

[Jakob Nielsen's Alertbox](#), April 28, 2002:

Usability for Senior Citizens

Summary:

The Internet enriches many seniors' lives, but most websites violate usability guidelines, making the sites difficult for seniors to use. Current websites are twice as hard to use for seniors than for non-seniors.

Seniors are one of the fastest growing demographics on the Web. The United States alone has an estimated 9 million Internet users over the age of 65 as of September 2004. Indeed, all industrialized countries have huge populations of senior citizens, many of whom have substantial assets. Although they are typically retired, seniors lead very active lives and often have great interest in modern technologies such as the Internet, which gives them another method to communicate and stay informed.

In our study, **email was the main Internet application** used by seniors. Our participants used the Web mainly for:

- Research
- News
- Tracking investments
- Researching medication and medical conditions
- And, to a lesser extent, to shop and bank online

Indeed, our study participants used the Web to read about and research a wide variety of hobbies and special interests, ranging from genealogy to cooking, war strategy, and musical instruments. Taken together, reading about such hobbies constituted a major use of the Web: The **diversity of specialized sites** is just as much a killer app for seniors as it is for other users.

Research with Seniors Using Websites

To learn how seniors use the Web, we conducted three series of usability tests:

- A measurement study, using three websites and a Web-wide task, with 20 seniors and a control group of 20 users between the ages of 21 and 55.
- A qualitative study with 20 U.S. seniors using 10 U.S. sites.
- A qualitative study with four seniors in Japan using four Japanese sites (to assess the international applicability of our findings).

We **define "seniors" as people over the age of 65**. Most of our test users were in their 70s, but we also included some people who were 80 years or older, and

several people between 65 and 69.

Usability Metrics Twice as High for Non-Seniors

In the quantitative study, we asked users in both groups to perform the same four tasks:

- Fact-finding
- Buying an item
- Retrieving information
- Comparing and contrasting

The following table shows the measurements of four usability attributes averaged across the four tasks.

	Seniors (65+ Years)	Control Group (21-55)
Success Rate (task completed correctly)	52.9%	78.2%
Time on Task (min:sec)	12:33	7:14
Errors (erroneous actions per task)	4.6	0.6
Subjective Rating (scale: 1=low, 7=high)	3.7	4.6
Overall Usability (normalized geo. mean)	100%	222%

The differences between seniors and the control group are all highly significant.

Normalizing the usability metrics so that the seniors' scores are the baseline value of 100% in all cases leads to an estimated overall usability of 222% for non-seniors. (Averaging computed as the geometric mean.) In other words, overall usability was slightly more than twice as good for non-seniors as it was for seniors.

Why Usability is Lower for Seniors

Websites tend to be produced by young designers, who often assume that all users have perfect vision and motor control, and know everything about the Web. These assumptions rarely hold, even when the users are not seniors. However, as indicated by our usability metrics, seniors are hurt more by usability problems than younger users. Among the obvious physical attributes often affected by the human aging process are eyesight, precision of movement, and memory.

Also, many seniors retired without having used computers and the Internet extensively during their working careers. Thus, they have not necessarily learned good conceptual models of how these technologies work, which makes it more

difficult to understand their quirks. For example, we observed several users who did not differentiate clearly between a website's search box and the browser's URL box. After all, both are input fields that you type in when you want to go elsewhere. The lack of experience with good conceptual models is obviously not fundamental to human biology, and may disappear as the current workforce retires.

Our testing identified many instances of **poor design that compounded to make the Web more than twice as hard** for seniors to use. Complying with the guidelines for designing for seniors would remove many such usability problems. And, while Web usability might still be slightly better for younger users, the **differences could be reduced drastically**.

Readability and Clickability

The most widely known principle for supporting seniors' computer use is to support **larger font sizes** than those younger users prefer. The principle may be well known, and it was indeed confirmed by our study, but still, it is frequently violated by sites that freeze text at a tiny font size.

Sites that target seniors should use at **least 12-point type** as the default. And all sites, whether or not they specifically target seniors, should let users increase text size as desired -- especially if the site opts for a smaller default font size.

For **hypertext links**, large text is especially important for two main reasons: 1) to ensure readability of these essential design components, and 2) to make them more prominent targets for clicking. You should also avoid tightly clustered links that are not separated by white space. Doing so will decrease erroneous clicks and increase the speed at which users hit the correct link. This rule also applies to command buttons and other interaction objects, all of which need to be reasonably large to be easy to click.

Pull-down menus, hierarchically walking menus, and other **moving interface elements cause problems** for seniors who are not always steady with the mouse. Better to use static user interface widgets and designs that do not require pixel-perfect pointing.

Supportive and Forgiving Design

When websites violate the guideline to use different colors to clearly **distinguish between visited and unvisited links**, seniors easily **lose track of where they have been**. We've certainly seen the same problem among all age groups: It's confusing when websites change the standard link colors, and it's particularly confusing when the same color is used for all links, whether or not you have visited the destination page. However, seniors have a harder time remembering which parts of a website they have visited before, so they are more likely to waste

time repeatedly returning to the same place.

Seniors also have a harder time using **unforgiving search engines and forms**. We saw users thwarted because they typed hyphens in their search queries, and punished because they used hyphens or parentheses in a telephone or credit card number.

Error messages were often hard to read, either because the wording was obscure or imprecise, or the message's placement on the page was easily overlooked among a profusion of other design elements. Simplicity is even more important than usual when seniors encounter error handling: Your message should focus on the error, explain it clearly, and make it as easy as possible to fix. Also, as much as possible, website tasks should adapt to seniors and their preferred way of doing things. After decades of writing telephone numbers in a certain way, it's not a very nice experience to come across a form that insists on a different format.

Usability Increases Satisfaction

Seniors strongly **prefer those websites that are easiest** for them to use. The correlation between the success score for our test tasks and users' subsequent subjective rating of the sites was very strong: $r = 0.78$, which is higher than we have found in most other studies, though not as high as the 0.95 we found in our equivalent [study of users with disabilities](#).

Usability for seniors is important, and not just so that they can perform a task aimed at a one-time purchase. By focusing on improving usability for seniors, you can increase their satisfaction and the odds of forming a long-term relationship.

Intranets should also cater to seniors. Most companies have employees in their 60s, and many big companies have special extranets for retirees that provide online benefits information and help the company maintain contact with former employees.

Besides the business reasoning, we all have a very personal interest in increasing usability for seniors: It's **the one user category we're all likely to join** one day.

When it works for them, the Internet is already an **enriching part of many seniors' lives**. Websites can become much more approachable, however, by following the simple [design guidelines](#) in our new report. If you consider these guidelines from the start, implementing them will rarely add to the cost of a Web design or intranet project. Also, many of the guidelines for increasing usability for seniors help other users as well.

Learn More

Our [125-page report from the study includes 46 design guidelines](#) for improving Web usability for seniors, and is available for download.

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