CSE440: Introduction to HCI
Methods for Design, Prototyping and Evaluating User Interaction

Lecture 10: Paper Prototyping

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Activity: Step 1 (10 minutes)

Sit with your team and...

1. Pick one of the tasks you have submitted as part of 2e
2. Choose one APP/Site that users would use for that task
3. Sketch a couple of changes you'd propose to improve it!

Example: Peter (from the scenario last class) would use Google Maps to drive to the brunch place. How can we improve Peter's experience when searching for parking in an unknown neighborhood?
Activity: Step 2 (5+5 minutes)

Find a team that does not go to your Friday Section and ask for feedback!

1. Present the context and task
2. Present the improved APP/Site

Feedback:
- Was it clear how the improved design helps with the task?
- What can be changed to convey the idea in a clearer way?
- What can be added to solve the task even easier?
Prototyping
Fidelity in Prototyping

Low Fidelity
Designer sketches with many details missing

High Fidelity
Prototypes look like the final product

https://medium.freecodecamp.org/a-beginners-guide-to-rapid-prototyping-71e8722c17df
High-Fidelity Prototypes

Time consuming
  Require precision (e.g., must choose a font)
  Specifying details takes time
  Can lose track of the big picture

Perceptions of a person reviewing or testing
  Communicates it is “finished”
  Comments often focus on color, fonts, alignment
Low-Fidelity Prototypes

Traditional methods take too long
  Sketches → High-fidelity Prototype → Evaluate → Iterate

Instead simulate the prototype
  Sketches → Evaluate → Iterate

Sketches act as prototypes
  A designer “plays computer”
  Other design team members observe & record

Kindergarten implementation skills reduce barriers to participation in design and testing
Low-Fidelity Prototypes & Sketches

Remember how Sketches should be quick, cheap, easy to change, and open for critique?
Paper Prototype
Paper Prototype - Example
Basic Materials

Heavy, white paper
Index cards
Post-its
Tape, stick glue, correction tape
Pens and markers in many colors and sizes
Overhead transparencies
Scissors, knife
Index Cards

Good to represent computer screens
Often used in website development
Compose interface from different pieces

Welcome to ESP. Your Telebears session is Tues. Sept. 21 @ 10am. Your current schedule is empty. Please click on Add a course to continue.
Compose interface from different pieces
Use Transparencies

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Tips on Constructing a Prototype

Set a deadline
- Do not think too long
- Instead build it, then learn and iterate as you go

Put different screen regions on cards
- Anything that moves, changes, appears/disappears

Ready responses for actions
- Have those pull-down menus already made
- Planned tasks can guide this

Use photocopier to make many versions
Start by thinking of your Tasks
Remember Your Target Platform Constraints
Activity: Step 3 (10 minutes)

Transform your sketch in a "runnable" prototype

1. Focus on a small task (possibly a couple of steps only)
2. Define and sketch the needed pieces
3. Make sure someone else can use it
4. Have fun! =)
Advantages of Paper Prototypes

Forces you to think through potential solutions

Facilitates discussion of solutions with other designers and stakeholders

Allows testing!
Paper Prototyping in Action!

I'm using crayons to simulate the interaction of clicking and coloring.

Friendly Animals
Math and Language Arts for Preschoolers
Cat Coloring Pages
Why Usability Test?

Find and fix problems in a design
  Removes the expert blind spot
  Obtain data to inform changes
  Uncover unexpected behaviors

Drives changes, sometimes innovations

In the long run, this is a win-win
  Both improves design and saves money
Stages of a Usability Test

Preparation
Introducing the Test
Conducting the Test
Debriefing
Analyzing the Data
Creating the Report
Preparing for a Test

Select your participants
  Friends and family are not your design targets
  Understand background, consider recruiting questionnaire

Prepare tasks and paper prototype

Practice to avoid “bugs” in your prototype
Task-Based Usability

Set up an overall context

“We are interested in improving people’s ability to save, update, and use contacts in their mobile phones.”

Then prescribe tasks

1. Try to find the contacts list in the phone
2. View the contact information for John Smith
3. Change John Smith’s number to be 555-555-5555

Tasks can be chained to naturally lead to the next
Introducing the Test

Address Feelings of Judgment

“Today we are interested in learning about X. That’s where you come in!”

“I did not develop X. I just want to know what the problems are with X.”

“It is X being tested here, not you.”
Introducing the Test

Set Expectations for Process

“It is essential **you think out loud** while working with X. Tell me constantly what you are thinking, looking for, wondering, confused about, surprised, and so on. If you stop talking, **I will prompt you to talk.**”

“I will not be able to answer your questions when you start using X. Do you have any questions now?”
Think-Aloud Prompts

“Tell me what you are trying to do.”
“Please keep talking.”
“Tell me what you are thinking.”
“Are you looking for something? What?”
“What did you expect to happen just now?”
“What do you mean by that?”
Insight Problems

When people are trying to figure something out, talking aloud can prevent needed “insight”

If your participant is really baffled, it might not be the best time to prompt them to keep talking
  Wait for a natural break, and then ask
  “What were you thinking just there?”

Retrospective talk-aloud
  Record session, talk through immediately afterward
Conducting a Test
Debriefing

Give them more details about what you were interested in discovering, with their help

Answer any questions they have
  Now you can show them how to accomplish the tasks, talk about what you learned from the test

Thank them for their time
  Appropriate to give some compensation
Analyzing and Reporting the Results

Summarize the data

Make a list of critical incidents
- can be positive and negative
- include references back to original data
- try to judge why each difficulty occurred

Sort and prioritize findings
- what does data tell you
- what are the important results
- anything missing from test
Good to keep in mind

Remember the purpose of this test
   You would not be there to help “in real life”
   You want to see if they can figure it out
   You want to see how hard it is
   You want to see how catastrophic the outcome is

But you do not want to punish the person or completely undermine the rest of the session
   If you need to help, note that as a major failure
   Do not allow observing engineers to help
Ethical Considerations

Testing is stressful, can be distressing

- make sure they know they are NOT the ones being tested.

You have a responsibility to alleviate

- make voluntary with informed consent
- avoid pressure to participate
- let them know they can stop at any time
- make collected data as anonymous as possible
Human Subjects Approvals

Research requires human subjects review of process

This does not formally apply to your design work

But understand why we do this and check yourself

Companies are judged in the eye of the public
Ask me something!