IT350 Web and Internet Programming

SlideSet #6: Human Computer Interaction

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HCI Defined

“Human Computer Interaction is a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of the major phenomena surrounding them.”

As defined by the Special Interest Group on Human-Computer Interaction (SIGCHI) of the Association for Computing Machinery (ACM)
Design for ____?

• Design needs to align with people’s:
  – Cognitive abilities
  – Context
  – Memory

Why do we care?

• Because when people try to understand something, they use a combination of
  – What their senses are telling them
  – The past experience they bring to the situation
  – Their expectations
Senses

• Senses (sight, hearing, smell, taste, touch) provide data about what is happening around us
• We are visual beings (“See what I mean?”)
• Designing good Web materials requires knowledge about how people perceive

Senses and Details

• Live Experiment: www.amazon.com
• Find the Amazon Prime link.
Senses and Context

- **Live Experiment**: Yale’s Art school

- Give me your first impression of their page.
  - art.yale.edu

Context

- Context plays a major role in what people see on a webpage.

- Context has a profound effect on the usability of a web site.
Context: What do you see?

Another example of context: are these letters the same?
Yes, but now in context:

tcp ace

Live Experiment

• [www.hboemtb.com](http://www.hboemtb.com)

• Open the “Urban Design” page
• Click on an urban project
• Show us some pictures
Memory: A golden rule?

• Humans have limited memory.

• **Miller, 1956**: The Magical Number ….

  • Lesson: If you don’t exceed this number…
    – Content more likely to be remembered
    – Faster recall

• Corollary: Don’t expect users to remember many shortcuts etc.

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Exception #1

• How many do you know?
  – Phone numbers?
  – Names?
  – Passwords?

• What’s the key difference?
Exception #2

• Do I have to remember everything?
  – People can scan lists of bullets, tabs, menu items till they see the one they want
  – They don’t have to recall them from memory having only briefly heard or seen them

• Lesson:
  – Make pages easy to scan
  – Group similar things together visually
  – Make wise use of screen real estate

Affordances

• Affordance: “The functions or services that an interface provides”
  – Go back to www.hboemtb.com
  – Now look at www.zincbistroaz.com
Perceived affordance

- We want affordance to be visible and obvious to the user
  - A door affords entry to a room
  - A radio button affords a 1-of-many choice
  - On a door, a handle affords pulling; a crash bar affords pushing
  - On a car, turning the steering wheel to the left makes the car go left

Web Affordances

- Text that looks like a link: *it better be a link!*
- Graphical arrow: *affords backward navigation*
- Rounded images: *affords clicking*
Feedback

• Newton’s Third Law of Motion
  – “For every action there is an equal and opposite reaction”
• What is most frustrating about trying to perform some action?

• Lesson:
  • Obvious principle – but doesn’t always happen?

Providing Feedback

• Design in feedback from the beginning

• Change color / shape / size
• Popup Dialog boxes
• Add sound
• Plan for user mistakes…warn them
• Allow users to see results, confirm action was taken
Other things users need

• Consistency
• Navigation

• How to provide without HTML duplication?
  – Frames
  – SSI

Senses and Organization
Use proximity to group

Grouping Information

- How do we group and organize links/images?
  - Match the UI to an expected paradigm
How People Act (part 1)

• Alternative strategies:
  – Goal Based
  – First Available
  – First Reasonable
  – First Attention

How People Act (part 2)

• Attention Focuses
  – Color
  – Sound
  – Boundaries
  – Moving/Flashing items

• Learned Procedures
Welcome!

Welcome to the SSI Example website. We have designed our site to be user-friendly and equipped with the latest technologies. Our XML site map contains new features of XML.

Here you will find links, lists, and contact information.

Have Fun With the Internet!

The Best Features of the Internet

- Go to Favorite Page
- You can meet people from countries around the world
- You have access to new media as it becomes public
- New games
- New applications
- For Business
- For Pleasure
- Around the clock news
- Search Engine
- Shopping
- Programming
- XHTML
- Java
- JavaScript

navssi.html

SSI Example Part 1

```html
<div style="float:left; margin-right: 2em; margin-bottom: 2em">
<p>
<a href = "link.shtml" >
<img src = "buttons/links.jpg" width = "65" height = "50" alt = "Links Page" />
</a><br />
</p>

<a href = "list.shtml" >
<img src = "buttons/list.jpg" width = "65" height = "50" alt = "List Example Page" />
</a><br />

<a href = "contact.shtml" >
<img src = "buttons/contact.jpg" width = "65" height = "50" alt = "Contact Page" />
</a><br />
```
```
Welcome to Our Web Site!

We have designed this site to teach about the wonders of XHTML. XHTML is better equipped than HTML to represent complex data on the Internet. XHTML takes advantage of XML's strict syntax to ensure well-formedness. Soon you will know about many of the great new features of XHTML.