CSE440: Introduction to HCI

Methods for Design, Prototyping and Evaluating User Interaction

Lecture 10:
Paper Prototyping

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DESIGN
USE
BUILD

PAUL G. ALLEN SCHOOL
OF COMPUTER SCIENCE & ENGINEERING

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

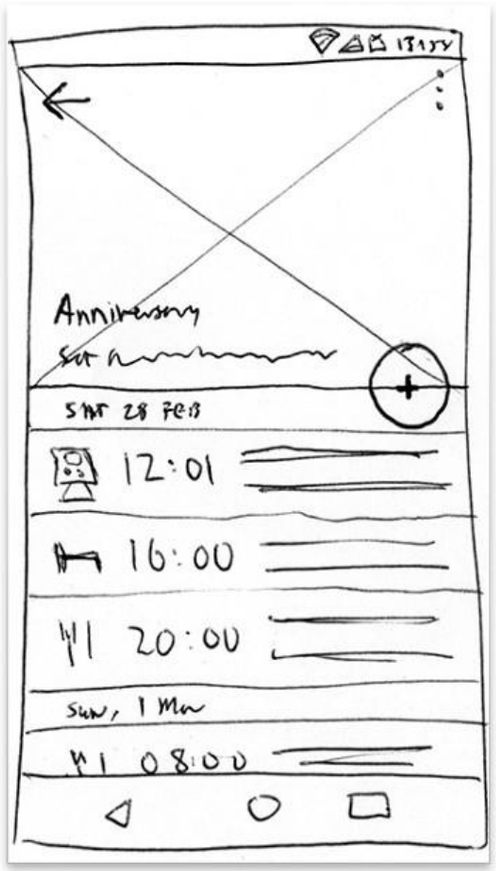
Feedback:

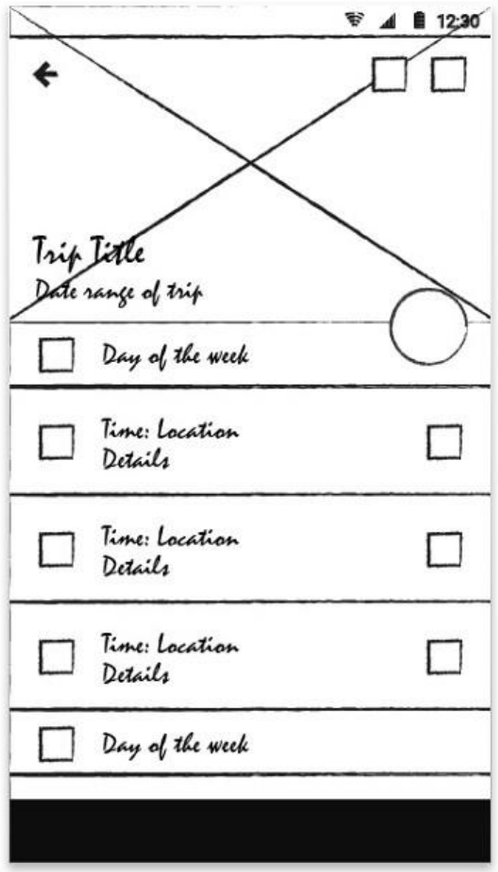
- Was it clear how the improved design helps with the task?
- What can be changed to convey the idea in a clearer way?
- What can be added to solve the task even easier?

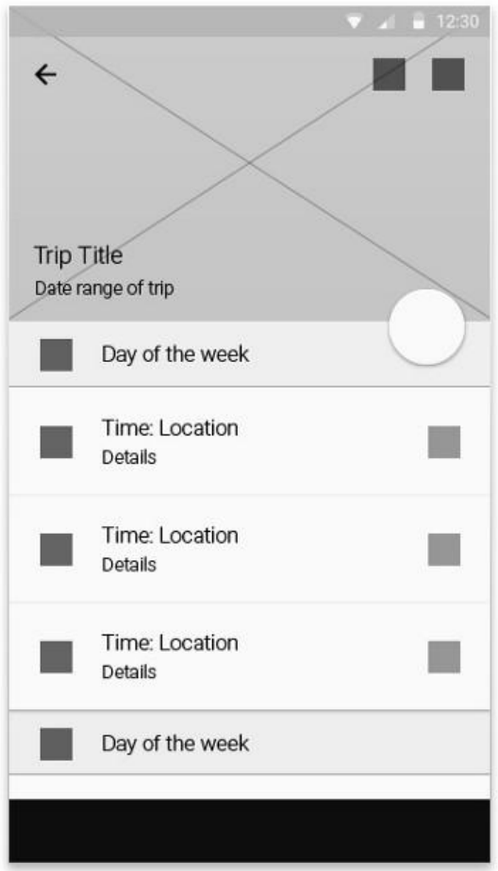
Prototyping

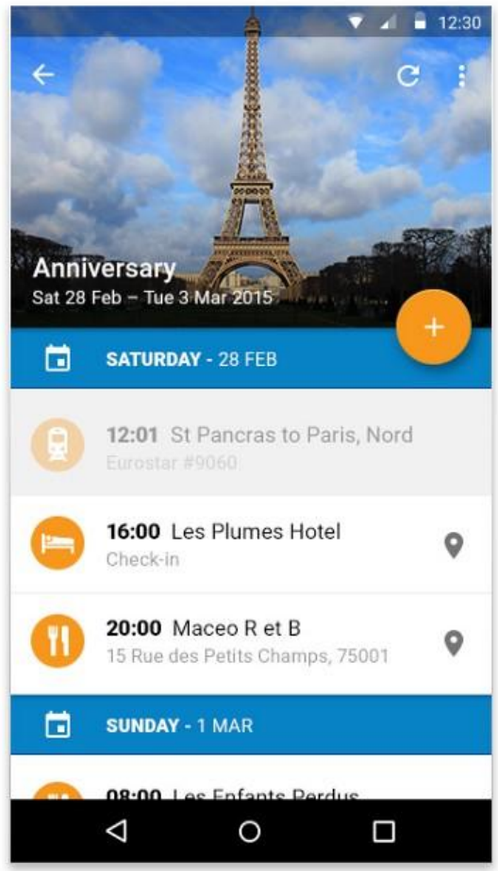
Fidelity in Prototyping

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









Low Fidelity

Designer sketches
with many details missing

High Fidelity

Prototypes look like
the final product

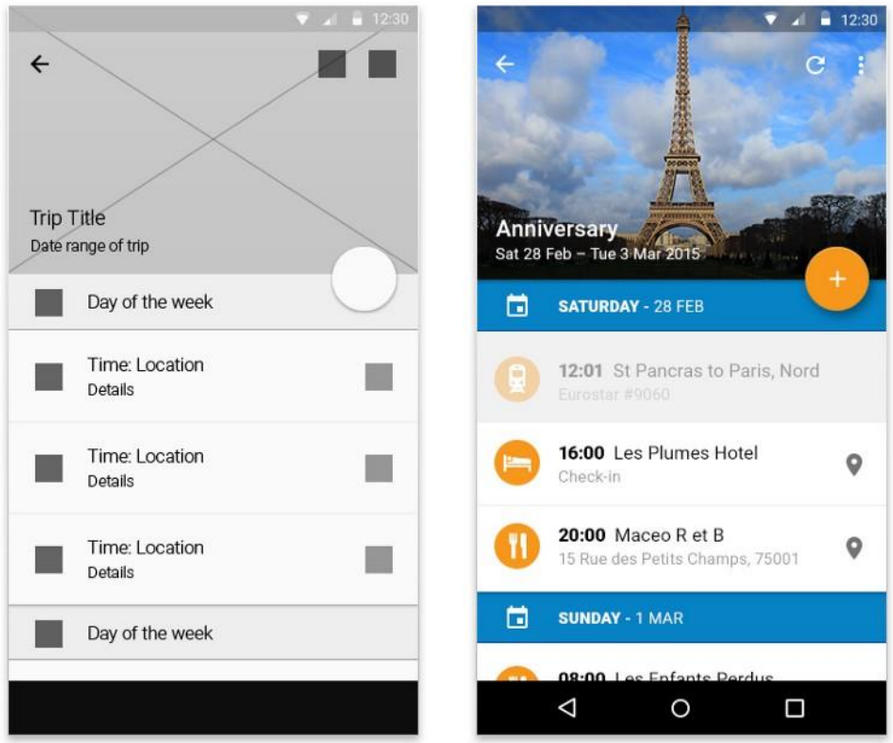
High-Fidelity Prototypes

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



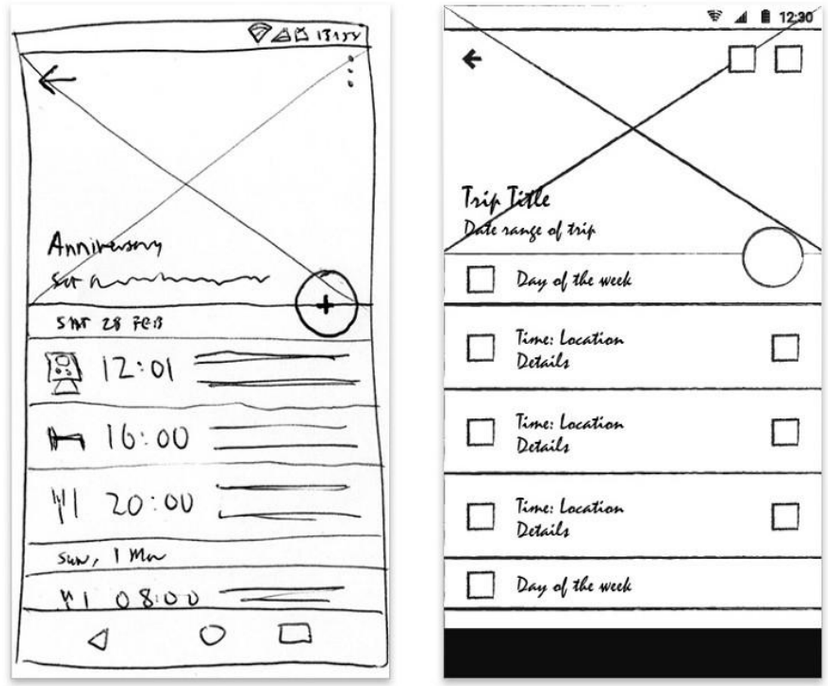
Low-Fidelity Prototypes

Traditional methods take too long

Sketches → High-fidelity Prototype → Evaluate → Iterate

Instead simulate the prototype

Sketches → Evaluate → Iterate



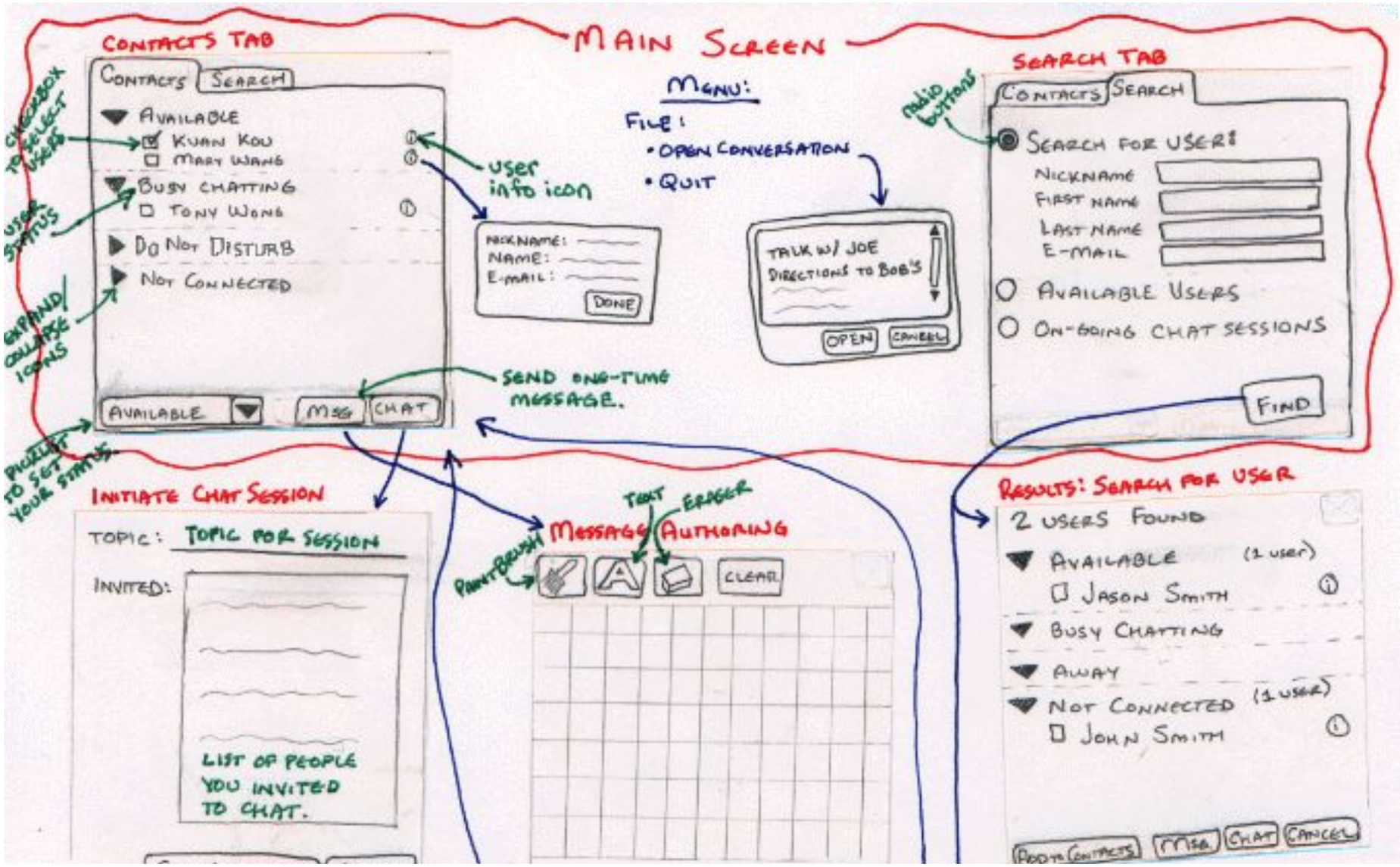
Sketches act as prototypes

A designer “plays computer”

Other design team members observe & record

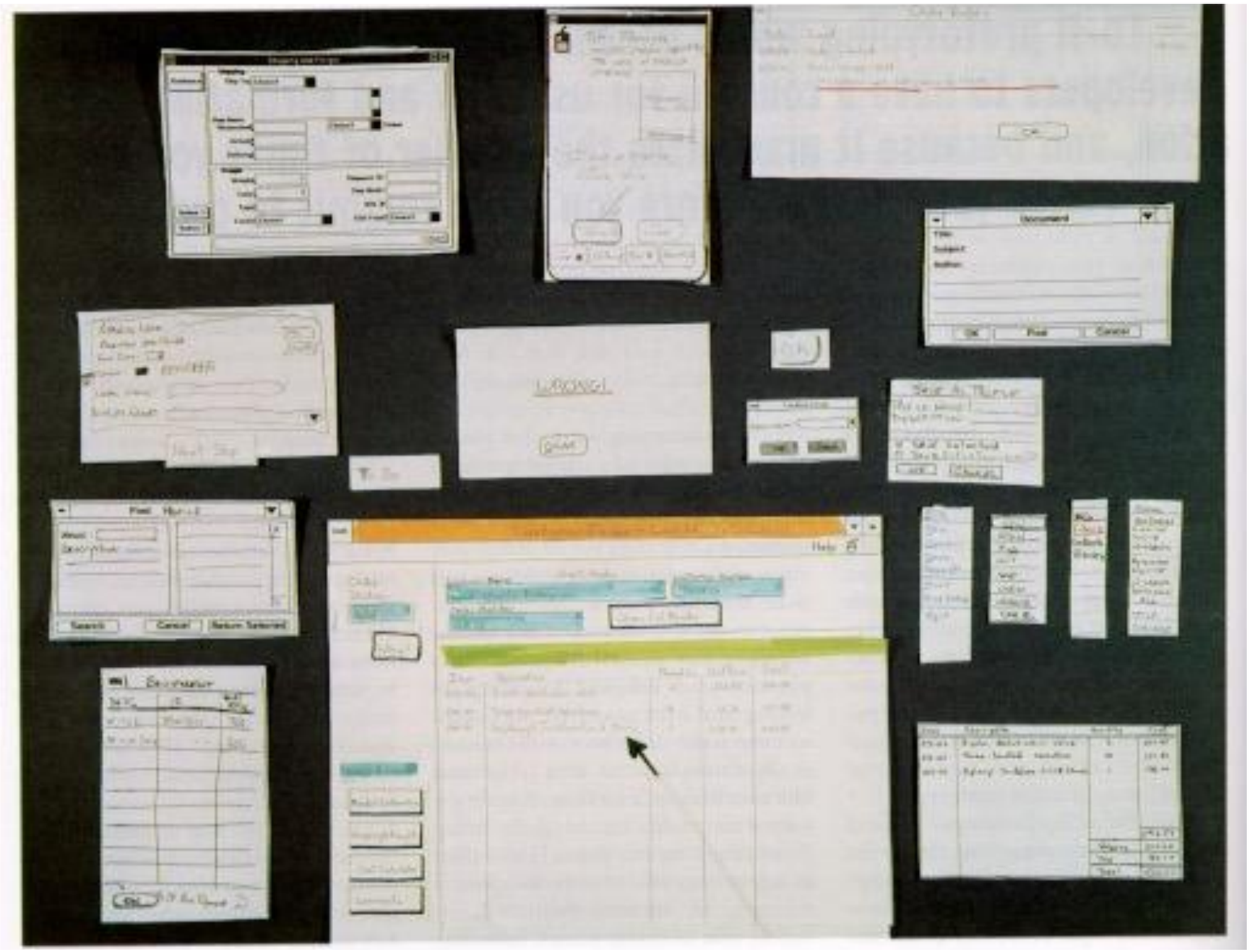
Kindergarten implementation skills reduce barriers to participation in design and testing

Low-Fidelity Prototypes & Sketches

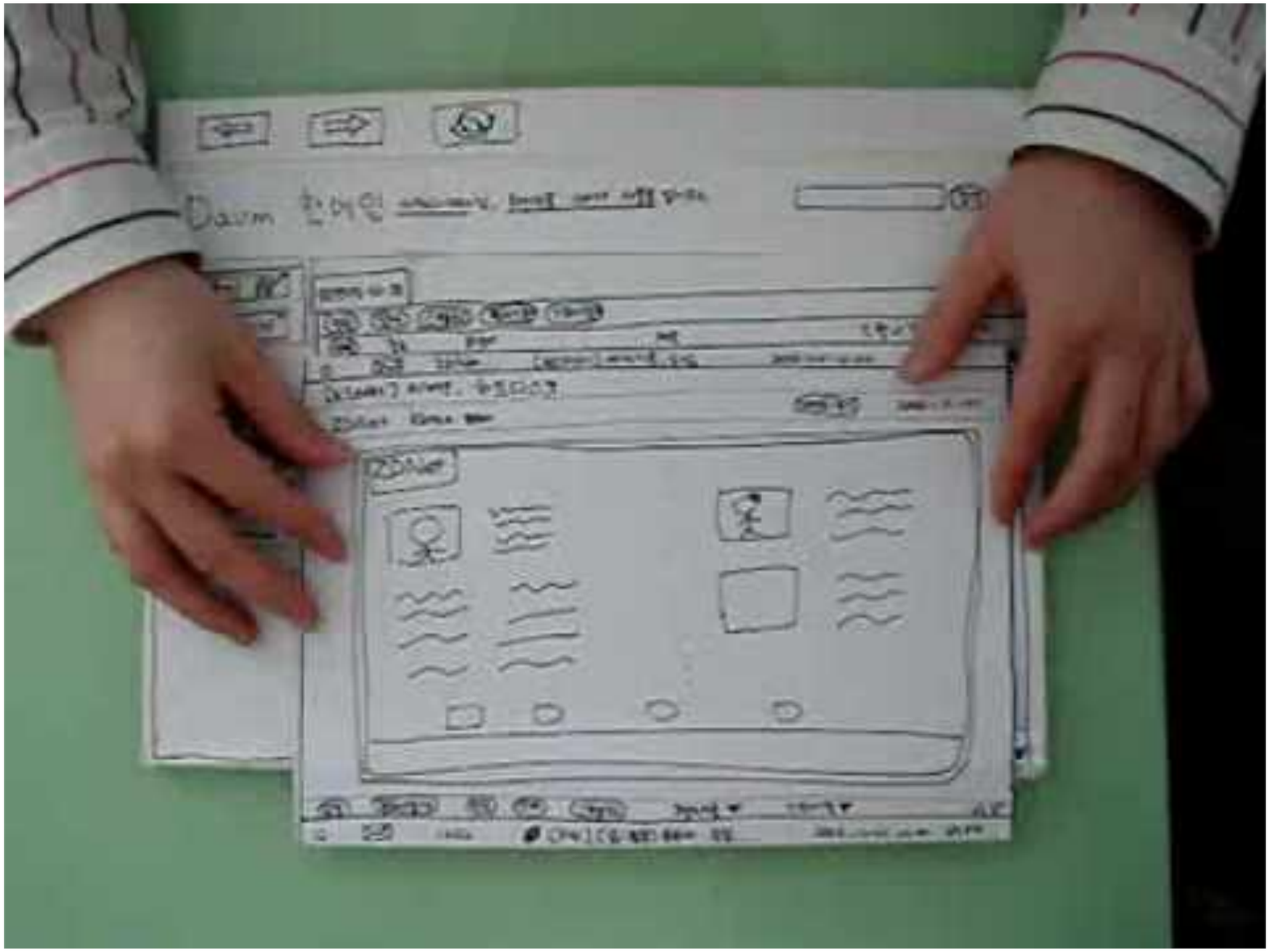


Remember how Sketches should be quick, cheap, easy to change, and open for critique?

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

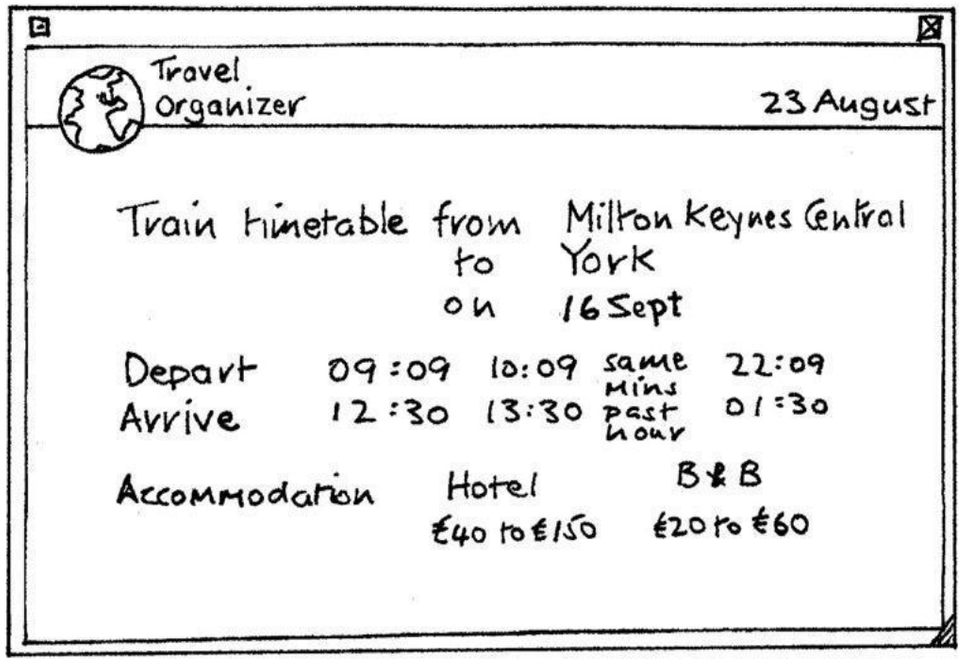
Overhead transparencies

Scissors, knife

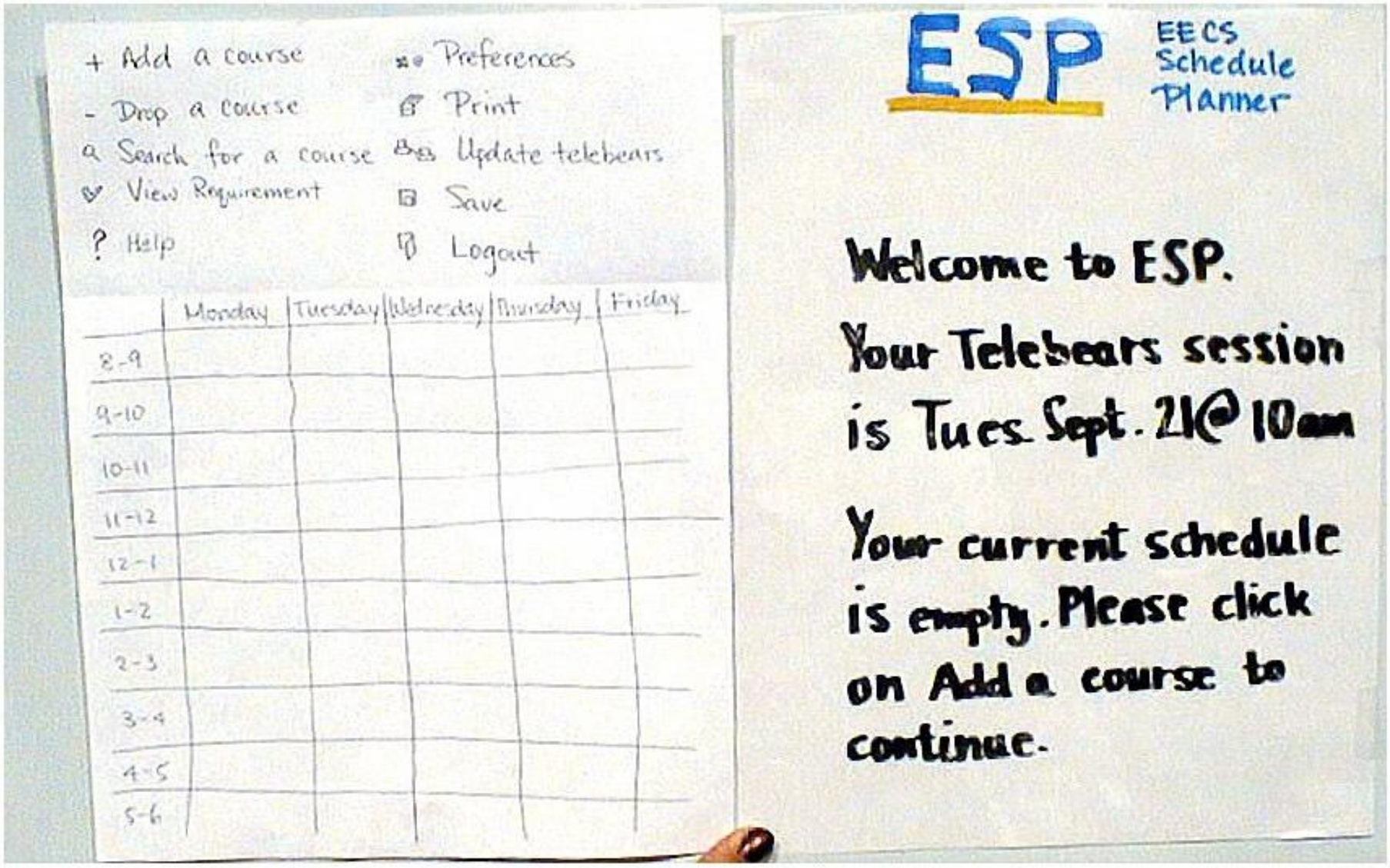
Index Cards

Good to represent computer screens

Often used in website development



Compose interface from different pieces



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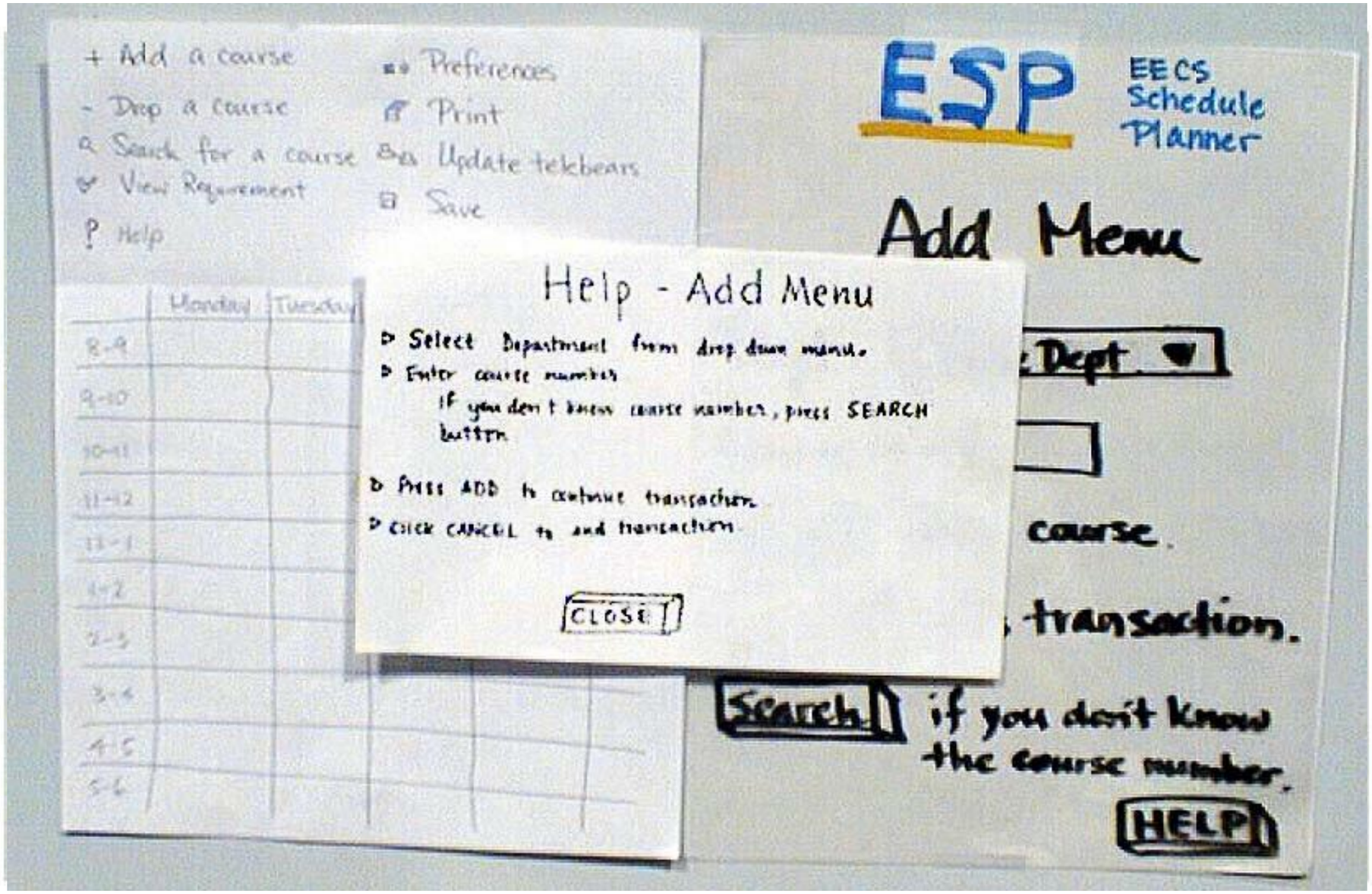
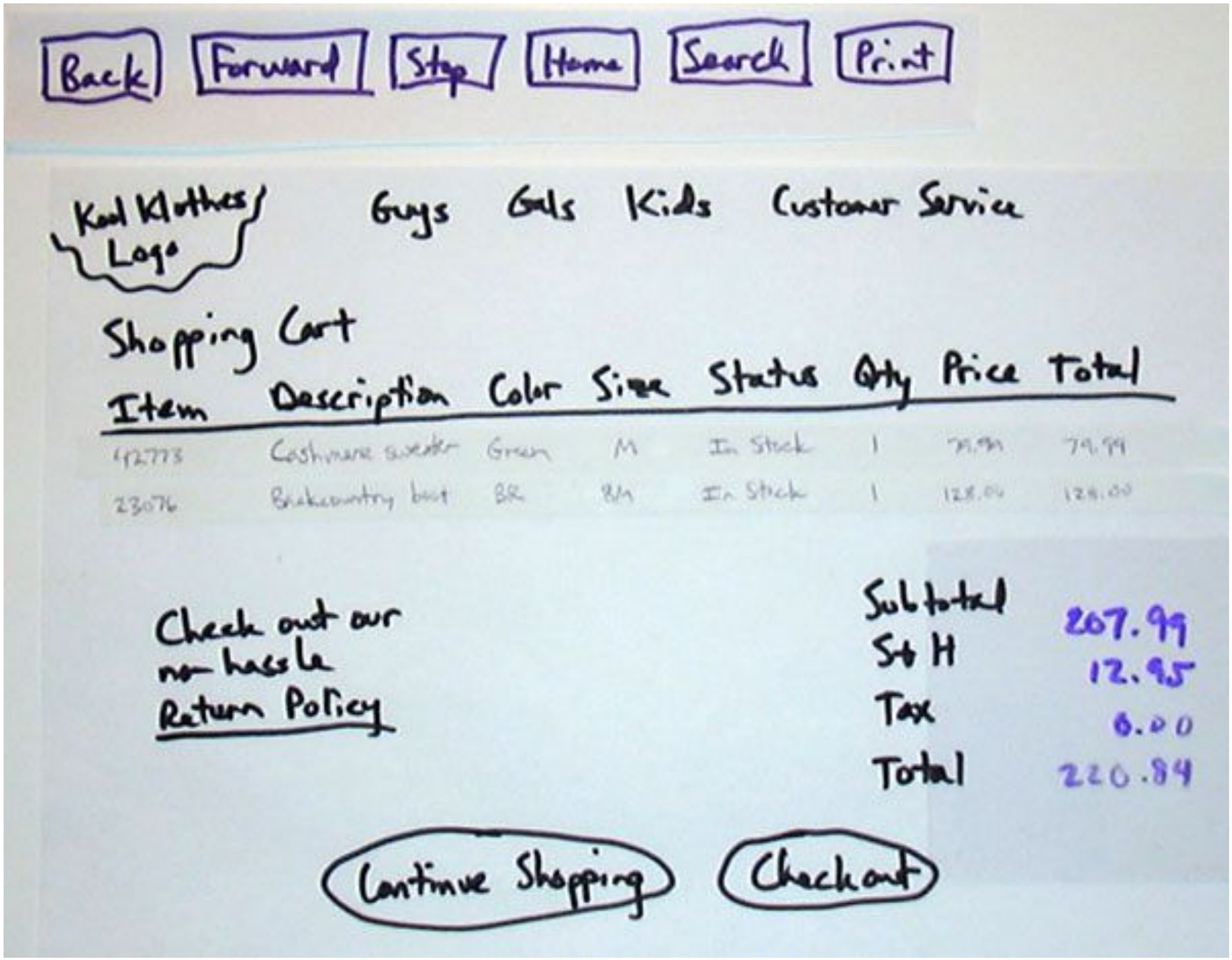


Use Transparencies



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

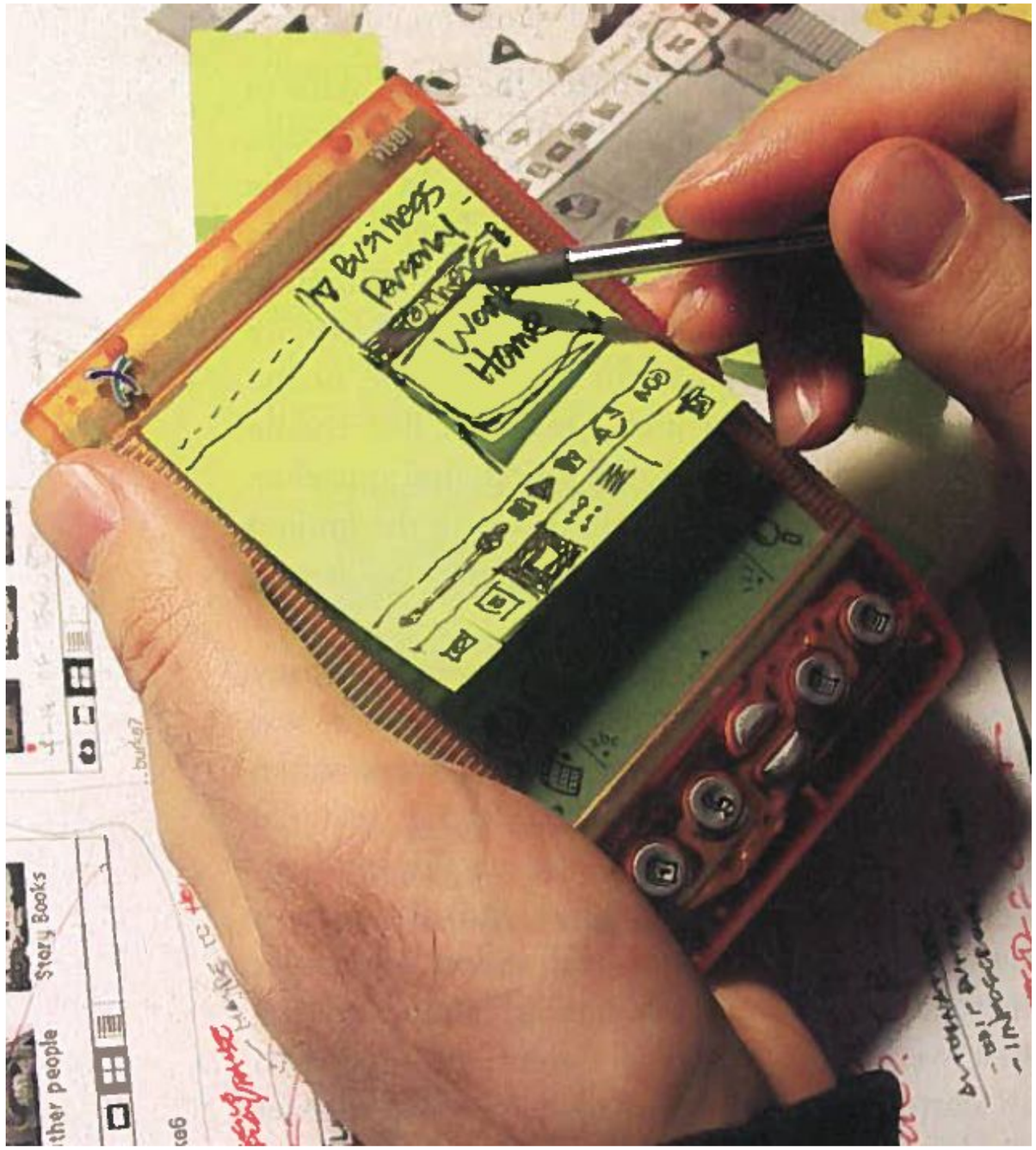
Ready responses for actions

- 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! =)

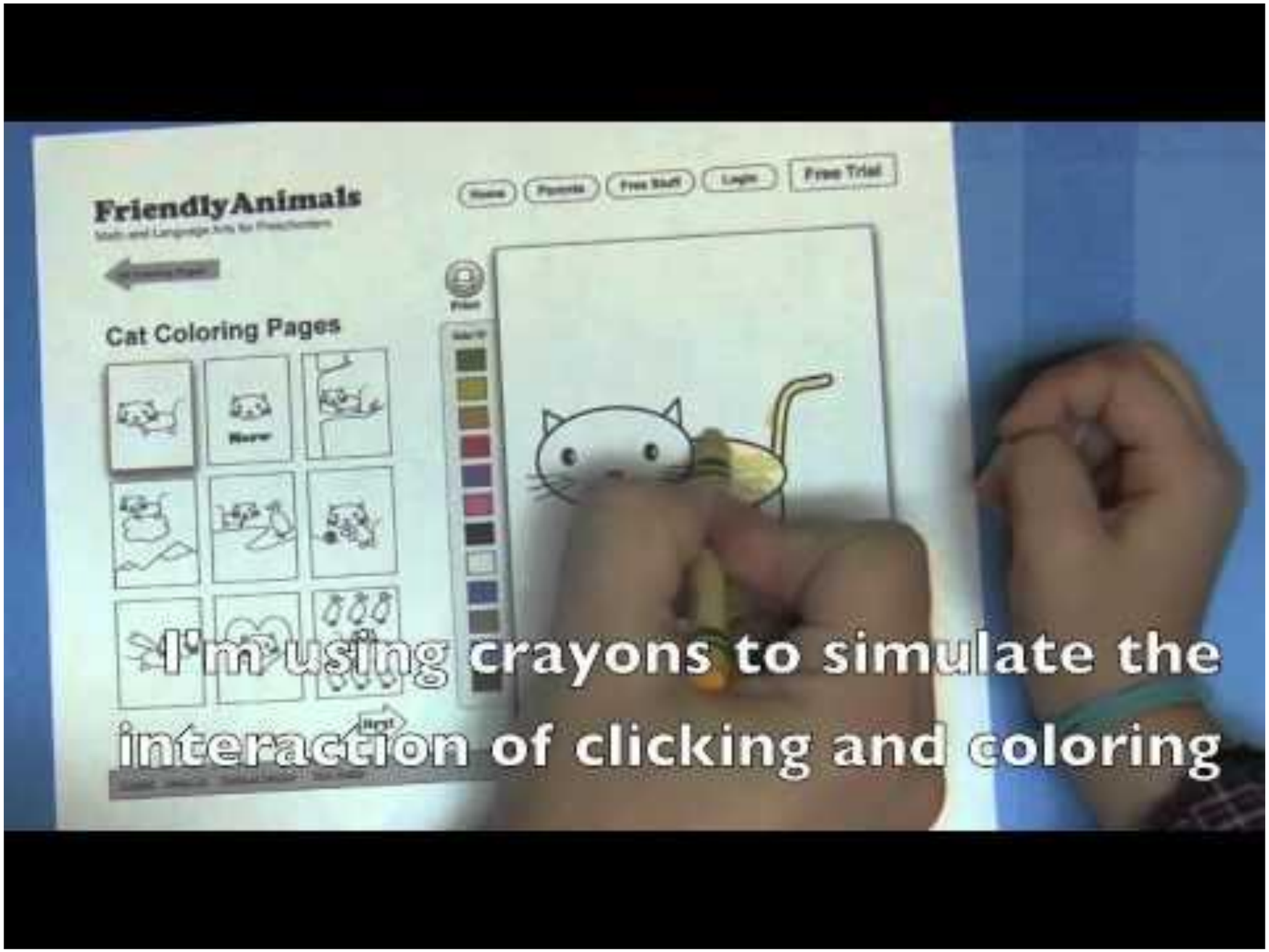
Advantages of Paper Prototypes

Forces you to think through potential solutions

Facilitates discussion of solutions with other designers and stakeholders

Allows testing!

Paper Prototyping in Action!



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”

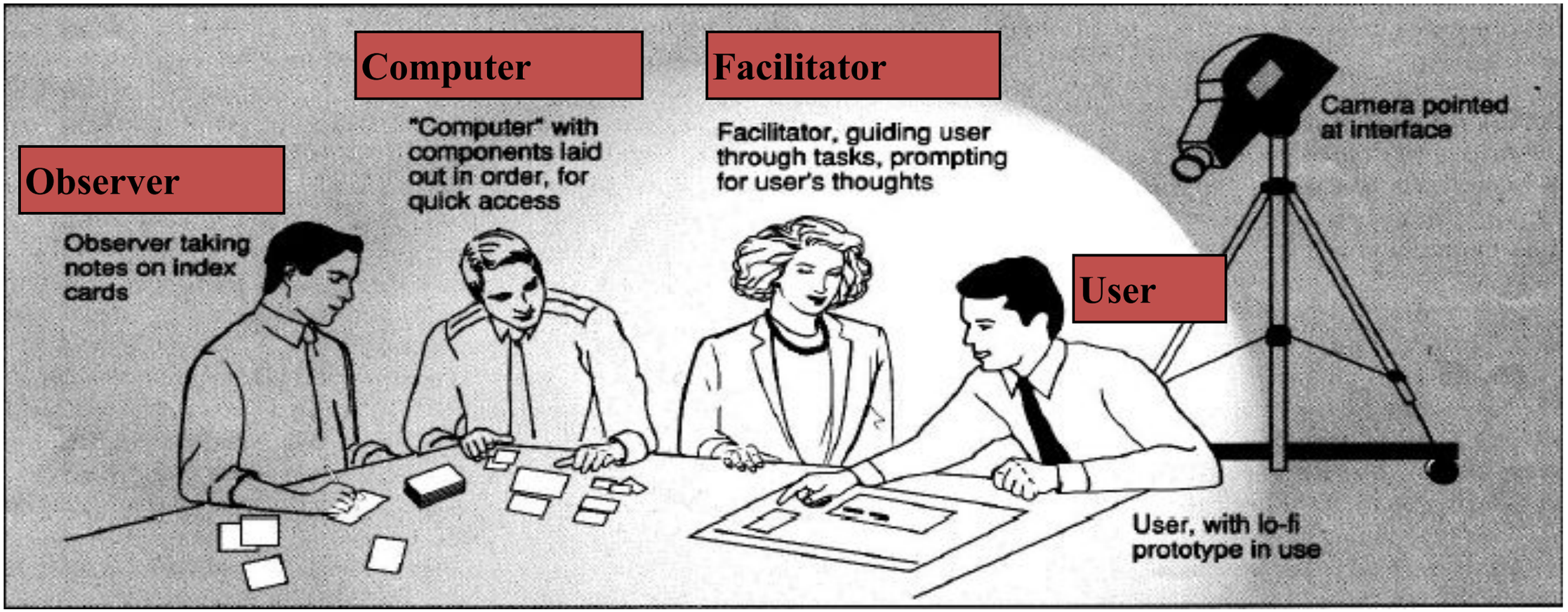
If your participant is really baffled, it might not be the best time to prompt them to keep talking

- 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

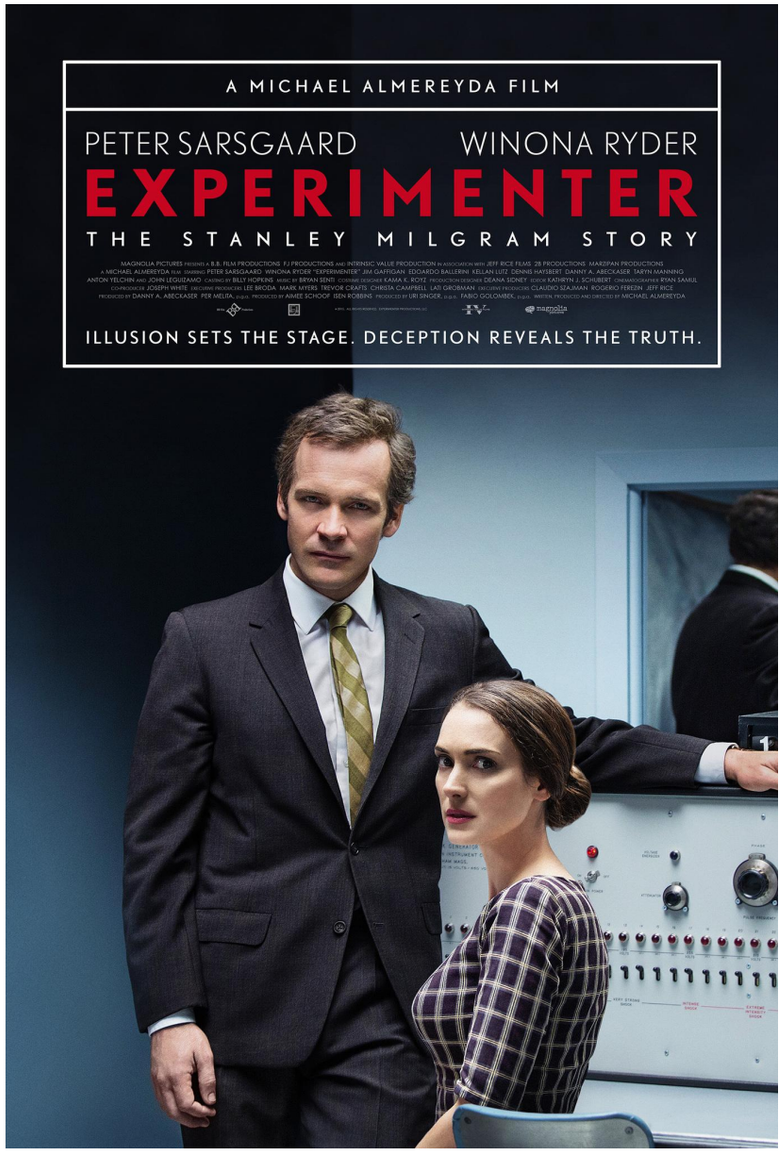
Human Subjects Approvals

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!