WWW & HCI

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Agenda

- Designing for the Web – processes

- Design issues
  - Text
  - Graphic design
  - Navigation
  - Structure
  - Links

Dilbert's Design for the Web

WWW User Behaviors

Browsing vs. Search -- Big difference

Search - Seeking to find a particular item, fact or piece of information.
Promote ease and speed.
-> Buying products, doing research, downloading
    software, ...

Browsing - Scanning for "interesting" item, fact or piece of information.
Attractiveness also plays a strong role.
-> Surfing, doing research, ...

Page/Site Goals

- Convey information/access
  employees, shareholders, customers
  colleagues, public
- Sell products
- Advertise/market service
- Recruit
- Announce, survey
- Nurture communities

- Convey image or impression
- Meet people
- Raise money/donations
- Entertain an audience
- Promote myself
- Teach people about a topic
- Get famous
- Tell a story

Developing a Site

Critical to start with a good site plan

Process Model
1. Identify objectives
2. Generate a topics list
3. Organize content
4. Provide structure
5. Transform content

Identify Objectives

Develop brief statements for the following questions:

What is the purpose or goal of the site?
Who is your intended audience?
What technology will you support?

Unfortunately, too often a web site is used to describe an administrative organization, not to give the user What they want

Generate a Topics List

Raw brainstorming of just anything

College of Computing, e.g.:

classes	awards
people	unique points
faculty	table of contents
students	index
administrators	contact information
equipment	map
directions	buildings
programs	academic units
degrees	graduates
mission	alumni
undergraduates	research

Maybe put each on an index card

Organize Content

Group items into categories

```
People
    Faculty
    Students
        Undergraduates
        Graduates
    Staff

Academics
    Courses
        Undergraduate
        Graduate
    Degrees
...
```
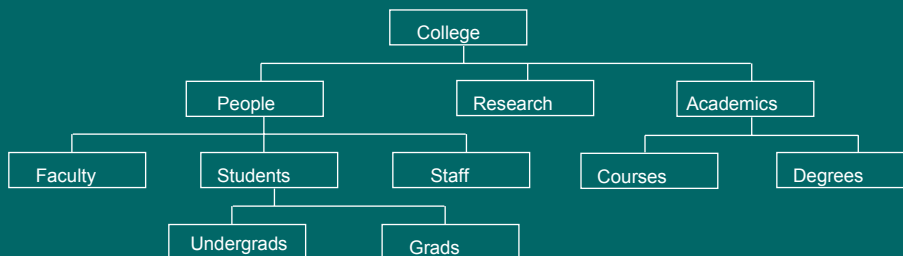
Put notecards into piles

Provide Structure

Sketch out the high-level organization
of the categories

```
                        College
            ┌──────────────┼──────────────┐
         People        Research       Academics
     ┌──────┼──────┐              ┌──────┴──────┐
  Faculty Students Staff       Courses      Degrees
         ┌──┴──┐
    Undergrads  Grads
```

Transform Content

Start transitioning to pages, text, images, interaction, etc.

<u>Use</u>
sketches
lists
storyboards
drawings
outlines

Will help you organize your
thoughts and plan

Web Site
Usability Problems

?

Special Challenges

- On WWW, you don't know what your user's platform and capabilities are

- User controls navigation as opposed to system controlling it

- Must fit within Web as a whole
  (Support rapid changes of context & Meet expectations)

Web Design

Structure ←————————————→ Design

Scientist   Artist

Organization   Aesthetics

Library   Gallery

5 Usability Attributes

1. Textual content

2. Graphic design

3. Navigation

4. Structure

5. Links

1. Textual Content

Design is secondary to content!

Critical that appropriate information is on your pages.

One doesn't hear, "I'm going to surf the web for the experience…"

But…
Content is highly domain-specific

Text

Attention spans are short on the web
  and
Reading is slower and more awkward from monitor
than from paper

So
People tend to skim web pages
Read headers, highlights, selected paragraphs

Tune your writing style to this (Model of a brochure is good)

J. Nielsen column on web writing styles
www.useit.com/alertbox/9703b.html

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2. Graphic Design

All the graphic design principles we discussed earlier
still apply

Metaphor, clarity, consistency, alignment, contrast,
proximity

Color

Typography

Dimensions

Typical printed page is 8.5" x 11"

Monitor is

Fundmental mismatch

Dimensions

Other common sizes are now
    1024 x 768
    1280 x 1024
The first one is almost like a standard, but we're pushing
past it now too (multimon as well)

Advice:
Try to make your home page fit in visible range of
  moderate size window on 1024x768
At least have the important stuff in there
Later pages can be bigger then

Scrolling up/down OK, sideways not so good

Scrolling

Early views:
- Get it all on one screen
- Avoid excessive scrolling when possible
- Users not as likely to scroll down for info

Latest opinions are changing about that
Doesn't seem to be a big plus or minus
- Use appropriately
- See if you can keep information on one screen
- Avoid scrolling on navigation pages, OK on content pages
    (they tend to get printed out anyway)
- Put link ^ at bottom of long page to top

Images & Downloads

First thought: Avoid anything slow

Generally true, but latest opinions are that users are tolerant of some slow downloads

People are surprisingly patient when they think that graphic adds value. When gratuitous, they give up.

Viewers seem to tolerate 10-15 seconds when they realize it will be slow

Still, keep it quick: 1-2 seconds is best

The Useful Web

Graphics File Formats

GIF - Graphic Interchange Format

87a, 89a <- better
Compressed, lossless format, 8 bit

Advantages:
• Can have a transparent color
• Can be interlaced
• Can be animated

Good for small iconic images or big
images with large, solid color regions

Graphics File Formats

JPEG - Joint Photographic Expert's Group

Compressed, lossy, 24-bit format
No interlacing (actually there is)

You can choose the compression and quality level

Good for photographs and subtle, complex images

Graphics File Formats

PNG – Portable Network Graphics

Compressed, lossless, 24-bit format
Designed to improve gif

Very powerful, flexible, useful

Some browsers and machines still have issues
with some of its features

Size Matters

File format influences image size

byte = size for one character e.g. "a"
kilobyte = 1024 bytes
megabyte = 1024 kilobytes

At 28.8 kilobits per second (3.6 kbytes/sec)
   36 kbyte image takes 10 seconds
   1.5 meg image takes 7.1 minutes

JPEG gives you more control, but gif is probably better if
the image is small to start with

Size Recommendations

For reasonable downloads

      < 30k   most pages
      30-50k   OK
      50-70k   pushing it
      > 70k   ugh

Note that the number of images matters too

Server must connect and make a roundtrip

3. Navigation

Perhaps most crucial element of effective Web interface

Problems due to
• Users don't have domain knowledge
• Site structures don't meet expectations

Navigation Support

Many sites suffer from the lack of adequate navigation support

Give the user an understanding of the structure of the information space

Provide
• Table of Contents (Site Map)
• Index
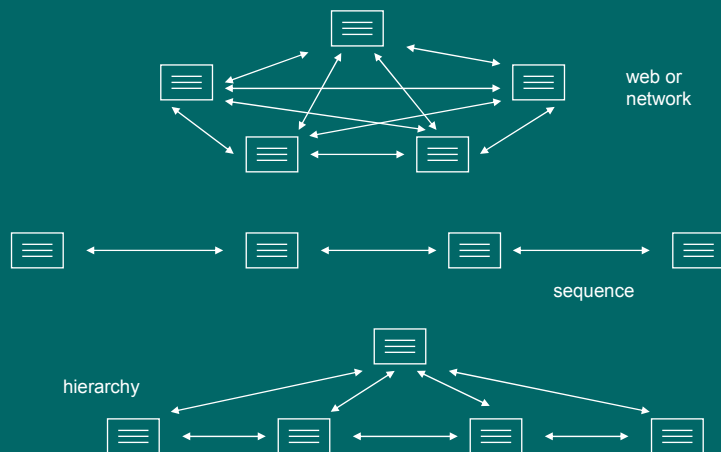• Navigation bar
• Search capability
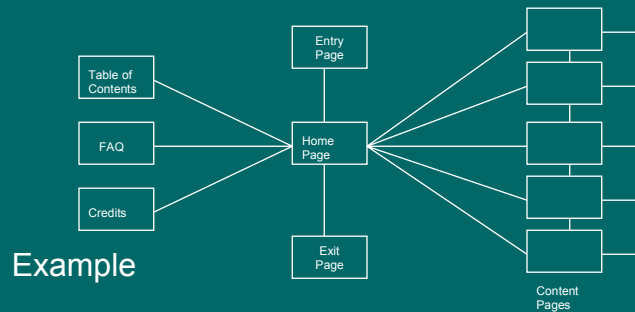
4. Structure

What is form of your site?

Connectivity, compactness, branching factor,
page length,number of links

Sample Organizations

web or
network

sequence

hierarchy

Real Sites

Example

Typically much more complex

Entry Pages

Sometimes called tunnel pages

May even consist of a series of pages

Typically one graphic with only one link to the real home or "core" page
Idea is to lure in viewer from there

If used, core page should have lots of content and be bookmarked one

Entry Pages

Controversial

Would be OK for a sculptor's site,
not for one providing info about diabetes

```
www.klutz.com
www.007.com
```

Home Page

Certainly, the most important page at your site

Critical for image, enticing viewer to look at more

Give viewer a good idea of what can be found at the site

Home Page Design Issues

Make sure that vital content is "above the fold"

Try to put some real content and news on the home page

How much graphics do you use?

If you do your links in images, make sure to have parallel text labels near the bottom of the page
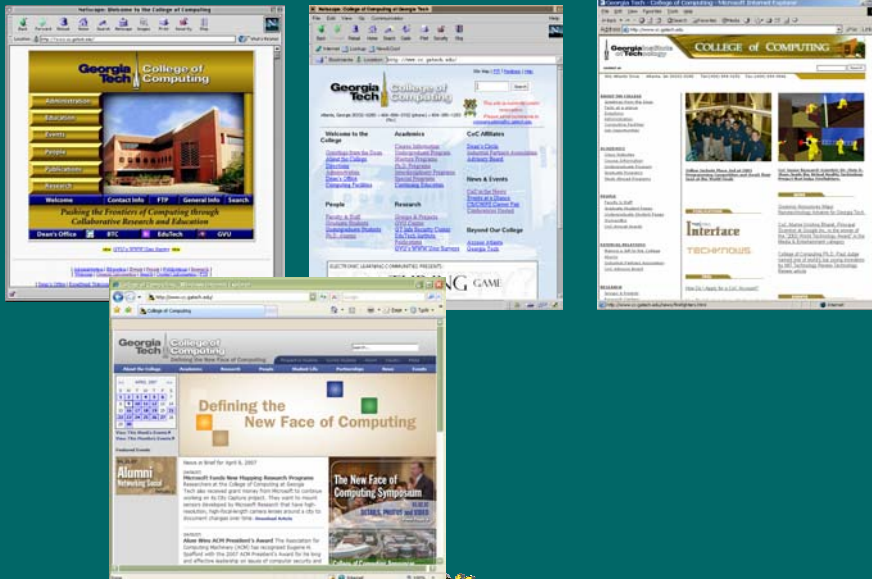
Home Page Design Issues

Early thoughts went with graphics-rich pages with relatively few links, mainly to top levels of main subsections

Newer design trend is to link-rich pages that allow user access to information via one click

Interesting Design Evolution

Structure Pages

Home page is important, but basic structure for all your other pages is important too---It might appear thousands of times

Shells/Containers/Templates - "Stuff" surrounding content that is common across all pages in site

Provides navigational structure plus hierarchy, then plug content in

Idea is to define this once, then have all your pages just use it
Changes are easy then

Evaluating Containers

Use "Greeking" technique

Replace all English text with nonsense words
Then have people guess what the areas are
Areas can include
   logo, navigation, credits, last updated, title
   content, news, etc.

J. Nielsen tips on technique
www.useit.com/alertbox/980517.html

Topology

Abolish linear thinking, that is,
dependence on prior pages

Search engines can send user straight
to any page ==> Each page should be
able to stand on its own

~~Return~~   ~~Go back~~

Link all pages to the home page

5. Links

Success of a link depends on
- How well user can predict where link will lead
- How well user can differentiate one link from other nearby ones
- Worthy content at other end of link

Make sure they work!

Link Style

- Short, terse sound bite
  Prices

- Long textual explanations maybe even with trailing (non-link) clarification
  Listing of car prices - Current suggested prices

People pick link based on their expectation of where it will take them

Be our guest
What does that do?

Link Wording

Beware the famous "here"

Click here to learn about my BMW Z3.
                vs.
I drive fast in my BMW Z3.

When a link will take someone a good distance, use word "jump"

For more on iguanas, jump to Fred's iguana page.

Say explicitly where link is

Check out the tax calculator by Money Magazine.

Multimedia Links

Tell what it is and how big it is

Flight of the Valkyries
Click may get surprise

Bell jingling (.au file, 700,00 bytes)

```
<IMG SRC="/icons/sound.gif" ALT="[SOUND]"> <A HREF="bell.au">
Bell jingling (.au file, 700,000 bytes)</A>
```

Bell jingling (Quicktime movie, 3 meg)

```
<IMG SRC="/icons/movie.gif" ALT="[MOVIE]"> <A HREF="bell.qt">
Bell jingling (Quicktime movie, 3 meg) </A>
```

Cool if cursor changed form according
to what kind of link it's over

Link Issues

• *Embedded Links* - Links set in surrounding
<u>text</u>. They can be harder for user to pick and use.

 • *Wrapped Links* - Example
   <u>Janus Twenty</u>
   <u>Investment Company</u>
   <u>of America</u>
   <u>Royce Premier</u>
 Are there 3 or 4 items here? Can be confusing

• Number - Too many on a page can be confusing and
   take too long to parse
• Image links - Problem: Don't change color to indicate
   prior traversal

Bad Design Bugaboos

All capitals text
Scrolling sideways
Teeny, tiny text size, especially in italics
Dead links
Telling the user how to set the browser
Poor contrast in text-to-background color
Large typeface (one without impact and contrast)
Animations that don't stop
Things that look like buttons but aren't
"Under construction" notices
Neglecting ALT tags for images
Not denoting image sizes
Do-nothing home page
Changing color for the heck of it
Lack of mail to/feedback throughout site
Sites requiring advanced browser or plug in
Blink tags

Modern Web Design

- Much of what I've described here harkens back to the roots of users manually editing their web pages

- Now, almost all done by tools, pages are dynamically generated, sites set up for maintenance, etc.

- Solid design principles persevere...

Examples

Can you recommend sites that you feel are particularly well or poorly designed?

Why?

Sources Used

- *Designing Web Usability*, J. Nielsen, New Riders, 2000.

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- *Web Style Guide*, P. Lynch and S. Horton, Yale Univ. Press, 1999.

- *Creating Killer Web Sites*, 2nd edition, D. Siegel, Hayden Books, 1997.

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- *Web Concept & Design*, C. Waters, New Riders, 1996.

- *Hot Wired Style, Principles for Building Smart Web Sites*, J. Veen, Wired Books, 1997.

- *The Web Design Wow! Book*, J. Davis and S. Merritt, Peachpit Press, 1998.

- *How to Set Up and Maintain a Web Site*, L. Stein, Addison Wesley 1997.

HW 4

- Find a (static) information visualization

- Due Thursday

Upcoming

- Embodied agents

- CSCW

- Ubiquitous computing