

# Guidelines Study - Phase 1

- Identified existing guidelines widely used in the field (began in April, 2000)
- Attempted to find research to support the existing guidelines
- Resolved conflicts in the guidelines
- Added new guidelines based on available research (up to 309)
- Initially posted 60 guidelines to “usability.gov” (November, 2000)

# usability.gov/guidelines

## Research-Based Web Design & Usability Guidelines

Improving the communication of cancer research

NATIONAL CANCER INSTITUTE

[Home](#)

[Dictionary](#)

[Usability.gov](#)

### Current Evidence-Based Guidelines on Web Design and Usability Issues

[About This Site](#)

[How to Use This Site](#)

[Submit Additional Research](#)

[Printing Complete Guidelines](#)

#### Design Process

- [Set and State Goals](#)
- [Set Performance and/or Preference Goals](#)
- [Share Independent Design Ideas](#)
- [Create and Evaluate Prototypes](#)

#### Design Considerations

- [Establish Level of Importance](#)
- [Reduce Users' Workload](#)
- [Be Consistent](#)
- [Provide Feedback to Users](#)

#### Titles/Headings

- [Provide Page Titles](#)
- [Use Well-Designed Headings](#)

#### Page Length

- [Determine Page Length](#)
- [Determine Scrolling vs. Paging Needs](#)

#### Page Layout

- [Align Page Elements](#)
- [Establish Level of Importance](#)

#### Reading and Scanning

- [Use Reading Performance or User Preference](#)
- [Enhance Scanning](#)
- [Determine Scrolling vs. Paging Needs](#)

#### Links

- [Position Important Links Higher](#)
- [Show Links Clearly](#)
- [Indicate Internal vs. External Links](#)
- [Use Descriptive Link Labels](#)
- [Use Text Links](#)
- [Avoid Mouseovers](#)
- [Repeat Text Links](#)
- [Present Tabs Effectively](#)
- [Show Used Links](#)

#### Search

- [Consider Importance of Search Engine](#)
- [Indicate Search Scope](#)
- [Enhance Scanning](#)

#### Navigation

- [Keep Navigation Aids Consistent](#)
- [Use Text-Based Navigation Aids](#)
- [Group Navigation Elements](#)
- [Place Navigation On Right](#)

#### Software/Hardware

- [Determine Connection Speed](#)

# Guidelines Study

## Phase 1 (continued)

- Continued to add new guidelines from other sources
- Reviewed all guidelines
  - Eliminated those rated as 'not important'
  - Combined similar guidelines, and clarified conflicting guidelines
  - Dropped those not related to traditional human-computer interactions
- Conducted several rounds of internal review and editing
- Total guidelines
  - Mid-2001: 537
  - End of 2001: 398

# Guidelines Study - Phase 2a

- Recruited 16 reviewers
  - Web designers
  - Usability specialists
- Rate each guideline on the question: “How important is this guideline to the overall success of a website?”
- There was no difference between designers and usability specialists

# Guidelines Study - Phase 2b

- Recruited 8 Usability Experts
  - Ph.D.
  - Expert in web design and usability research
  - Knowledge of experimental design
  - Published articles and/or books
- Rated each guideline: Strong, Weak, or No Research
- Little agreement among experts
- Experts met to resolve differences



• At least one research-based finding  
• No conflicting research-based findings  
• General agreement of expert opinions with research

• Possibly one conflicting research-based finding  
• General agreement of expert opinions

• Some conflicting research-based findings, or  
• Mixed agreement of expert opinions

• Research-based evidence  
• Strong supporting expert opinions (both other questions, but not this one)

Barbara Caparo  
North State University

Ginny Redist  
Redist & Associates, Inc.

Barbara Caparo  
North State University

Coke

TECHNICAL COMMUNICATION

TECHNICAL COMMUNICATION

# Refined the 'Importance' Scale

- **5 Strong research support**
  - Compelling, supporting research-based evidence
  - At least one formal, rigorous study with contextual validity
  - No known conflicting research-based findings
  
- **4 Moderate research support**
  - Cumulative research-based evidence
  - Conflicting research based findings may or may not exist
  - Consensus expert opinion
  
- **3 Weak research support**
  - Limited research-based evidence
  - Conflicting research-based findings may exist
  - And/or there is mixed agreement of expert opinions
  
- **2 Strong expert opinion support**
  - No research-based evidence
  - Multiple supporting and consensus expert opinion
  - Generally accepted as best practice
  
- **1 Weak expert opinion support**
  - No research-based evidence
  - Limited or conflicting expert opinion

# Inter-Rater Correlations: Strong, Weak, or No Research

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>
<b>B</b>	.38						
<b>C</b>	.32	.30					
<b>D</b>	.06	.00	.24				
<b>E</b>	.05	.01	.20	.22			
<b>F</b>	.21	.14	.20	.01	.13		
<b>G</b>	.04	.07	.13	.11	.18	.16	
<b>H</b>	.04	.04	.17	.16	.24	.16	.15

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Cronbach's Alpha = .55

# Inter-Rater Correlations: 5-Point Scale

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>
<b>B</b>	.71						
<b>C</b>	.49	.43					
<b>D</b>	.69	.64	.46				
<b>E</b>	.73	.73	.45	.67			
<b>F</b>	.72	.81	.47	.70	.77		
<b>G</b>	.71	.83	.46	.67	.76	.80	
<b>H</b>	.68	.67	.37	.63	.78	.68	.66

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Cronbach's Alpha = .94

# Guidelines Study - Results

- Final number of guidelines: 187
- Each guideline has
  - A Guideline
  - Comments section
  - List of sources or references
  - Ratings
  - Graphic examples

# Provide Consistent Clickability Cues

- **Guideline:** Provide sufficient cues to clearly indicate to users that an item is clickable.
- **Comments:** Links should be visually apparent. Always use underlines or some other visual indicator (e.g., a stacked list of items) to indicate that words are links. Items that are in the top center, or left and right panels have a high probability of being considered links. This is particularly true if the linked element looks like a real-world tab or pushbutton. Users should not be expected to move the cursor around a website (minesweeping) looking for links. Using the eyes to quickly survey the options is much faster than minesweeping. Similarly, relying on mouse-overs to designate links can confuse newer users, and slow-down all users as they are uncertain about which items are links.
- **References:** Bailey, 2000; Farkas and Farkas, 2000; Tullis, 2001; Bailey, Koyani, and Nall, 2000; Lynch and Horton, 2002.

# 10:1 Provide Consistent Clickability Cues

Importance   
Evidence   
Sources: 5

## ▶ Health Information

A-Z index of NIH health resources, clinical trials, health hotlines, MEDLINEplus, drug information

## ▶ Grants & Funding Opportunities

Grants news, Applications, grants policy, NIH Guide, award data, research training, research contracts, CRISP database

## ▶ News & Events

In the News, press releases, calendars, radio & video, media contacts, special reports

## ▶ Scientific Resources

Human Embryonic Stem Cell Registry, Intramural research, special interest groups, library catalogs, journals, training, lab, scientific computing

▶ Q&A  
About NIH

▶ Career  
Opportunities

▶ Visitor  
Information

▶ Employee Informatio

▶ Información en españ

▶ Search the NIH Web 5

**Right-facing arrows are very strong clickability cues for users.**

# Guideline Categories

- Design Process and Evaluation
- User Friendliness
- Accessibility
- User's Hardware and Software
- The Homepage
- Overall Page Layout
- Navigation
- Scrolling and Paging
- Links
- Headings, Titles, and Labels
- Text Characteristics
- Lists
- Data Entry and Widgets
- Graphics, Images, and Multimedia
- Writing Web Content
- Organizing Content
- Search

# The Top 25 Guidelines