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Evaluation of Websites for Older Adults: How "Senior-Friendly" Are They?

By Traci A. Hart

Summary: Thirty-six websites designed for older adults were evaluated as to how well they complied to 25 "senior-friendly" guidelines recommended by the National Institute of Aging. Results indicate that a majority of the sites complied to guidelines related to basic navigation and content style but not for text size, text weight, or site map availability. Implications of compliance to these guidelines on user satisfaction and performance are discussed.

In 2003, a study recorded that those aged 55+ years, comprising 29% of the total population, accounted for 17.2% of the online users; an increase from 5% in 1997 (Cortese, 1997; Mediamark Research Inc., 2003). Although Internet usage is increasing overall, there remain millions of elderly that have yet to acknowledge the technology age is upon them. There may be a broad spectrum of reasons technology is not quickly adopted by older adults, such as computer anxiety (Ellis & Allaire, 1999), having little exposure or training to technology (Echt, Morrell & Park, 1998; Rogers, Meyer, Walker, & Fisk, 1998), or simply not understanding the possible benefits of use (Czaja & Sharit, 1998; Melenhorst, Rogers & Caylor, 2001).

Unfortunately, designers often fail to recognize older adults as a potential user group for their technology. Industry has only recently begun designing software and hardware that make accommodations for the needs of the aging user. Margaret Wylde (1995) has written that, "many manufacturers believe their idea is an ingenious product for 'the elderly,' but they rarely understand what the customer wants or the problems that must be solved" (p.15). There are specific abilities and performance attributes of the older users that need to be addressed. In general, older adults are slower (Czaja & Sharit, 1998), travel to fewer pages (Liao, Groff, Chaparro, Chaparro & Stumpfhauser, 2000), are less likely to leave a website when experiencing long delay times (Selvidge, 2003), and spend more time selecting targets for tasks than those in younger generations (Chaparro, Bohan, Fernandez, Choi, & Kattel, 1999).

Regardless of age, however, users are not always considered in website design. Thus, many groups and researchers have developed comprehensive sets of guidelines to improve accessibility such as the Web Content Accessibility Guidelines (W3/WAI) and the government instituted U.S. Section 508 Guidelines. The National Institute on Aging and the National Library of Medicine advanced the above guidelines one step further by developing "senior friendly" guidelines that are even more specific to the older adult Internet user. In 2002, these two groups published *Making Your Web Site Senior*

Friendly: A Checklist consisting of twenty-five empirically-based guidelines for those websites targeting users 60+ (National Institute on Aging). Research in aging, cognition, human factors, and print materials lead to the development of the guidelines which cover three areas of design; 1) designing readable text, 2) increasing memory and comprehension of web content, and 3) increasing the ease of navigation. The authors suggest the "implementation of these guidelines in web site construction will result in greater accessibility to online information for the elderly" and influence future willingness to explore the Web and increase enthusiasm toward technology.

The purpose of the current study was to determine how websites designed for older adults currently adhere to the senior-friendly guidelines. Using heuristic evaluation techniques, raters identified whether each website conformed to the basic principles of usability following the NIA guidelines.

METHOD

Participants

Four members of the Software Usability Research Lab (SURL) at Wichita State University volunteered to participate in the research project. The evaluators had practical and research knowledge with website design and usability.

Procedure

Each of the heuristic evaluators were given a packet of information containing the following: a consent form, instructions, a list of websites to visit, the "Senior-Friendly" guidelines, and a blank guideline rating checklist for each website. The assessments were done over a two-week period to allow the evaluators ample time to familiarize themselves with each website. The websites chosen for guideline evaluation were obtained from common search engines (i.e., MSN, Google, etc.) using keywords such as "seniors," "elderly" and "older adults." The websites selected were commonly listed within the first twenty search results and were required to have a statement about the site "targeting" or "designed for" those 50 years or older. Websites were excluded from the sample if they appeared to be search engines or portal sites that directed users to other sites.

RESULTS

A total of 36 websites were included in the analysis. A two-way mixed effect model for consistency was used to determine if there were differences between the four individual raters, which needed to be addressed before interpreting the other results, as suggested by Yaffee (1998). The average measured intraclass correlation (ICC) for the four raters was 0.8117, F (881, 2643) = 5.31, $p < .0001$.

Each of the twenty-five checklist items were rated on a 4-point scale to determine if the "Senior-Friendly" guidelines were followed or used by the particular site; rated as 1= Never, 2= Sometimes, 3= Frequently, and 4= Always. The scores from all four raters were combined to form a "Total Score" comprised of the number of guidelines rated as frequently or always present on the senior websites. After the total points were calculated, the websites were classified into three groups; Most (greater than 70% guideline adherence), Medium (between 51-69% adherence), and Least compliant to the guidelines (less than 50% adherence). The 36 websites' total scores ranged from 13 to 23 points (M= 18.7, SD= 2.68); 22% of the websites had 13 -16 points (Least), 47% had 17 to 20 points (Medium), and 30.5% of the senior websites scored 21 to 24 points (Most). The ratings for the evaluated websites are listed in Table 1.

Table 1. Website Compliance Level to Senior-Friendly Guidelines

MOST COMPLIANT	LEAST COMPLIANT
SeniorNet.com (23)	PaceSaver.com(16)
NCOA.org (22)	Go60.com (16)
Questonline.org (22)	Grandtimes.com (15)
Elderweb.com (22)	Seniors-Place.com (15)
Medicare.gov (22)	SeniorSurfers.org (15)
SeniorSafety.com (21)	Geriquest.com (14)
Silverts.com (21)	KCElderlaw.com (14)
SpinLife.com (21)	Retired.com (13)
AARP.org (21)	
SeniorCorps.org (21)	
Seniors.gov (21)	

MEDIUM COMPLIANT
SeniorsGoTravel.com (20)
MISeniors.net (20)
RetiredAmericans.org (20)
SeniorsMatch.com (20)
VA.gov (20)
Friendly4Seniors.com (20)
FDA.gov/oc/olderpersons (20)
GrandparentWorld.com (19)
NewLifestyles.com (19)
Eldercare.gov (19)
Living-Trustforms.com (18)
SeniorsWW.com (18)
MyNursingHomes.com (18)
ElderHostel.org (17)
Overfifties.com (17)
SeniorCitizens.com (17)
SeniorResource.com (17)

Seven guidelines were scored as “frequently” or “always” present at 95% of the sites and another four guidelines were only followed by 25% or less of the selected senior websites. The other guidelines did not appear to be consistently present (or lacking) across the different website designs. The guidelines and percentage of adherence are listed in Table 2.

Table 2. Guideline Adherence (% of sites adhering to guideline)

Guideline Description	%
Phrasing: uses the active voice	100.0
Scrolling: avoids automatically scrolling text and provides scrolling icon	100.0
Mouse: uses single clicks to access information	100.0
Lettering: uses upper and lower case for body text and reserves all capitals for headlines	97.2
Justification: uses left justified text	97.2
Style: uses positive phrasing and presents info. in clear manner without need for inferences	97.2
Menus: uses pull down and cascading menus sparingly	97.2
Simplicity: uses simple language for text; glossary provided for technical terms	91.7
Typeface: uses san serif typeface that is not condensed	91.4
Color: avoids using yellow, blue, and green in proximity	90.6
Backgrounds: uses light text on dark backgrounds or visa versa; avoids patterns	88.9
Consistent Layout: uses standard page design and navigation is same on each page	77.8
Organization: uses a standard format; lengthy documents broken into short sections	75.0
Navigation: uses explicit step-by-step navigation procedures; simple and straightforward	72.2
Help & Information: offers a tutorial on web site or offers contact information	78.1
Icons & Buttons: uses large buttons; text is incorporated with icon when possible	69.4
Text Alternatives: provides text alternatives for all other media types	67.6
Illustrations & Photos: uses text relevant images only	63.9
Type Weight: uses medium or bold face type	50.0
Type Size: uses 12 or 14 point for body text	44.4
Site Maps: uses a site map to show how site is organized	38.9
Hyperlinks: uses icons with text as hyperlinks	25.0
Animation, Video & Audio: uses short segments to reduce download time	9.5
Back/Forward Navigation: uses buttons such a “previous” and “next” for reviewing text	5.8
Physical Spacing: uses double spacing in body text	2.8

DISCUSSION

Results from this analysis show a wide range in the level of compliance across sites. In general, the majority of the sites complied to guidelines related to basic navigation and content phrasing and style but not to guidelines specifying text size, text weight, line spacing, textual links with graphics, or site map availability. The lack of consistency with regard to the formatting of the textual content is surprising, given the fact that one of the most fundamental guidelines for developing reading materials for older adults is to provide enlarged and highly contrasted text.

The impact of compliance to these guidelines on actual performance and satisfaction with a site is not clear. One may hypothesize that the more compliant a site is, the more usable it is. However, preliminary results from our research suggest that the sites most compliant are not always the most efficient or preferred. Specific results of this research will be available in the next issue of *Usability News*.

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