

Appendix E

Web Design Guidelines for the Elderly

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.

a. Page Design

The category below illustrates some aspects which are crucial for page designs for the elderly. It recommends effective usage about the background, fonts, typeface, colours, links, justifications, spacing, spacing between letters, spacing between lines and scrolling pages:

- Background - It is significant to have the font and background colours to be in contrast colour.
- Fonts - Size 14 is recommended and the headings are encouraged to be 6 points larger than text.
- Typeface - Sans serif typeface are those without extra strokes in the letters and this is encouraged more than other fonts. Italics and underlining are not recommended. It is also said that fancier is alright to be used on headings.
- Colours - Bright neon colours and combinations of red/green and blue/yellow should be avoided.
- Links - The colour blue for hyperlinks should be changed to a contrast colour.
- Justification - Left justification is recommended compared to the other two types.
- Spacing - A lot of white space is emphasized between words and also letter especially if the type size is smaller.
- Between letters - It is best to avoid condensed type fonts.

- Between lines - White spaces are encouraged in between lines as the elderly are said to have less peripheral vision so it is best to format the paragraph at 1½ space.
- Scrolling pages - Automatically scrolling page is avoided. If this is really unavoidable, the designers are recommended to use static text.

b. Page Layout

This category explains about the page layout of the web pages. It consists of explanations on the length of page, consistent layout, simplicity, menus, frames and tables, memory cues, single click mouse, help, FAQs, navigation, hyperlink and icons:

- Short pages - Shorter documented pages are recommended.
- Consistent layouts - It is recommended to use the same design, same symbols, icons and same means of navigation on all pages of the website.
- Simplicity - The page designs are advised to be kept simple.
- Menus - Pull down menus and small fonts are not encouraged altogether.
- Frames and tables - Usage of frames should be avoided altogether. A text alternative should be given in case the use of frame is unavoidable.
- Memory cues - Usage of same icons and same design is encouraged. A simple site map is also encouraged to be provided to the users.
- The mouse - Number of clicks needed is minimized.
- Locating help - An alternative source of information is provided such as telephone or email address.
- FAQs - Frequently asked questions are recommended.
- Navigation - Return path to the homepage should always be provided.
- Hyperlink - Hyperlinks are advised to be replaced with icons. Links must be tested.
- Icons - Large, simple and obvious icon or graphic is advised for buttons.

c. Page Content

This category highlights on the content of the pages designed. It includes descriptions about organization of content, long documents and languages:

- Organization - Organization of content has to be simple.
- Long documents - It is important to break lengthy documents into shorter sections. A summary of long documents is advised to be included.
- Language - Techno-language is not advisable if unavoidable glossary is suggested.

d. Multimedia

This category highlights the appropriateness of using the multimedia elements for illustration purpose. This includes the usage of animation, alternative texts, animation and sounds:

- Animation –Web pages which have forms to fill up should provide instructions that are animated and must be accompanied by alternative text as well.
- Alternative Text – Web pages must provide alternate text for images or graphics for a person who uses speech synthesizers to read text and also in case graphics are not downloaded.
- Animation and Sound – Is recommended not to use moving graphics or blinking text, other 3-D images are also advised to be toned down.

2. Universal Usability Web Design Guidelines for the Elderly (Age 65 and Older)

(Haixia, 2001)

Haixia Zhao (2001), from University of Maryland carried out a usability study on web design issues concerning the elderly and recommended several guidelines.

a. Colour

This category describes the guidelines on usage of colours for the web pages:

- Colour – Chose colour combination from colours which have difference in lightness, hue and saturation.
- Complementary colours – It is encouraged to choose colours which are facing opposite sides of the colour wheel.
- Colours to be avoided - Colours which are exceptionally bright, fluorescent, or vibrant and blue-green regions are advised to be avoided.
- Colour contrast – It is advisable to use maximum contrast between foreground and background Colours.
- Substitute information with colour – Ensure that information is not reliable on colour alone. It should be provided with alternative all black text information too.

b. Font

This category explains the guidelines for the fonts used on the web page. It describes the type of fonts, size of fonts, typeface, type weight and usage of capital letter.

- Fonts are chosen by legibility – Keep it simple and easy for users to see.
- Font size – It is recommended to use at least 12-point size or larger
- Typefaces – It is recommended to use sand serif.
- Type weight - Headings should be in bold.
- Capital letter – Headings should be in capital letters.

c. Navigation Mechanisms

The following are guidelines on the navigation mechanism. It highlights deep hierarchy of pages, site maps and underlining links.

- Deep hierarchy and Site Maps: To organize information hierarchy at its best is to have a site map.
- Underline links: Links should be consistently underlined to make them identifiable and also recognizable to "screen readers".

d. Sound

If there is sound embedding, it is advised to include a lower frequency sound.

e. Content

It is recommended to always provide text equal to auditory and visual content where usage of Alt tag is also a must in HTML.

f. Layout and Style

This category is about the layout and style. It discusses about the white space, clear content organization, justification, background, text on the background and clickable target.

- White Space and text – White space around the pages and 1 ½ inch is encouraged the right side of the entire page.
- Organization of content - Information architecture on pages must be clear for display as it is essential for searching information.
- Justification - It is encouraged to apply left-hand justification which offers the highest level of readability.
- Background - It has to be as simple as possible. Clear non patterned background is encouraged on all pages.
- Text on background – Text on background is not encouraged.
- Blinking image – It is advisable not to include any blinking image and animation.

- Time sensitive content - Moving, flicking, blinking, scrolling, auto-updating text, pages, images and objects if unavoidable has to be time sensitive to user control.
- Larger targets – Target on pages as to be large and clickable.

g. Online aiding

All websites must provide online aiding and tutorial for support purpose.

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. It was then published by National Institute of Aging and National Library of Medicine. The guidelines are divided into four main categories which are designing readable text, presentation of information, incorporation of other media and increasing the ease of navigation.

a. Designing Readable Text

This category points out the useful explanation on the usage of font and colour on the design of webpage for the elderly. It is inclusive of the recommendation of the typeface to be used, type size, type weight, type casing, physical space, justification, colour and background:

- Typeface – It is recommended to use sans serif typeface which is not condensed, for example Helvetica. The use of serif type, novelty type and display typefaces fonts should be totally avoided.
- Type Size – Size 12 or 14 point is encouraged for the body text.
- Type Weight – Medium or bold face type is recommended for body text.

- Type Casing – Body text are encouraged to have upper and lowercase letters. Only headings should be in capital and italic casing. Links should be underlined.
- Physical spacing - Body text should have double spacing.
- Justification – Justification to the left is recommended.
- Colour – Colours such as yellow, blue and green are not encouraged to be presented together.
- Background – Darker fonts are always encouraged to have lighter background and visa versa. Patterned background is totally avoided.

b. Presentation of Information

This category illustrates the writing of text on the screens designed for elderly. It includes descriptions about the style of writing, phrasing, simplicity and the organization of content.

- Style – The style of writing has to be simple, clear and familiar to users. Only positive statements should be included.
- Phrasing – The phrases should be using active voice.
- Simplicity – Writing language is encouraged to be as simple as possible and where there is a jargon word, it should be explained in the glossary.
- Organization – The organization of content is encouraged to be in a standard format and also the lengthy screen information should be divided into shorter section.

c. Incorporation of Other Media

This category explains the appropriateness of incorporating other media on the websites designed for the elderly:

- Illustrations and photograph – Only Images which are straight to the point or rather text-relevant images are encouraged.

- Animation, video and audio – Each of these segments should be short to reduce download time.
- Text alternatives – It is encouraged for all the images, video or audio that is inserted on a page.

d. Navigation Improvement

This particular category mainly focuses on providing the elderly a smooth navigation throughout the website. It can be achieved through the specifications listed below:

- Navigation - Website organization of the web site should be simple and straight forward. There should be step-by-step explicit navigation procedures whenever possible to ensure that people understand what follows next. Label links carefully.
- The mouse - Single mouse clicks to access information.
- Consistent layout: A standard page design and the same symbols and icons throughout. Use the same set of navigation buttons in the same place on each page to move from one web page to another page and every page is labeled with the name of the website
- Style and size of icons and buttons: Text incorporated with icon, use large buttons that do not require precise mouse movements for activation.
- Menus: Pull down menus sparingly used
- Scrolling: Automatically scrolling text is avoided.
- Backward and forward navigation: Incorporating previous page button and next page button is a good practice to follow.
- Site maps: Site maps are provided to show how the site is organized. Therefore, if the site is geared towards an older population it is especially important not to have a very deep hierarchy.

- Hyperlinks: Icons with text hyperlinks are used
- Help and information: A tutorial is provided on the web site to teach the visitors how to use the site.

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. 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.

a. Target Design

This category is mainly focused to provide adequate visibility for the elderly. It can be achieved through providing larger target, clear confirmation of targeted element and avoiding double clicks:

- Larger targets are recommended on web page designs.
- There should be clear targets to be captured.
- Double clicks are completely avoided

b. Use of Graphics

This category explains the appropriate usage of graphics in designing web page for the elderly. This includes the usage of animation, images and icons on the web pages designed for the elderly:

- Only relevant graphics are recommended on the web pages.
- All the images should be labeled with alternative tags.

- Icons must be simple and significant.

c. Navigation

This category explains the navigation criteria for websites designed for the elderly. It includes explanation about navigation cues, navigation, locations of the current page, pull down menus and hierarchy and grouping:

- Navigation cues - Bolder and extra cues should be displayed to avoid users feeling lost.
- Navigation - Clear navigation is recommended on all the pages.
- Locations of the current page - Location of the pages is always provided on the pages and the sequence from where it started.
- Pull down menus - Pull down menus are avoided in all the pages.
- Hierarchy and grouping of information - Deep hierarchy is totally avoided and grouping information into meaningful categories.

d. Browser Window Features

In this category, guidelines for browsers are described. It includes horizontal scrollbars and pop up windows:

- Scroll bars - Scroll bars are avoided.
- Pop-up window - Multiple pop up windows should be completely avoided and one pop up window is acceptable.

e. Content Layout Design

This category describes the design content layout aspects. It gives advice about the language, information on screen, important information, information position, screen layout, navigation and terminologies:

- Language - Should be simple and clear.
- Information on screen - Avoid irrelevant information on the screen.
- Important information – Only important information should be highlighted.
- Information position – It should be concentrated in the center of the page.
- Screen layout, navigation and terminology – It has to be simple, clear and consistent.

f. Links

This category provides useful explanations on the usage of links. It describes briefly about the visited and unvisited link, naming the links and the way to display the link on the webpage:

- Visited and unvisited link – Visited and unvisited links must show obvious difference.
- Naming the links - Links should be clearly named and no link with the same name should go to different page.
- Display of link - The links should be displayed in a very clear manner such as bulleted list and not tightly clustered.

g. User Cognitive Design

The following category explains the issues related to user cognitive designs. They are reading timing and usage of recognition memory rather than recall memory:

- Reading timing - Users should be given enough time to read all information.
- Recognition and recall memory - The demand on working memory should be reduced by using the recognition concept rather than the recall and choices if possible should be reduced.

h. Use of Colour and Background

This guideline provides useful information on the usage of colour and background. This includes the importance of using conservative colours, colours that should be avoided, background colours and content colours:

- Conservative colours – It is recommended to use conservative colours throughout the pages.
- Colours to avoid – Colour like blue and green tones should be avoided.
- Background colours – Colour such as pure white or rapid changes in brightness between screens should be totally avoided. It is recommended to have contrast between foreground and background. For example, coloured text on coloured backgrounds should be avoided
- Colour of content-The colour of content other than black and white font should not be used throughout.

i. Text Design

The following category includes useful guidance on the text design on web pages such as moving text, justification of text, spacing, main body, Heading text and font family:

- Moving text – Moving text should be totally avoided.
- Justification of text-Text must be justified to the left and text lines should be short in length.
- Text spacing – Spacing is encouraged in between lines.
- Main body - Sentence casing is advised to be used throughout the main body and capital letters are used sparingly.
- Heading text – Heading should be larger in size.

- Font family – San Serif type font i.e., Helvetica, Arial of 12-14 point size is advised and fancy fonts should be avoided.

j. Search Engine

Search engine is an important element on web pages designed for elderly. The search engines should cater for spelling errors. Users who misspell words should be provided with the right spelling, instead of their search showing no result. Older users have problems spelling long words. Worsened eyesight might also cause more spelling mistakes as the users cannot easily see what they are typing.

k. User Feedback and Support

This category provides details about user feedback and support. It explains further about site map, online help tutorial, user control on designing and error messages:

- Site map – Site map is encouraged to show overview of the page.
- Online help tutorial- It is recommended to provide online help tutorial.
- User control and freedom –Users should be given control and freedom.
- Error message-Simple and easy to understand error messages are encouraged.