2000)	Zhao (2001)	NIA 2002	Kurniawan and Zaphiris (2005)
A. CONTENT				
A.1 **Colour**				
1 Colours to avoid blue, yellow and green	✓	✓	✓	✓
2 Background contrasted with appropriated font and avoid patterned background	✓	✓	✓	✓
3 Fluorescent colours are avoided	✓	X	X	X
4 Choose complementary colours	X	✓	X	✓
A.2 **Font**				
5 Typeface Sans serif (not condensed)	✓	✓	✓	✓
6 Large font size, use 12-14 point font	✓	✓	✓	✓
7 Type Weight = Medium or Bold	X	X	✓	X
8 Use capital and bold only in headlines	✓	✓	✓	✓
9 Intense enough to read	✓	✓	X	X

10	Italics are avoided for it is wobbly	✓	X	X	X
A.3	**Content Design**				
11	Information clear and familiar and positive statements	✓	X	✓	✓
12	Phrasing use active voice	X	X	✓	X
13	Simple language/terminologies as simple as possible	✓	X	✓	✓
14	Break lengthy document in short sections or separate pages	✓	X	✓	X
15	Minimize irrelevant screen information	✓	✓	X	X
16	Clear organization of content:	X	✓	X	✓
17	Test your web site	X	✓	X	X
18	Help and Information	✓	X	✓	✓
19	Search engine should cater for spelling errors	X	X	X	✓
20	Error message should be simple and easy to follow	X	X	X	✓
21	Memory cues same logo/design consistency	✓	X	X	X
22	Be as concise as possible when providing instructions.	X	X	✓	X
23	On-line aiding and support documentation	X	✓	X	✓
24	Large and clear confirmation of target capture	X	X	X	√
25	Short segments to reduce download time	X	X	✓	X
	B. LAYOUT AND STYLE				
26	Justification to the left	X	✓	✓	✓
27	1.5 or double space for all body text	✓	X	X	√
28	Avoid Underlining	✓	X	X	X
29	Consider screen resolution	X	✓	X	X
30	Consistent layout	✓	X	✓	✓
31	Page design as simple as possible	✓	X	X	✓
32	Margin of $1\frac{1}{2}$ or more inches on the right side	X	✓	X	X
33	Pull down menus used sparingly	X	X	✓	X
34	Do not use a deep hierarchy and group information into meaningful categories	X	✓	X	✓
35	Space between links	X	X	✓	X
36	Avoid frames	✓	X	X	X

37	Provide ample time to read information	X	✓	X	✓

C. NAVIGATION MECHANISM					
38	Reserve underlines for links only	X	✓	✓	X
39	Hyperlinks should be coloured	✓	X	X	X
40	Step by step navigation procedures, label and link carefully	X	X	✓	✓
41	Mouse: Single click	X	X	✓	✓
42	Avoid automatic scrolling	✓	X	✓	✓
43	Backward and Forward navigation	X	X	✓	X
44	Site map provided	X	✓	✓	✓
45	Hyperlinks set as icons with text	X	X	✓	✓
46	Hyperlinks in bold type of a different colour than the rest of text	✓	X	X	✓
47	Provide location of the current pages	X	X	X	✓
48	There should be differentiation between visited and unvisited links	X	X	X	✓
49	Labelled links to promote ease of navigation	X	X	✓	✓
D. MULTIMEDIA AND ANIMATION					
50	Avoid moving text	X	✓	X	✓
51	Icons should be simple and meaningful and distinguishable	✓	✓	X	✓
52	Icons as a hyperlink	✓	X	X	X
53	Visible button to increase fonts sizes	X	✓	X	X
54	Photo/graphic should be relevant only	X	X	✓	✓
55	Animation, video and audio used with limit	✓	✓	✓	✓
56	Text Alternatives for graphics	✓	✓	✓	X
57	Provide only one open window e.g., pop-up/animated advertisement or multiple overlapping windows should be avoided	X	X	X	✓
58	Provide non-text equivalents to text	X	✓	X	X
59	Incorporate text with icon	X	X	✓	✓
60	Avoid placing text on top of photograph	X	✓	X	X
61	Illustration	✓	X	X	X

62	Sound: Lower frequency	X	✓	X	X
63	Avoidance of sound effect	✓	X	X	X

All the guidelines in Table 2.2 are compared and prioritized based on the most recommended guidelines among the four researchers. The more researchers mention a particular guideline, the more recommended it is deemed to be. Table 2.3 lists 34 guidelines that are supported by 2 or more researcher (>=50%) and is considered the most recommended guidelines. Meanwhile, table 2.4 shows 29 guidelines that are only supported by one researcher (<=25%). The most recommended guidelines in table 2.3 are incorporated in the Website designed for the elderly in this research.

Table 2.3: Most Recommended Guidelines for the Elderly Web Pages

The Most Recommended Guidelines for Elderly Website Design	
A. CONTENT	
A.1	**Colour**
1	Colour to avoid blue, yellow and green
2	Background contrasted with appropriated font and avoid patterned background
3	Choose complementary colours
A.2	**Font**
4	Typeface Sans serif (not condensed)
5	Large font size, use 12-14 point font
6	Use capital and bold only in headlines
7	Intense enough to read
A.3	**Content Design**
8	Information clear and familiar and positive statements
9	Simple language/terminologies as simple as possible
10	Break lengthy document in short sections or separate pages

11	Minimize irrelevant screen information
12	Clear organization of content:
13	Help and Information
14	On-line aiding and support documentation
B.	**LAYOUT AND STYLE**
15	Justification to the left
16	1.5 or double space for all body text
17	Consistent layout
18	Page design as simple as possible
19	Do not use a deep hierarchy and group information into meaningful categories
20	Provide ample time to read information
C.	**NAVIGATION MECHANISM**
21	Reserve underlines for links only
22	Step by step navigation procedures, label and link carefully
23	Mouse: Single click
24	Avoid automatic scrolling
25	Site map provided
26	Hyperlinks set as icons with text
27	Hyperlinks in bold type of a different colour than the rest of text
28	Labelled links to promote ease of navigation
D.	**MULTIMEDIA AND ANIMATION**
29	Avoid moving text
30	Icons should be simple and meaningful and distinguishable
31	Photo/graphic should be relevant only
32	Animation, video and audio used with limit
33	Text alternatives for graphics
34	Incorporate text with icon

Table 2.4: Other Recommended Guidelines

OTHER RECOMMENDED GUIDELINES	
A.CONTENT	
A.1	**Colour**
1	Fluorescent colours are avoided
A.2	**Font**
2	Type Weight = Medium or Bold
3	Italics are avoided for it is wobbly
A.3	**Content Design**
4	Phrasing use active voice
5	Test your web site
6	Search engine should cater for spelling errors
7	Error message should be simple and easy to follow
8	Memory cues same logo/design consistency
9	Be as concise as possible when providing instructions.
10	Large and clear confirmation of target capture
11	Short segments to reduce download time
B. LAYOUT AND STYLE	
12	Avoid Underlining
13	Consider screen resolution
14	Margin of $1\frac{1}{2}$ or more inches on the right side
15	Pull down menus used sparingly
16	Space between links
17	Avoid frames
C. NAVIGATION MECHANISM	
18	Hyperlinks should be coloured
19	Backward and Forward navigation
20	Provide location of the current pages

21	There should be differentiation between visited and unvisited links
D. MULTIMEDIA AND ANIMATION	
22	Icons as a hyperlink
23	Visible button to increase fonts sizes
24	Provide only one open window e.g., pop-up/animated advertisement or multiple overlapping windows should be avoided
25	Provide non-text equivalents to text
26	Avoid placing text on top of photograph
27	Illustration
28	Sound: Lower frequency
29	Avoidance of sound effect

2.6 Existing Travelling Websites for Elderly

The domain selected for this study is travelling website. This is selected based on the earlier informal interview carried with some of the elderly at the Nascom Center. The following section 2.6.1 and 2.6.2 discusses the travelling websites available for the elderly in Malaysia and Overseas.

2.6.1 Travelling Websites for Elderly in Malaysia

There are several travelling website found dedicated to Malaysian traveller which includes www.airasia.com and www.emalaysiatravel.com and many others but none is dedicated to the elderly users. The Airasia website is considered not only as an airline website but it's also a travelling website because its website has services which are more than just flight bookings. It has other functions such as hotel bookings, package booking

(hotel +flight), destination information, car rental and many other elements which can be very useful to be reviewed for adapting into a travel website.

2.6.2 Travelling Websites for the Elderly Overseas

The following describes two travelling websites for the elderly. This includes the www.eldertreks.com and www.travelocity.com/AARP/home. The functional details of the websites are discussed together with the design issues of these two websites comparing to the most recommended guidelines found earlier.

2.6.2.1 The Website on Exotic Travelling for the Elderly www.eldertreks.com/

This website is a travelling website dedicated for seniors who are 50 years old and above. It has many travel packages for land and sea adventures. Currently the offered destination of travelling includes Africa, Antarctica, and Artic, different parts of America, South East Asia, Europe, Oceania and Transcontinental.

The main page highlights the Splendours of South Africa. It has a picture of a lion and lion cubs hugging each other in the middle column. Along with that, on the left side frame it has a destination search .There are two drop down menus which are related to each other. The first dropdown menu has the titles of regions for visiting and the second one is the option of sea or land. Both this requirement is an option to narrow down the user's search. When this search is narrowed down, the available packages are displayed on the middle screen. Then further details appear after clicking the desired package. The available trip dates, price and itinerary of the tour are displayed on the right hand side

frame. The maroon colour horizontal tabs with white fonts are also related to the particular chosen package. The tabs include the photos of the tour places in PDF format, detailed itineraries, FAQ's and testimonials. There is a dark green colour button named 'book now' at the top of the right side frame. This button is the most important button but it is not so obvious because of its colour. The function on the website is limited to choosing the trip displayed on the website. For the interested elderly, this website also supports online booking for the packages displayed online. The managements of the website also allow the elderly to customize their trip but through phone calls only. Figure 2.2 shows a screenshot of this website's main page.

This following review of the website is based on the most recommend guideline. The colours that are used on the main page are dark yellow or mustard and green with white background. The Eldertrek shows that the contrast between font and the background are inappropriate. It shows a dark yellow background as its frames with black and dark green writing on it. The website has colours which are bright and not complementary. The fonts used on the website are also different in sizes, some are condensed and some are not. Most importantly they are not sans serif .Large font size mostly 12-14 point is used throughout. The website uses capital and bold only in headlines and their wording are intense enough to read.

Information's on this website are found to be clear, familiar and mostly are found to be positive statements. Languages and terminology are found to be simple as possible. Their content as well is broken into short sections or separate pages. The web pages have only

relevant information on its screen but their organization of content is not clear. No help and information is found. There are no on-line aiding and support documentation found. Their contents are not justified to the left. Body text and simple 1.5 spacing for the paragraph are not emphasized too. Their page designs are found to be simple. Information is grouped into meaningful categories and it does not use deep hierarchy. The pages are mostly static so it provides ample time to read the information.

The web page reserved underlines only for their links. There are no step by step navigation procedures, labels and linking found. All links are accessible in a single click of mouse. There is no automatic scrolling found on the web page. There is no site map provided on the website. The hyperlink on the Eldertreks does not use icons with text. The hyperlinks are also found to be in bold and in different colour than the text. Links are found to label to promote ease of navigation.

There is no moving text found. Icons are also found to be simple, meaningful and distinguishable. Traces of animation, video and audio are used with limit but no text alternatives used for their graphics**.**

Figure 2.2: Screen shot of the Eldertrek **www.eldertreks.com/**

2.6.2.2 Travel Passport Website for the Elderly by AARP organization

http://www.travelocity.com/AARP/home

This particular website was implemented by the AARP organization for the elderly. It is a non profit organization for the elderly in USA. This website includes a module on travelling for the elderly. Figure 2.3 shows a screenshot of the travelling module of the aarp.org website. This travelling web page provides many travelling formations for the elderly such as Flights, TotalTripPlus, Hotels, Cars, Cruises, Vacation & Tours, Last Minute Packages and Activities. The following paragraph discusses the Flights and the Hotels only as it is related to the proposed website.

The Flights and Hotels column is the reddish square located on the left hand site corner of the page. It is the online booking function for this website. Looking into the booking module the first thing the user has to enter is the category of their booking. It has four radio buttons with four categories as options. They are 'Flight', 'Flight and Hotel', 'Hotel' and 'Car'. After narrowing to one of the stated categories the information of the destination of travel is typed in the text bar provided. Next, the date of travelling has three options again for the flexibility of the users. They are 'exact date' or '+/- 1 to 3 days' or 'flexible date'. After deciding on one of these options, the date is entered through a calendar provided. Lastly the number of users is requested and subsequently the search button enters the lists of available flight and it matches with the criteria displayed. After choosing the options for the departure and return the total for paying is displayed. Finally the credit card details are required**.**

This following review of the website is based on the most recommend guideline. The AARP travel website uses almost all the colours on the front layout and there is not much of consideration is given to the contrast of the page. Colours which are bright and not complementary are also used. There is no consistency in font size used. Some are condensed and some are not. Most importantly they are not sans serif. Large font sizes such as 12-14 point fonts are used. The AARP travel website uses bold type fonts on some parts of its screen content. The fonts on AARP website are not intense enough at certain pages of the web site. Information of the web pages is clear and positive. Simple languages and terminologies are used throughout the pages. In general, the AARP web

pages are found to be very lengthy. The AARP travel website has some irrelevant contents on its pages and the organization of content is found to be unclear. Help and on-line aiding are found to be scarce. The contents of the website are not justified to the left. Double spacing for body text and simple 1.5 spacing for the paragraph are not emphasized on the website. The AARP website has a variety of page layouts with different colours and it has overall failed to show consistency on the layout. The AARP travel website uses a deep hierarchy and is not grouped into a meaningful category.

Throughout the web pages underlines are used for links only. The navigation procedures are not found to be step by step. All the links are found to be in single click. As recommended, there is no automatic scrolling found on the web page. Site map is not provided in this websites. Some hyperlink uses icons with text. The AARP travel website has only implemented underlines on hyperlinks. Some of the links are not labelled. Icons on the web pages are found to be simple, meaningful and distinguishable. The AARP travel website uses some irrelevant photos to describe their information's. Animation, video and audio are used with limit. There is no text alternatives used for the graphics used on their web pages.
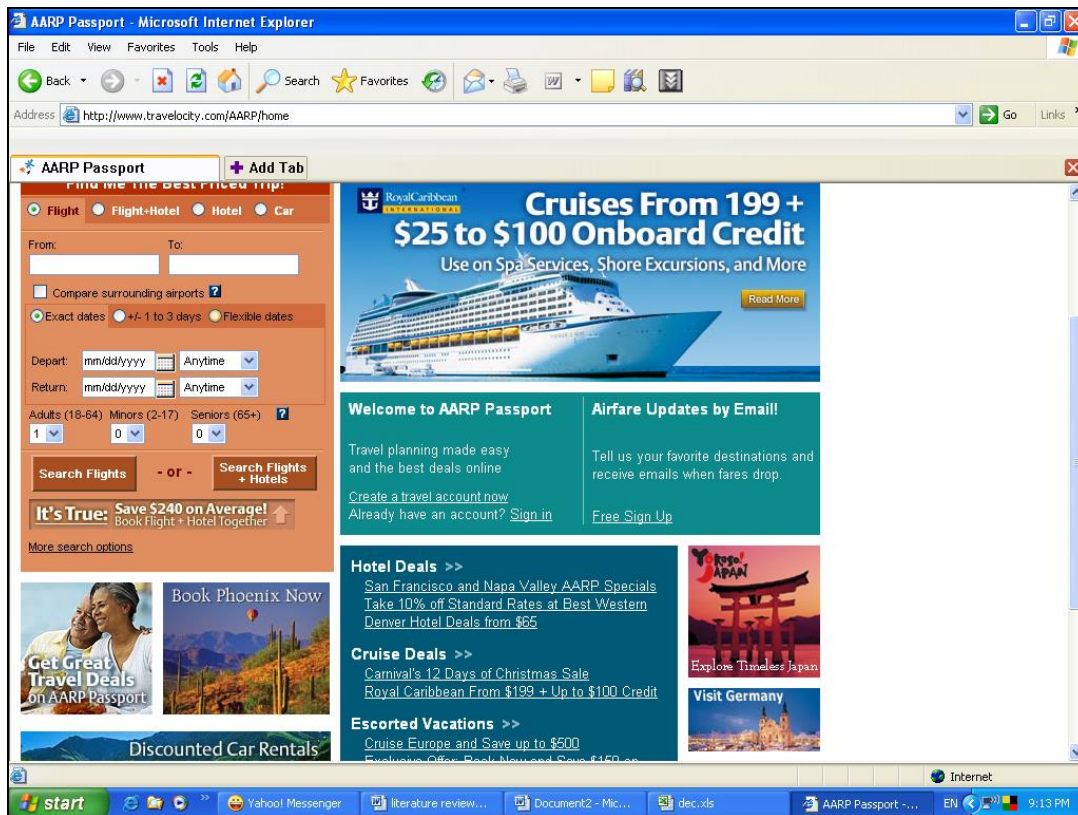
Figure 2.3: Screen Shot of the Travel Website by AARP Organization

http://www.travelocity.com/AARP/home

2.6.2.3 Analysis on the Existing Travelling Website for the Elderly against the

Recommended Guidelines

This section discusses about the support of the two websites discussed above against the most recommended guidelines on Table 2.3. Table 2.5 shows a summary of the comparison of the two selected travelling websites for the elderly against the most recommended guidelines. Each tick (✓) indicates that the particular guidelines were used on the website. The unticked depicts that the guideline is not supported in the website.

These unticked cells are explained in the justification column. The following highlights justification for each row of the table.

Table 2.5: Comparing Existing Travelling Website against the Most Recommended Guidelines

Comparing Existing Elderly Travelling Website Against the Most Recommended Guidelines for Elderly Website Design		Eldertrek	AARP Travel
A. CONTENT			
A.1	**Colour**		
A.1.1	Colour to avoid blue, yellow and green (on the same page)		
A.1.2	Background to be contrast with font and avoid patterned		
A.1.3	Choose complementary colours		
A.2	**Font**		
A.2.1	Typeface Sans serif (not condensed)		
A.2.2	Large font size, use 12-14 point font	✓	✓
A.2.3	Use capital and bold only in headlines	✓	
A.2.4	Intensity enough to read	✓	
A.3	**Content Design**		
A.3.1	Information clear and familiar and positive statements	✓	✓
A.3.2	Simple language/terminologies as simple as possible	✓	✓
A.3.3	Break length document in short sections or separate pages	✓	
A.3.4	Minimize irrelevant screen information	✓	
A.3.5	Clear organization of content:		
A.3.6	Help and Information		
A.3.7	On-line aiding and support documentation		
B. LAYOUT AND STYLE			
B.1	Justification to the left		
B.2	1.5 or double space for all body text		
B.3	Consistent layout	✓	
B.4	Page design as simple as possible	✓	
B.5	Group information into meaningful categories and do not use a deep hierarchy and group.	✓	
B.6	Provide ample time to read information	✓	✓
C. NAVIGATION MECHANISM			
C.1	Reserve underlines for links only	✓	✓
C.2	Step by step navigation procedures, label and link carefully		

C.3	Mouse: Single click	✓	✓
C.4	Avoid automatic scrolling	✓	✓
C.5	Site map provided		
C.6	Hyperlinks set as icons with text		✓
C.7	Hyperlinks in bold type of a different colour than the rest of text	✓	
C.8	Labelled links to promote ease of navigation	✓	
D.	**MULTIMEDIA AND ANIMATION**		
D.1	Avoid moving text	✓	✓
D.2	Icons should be simple and meaningful and distinguishable	✓	✓
D.3	Photo/graphic should be relevant only	✓	
D.4	Animation, video and audio used with limit	✓	✓
D.5	Text Alternatives for graphics		
D.6	Incorporate text with icon and large		✓
	Percentage %	58.82%	35.29%

The table 2.5 shows that the Eldertrek website complied only 58.82% of the recommended guidelines for designing website for elderly. Along with that, the AARP travel website complied a mere 35.29 % of the recommended guidelines. This shows the need to use many of these recommended guidelines for designing websites for the elderly.

2.7 Conclusion

In the initial part of this chapter there is introduction on population of elderly in Malaysian. This is followed by discussion on various benefits of Internet for the elderly. Then, there is discussion on a range of problems faced by the elderly on browsing the Internet. The next section is about guidelines for elderly website design. A list of most recommended guideline is compiled from four prominent authors' guidelines for websites targeting elderly users. This chapter also conducted a review on the current travelling websites in Malaysia and overseas that are specially designed for the elderly against the derived most recommended guidelines.