

# 6

### Page Layout

#### **All Web pages should be structured for ease of**

comprehension. This includes putting items on the page in an order that reflects their relative importance. Designers should place important items consistently, usually toward the top and center of the page.

All items should be appropriately aligned on the pages. It is usually a good idea to ensure that the pages show a moderate amount of white space—too much can require considerable scrolling, while too little may provide a display that looks too ‘busy.’ It is also important to ensure that page layout does not falsely convey the top or bottom of the page, such that users stop scrolling prematurely.

When a Web page contains prose text, choose appropriate line lengths. Longer line lengths usually will elicit faster reading speed, but users tend to prefer shorter line lengths. There are also important decisions that need to be made regarding page length. Pages should be long enough to adequately convey the information, but not so long that excessive scrolling becomes a problem. If page content or length dictates scrolling, but the page's table of contents needs to be accessible, then it is usually a good idea to use frames to keep the table of contents readily accessible and visible in the left panel.

# 6:1 Avoid Cluttered Displays

**Guideline:** Create pages that are not considered cluttered by users.

Relative Importance:

1 2 3 4 5

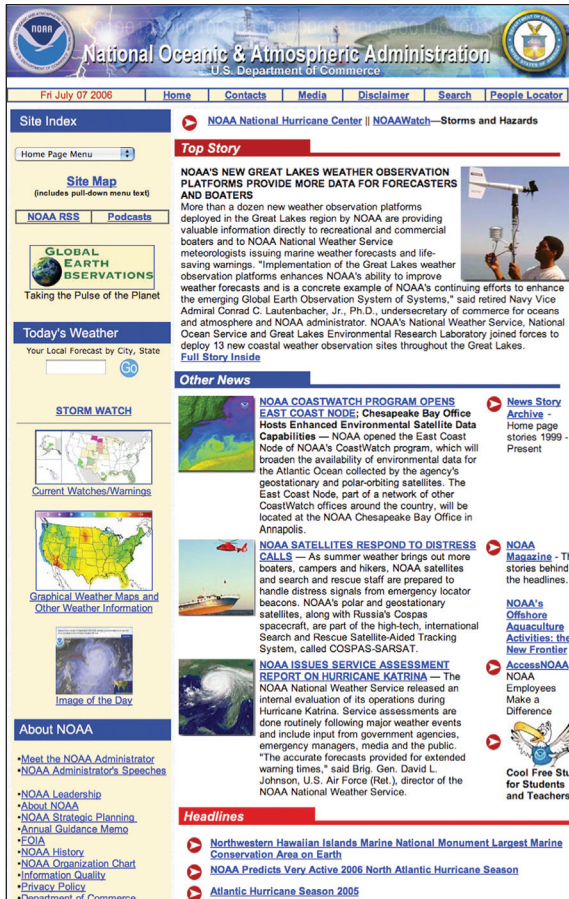
Strength of Evidence:

1 2 3 0 0

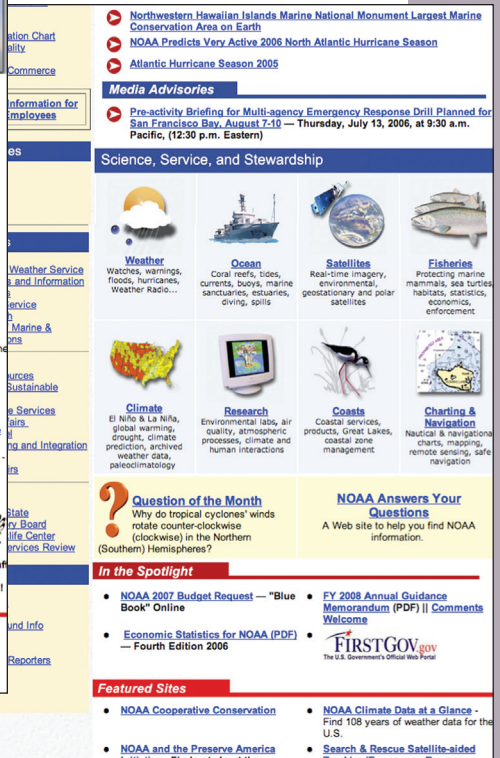
**Comments:** Clutter is when excess items on a page lead to a degradation of performance when trying to find certain information. On an uncluttered display, all important search targets are highly salient, i.e., clearly available. One study found that test participants tended to agree on which displays were least cluttered and those that were most cluttered.

**Sources:** Rosenholtz, et al., 2005.

**Example:**



Cluttered pages lead to poorly-performing sites.



## 6:2 Place Important Items Consistently

Relative Importance:

1 2 3 4 5

Strength of Evidence:

1 2 3 4 0

**Guideline:** Put important, clickable items in the same locations, and closer to the top of the page, where their location can be better estimated.

**Comments:** Users will try to anticipate where items will appear on their screen. They will start 'searching' a page before the layout appears on their screen. When screen items remain constant, users learn their location on a page, and use this knowledge to improve task performance. Experienced users will begin moving their mouse to the area of the target before the eye detects the item. Users can anticipate the location of items near the top much better than those farther down the page.

**Sources:** Badre, 2002; Bernard, 2001; Bernard, 2002; Byrne, et al., 1999; Ehret, 2002; Hornof and Halverson, 2003.

**Example:** Important items—in this case, primary navigation tabs—are consistently placed at the top of each page.



# 6:3 Place Important Items at Top Center

**Guideline:** Put the most important items at the top center of the Web page to facilitate users' finding the information.

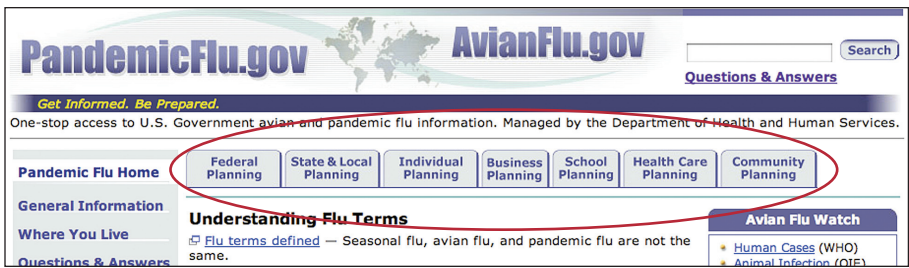
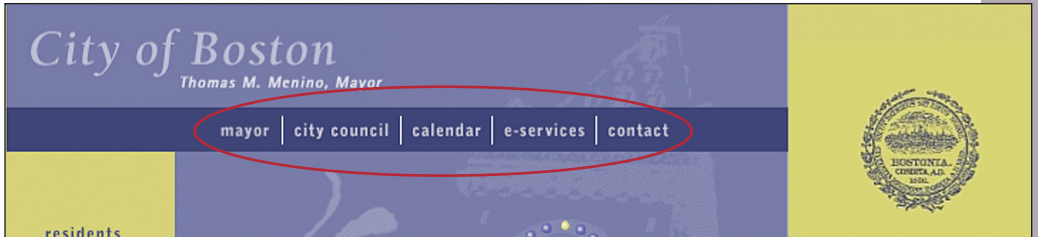
**Relative Importance:**  
**1 2 3 4 5**

**Strength of Evidence:**  
**1 2 3 4 0**

**Comments:** Users generally look at the top center of a page first, then look left, then right, and finally begin systematically moving down the total Web page. All critical content and navigation options should be toward the top of the page. Particularly on navigation pages, most major choices should be visible with no, or a minimum of, scrolling.

**Sources:** Byrne, et al., 1999; Detweiler and Omanson, 1996; Faraday, 2000; Faraday, 2001; Lewenstein, et al., 2000; Mahajan and Shneiderman, 1997; Nielsen, 1996a; Nielsen, 1999b; Nielsen, 1999c; Spyridakis, 2000.

**Example:** Eye-tracking studies indicate this is the area of the screen where most new users first look when a Web site page loads.



## 6:4 Structure for Easy Comparison

Relative Importance:

1 2 3 4

Strength of Evidence:

1 2 3 4

**Guideline:** Structure pages so that items can be easily compared when users must analyze those items to discern similarities, differences, trends, and relationships.

**Comments:** Users should be able to compare two or more items without having to remember one while going to another page or another place on the same page to view a different item.

**Sources:** Spool, et al., 1997; Tullis, 1981; Williams, 2000.

**Example:** This page layout is structured to allow users to quickly scan and compare data.

You are now viewing Prescription Drug Plan(s). Click here to view Medicare Advantage Prescription Drug Plan(s).  
These results are sorted by the Estimated Annual Cost. To sort by another column, click the column name below.

Prescription Drug Plan Comparison									
Select To Compare	Plan Summary		Plan Information			What You'll Pay			Enroll
	Plan Name	Estimated Annual Cost	More About This Plan (select option to view)	Mail Order	# of Pharmacies	Annual Deductible	Monthly Drug Premium	Monthly Cost Share	Click to Enroll in Plan
<input type="checkbox"/>	<b>MedicareBlue Rx Option 2</b> (Contract ID: S5743, Plan ID: 003) <i>Approved by Medicare</i>	\$1,367.65	Select Below	Yes	4	\$0.00	\$53.90	\$60.07	Available 11/15
<input type="checkbox"/>	<b>MedicareBlue Rx Option 1</b> (Contract ID: S5743, Plan ID: 001) <i>Approved by Medicare</i>	\$1,494.82	Select Below	Yes	4	\$250.00	\$13.58	\$96.41	Available 11/15
<input type="checkbox"/>	<b>AdvantRx Premier</b> (Contract ID: S5674, Plan ID: 033) <i>Approved by Medicare</i>	\$1,722.36	Select Below	Yes	6	\$0.00	\$33.43	\$110.10	Available 11/15
<input type="checkbox"/>	<b>Prescription Pathway Bronze Plan Reg 25</b> (Contract ID: S5597, Plan ID: 090) <i>Approved by Medicare</i>	\$1,768.35	Select Below	Yes	4	\$250.00	\$25.29	\$106.94	Available 11/15
<input type="checkbox"/>	<b>AdvantRx Premier Plus</b> (Contract ID: S5674, Plan ID: 035) <i>Approved by Medicare</i>	\$1,784.88	Select Below	Yes	6	\$0.00	\$43.64	\$105.10	Available 11/15

< Previous 1 2 Next >

Plans per page: 5

The Monthly Cost Share is the amount you will pay for drugs after you've met any applicable deductible, but before you reach any coverage limits. Please select "View Cost Details" for more information.

Compare up to 3 Plans

## 6:5 Establish Level of Importance

**Guideline:** Establish a high-to-low level of importance for information and infuse this approach throughout each page on the Web site.

Relative Importance:

1 2 3 4 ○

Strength of Evidence:

1 2 3 ○ ○

**Comments:** The page layout should help users find and use the most important information. Important information should appear higher on the page so users can locate it quickly. The least used information should appear toward the bottom of the page. Information should be presented in the order that is most useful to users.

People prefer hierarchies, and tend to focus their attention on one level of the hierarchy at a time. This enables them to adopt a more systematic strategy when scanning a page, which results in fewer revisits.

**Sources:** Detweiler and Omanson, 1996; Evans, 1998; Hornof and Halverson, 2003; Kim and Yoo, 2000; Marshall, Drapeau and DiSciullo, 2001; Nall, Koyani and Lafond 2001; Nielsen and Tahir, 2002; Nygren and Allard, 1996; Spyridakis, 2000.

**Example:** Priority information and links appear in order based on users' needs. The order was determined by surveys, log analyses, and interviews.

The screenshot shows a website layout for the Department of Health and Human Services (HHS). The header features the HHS logo and the tagline "Leading America to Better Health, Safety and Well-Being". The main content area is organized into a grid of categories, each with a list of sub-topics:

- Diseases & Conditions**
  - Heart Disease, Cancer, HIV/AIDS, Diabetes...
  - Mental Health
  - Treatment, Prevention, Genetics
  - Clinical Trials
  - Addictions, Substance Abuse
- Safety & Wellness**
  - Eating right
  - Exercise, Fitness
  - Safety Tips and Programs
  - Smoking, Drinking
  - Traveler's Health
- Drug & Food Information**
  - Drugs, Dietary Supplements
  - Food Safety
  - Recalls & Safety Alerts
  - Medical Devices
- Disasters & Emergencies**
  - Bioterrorism
  - Homeland Security
  - Natural Disasters
- Grants & Funding**
- Families & Children**
  - Medicaid, other health insurance
  - Child Support, Child Care, Adoption
  - Domestic Violence, Child Abuse
  - Vaccines
- Aging**
  - Medicare
  - Health Issues
  - Coping and Caring
- Specific Populations**
  - Women, Men, Children, Seniors
  - Disabilities
  - Racial and Ethnic Minorities
  - Homeless
- Resource Locators**
  - Nursing Homes
  - Physicians, other Healthcare Providers
  - Health Care Facilities
- Policies & Regulations**
  - Policies, Guidelines
  - Laws, Regulations
  - Testimony

On the right side, there is a "News" section with a "11:4" timestamp. It lists several news items, each with a date and a brief description:

- Severe Acute Res (SARS)**
- March 24, 2003** — Million to 31 Head Expand Access to Health Care Serv Uninsured
- March 21, 2003** — Announces First Information Exch
- March 21, 2003** — Handheld Device Transmitting Urg About Biological

Below the news section, there is a "Features" section with a link to "All HHS New" and a link to "FY 2004 HHS Bud".

# 6:6 Optimize Display Density

Relative Importance:

12340

Strength of Evidence:

12300

**Guideline:** To facilitate finding target information on a page, create pages that are not too crowded with items of information.

**Comments:** Density can be defined as the number of items per degree of visual angle within a visually distinct group. This density either can be crowded with many items, or sparse with few items. One study found that locating a target in a crowded area took longer than when the target was in a sparse area. Also, participants searched and found items in the sparse areas faster than those in the crowded areas. Participants used fewer fixations per word in the crowded areas, but their fixations were much longer when viewing items in the crowded areas. Finally, participants tended to visit sparse areas before dense groups. To summarize, targets in sparse areas of the display (versus crowded areas) tended to be searched earlier and found faster.

**Sources:** Halverson and Hornof, 2004.

**Example:**

This homepage, though quite dense with information, gives the user's eyes a rest with areas of white space.

This page doesn't allow for quick scanning because of its density.

See page xxii for detailed descriptions of the rating scales  
12340

# 6:7 Align Items on a Page

**Guideline:** Visually align page elements, either vertically or horizontally.

Relative Importance:

1 2 3 4 0

Strength of Evidence:

1 2 3 4 5

**Comments:** Users prefer consistent alignments for items such as text blocks, rows, columns, checkboxes, radio buttons, data entry fields, etc. Use consistent alignments across all Web pages.

**Sources:** Ausubel, 1968; Bailey, 1996; Esperet, 1996; Fowler, 1998; Lawless and Kulikowich, 1996; Marcus, Smilonich and Thompson 1995; Mayer, Dyck and Cook, 1984; Parush, Nadir and Shtub, 1998; Spyridakis, 2000; Trollip and Sales, 1986; Voss, et al., 1986; Williams, 1994; Williams, 2000.

**Example:** The design of these list columns makes them extremely difficult to scan, and thus will slow users' attempts to find information.

weapons of mass destruction. We have developed computerized information systems for use within the US government that allow rapid dissemination of accurate information needed for export control and policy decisions.

NIS-8 also studies critical technologies that could impact the energy, economic, environmental, or military security of the United States.

NIS-8 expertise includes, but is not limited to, the following:

- Nuclear materials production processes.
  - Materials protection, control, and accountability (MPC&A).
  - Nuclear weapon design, production, and testing.
  - Chemistry and materials science.
- Stockpile surveillance.
- Imagery and multispectral analyses.
- Advanced energy technologies.
- Political science.

**Send Mail & Packages**

**Simple choices to meet your mailing needs.**

Learn about all of the delivery options you have for mailing bills, cards and letters, shipping merchandise and gifts across the country or around the world.

Cards, Letters & Envelopes	Ship Packages	Business Tips & Tools
<p>There are many ways to send mail. <a href="#">More&gt;</a></p> <ul style="list-style-type: none"> <li>▪ <a href="#">Domestic Mailing Options</a></li> <li>▪ <a href="#">Print Labels &amp; Postage Now</a></li> <li>▪ <a href="#">Create Mail Online Now</a></li> <li>▪ <a href="#">Buy Stamps Online Now</a></li> <li>▪ <a href="#">Determine Postage</a></li> <li>▪ <a href="#">Preparation &amp; Addressing</a></li> <li>▪ <a href="#">Pickup &amp; Drop-offs</a></li> <li>▪ <a href="#">Track &amp; Confirm Delivery</a></li> </ul>	<p>Learn how to get it ready and ship it now. <a href="#">More&gt;</a></p> <ul style="list-style-type: none"> <li>▪ <a href="#">Domestic Shipping Options</a></li> <li>▪ <a href="#">Print Labels &amp; Postage Now</a></li> <li>▪ <a href="#">Determine Postage</a></li> <li>▪ <a href="#">Preparation &amp; Addressing</a></li> <li>▪ <a href="#">Pickup &amp; Drop-offs</a></li> <li>▪ <a href="#">Track &amp; Confirm Delivery</a></li> </ul>	<p>Use our resources to your advantage. <a href="#">More&gt;</a></p> <ul style="list-style-type: none"> <li>▪ <a href="#">Postage Options</a></li> <li>▪ <a href="#">Business Mail – Getting Started</a></li> <li>▪ <a href="#">Address Quality</a></li> <li>▪ <a href="#">Reach Customers with Mail</a></li> <li>▪ <a href="#">Do Global Business</a></li> <li>▪ <a href="#">Real Success Stories</a></li> <li>▪ <a href="#">Other Useful Links</a></li> </ul>

These columns are horizontally aligned, allowing the information to fall easily to the eye.



## 6:8 Use Fluid Layouts

Relative Importance:

12300

Strength of Evidence:

12300

**Guideline:** Use a fluid layout that automatically adjusts the page size to monitor resolution settings that are 1024x768 pixels or higher.

**Comments:** When web page layouts are fixed either to the left or centered, much of the available screen space is not used. It is best to take advantage of as much of the screen space as possible because this will help move more information above the fold. There has been no degradation in user performance when using the non-fluid layouts. However, most users prefer the fluid layout. One 2003 study reported a compliance rate for this guideline of twenty-eight percent, and a 2001 study found that only twenty-three percent of top Web sites used a fluid layout. Keep in mind that large monitors and higher pixel resolutions allow viewing of more than one window at a time.

**Sources:** Bernard and Larsen, 2001; Nielsen, 2003.

**Example:** Flexible, or liquid, layouts allow users to adjust Web pages to fit their screen space.



## 6:9 Avoid Scroll Stoppers

**Guideline:** Ensure that the location of headings and other page elements does not create the illusion that users have reached the top or bottom of a page when they have not.

Relative Importance:

12300

Strength of Evidence:

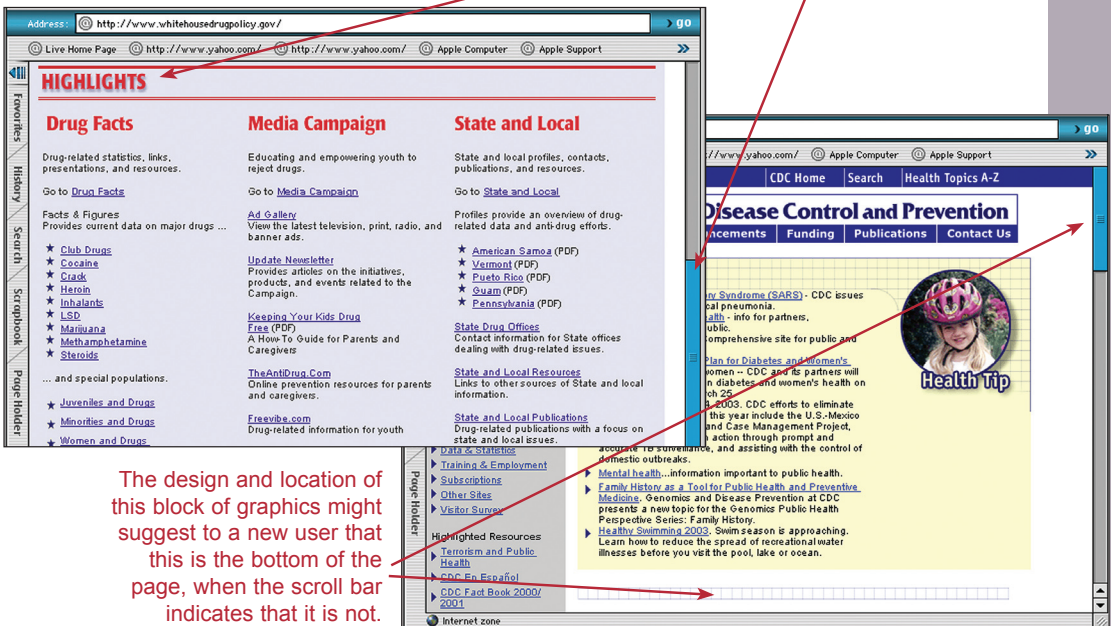
12340

**Comments:** In one study, three headings were positioned in the center of a page below a section of introductory text—the headings were located about one inch below the navigation tabs. When users scrolled up the page from the bottom and encountered these headings, they tended to stop, thinking the headings indicated the top of the page.

Similarly, users have been found to not scroll to the true bottom of a page to find a link because they encountered a block of text in a very small font size. This small type led users to believe that they were at the true bottom of the page. Other elements that may stop users' scrolling include horizontal lines, inappropriate placement of 'widgets,' and cessation of background color.

**Sources:** Bailey, Koyani and Nall, 2000; Ivory, Sinha and Hearst, 2000; Marshall, Drapeau and DiSciullo, 2001; Nygren and Allard, 1996; Spool, Klee and Schroeder, 2000; Spool, et al., 1997.

**Example:** When scrolling up the page, the design of this header (bold, shadowed, and bordered by bars) might suggest that the user has reached the top of the page, when a quick look at the scroll bar will indicate that much of the page exists above this section.



## 6:10 Set Appropriate Page Lengths

Relative Importance:

12300

Strength of Evidence:

12300

**Guideline:** Make page-length decisions that support the primary use of the Web page.

**Comments:** In general, use shorter pages for homepages and navigation pages, and pages that need to be quickly browsed and/or read online. Use longer pages to (1) facilitate uninterrupted reading, especially on content pages; (2) match the structure of a paper counterpart; (3) simplify page maintenance (fewer Web page files to maintain); and, (4) make pages more convenient to download and print.

**Sources:** Bernard, Baker and Fernandez, 2002; Evans, 1998; Lynch and Horton, 2002.

**Example:**

A shorter page is used for this homepage so that most content is visible without scrolling.

The scroll bar on each page is an indication of the amount of information hidden 'below the fold.'

## 6:11 Use Moderate White Space

**Guideline:** Limit the amount of white space (areas without text, graphics, etc.) on pages that are used for scanning and searching.

Relative Importance:



Strength of Evidence:



**Comments:** ‘Density’ is the percentage of the screen filled with text and graphics. One study found that higher density is related to faster scanning, and has no impact on user accuracy or preference. Another study found that users prefer moderate amounts of white space, but the amount of white space has no impact on their searching performance. On content (i.e., text) pages, use some white space to separate paragraphs. Too much separation of items on Web pages may require users to scroll unnecessarily.

**Sources:** Chaparro and Bernard, 2001; Parush, Nadir and Shtub, 1998; Spool, et al., 1997; Staggers, 1993; Tullis, 1984.

**Example:** This page facilitates users’ ability to scan for information by limiting the amount of white space.

US Department of Energy  
**Seattle Regional Office**

**What We Do**

**Building Technology, State and Community Programs**

Rebuild America  
Provides communities with assistance to create partnerships to help achieve their energy-related objectives. Primary focus is commercial and public facilities, public housing, and multi-family dwellings. Contact: [richard.putnam@ee.doe.gov](mailto:richard.putnam@ee.doe.gov), or (206) 553-2165.

Building Energy Codes Program  
Supports upgrade of state building energy codes across the country. The DOE provides technical assistance, financial assistance, tools, and training to help in this effort. Contact: [molly.dwyer@ee.doe.gov](mailto:molly.dwyer@ee.doe.gov), or (206) 553-7837.

State Energy Programs  
Provides financial assistance to state energy and territorial offices to support the delivery of energy efficiency and renewable energy products and services. Contact: [laurie.brown@ee.doe.gov](mailto:laurie.brown@ee.doe.gov), or (206) 553-2158.

Weatherization Assistance Program  
Provides financial assistance to local agencies through the states and territories for the weatherization of low-income households. Contact: [carole.gates@ee.doe.gov](mailto:carole.gates@ee.doe.gov), or (206) 553-1165.

**Federal Energy Management Program**

Federal Energy Management Program  
Assists federal agencies in reducing energy and water use in their buildings and operations. The program includes technical assistance and help for agencies in using energy-saving performance contracts. Some program materials advise federal agencies on energy-saving measures that are transferable to state and local facilities. Contact: [arun.jhaveri@ee.doe.gov](mailto:arun.jhaveri@ee.doe.gov), (206) 553-2152 or [cheri.saver@ee.doe.gov](mailto:cheri.saver@ee.doe.gov), (206) 553-7838.

**Industrial Technologies Programs**

Industrial Assessment Centers  
Provide free energy and environmental audits at 30 universities across the country for small and medium industries. Industries benefit by receiving recommendations on controlling costs and improving energy efficiency, as well as opportunities for productivity improvements and waste reduction. Contact: Charles Glaser, (202) 586-1298.

## 6:12 Choose Appropriate Line Lengths

Relative Importance:

1 2 3 4

Strength of Evidence:

1 2 3 4

**Guideline:** If reading speed is most important, use longer line lengths (75-100 characters per line). If acceptance of the Web site is most important, use shorter line lengths (fifty characters per line).

**Comments:** When designing, first determine if performance or preference is most important. Users read faster when line lengths are long. However, they tend to prefer shorter line lengths, even though reading shorter lines generally slows overall reading speed. One study found that line lengths of about twenty characters reliably slowed reading speed.

When space for text display is limited, display a few longer lines of text rather than many shorter lines of text. Always display continuous text in columns containing at least fifty characters per line.

Research done using a paper-based document found that medium line length was read fastest.

**Sources:** Bailey, 2002; Duchnicky and Kolers, 1983; Dyson and Haselgrove, 2000; Dyson and Haselgrove, 2001; Dyson and Kipping, 1998; Evans, 1998; Paterson and Tinker, 1940b; Rehe, 1979; Smith and Mosier, 1986; Tinker and Paterson, 1929; Tullis, 1988; Youngman and Scharff, 1999.

**Example:** Formatting text into narrow columns with very short line lengths will slow users' reading speeds.

<u>About Us</u>	<u>Community</u>	<u>Content</u>	<u>Ethics</u>
Learn more about our history, mission and members. You can also "meet" our NEW <a href="#">Board of Directors</a> , and our advisors in this section. If you are interested in learning more about us, please see how to contact us here.	Our community is international in scope and we encourage the open discussion of viewpoints. Enter here if you wish to become a member or a sponsor or learn about our conferences and workshops.	Over the years, we have developed a body of knowledge and opinions from thought leaders in the areas of online privacy, ethics and the use of technology to improve health care. In this area you can find <a href="#">Tips for Consumers</a> , links to articles and presentations by	Since 1999 the Coalition has been actively involved in developing guidelines for the ethical use of the Internet in health care. Here you can find information about our eHealth Ethics Initiative and access the eHealth Code of Ethics in several languages.
<a href="#">Subscribe to IHC-NEWS</a> Coalition mail r notific throu inform	<p><b>Interagency Working Group on Assistive Technology Mobility Devices</b>  <b>Memorandum for the Secretary of Education, Health and Human Services, Labor, and the Commissioner of Social Security</b></p> <p>When President George H. W. Bush signed the Americans with Disabilities Act of 1990, America opened its door to a new age for people with disabilities. Although much progress has been made since then, significant challenges remain for individuals with disabilities who seek full participation in American society.</p> <p>My Administration is committed to increasing education and employment opportunities for individuals with disabilities. My New Freedom Initiative strives to provide people with disabilities increased opportunities to lead more independent lives by expanding education and job opportunities, and by ensuring that the latest technologies, which often make education and employment possible, are readily available.</p> <p>Often, individuals with disabilities require assistive technology mobility devices such as powered wheelchairs and scooters in order to access education, training, and competitive employment. While there are several Federal programs, as well as State and local efforts, that help individuals with disabilities obtain these and other assistive technologies, they are not adequately coordinated. Other Federal programs provide funding of assistive technology mobility devices for medical purposes, but the intent of these programs has always been, and should remain, medical rather than educational or</p>		

Formatting text like this—roughly 100 characters per line—elicits faster reading speeds.

**Guideline:** Use frames when certain functions must remain visible on the screen as the user accesses other information on the site.

**Relative Importance:**  
 1 ○ ○ ○ ○ ○

**Strength of Evidence:**  
 1 2 3 4 ○

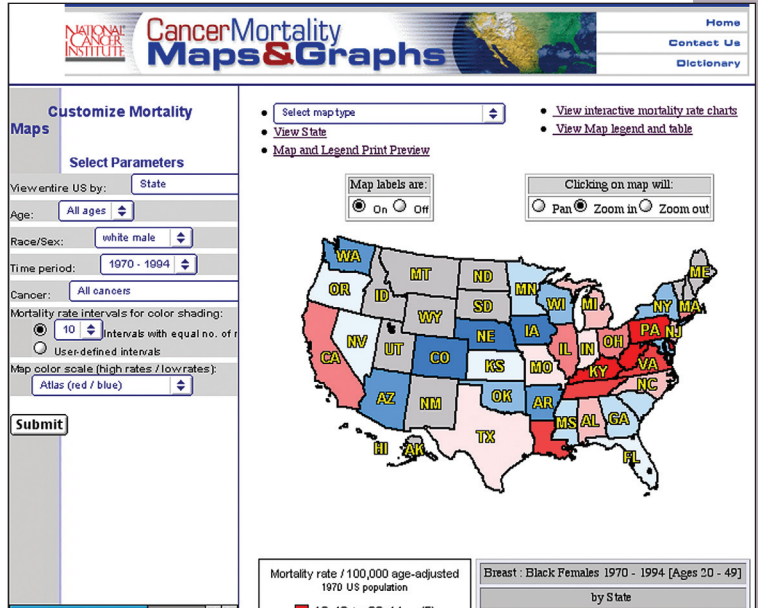
**Comments:** It works well to have the functional items in one frame and the items that are being acted upon in another frame. This is sometimes referred to as a 'simultaneous menu' because making changes in one frame causes the information to change in another frame. Side-by-side frames seem to work best, with the functions on the left and the information viewing area on the right.

Keep in mind that frames can be confusing to some users. More than three frames on a page can be especially confusing to infrequent and occasional users. Frames also pose problems when users attempt to print, and when they search pages.

**Sources:** Ashworth and Hamilton, 1997; Bernard and Hull, 2002; Bernard, Hull and Drake, 2001; Detweiler and Omanson, 1996; Kosslyn, 1994; Koyani, 2001a; Lynch and Horton, 2002; Nielsen, 1996a; Nielsen, 1999b; Powers, et al., 1961; Spool, et al., 1997.

**Example:**

Multi-variable charting applications are one example of an acceptable use of frames. The map of the United States in the right frame is controlled by the menu selections in the left frame. As such, the left frame remains fixed while the right frame regenerates based upon the user-defined selections in the left frame. Such use of frames allows users to continually view the menu selections, avoiding use of the Back button when changing selections and eliminating the need for users to maintain this information in their working memory.



See page xxii for detailed descriptions of the rating scales  
 1 2 3 4 ○