Lecture 10-3: Web Navigation

- Searching versus Linking

- Search Design

- Scrolling vs. Paging Search Results

Searching vs. Linking

- Search
  - Search box provided on web page
  - Home page search box navigates through web site
  - Enter key word or words into search box
  - Search results link to desired pages on site
- Linking
  - User selects 'hot link' on page
  - Links user to another section of page or to another page
  - Users continue selecting links until desire page is reached
- Example: Staples.com
- Koyani & Bailey (2002) Searching vs. Linking on the Web: A Summary of the Research. Report for Office of Communications, National Cancer Institute. http://usability.gov

Individual Differences in Users (Nielsen, 1997)

- Search dominant users
  - 50%
  - Went straight to search facility
  - Not interested in exploring
- Link dominant users
  - 20%
  - Used links even when directed toward specific information
  - Used search only when lost
- Mixed Search-Link users
  - 30%
  - Alternated between searching and links – showed no preference

- Conclusions: Always provide a search capability on sites

Individual Differences in Users (Nielsen, 1997)

- Explanations
  - Personality differences – negligible effect
    - Cognitive style – field dependence / independence
  - Greater online search experience → more likely to use search

Spool et al. (2001)

Task and web site characteristics determine search / link preference

- Spool & Ojakaar (2001)
  - 30 users performed 121 shopping tasks on 3-6 sites
    - 21% *of sites* → Search
    - 32% → Links
    - 47% → Mixed
- Spool (2002)
  - Use search → looking for unique item
    - Specific book title
    - A certain CD
    - Product numbers
    - Claim or tax forms
  - Use Links → item similar to many other items
    - Find a good digital camera
    - Look for corporate policies

Ojakaar & Spool (2001)

- Use Links → If familiar with organization of site and terminology
- Designers should present more links when users are unfamiliar

- Users found content more with links than with search
  - Links → 53% success
  - Search → 30% success

Search Box Design

- Karlgren & Franzén (1997)
  - http://www.sics.se/~franzen/Artiklar/Verbosity/irinterface.html
  - Search engines often provide better results with more text entered
  - Users typically enter very short queries
  - Web sites typically save space with small boxes – which accept more text than can fit in box
  - Compared design of text entry boxes: small vs. large text entry box

Short entry field

This is the long entry field

Karlgren & Franzén (1997) Results

- Several search tasks (e.g. find world holidays that happen in February)
- Compared queries (discarded success rate measures)
- Query length significantly longer with large text boxes
- Observation: Users reluctant to type text into small boxes so that they cannot see the complete text they entered

Average query length (words)
Long field = 3.43 N = 9
Short field = 2.81 N = 10

Advanced Search (Nielsen, 2000)

- Avoid Boolean searches: Users do not perform them correctly

- Nielsen (2000) task example
  - You have the following pets: cats, dogs. Find information about them
  - Users type "**cats AND dogs**"
  - Search comes back with no results
  - Users conclude that there is no information about cats and dogs
  - In reality: no pages mention both cats and dogs *on the same page*
  - Correct query is "**cats OR dogs**"
  - Even experienced programmers made the initial mistake of "AND"

- Conclusion: Offer advanced search as option off home page

Query Reformulation (Nielsen, 2001)

- Users are bad at refining search: Unlikely to succeed if first search fails

- Nielsen (2001) web site study

- Successive search attempts = 51 % $\rightarrow$ 32 % $\rightarrow$ 18 %

- Must maximize likelihood of users getting good results on first try

- Furnas et al. (1984) Bell Labs study

- Estimations of search hit rates increase by 95% if users are surveyed on their terms

Lecture 9

Display of Search Results
(Bernard, Baker, Chaparro, & Fernandez, 2002)

- Paging versus scrolling
- Task: locate links on search engine results pages
- Conditions:
  - 10 pages of 10 links each → paging
  - 2 pages of 50 links each
  - 1 page of 100 links → scrolling
- Mean completion time fastest for 2 pages of 50 links
- 10 page/link condition rated as easier (it took longer)
  - Paging preferred to /easier than scrolling
- Preference ratings highest for 3 pages of 50 links
- Note that middle condition minimizes both paging and scrolling