Interdisciplinary Cooperation

- Design teams often include members from various disciplines
  - psychologists, artists, writers, engineers, programmers
  - possibly even users!
- Disciplines are like cultures.

A typical exchange between a graphic designer and a programmer

- Designer: I'm interested in computers. Can you help?
- Programmer: Gladly! What would you like to know?
- Designer: What can I do with this computer?
- Programmer: Anything you want.
- Designer: Marvelous! Show me a page of text.
- Programmer: Okay.
- Designer: But that looks ugly.
- Programmer: That's the font that's built into the machine.
- Designer: I guess that's the way computers look.
- Programmer: No, you could change the font too.
- Designer: Okay, let's redesign it.
- Programmer: But it would take a lot of work. And besides, I don't see anything wrong with this one.

Different priorities, thinking styles, and values

- Computer scientists
- Graphic designers
- Priorities are often invisible

Interdisciplinary Cooperation

- If people from different disciplines are to work well together, they must learn to appreciate one another's thinking styles, traditions, and values.
- What are some interdisciplinary problems you've encountered?

Common Excuses

- It's not my job
- Yes, but it really is someone else's job
- Yes, but my job really is self-contained
- I already know what I need to know
- I can't afford the time
- I can't go back and get another degree
- I tried, but I couldn't make sense of the jargon
- I'm scared of looking stupid
- I can't think that way
- When I need to know, I'll hire a specialist
- How do I know it will be relevant?
- This is how we've always done it.
- It's too hard

Becoming an "Interdisciplinary Ambassador"

- Patriot
- Tour guide
- Traveler
- Pen pal
- Ambassador
- World citizen

Understanding your own discipline better

- Be playful
- Tell the story of your life
- Tell the story of your discipline
- Draw a map
- Write a tour guide
- Write an emergency guide
- Argue that another discipline is more important
- Imagine how people in other disciplines would solve a problem in your discipline
- List all the roles you play throughout the day
- List the priorities of your discipline

Prototypes

- “an experimental incomplete design of an application used for testing design ideas”
- “until recently user interface designers spent very little time actually designing user interfaces because there were no tools which enabled them to explore design alternatives”
- Prototypes can be used in any stage of development.
- They differ in the amount of functionality and performance that they provide relative to the final product.

Three main approaches:

- rapid or throw away prototyping
- modular or incremental prototyping
- reusable or evolutionary prototyping

Prototyping lifecycle

Brainstorm different representations Choose a representation Rough out interface style Task centered walkthrough and redesign	Low fidelity paper prototypes
Fine tune interface, screen design Heuristic evaluation and redesign	Medium fidelity prototypes
Usability testing and redesign	High fidelity prototypes
Limited field testing	Working systems
Alpha/Beta tests	



Low fidelity prototypes

- "cheap" way of providing prototypes
- prototypes don't have to look like the actual interface you're testing, as long as they "work" the same
- advantages:

- disadvantages:

Medium fidelity prototypes

- Simulating or animating some but not all of the features of the intended system
- provide a sophisticated but limited scenario for the user to try out

- Examples:

- advantages:

- disadvantages:

Wizard of Oz

- A human simulates the system intelligence and interacts with the user.
- The user interacts normally with the computer. However, the user's input is actually transmitted to a "wizard."
- "wizard" (sometime hidden)
- advantages:

High fidelity prototypes

- A prototype used for testing that mimics the actual interface as closely as possible
- A software tool is usually used to mockup the interface.
- advantages:
- disadvantages:

Other types of prototypes:

- Horizontal prototyping
- Vertical prototype
- Chauffeured prototyping

Disadvantages

- Time
- planning
- non-functional features

Using video to prototype user interfaces

- Advantages:
  - can provide a broad range of visual expression
  - enable designers, clients, and end users to visualize the system early in the design process
  - can produce many design alternatives in a short amount of time
  - don't have to program computers
  - useful for demonstrating interfaces for technologies that don't exist yet
- Disadvantages:
  - video tools can be expensive
  - video is difficult to change or manipulate
  - may be difficult to simulate specific interactions
  - video can mislead people into believing that the prototype is the finished product
  - not interactive

Using video to prototype user interfaces

- Create a storyboard or flipbook to help visualize the user interface interactions.
  - helps to work out timing and sequencing problems
  - include:
  - However, storyboards and flipbooks may be difficult to interpret because they lack the continuity and transition from one drawing to the next

Animated drawings

- Create a simple sketch of the interface
- photocopy several copies of the sketch
- modify the sketches to illustrate the various interactions
- videotape each sketch for 10-20 seconds
- assemble using a video editor
- when the video is played it will give the illusion of motion
- advantages:

- disadvantages:

Cutout animation

- Objects are cut out of paper and placed on a background
- the objects are then filmed as they are moved under the video camera
- advantages:
  - smooth transitions are easy
  - fairly simple
  - low cost

- disadvantages:
  - other types of transitions are difficult to simulate

  - difficult to choreograph the placement of the cutout objects

Animated objects:

- Build a physical model of the object
- Use fishing line (which is transparent) to translate and rotate objects in space.
- The camera can be moved throughout the space to give the illusion of walking through the model.
- Magnets can also be used to move objects.
- advantages:

- disadvantages:

Videos

- Capturing work context
  - The SubCam: An insight into the phenomenal flow of office life. By Fayard and Lahlou, EDF France
- Video Prototyping
  - 1998 HCI Course

Readings for Wednesday, June 2nd

- The Non-Designers Design Book, Robin Williams (Chapters 1-6, on reserve in the library)
- Article 10: Principles of Effective Visual Communication for Graphical User Interface Design by Aaron Marcus
- Article 11: Color Graphics: Blessing or Ballyhoo? (Excerpt) by Gerald M. Murch