CSE 440:
Introduction to HCI

# 09: Storyboards, Prototyping and Usability Testing

April 23, 2024

Jesse J. Martinez | Avery Mack | Simona Liao

# The *Original* Microsoft Surface

https://www.youtube.com/watch?v=CZrr7AZ9nCY

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https://www.youtube.com/watch?v=CZrr7AZ9nCY

# Project Status

## Looking Forward

- 2f: Design Check-In (3x4) due Tomorrow
- 2f_rev: Design Check-In due Thursday
- 2g: Design Review (1x2) due Monday
- 2p: Getting the Design Right Presentation

# 2f: Design Check-In (3x4)

Initial Submission due Tomorrow, Revision due Thursday

3 *Meaningfully Different* Designs

- Not just “this one’s an app for a phone, this one’s the same app on a watch”

Beware the Pitfall of “Splitting” Design Ideation

- It hurts, it hurts so much

Two EXP Opportunities:

- Option 1: More Sketching
- Option 2: More Analysis
- Both due at 2f_rev deadline

# 2p: Presentation

Previous feedback: in-class presentations are “unnecessarily stressful”

Preference Poll Going Out Today:

- Live In-Class Presentations
- Prerecorded Video Presentations
- “Medium Article” Style Writeup Presentation
- Other?

# Overview

- Storyboarding
- Prototyping
  - Video Prototyping
  - Paper Prototyping
- Usability Testing
  - Tasks in Usability Testing
  - Ethics in Usability Testing
  - Wizard of Oz Methods

# Objectives

Be able to:

Describe purposes of storyboards,
as differentiated from sketches and prototypes

Describe varying purposes of video prototypes
(e.g., and why this name is a poor fit)

In the language of sketching and prototyping,
describe the purpose of paper prototyping and
the broader goal of low-fidelity prototyping

# Objectives

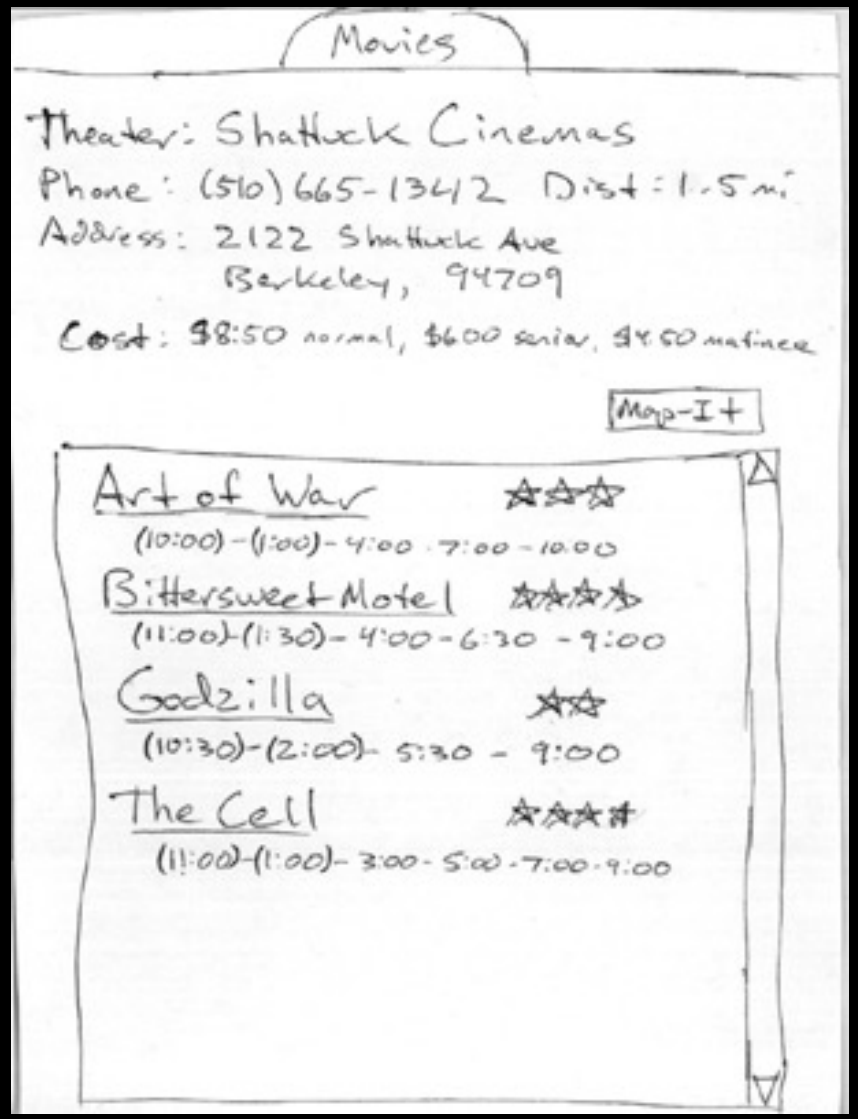
Be able to:

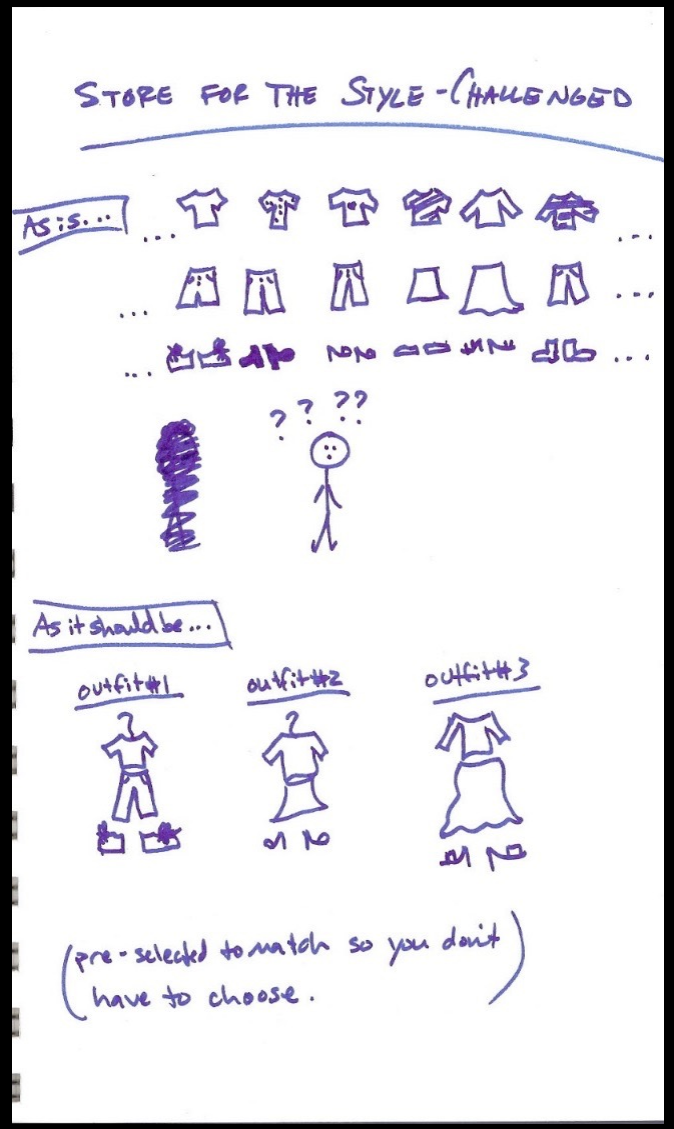
Describe stages of a usability test,
discuss strategies and potential pitfalls in each stage

Describe why task design is important for usability testing, how poor tasks can mask problems

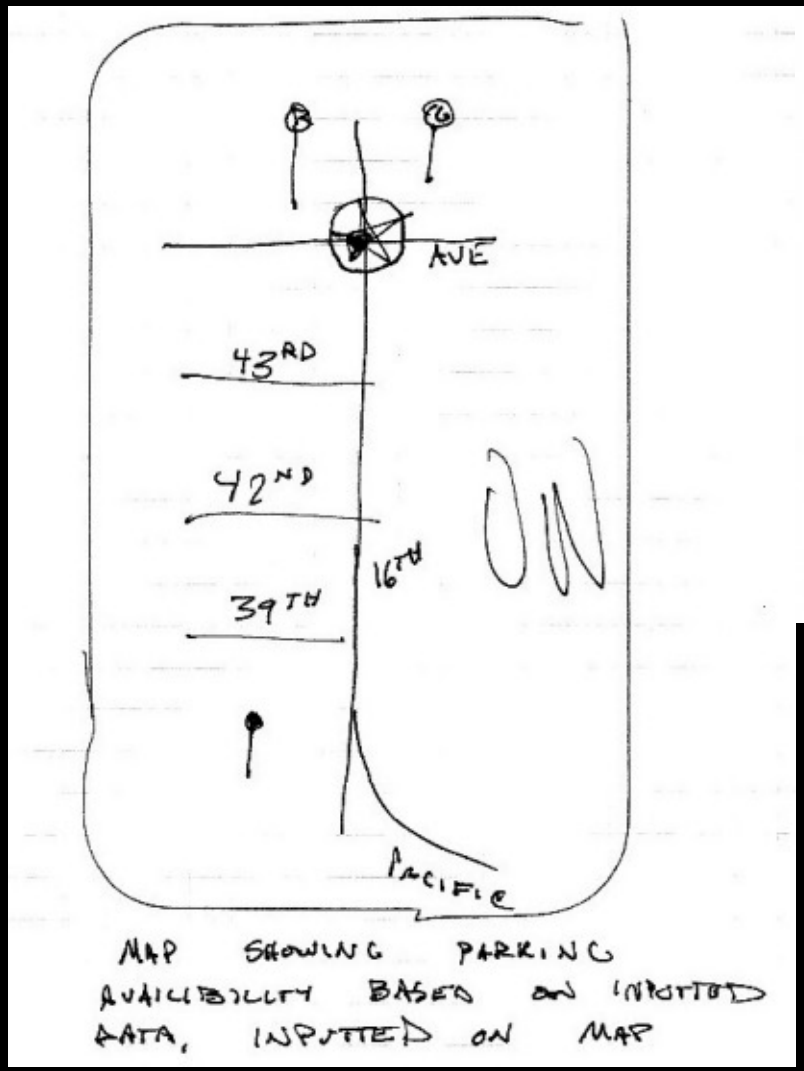
Describe the principle of Wizard of Oz testing,
give examples of how technology can support it

# Sketching

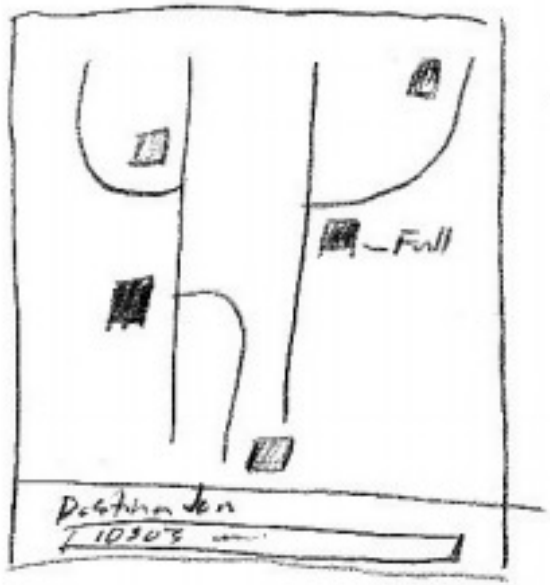

Movies
Theater: Shattuck Cinemas
Phone: (510) 665-1342 Dist: 1.5 mi
Address: 2122 Shattuck Ave
Berkeley, 94709
Cost: $8:50 normal, $6.00 senior, $4.50 matinee
Map-It
Art of War
(10:00)-(1:00)-4:00-7:00-10:00
Bittersweet Motel
(11:00)-(1:30)-4:00-6:30-9:00
Godzilla
(10:30)-(2:00)-5:30-9:00
The Cell
(11:00)-(1:00)-3:00-5:00-7:00-9:00


Store for the Style-Challenged
As is...
As it should be...
outfit#1
outfit#2
outfit#3
(pre-selected to match so you don't have to choose.)

# Sketching

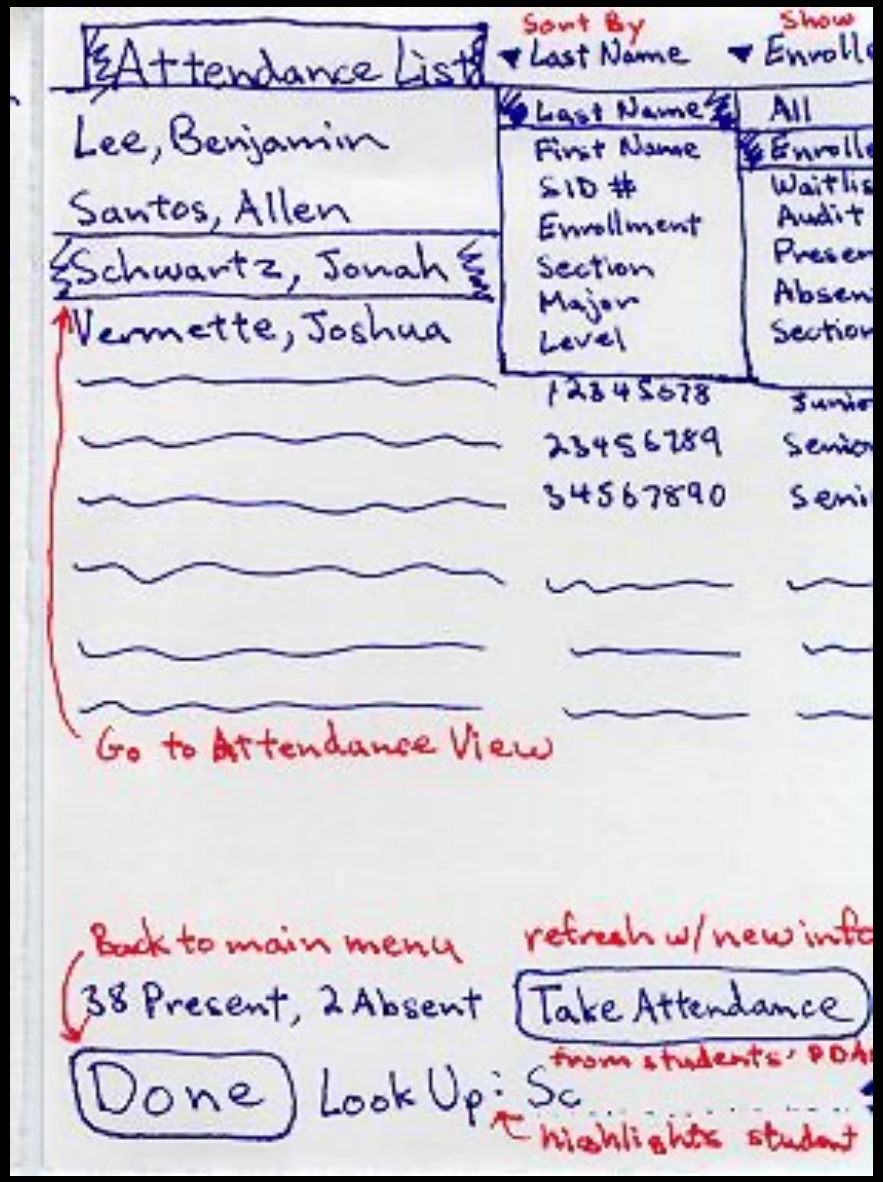



MAP SHOWING PARKING AVAILIBILITY BASED ON INPUTTED DATA, INPUTTED ON MAP




- different colors
- highlights availability
-

# Sketching, Tasks, and Scenarios



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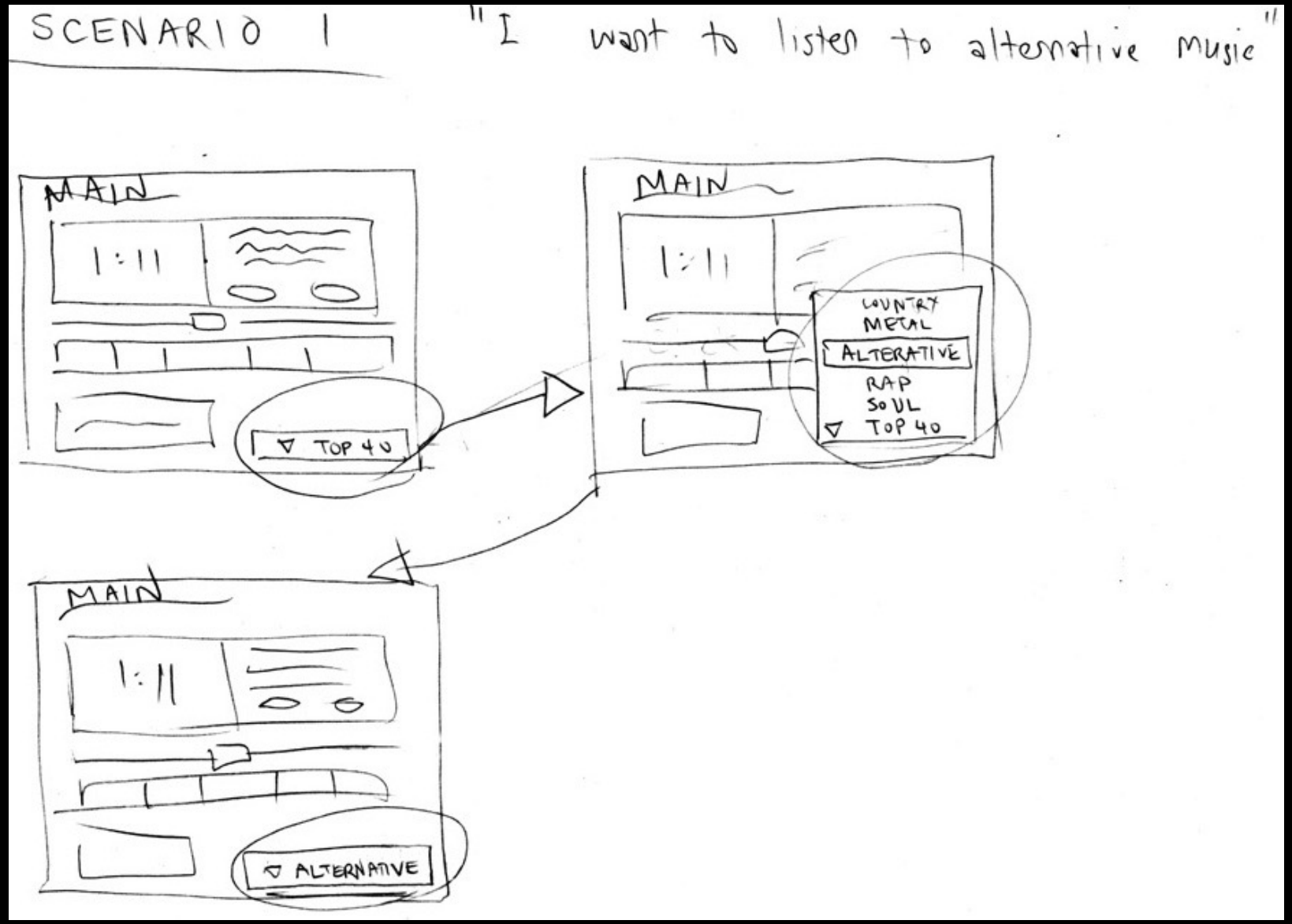

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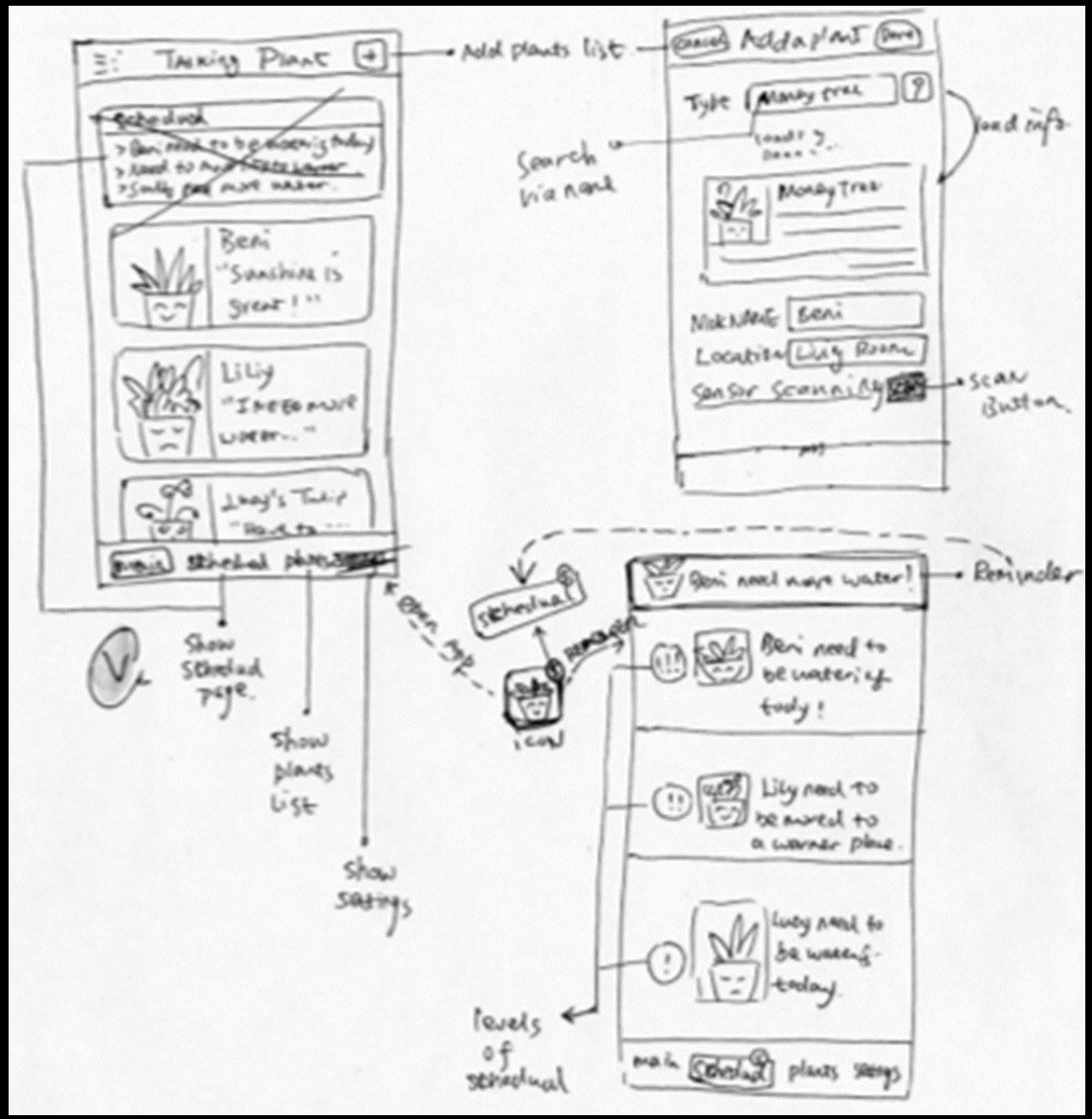

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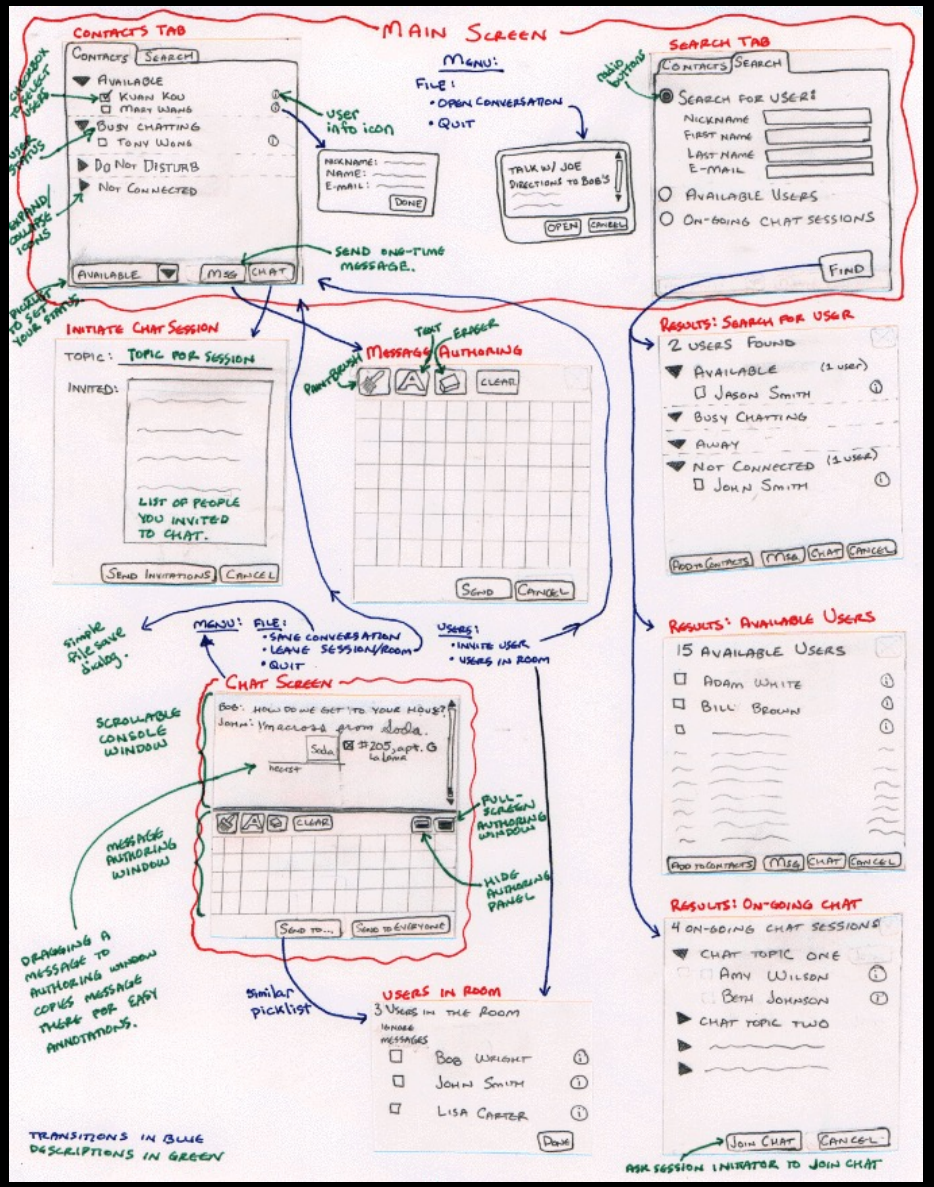


# Storytelling with Time

Storyboards tell a story that includes time

- come from film and animation

Give a "script" of important events

- leave out the details
- concentrate on the important interactions

# Storyboards to Explore

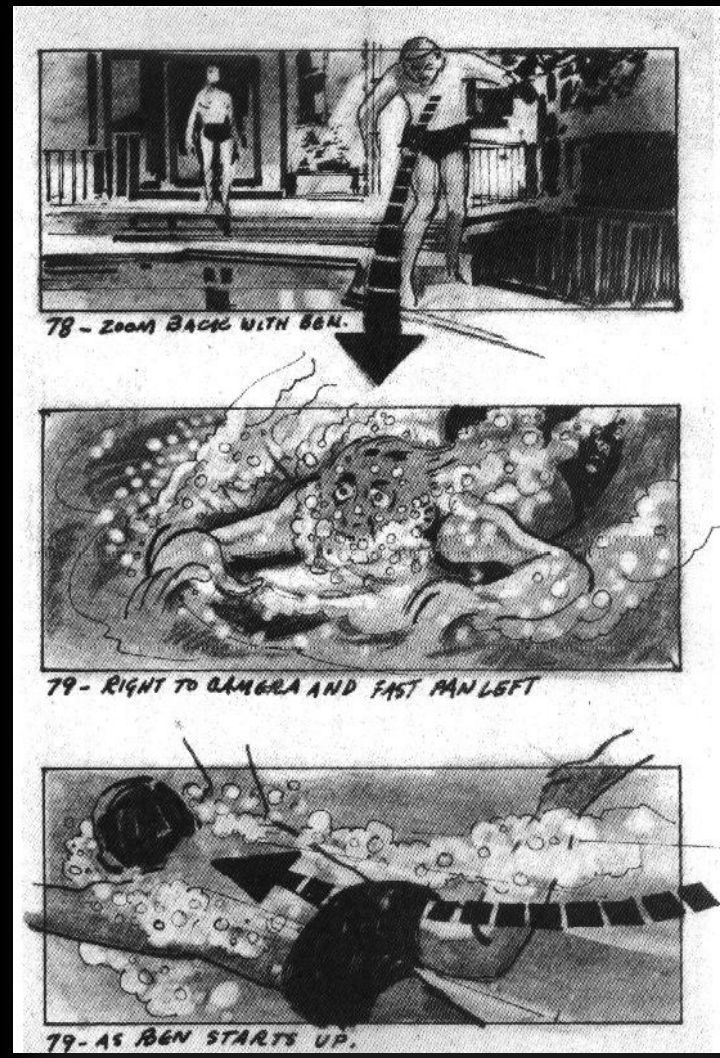
Can be used to explore

Much faster and less expensive to produce

Can therefore explore more potential approaches

Notes help fill in missing pieces of the proposal

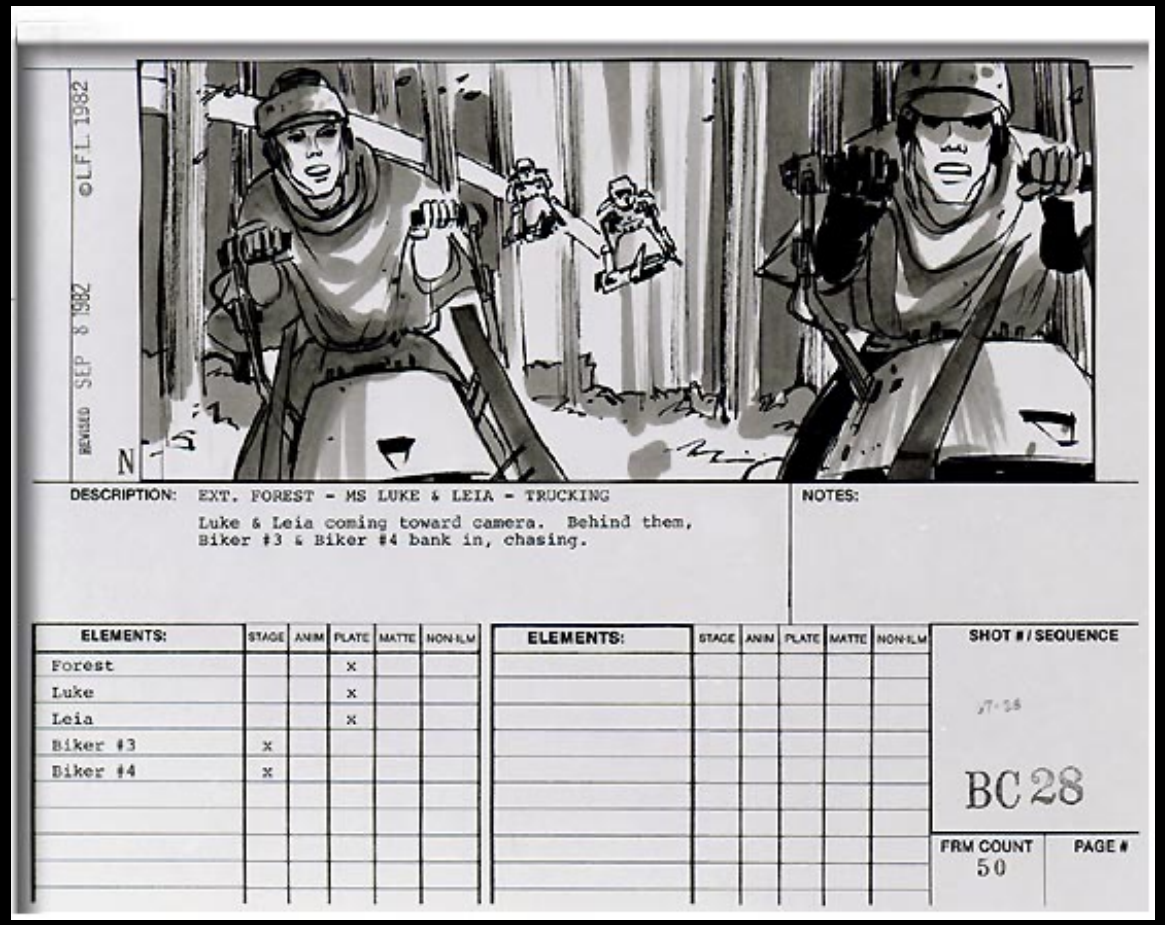
Relative to film, these function as sketches



# Storyboards to Explore

Can illustrate key requirements and leave open less important details of design

- Just as we said sketches are ambiguous and incomplete

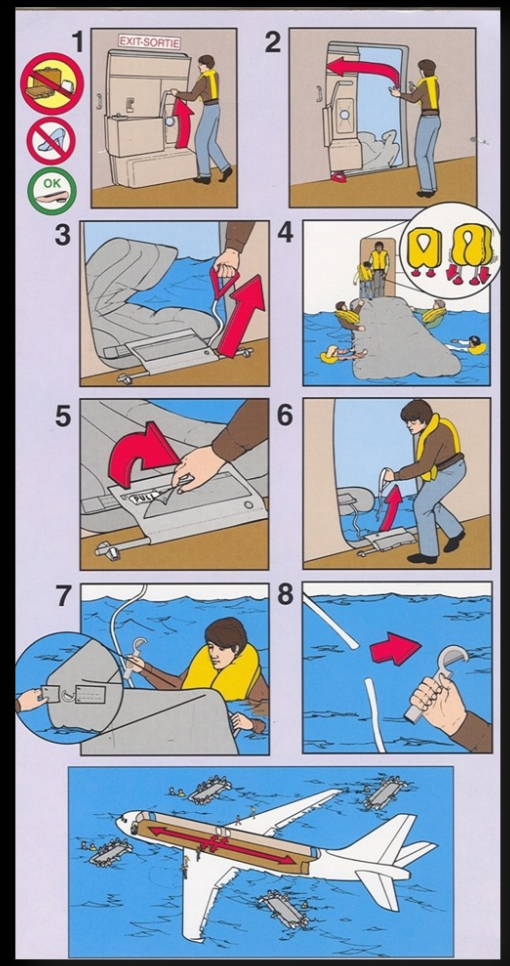


# Storyboards to Convey

Can be used to convey

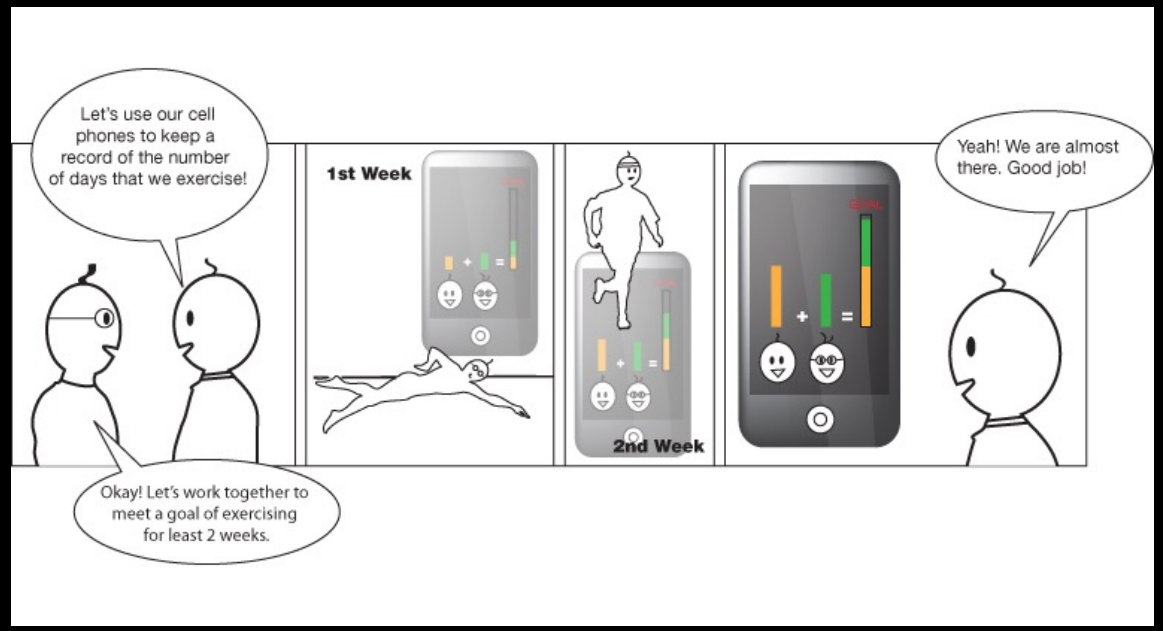
Effective storyboards can quickly convey information that would be difficult to understand in text

Imagine explaining this in text, for various audiences

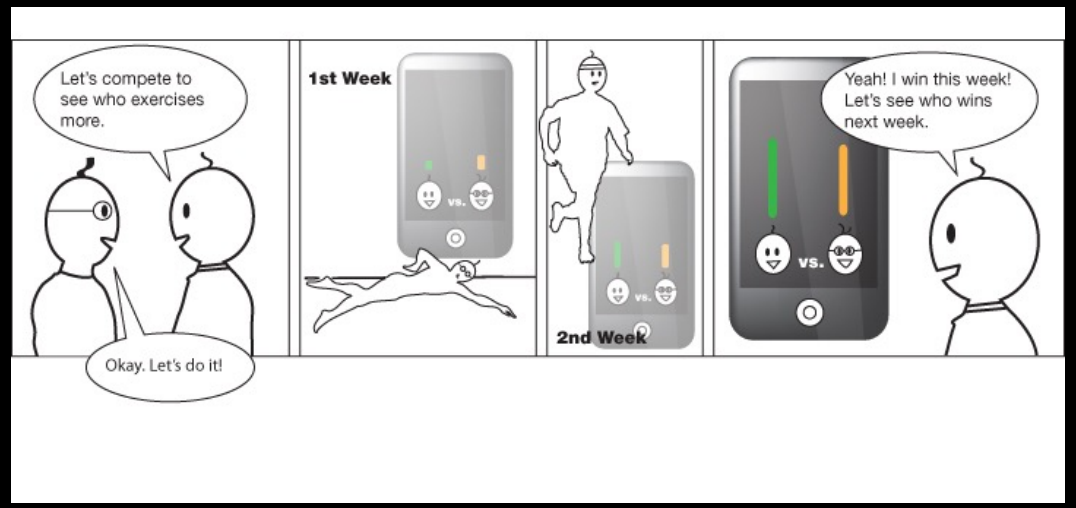


# Storyboards to Compare

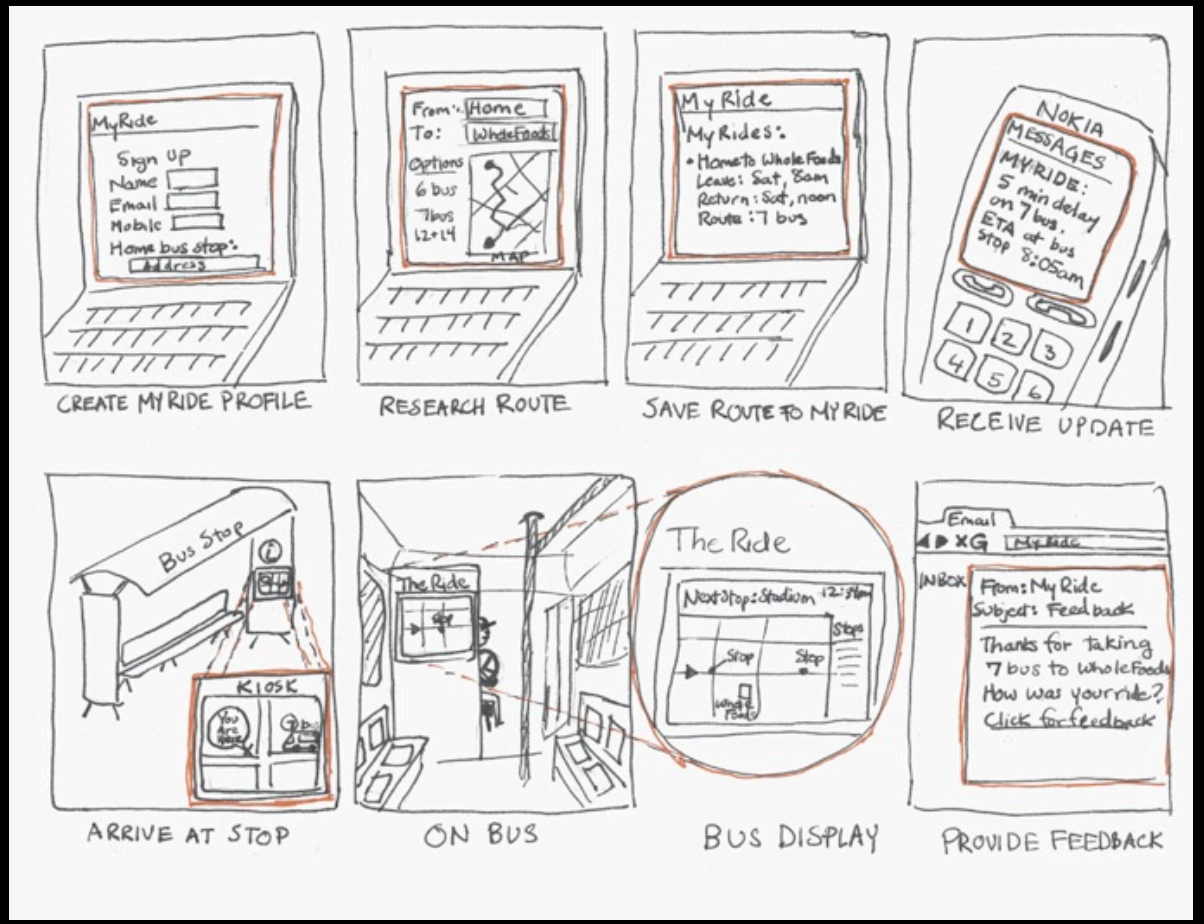
Cooperative




Competitive



# Basic Storyboard

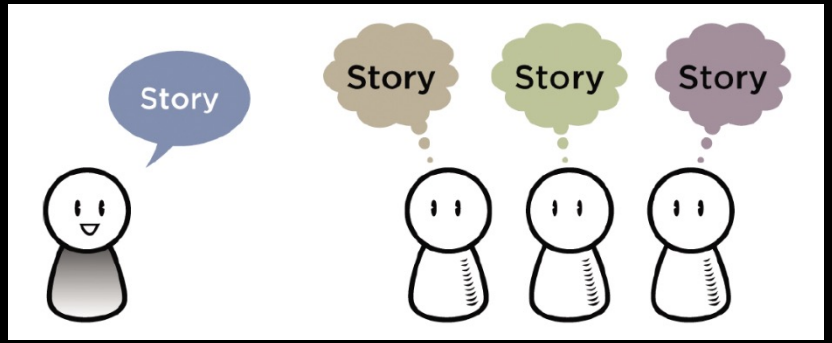



What other designs could have been here?

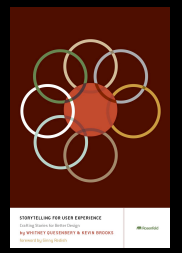
# Storytelling

Stories have an audience

- Other designers, clients, potential end-users, stakeholders, managers, funding agencies




Stories need to match audience and purpose



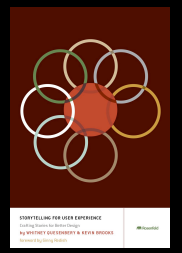
Quesenberg and Brooks

# Potential Purpose of a Story

Purpose allows choosing effective details

Stories have a purpose

- Share information about people, tasks, goals
- Giving insight into people who are not like us, convey details that might be lost in generalities
- Put a human face on analytic data
- Spark design concepts and encourage innovation
- Share ideas and persuade on potential value



Quesenberg and Brooks

# Stories Provide Context

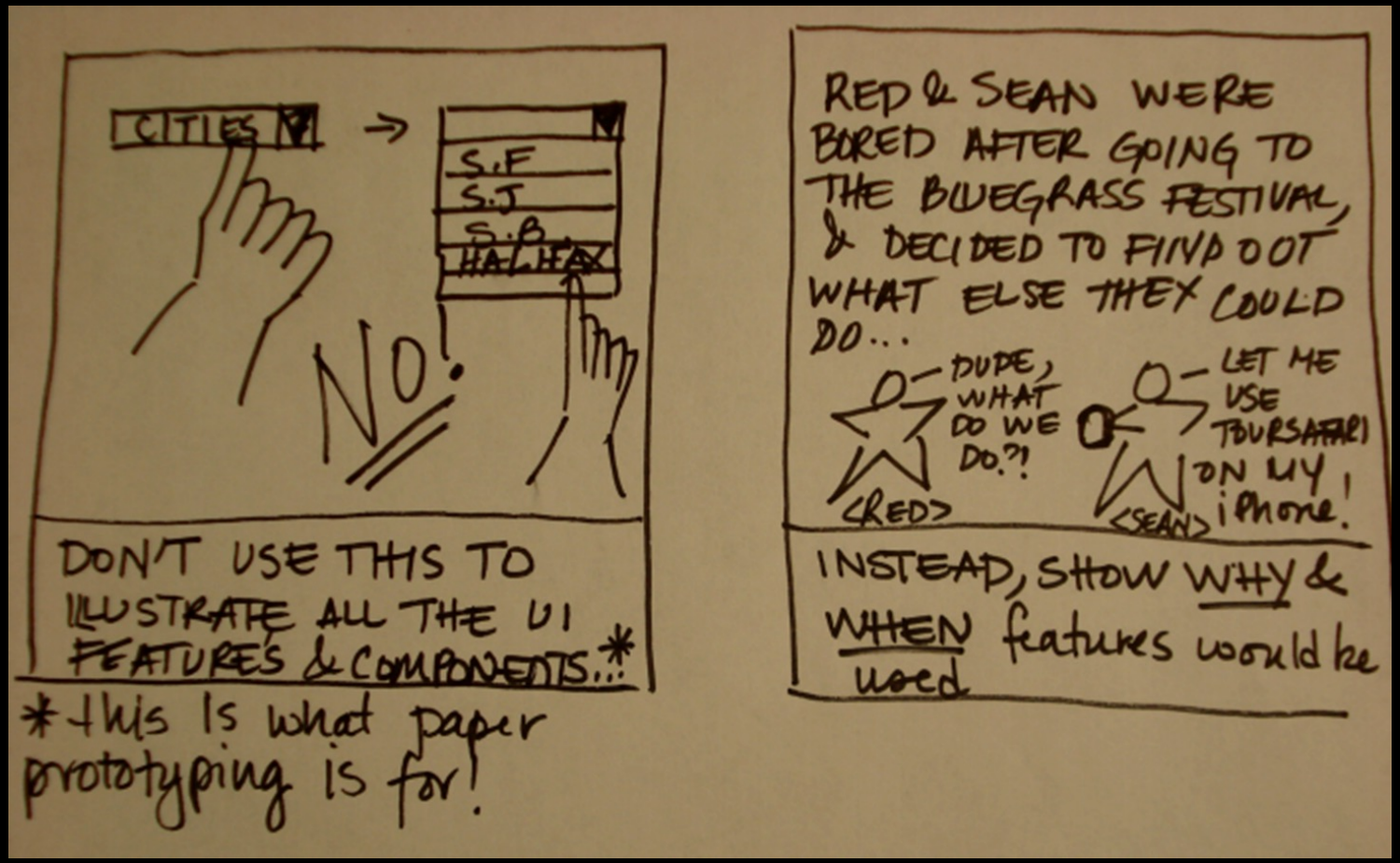
- Characters
  - Who is involved
- Setting
  - Environment
- Sequence
  - What task is illustrated
  - What leads a person to use a design
  - What steps are involved
- Satisfaction
  - What is the motivation
  - What is the end result
  - What need is satisified

Minor interface features and components are not necessarily surfaced, they can often be developed and conveyed more effectively with other methods

Can help surface details that might otherwise be ignored

Grocery store application:
- use with one hand while pushing a shopping cart
- privacy of speech input
- split attention

# Amal's Guide to Storyboarding




Amal Dar Aziz

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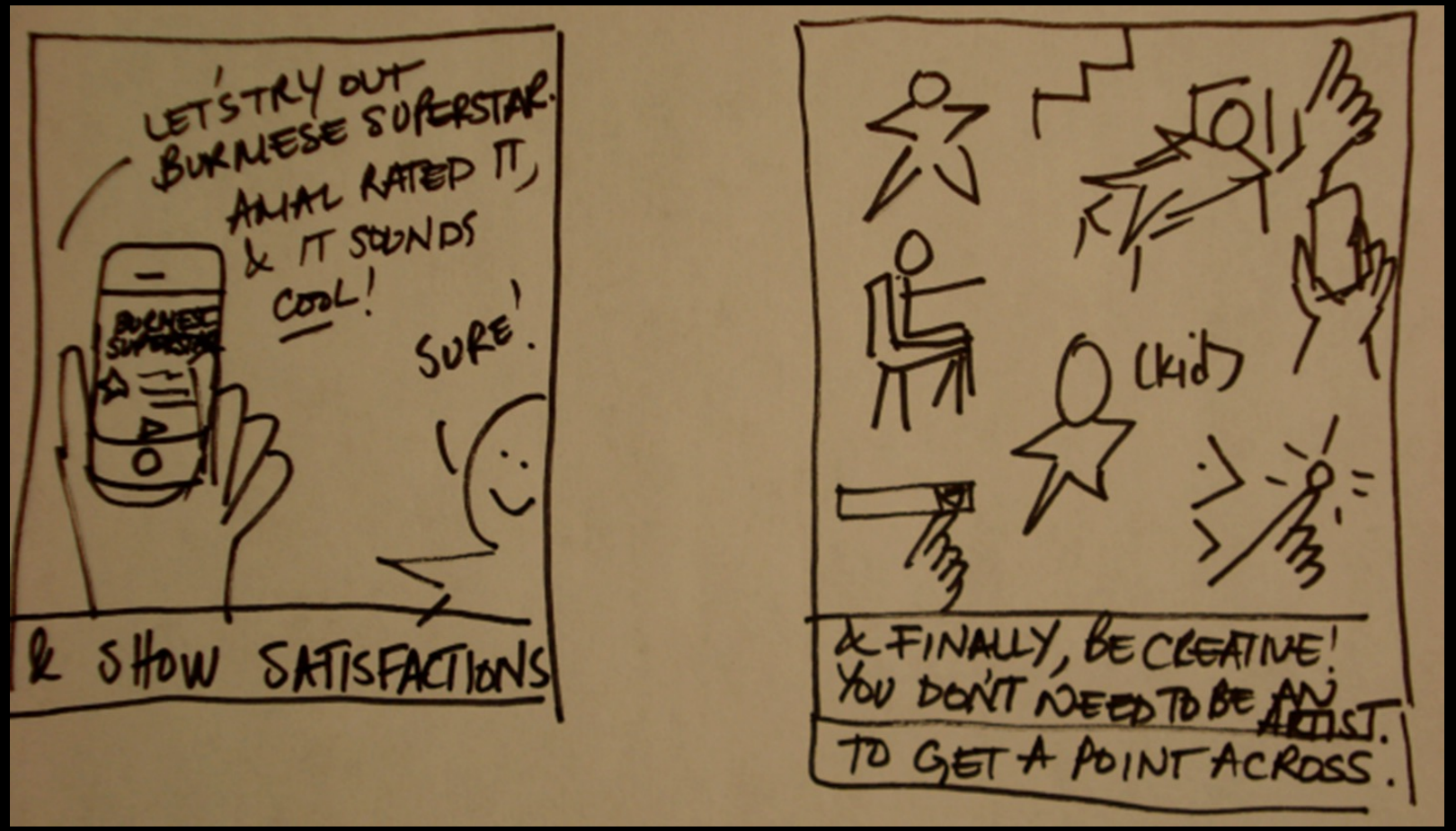



Amal Dar Aziz

# Storytelling

Good stories

- Understand audience
- Provide context of use
- Are well-motivated
- Memorable
- Evokes a reaction
- Evokes empathy
- Illustrate experience
- Convey emotions
- Short and to-the-point

Bad stories

- Do not account for audience
- Boring or un-engaging
- Fantastical or unrealistic
- Wrong story for purpose
- Too long to hold attention

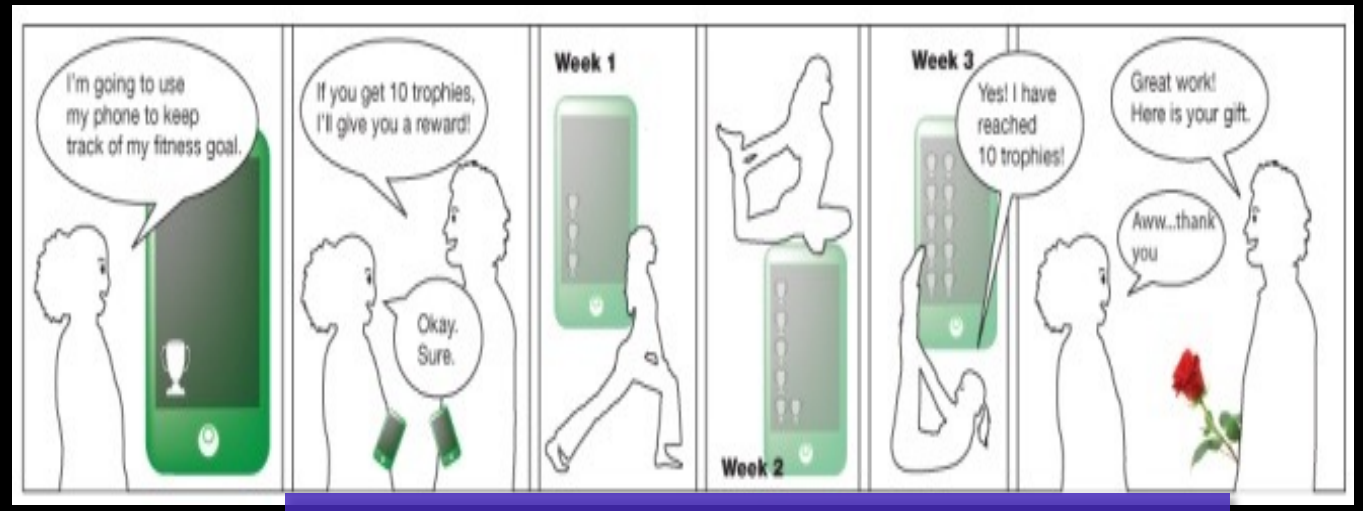
tl;dr

# Elements of a Storyboard

Visual storytelling

5 visual elements

- Level of detail
- Inclusion of text
- Inclusion of people and emotions
- Number of frames
- Portrayal of time

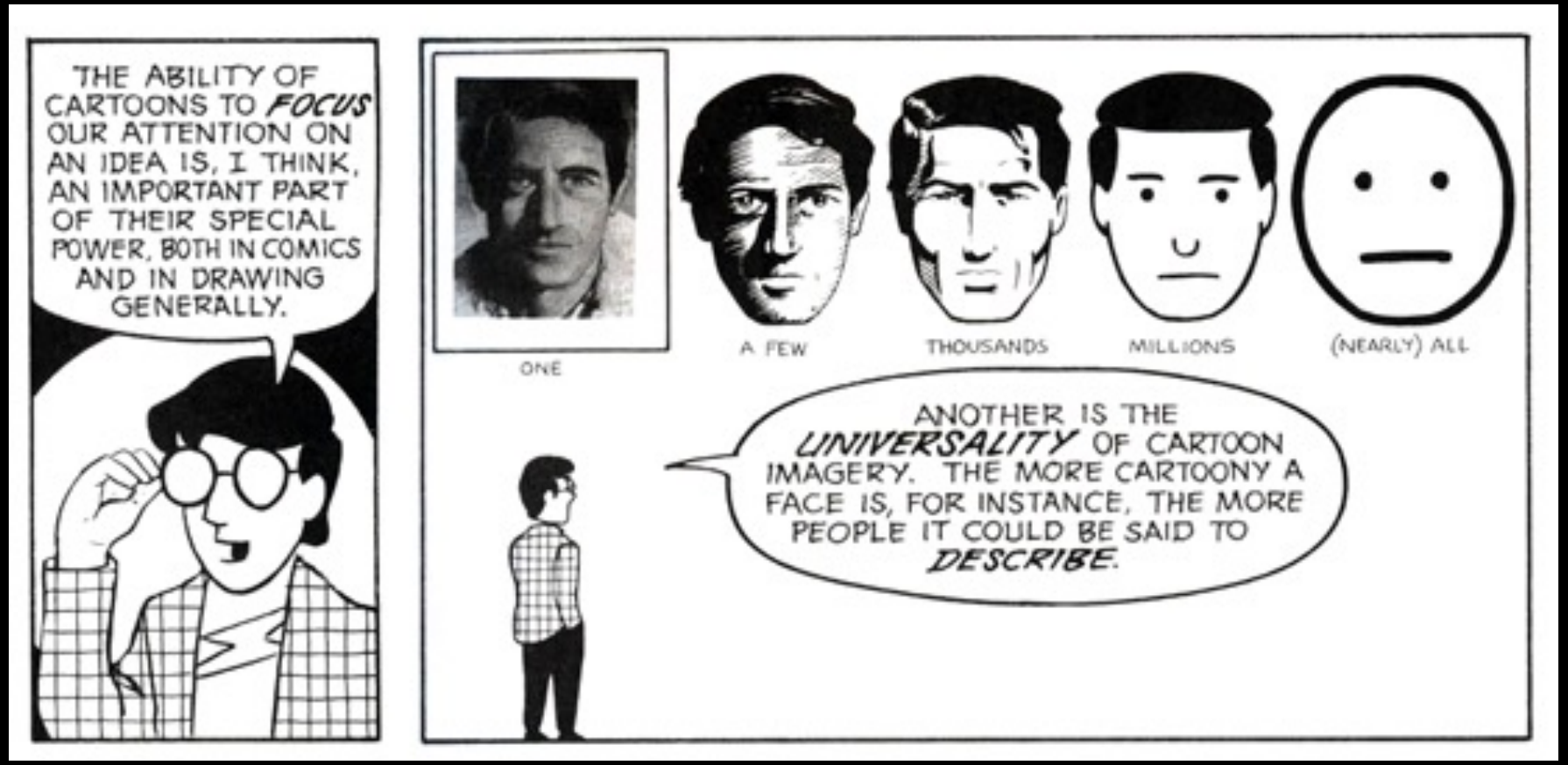



To better characterize design intuitions:
gather and analyze artifacts
semi-structured interviews
survey focused on identified elements

Truong et al, 2006

# 1. How Much Detail?

Guideline:
too much detail can lose universality

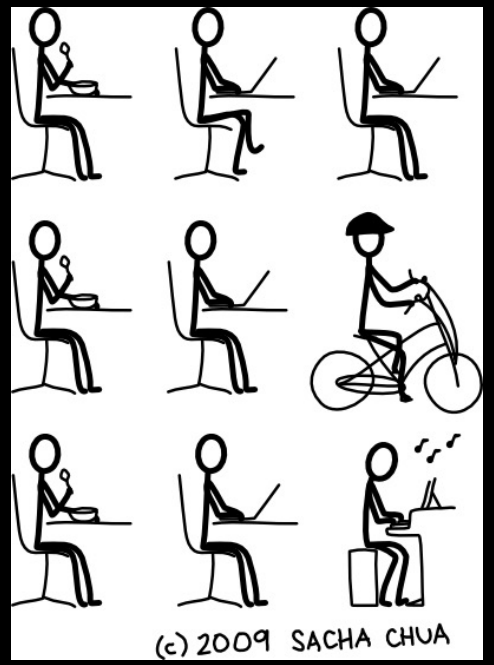


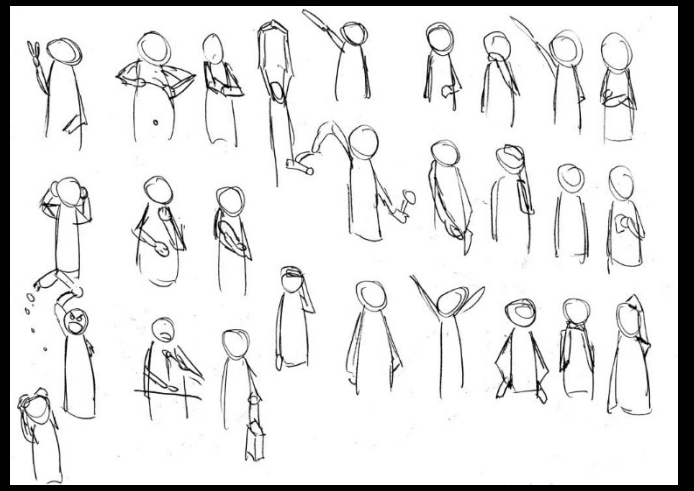

Scott McCloud

# 1. How Much Detail?

## Sketching People

Star people
by Bill Verplank

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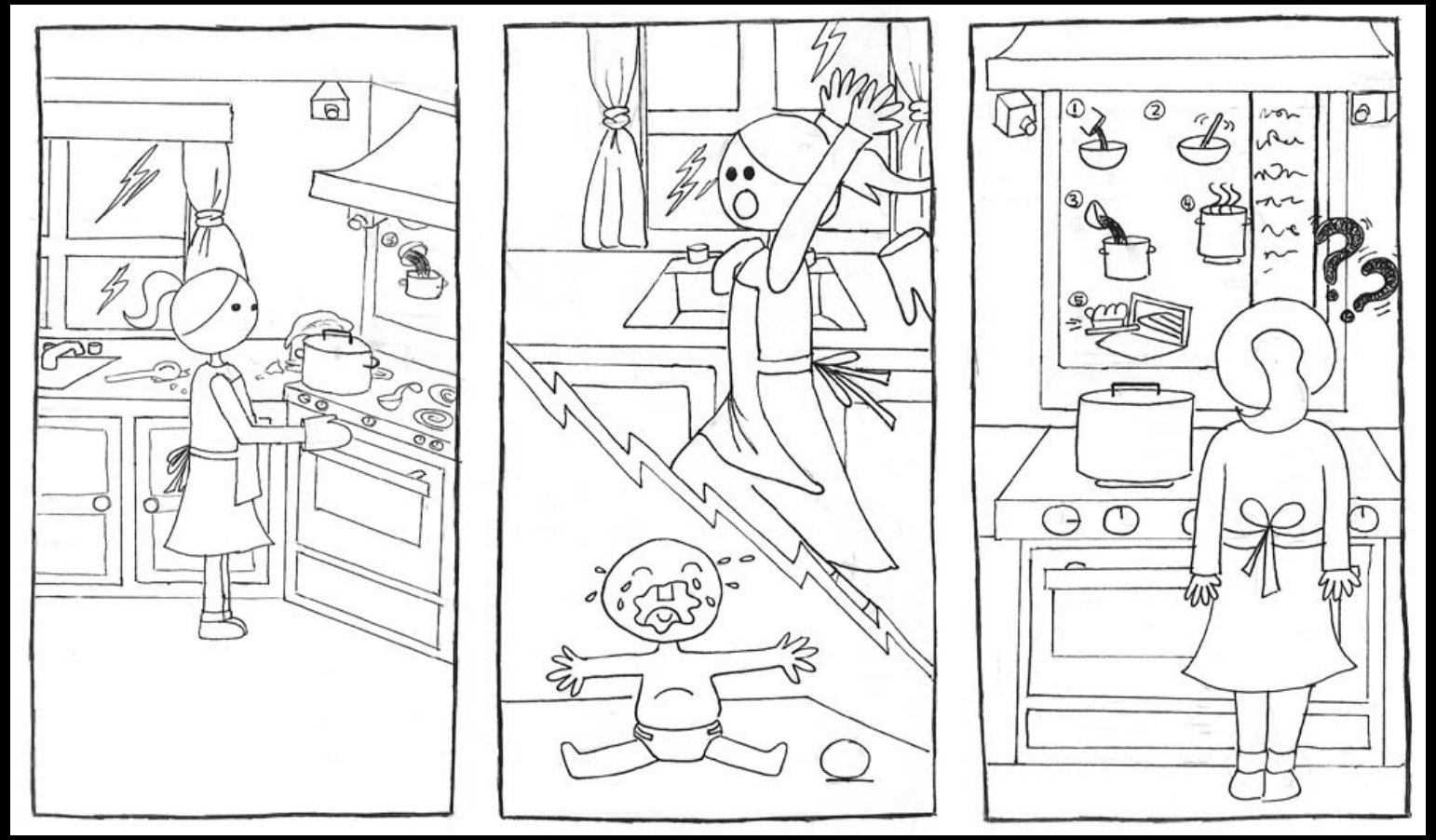

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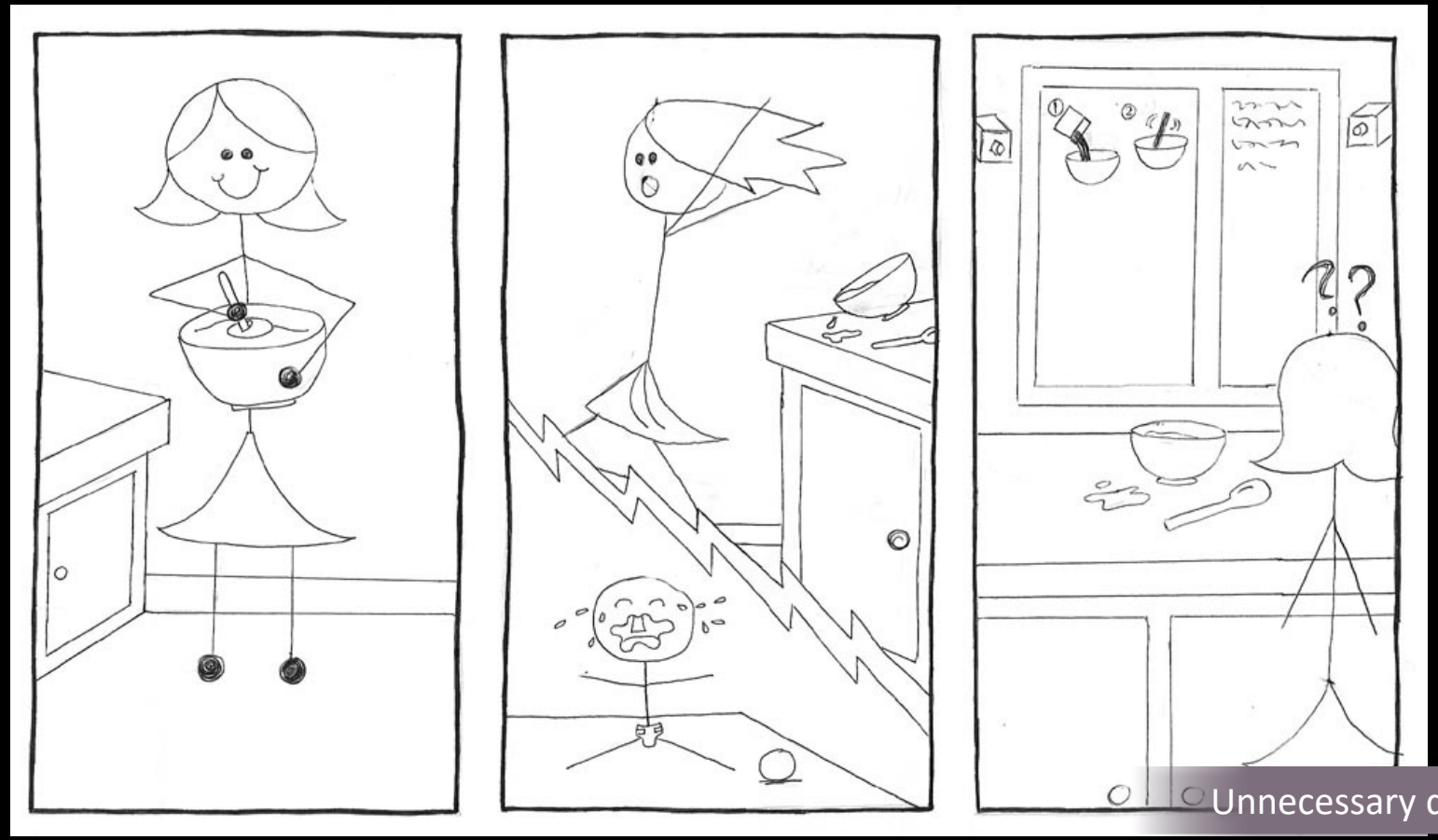
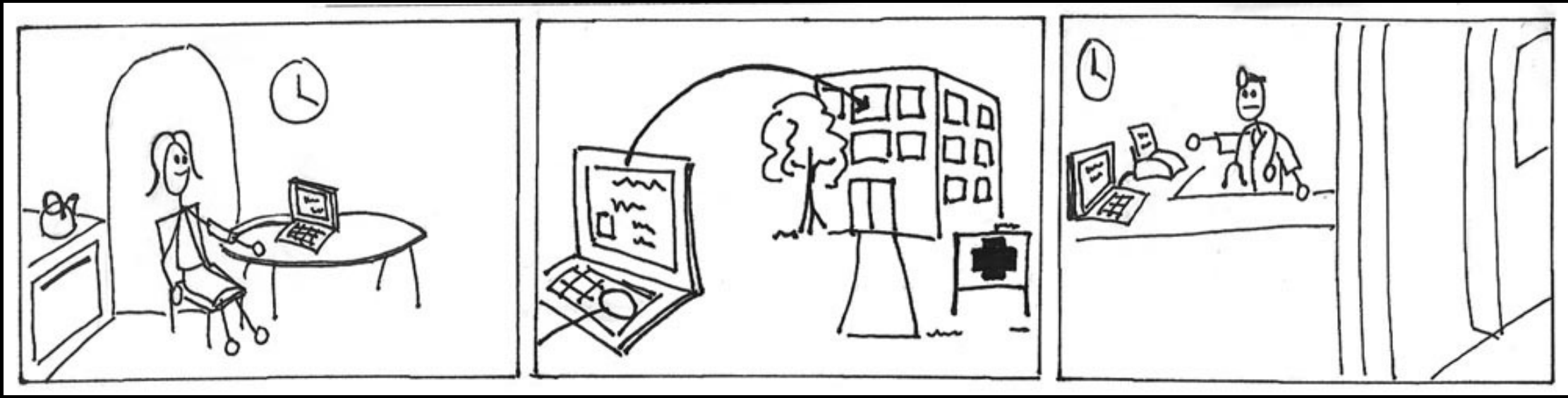


Unnecessary details distract from the story

# 2. Use of Text

Guideline: It is often necessary, but keep it short



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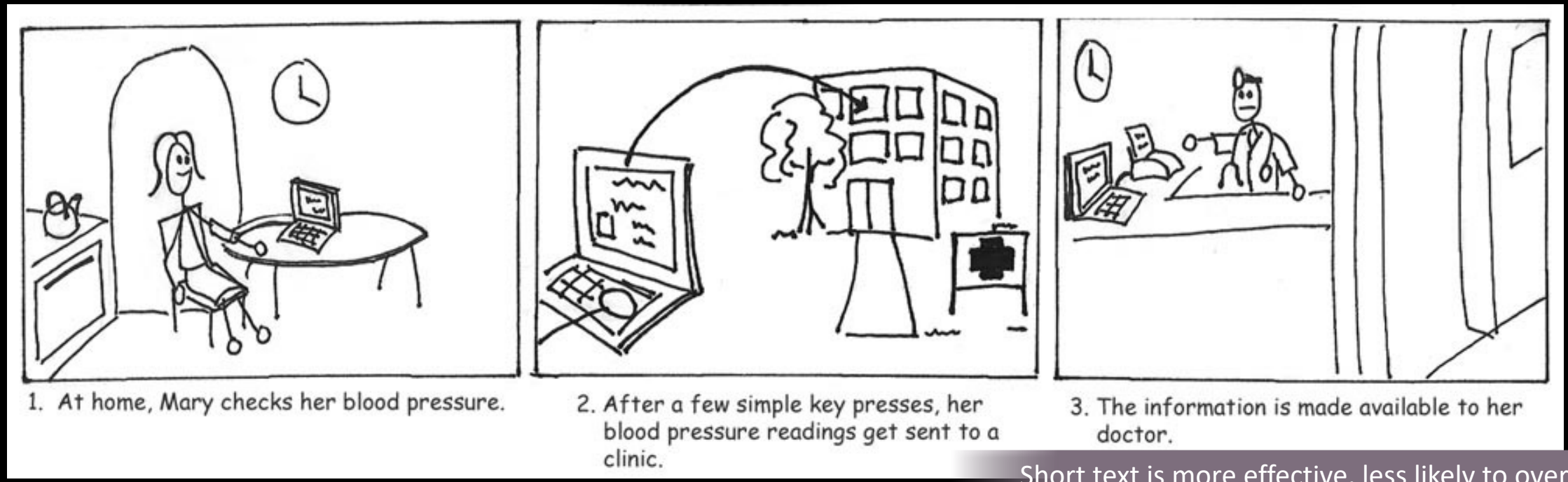


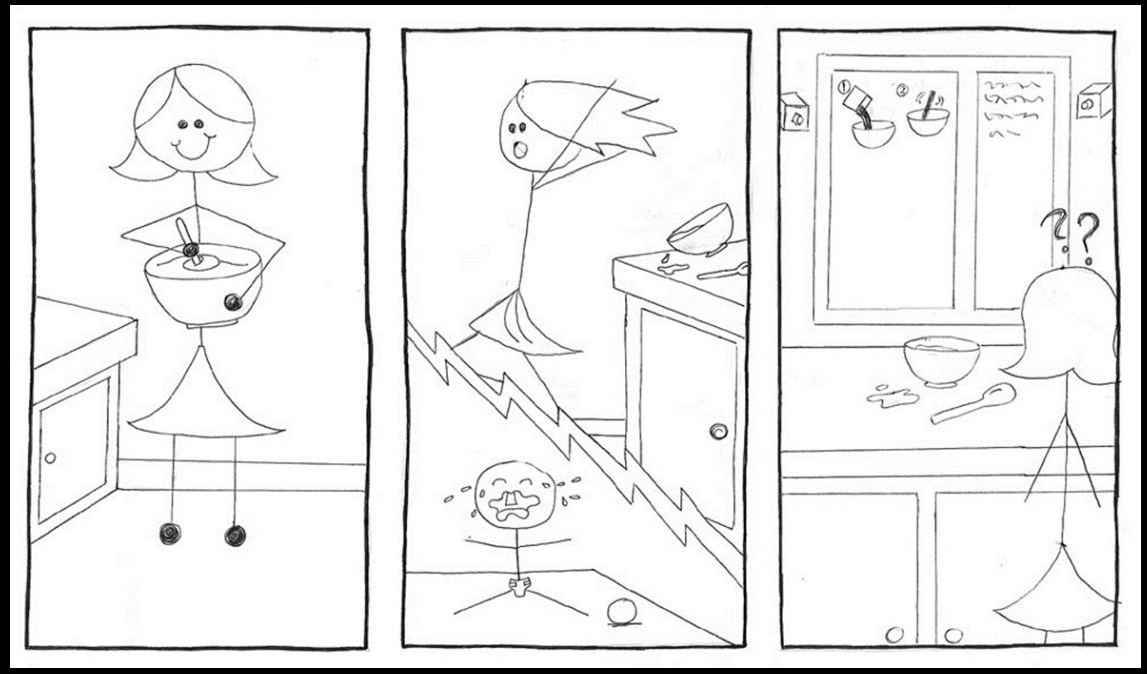

Short text is more effective, less likely to over-explain

Watch for cases where text induces weird biases

# 3. Include People and Emotions

Guideline: Include people experiencing the design and their reactions to it (good or bad)

Remember, the point of storyboards is to convey the experience of using the system



# 4. How Many Frames?

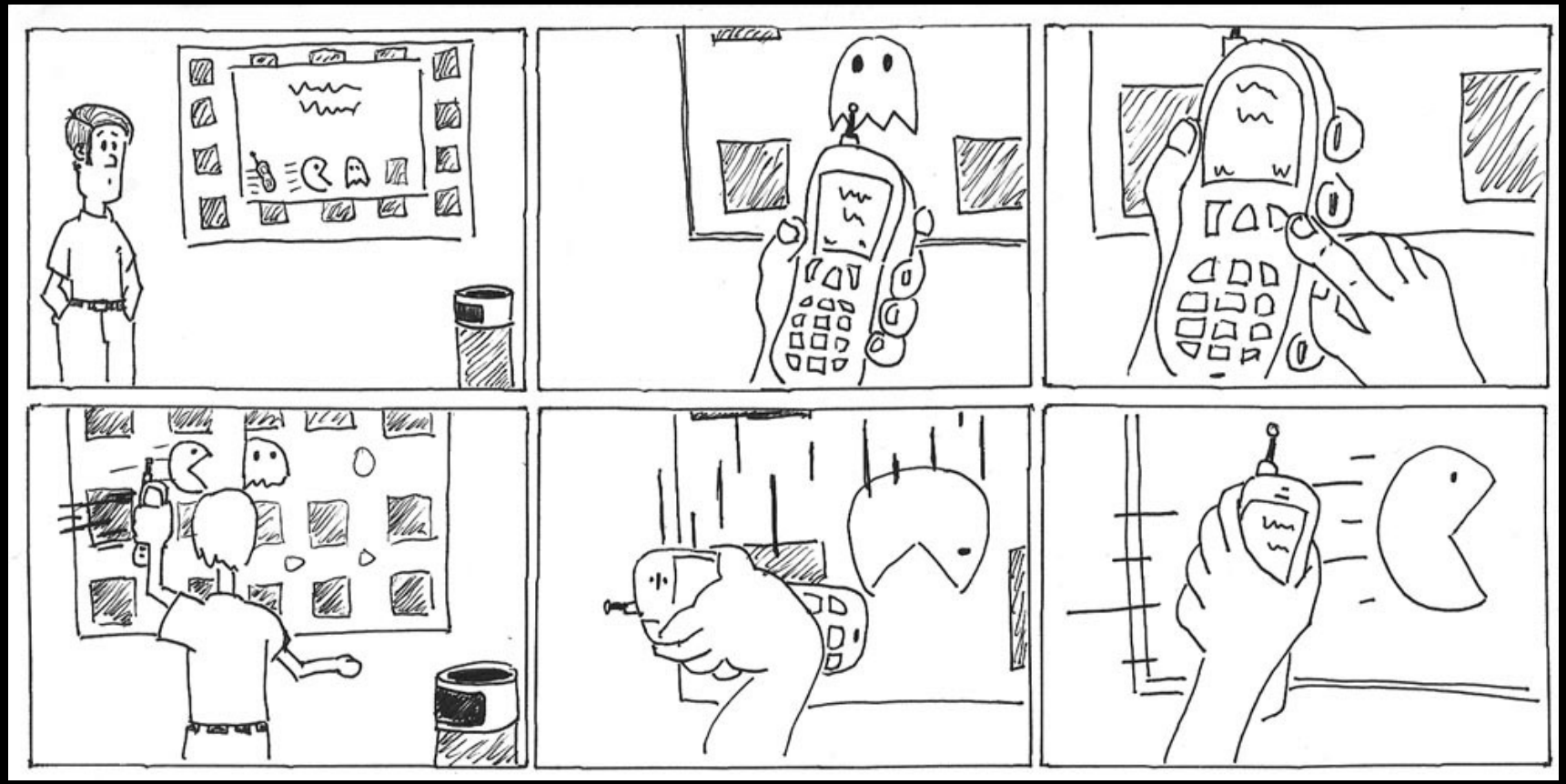
Guideline: 4-6 frames is ideal for end-users

- Less work to illustrate
- Must be able to succinctly tell story
- Potentially longer for design clients

More is not always better

- May lose focus of story
- May lose attention

# 4. How Many Frames?



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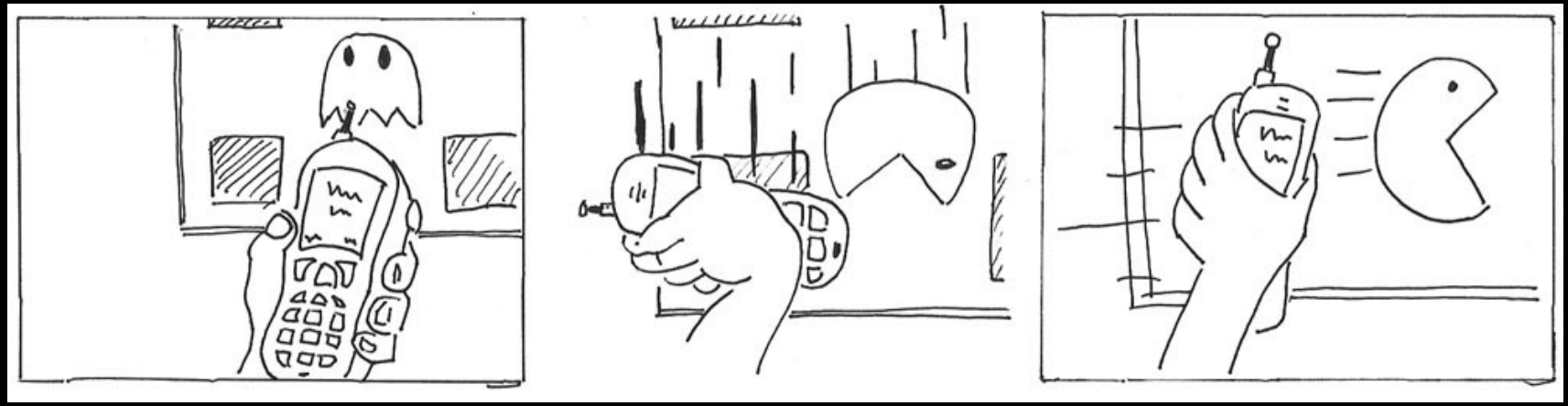
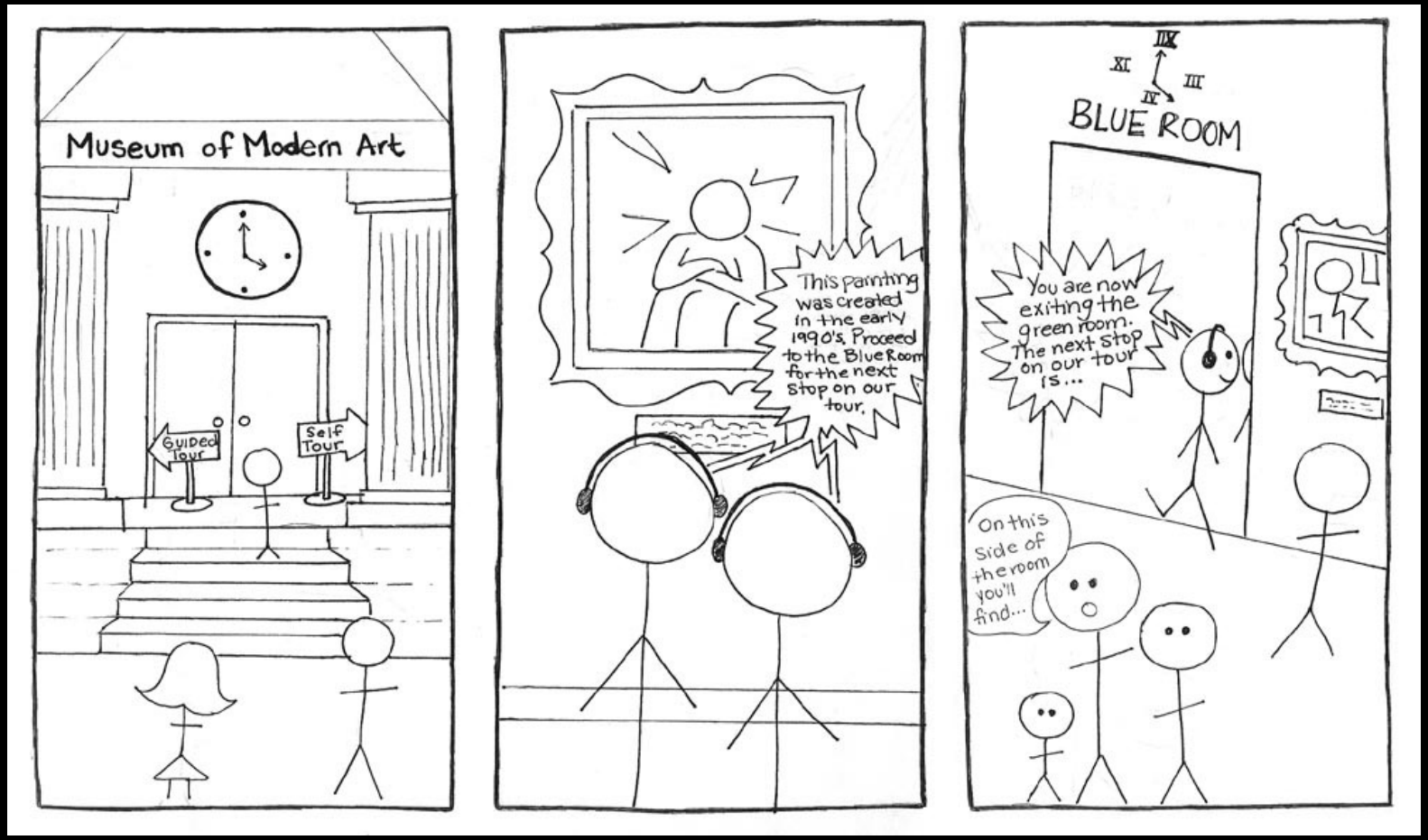


People found the extra panels were not needed

# 5. Passage of Time

Guideline:
Only use if necessary for understanding



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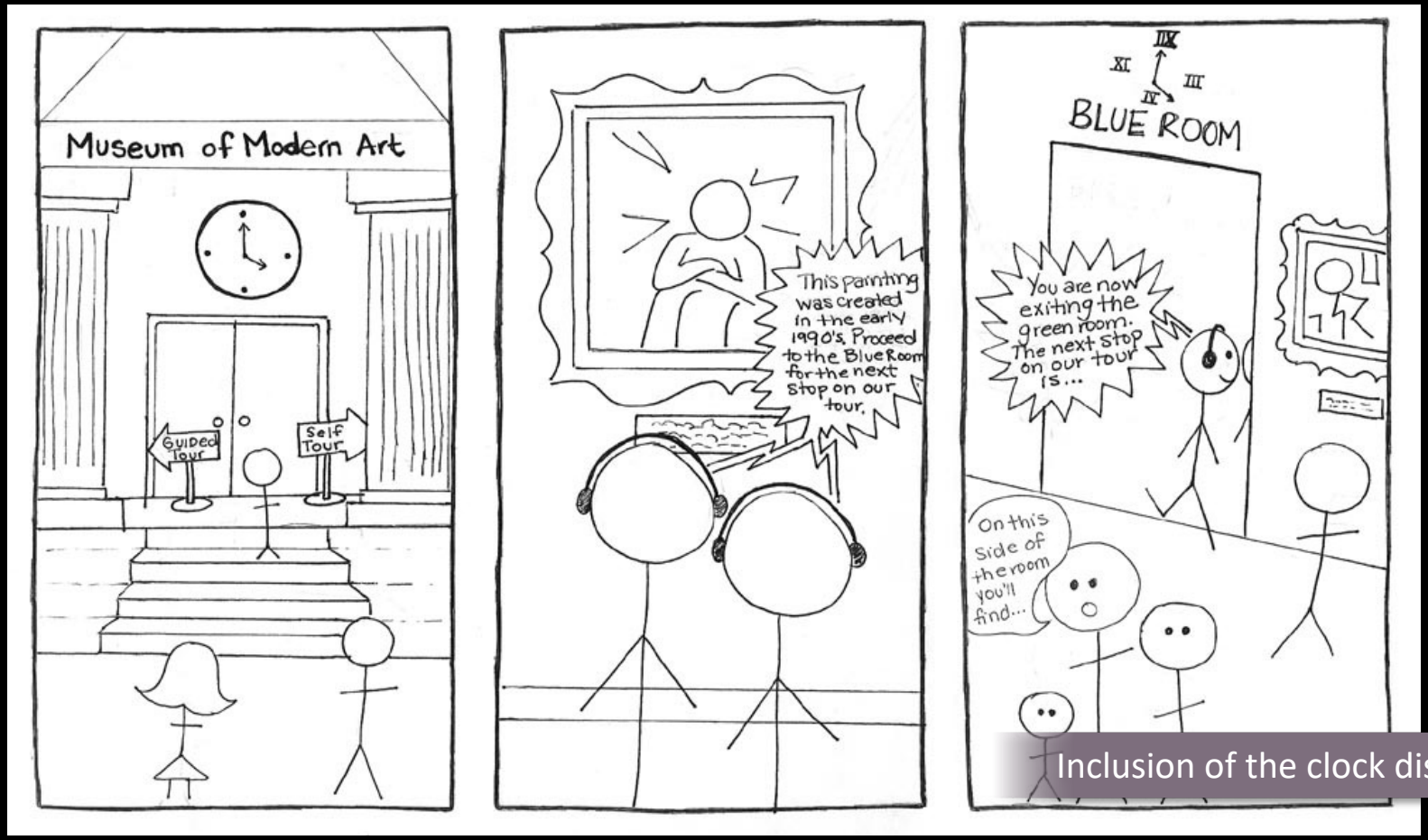
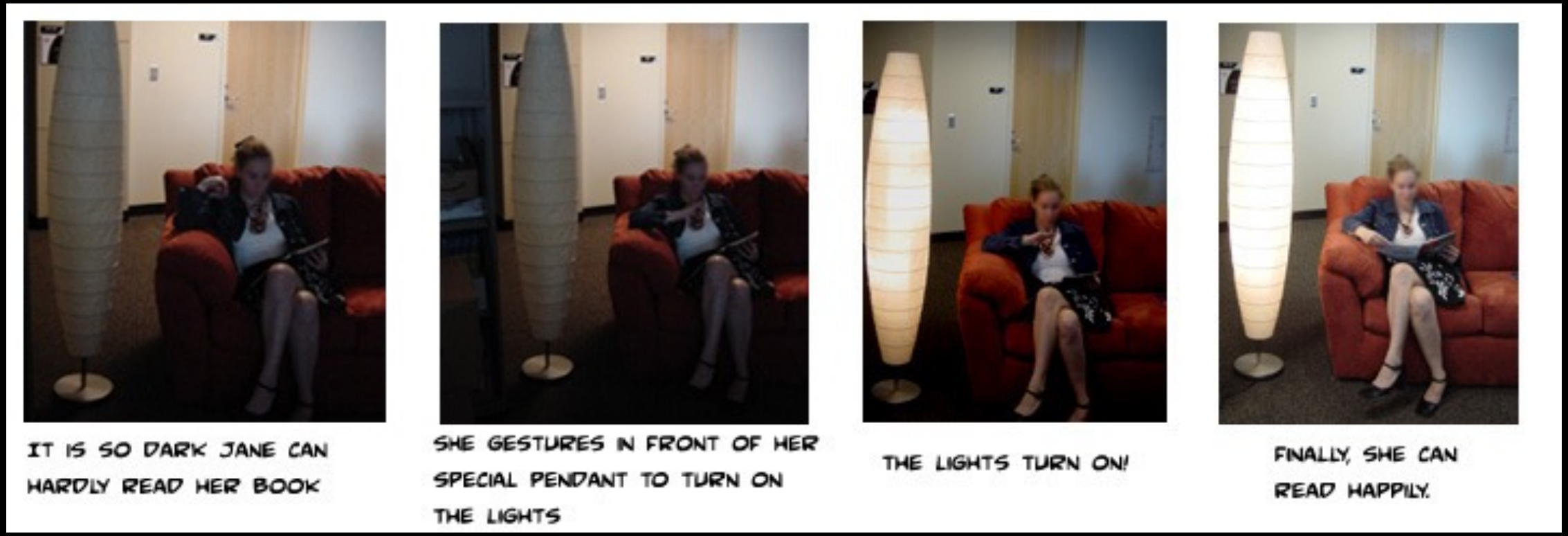



Inclusion of the clock distracts

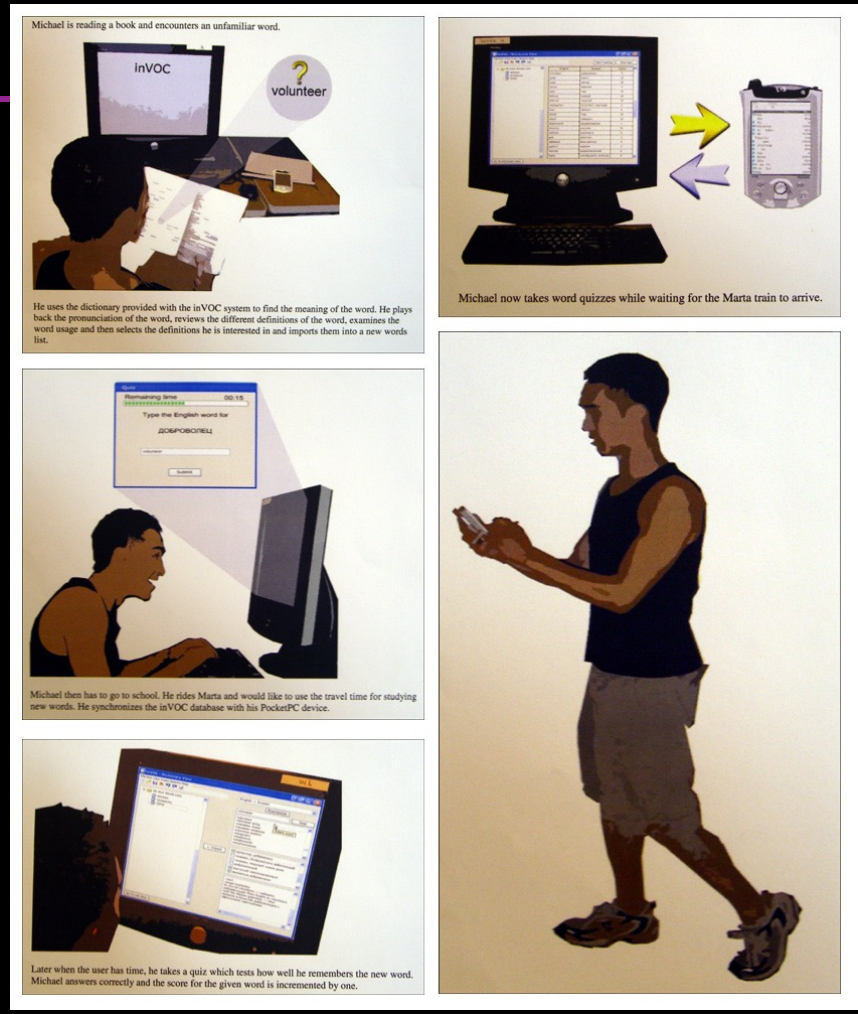
# Drawing is Hard



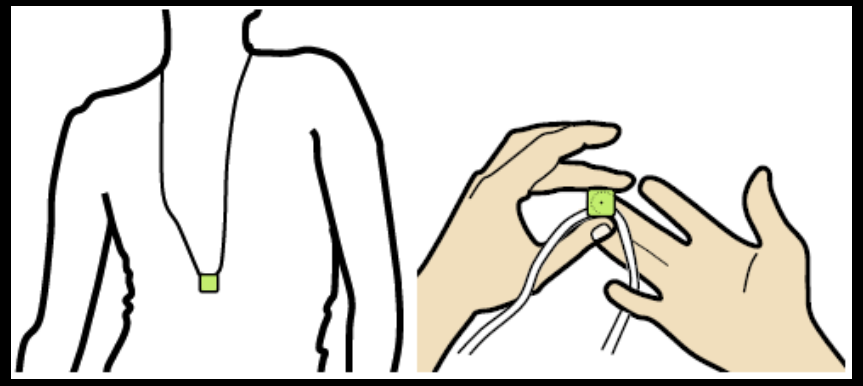

Will a picture work instead?

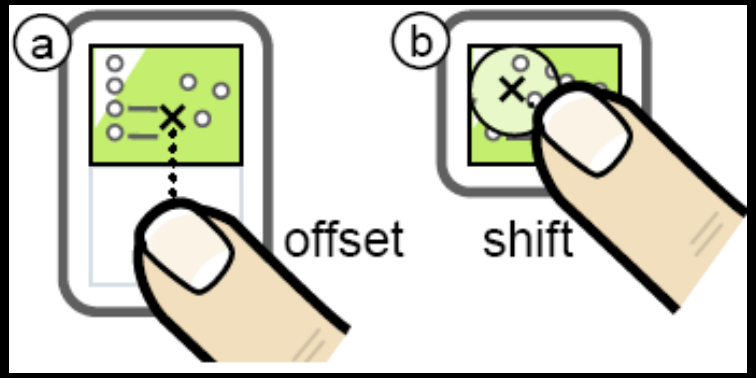
# Blur Out Distracting Details

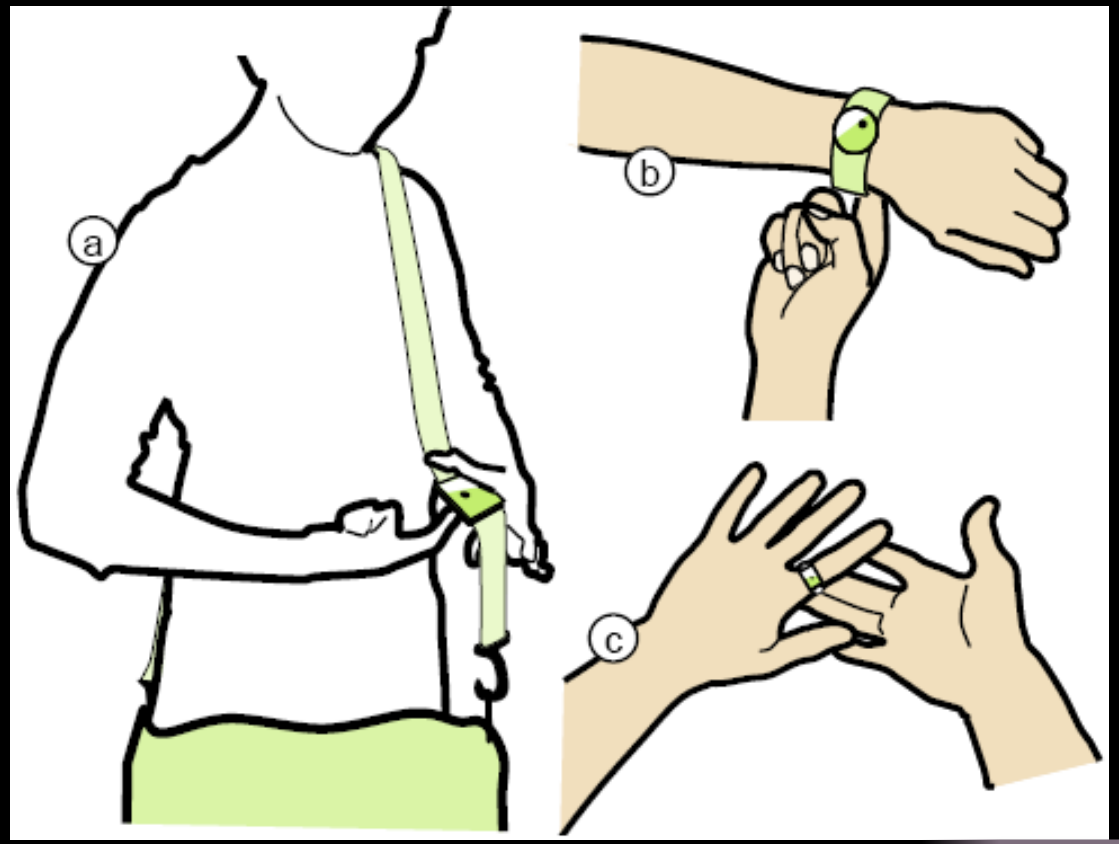
Using image editing software
to simplify photos into sketches



# Tracing Photos

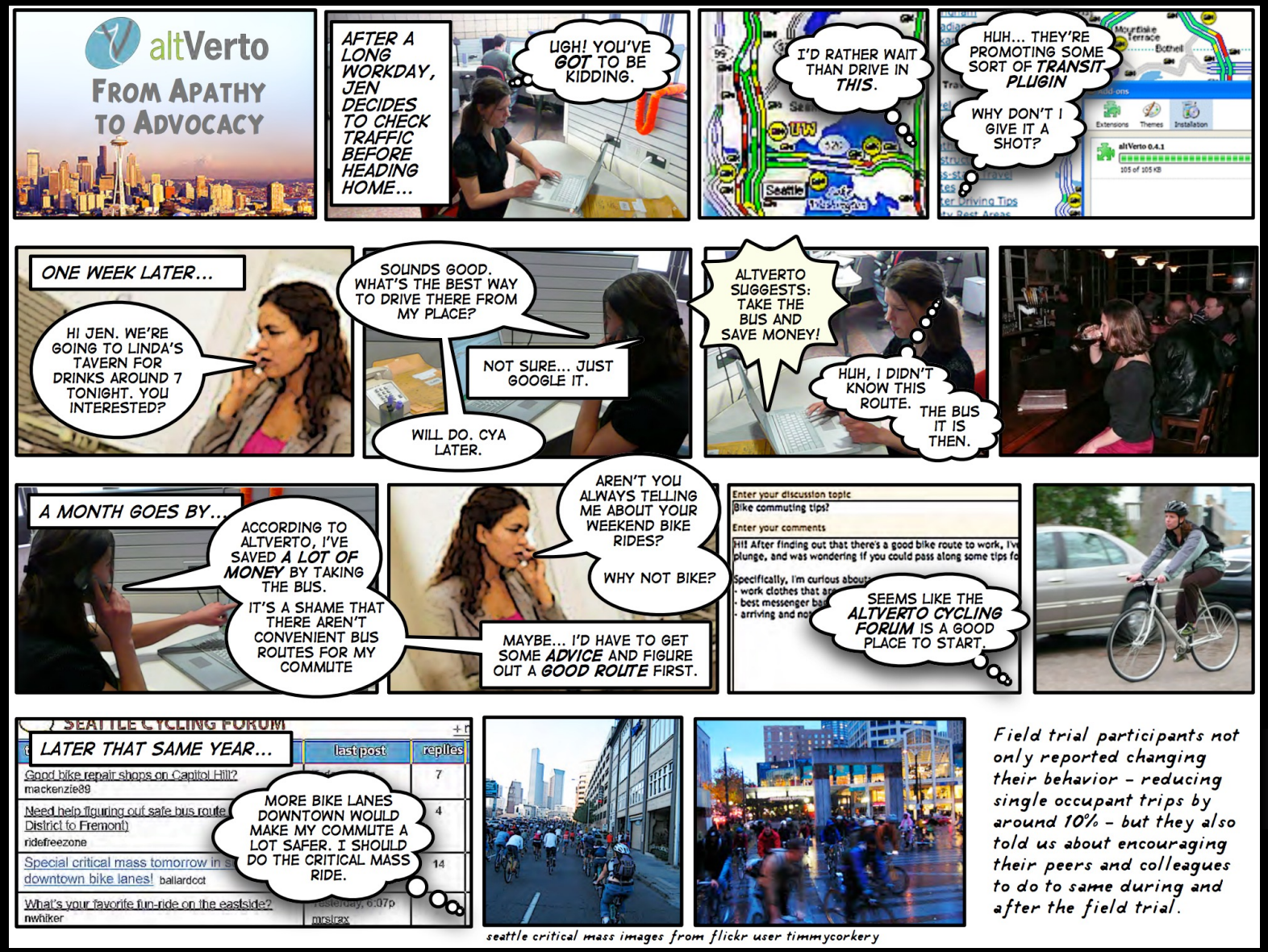





Baudisch and Chu, 2009

# Comic Presentation



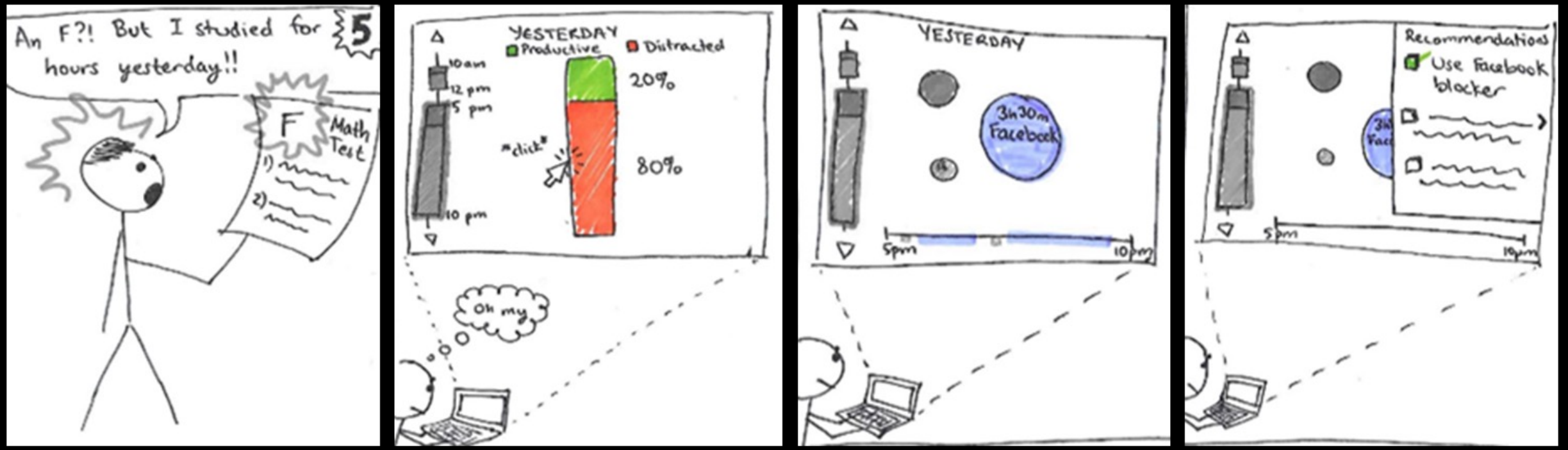

seattle critical mass images from flickr user timmycorkery

*Field trial participants not only reported changing their behavior – reducing single occupant trips by around 10% – but they also told us about encouraging their peers and colleagues to do to same during and after the field trial.*

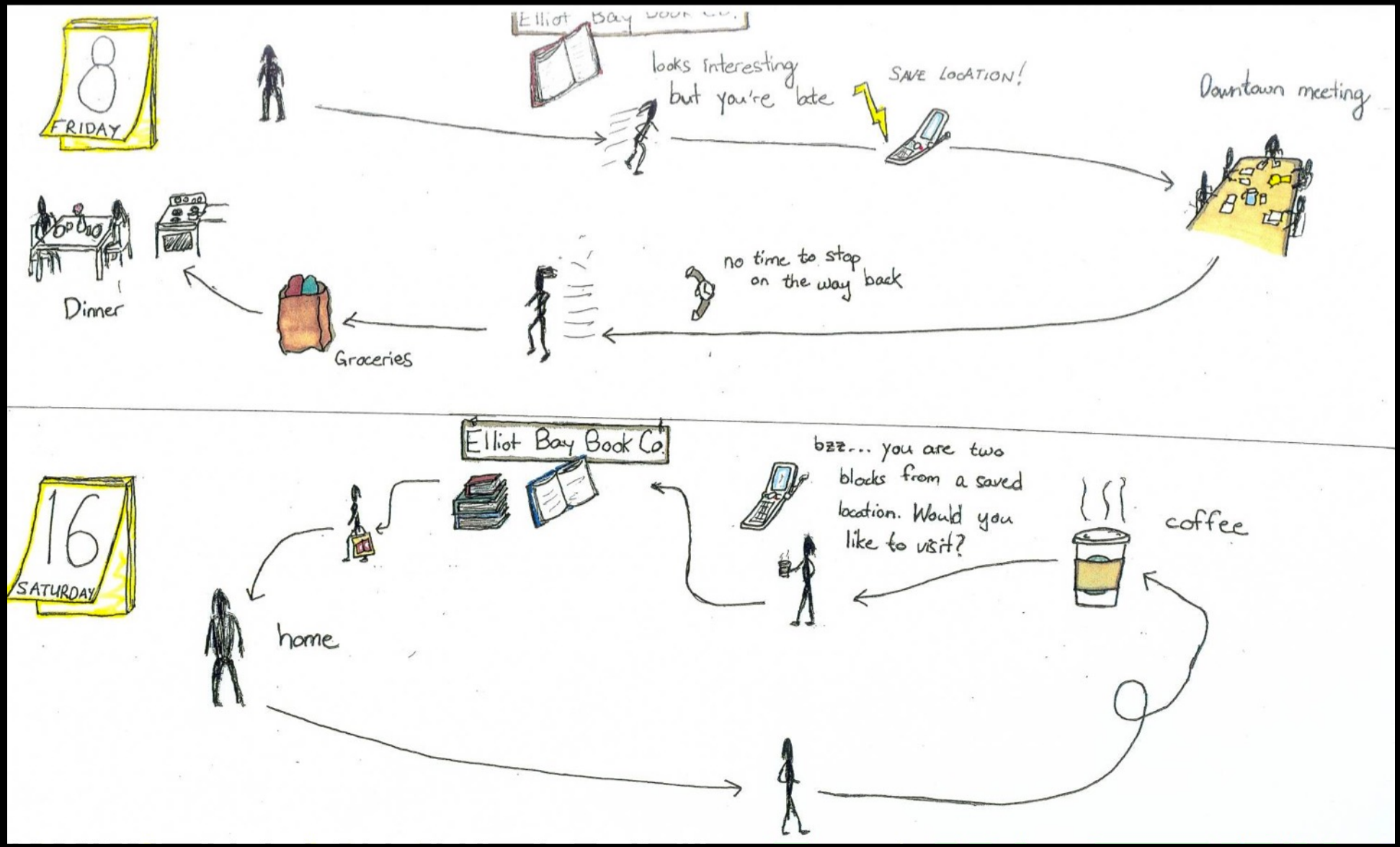
Thought bubbles argue for the design, similar to a video narrator

Gukeisen et al, 2007

# Selective Use of Color

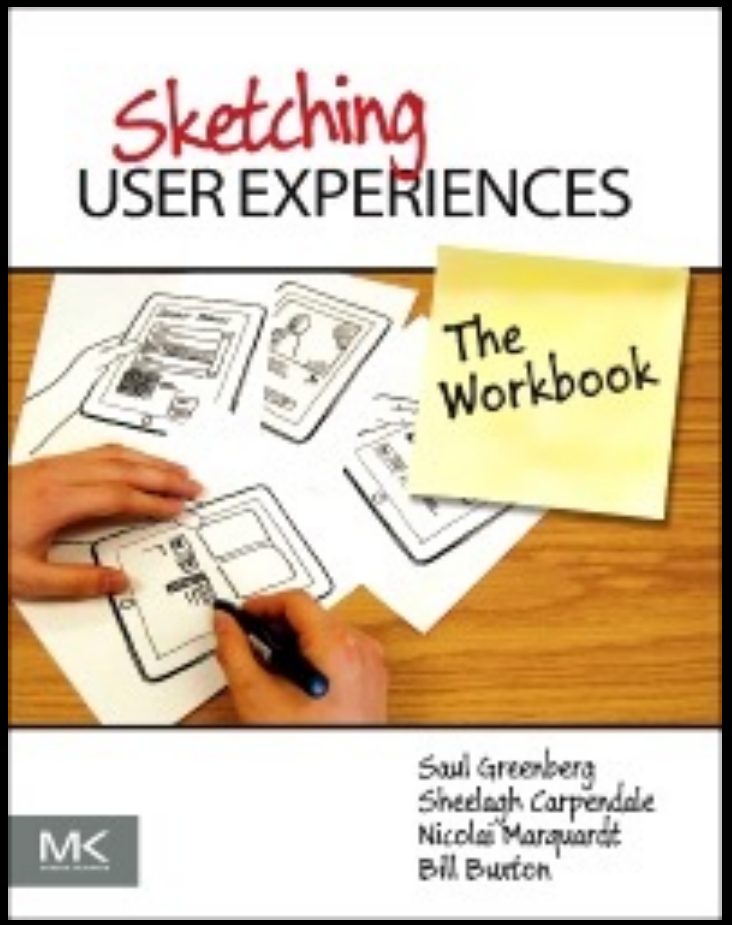


# Route Maps


8
FRIDAY
looks interesting but you're late
SAVE LOCATION!
Downtown meeting
Dinner
Groceries
no time to stop on the way back
16
SATURDAY
Elliot Bay Book Co.
bzz... you are two blocks from a saved location. Would you like to visit?
coffee
home

# Additional Reading

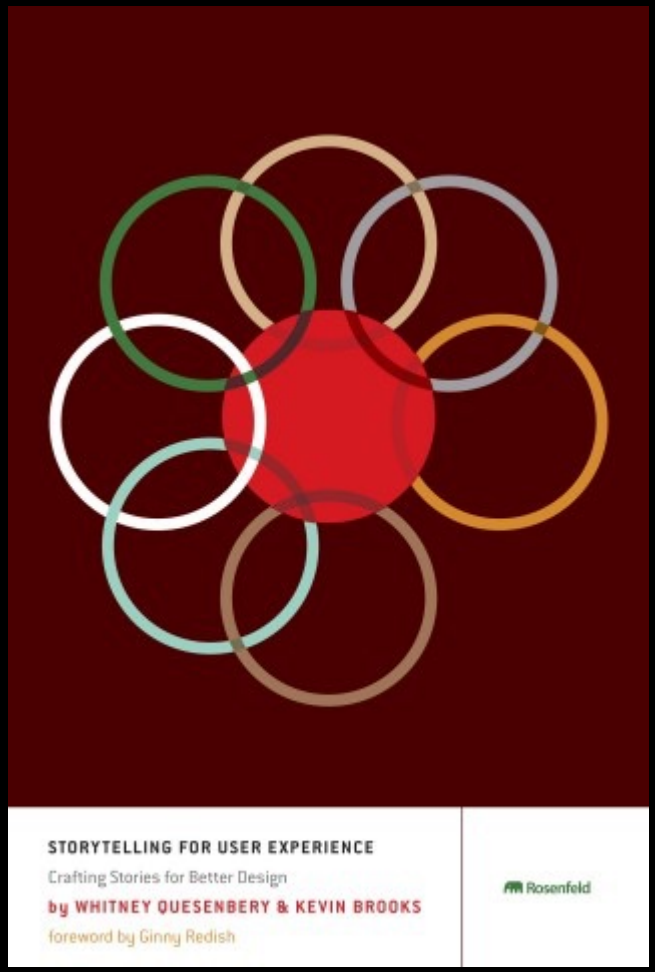
Sketching & Storyboarding




See Canvas Resources

# Additional Reading

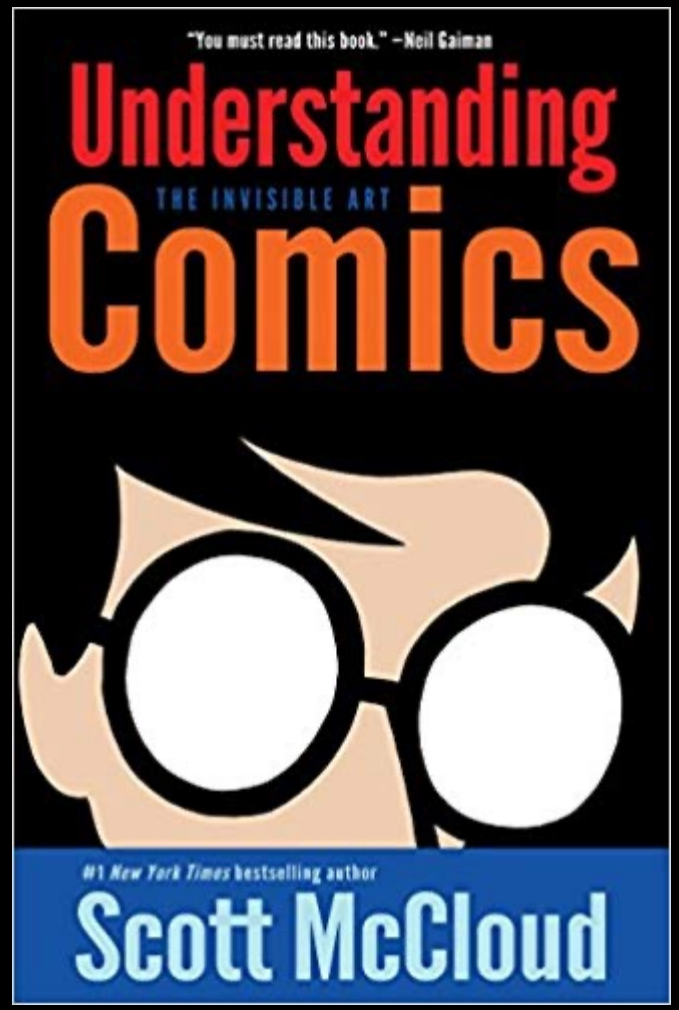
Full Treatment of Sketching and Storyboarding as Tools for Storytelling




See Canvas Resources

# Additional Reading

Understanding Comics
as Visual Form and Communication




See Canvas Resources

# Overview

Storyboarding

**Prototyping**

- Video Prototyping
- Paper Prototyping

Usability Testing

- Tasks in Usability Testing
- Ethics in Usability Testing
- Wizard of Oz Methods

# Value of Animation or Video

Can illustrate critical timing

Can be more engaging than written or storyboard

Can help convey emotion (e.g., voice, music)

Can show interactive elements more clearly

Can be self-explanatory
If done well, can be an effective pitch

But you need to keep it quick and effective

# Video Prototypes

May build upon paper prototypes, existing software, and images of real settings

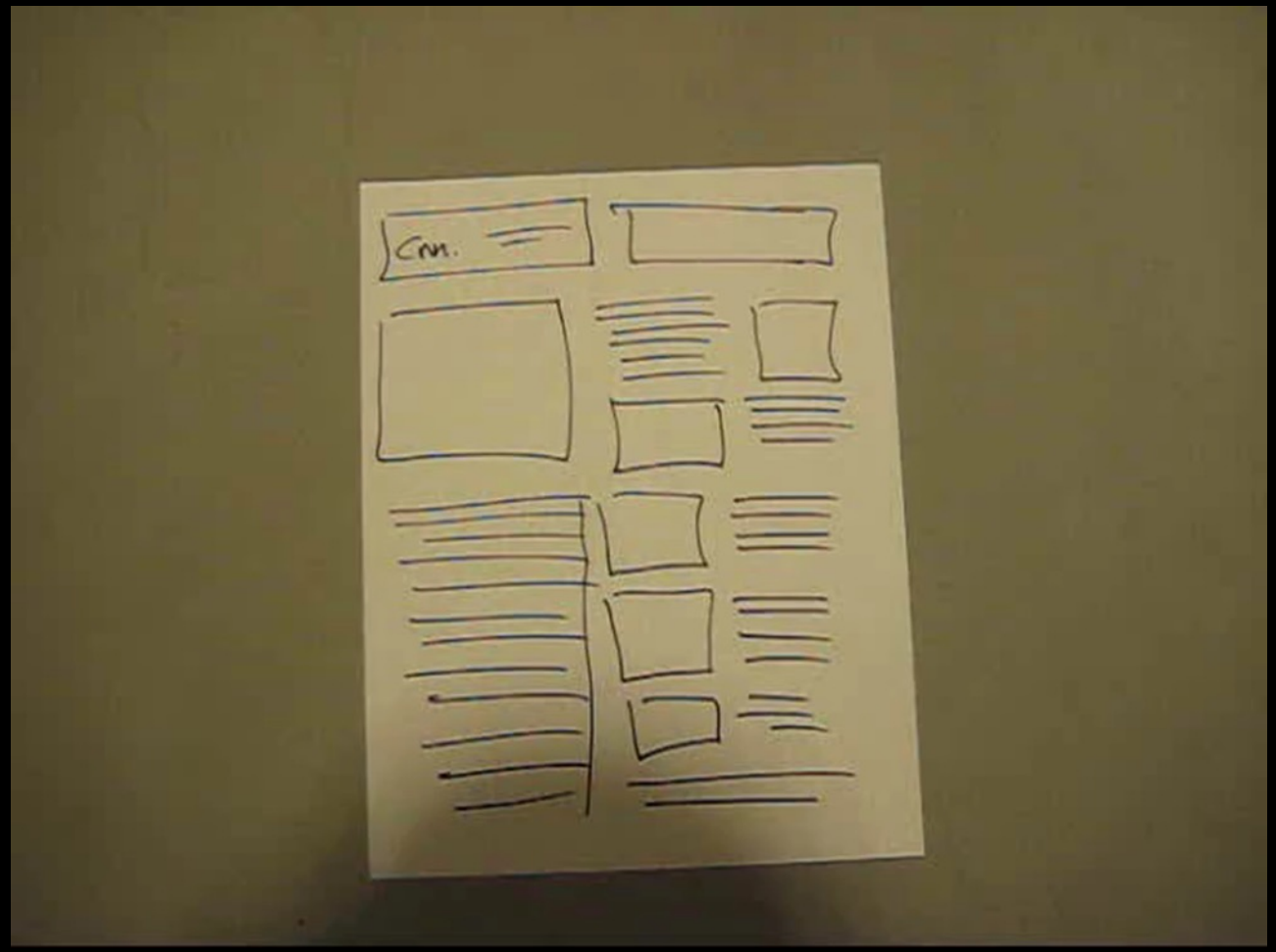
- Critical “trick” is stop-motion photography

Can also have varying audience and purpose

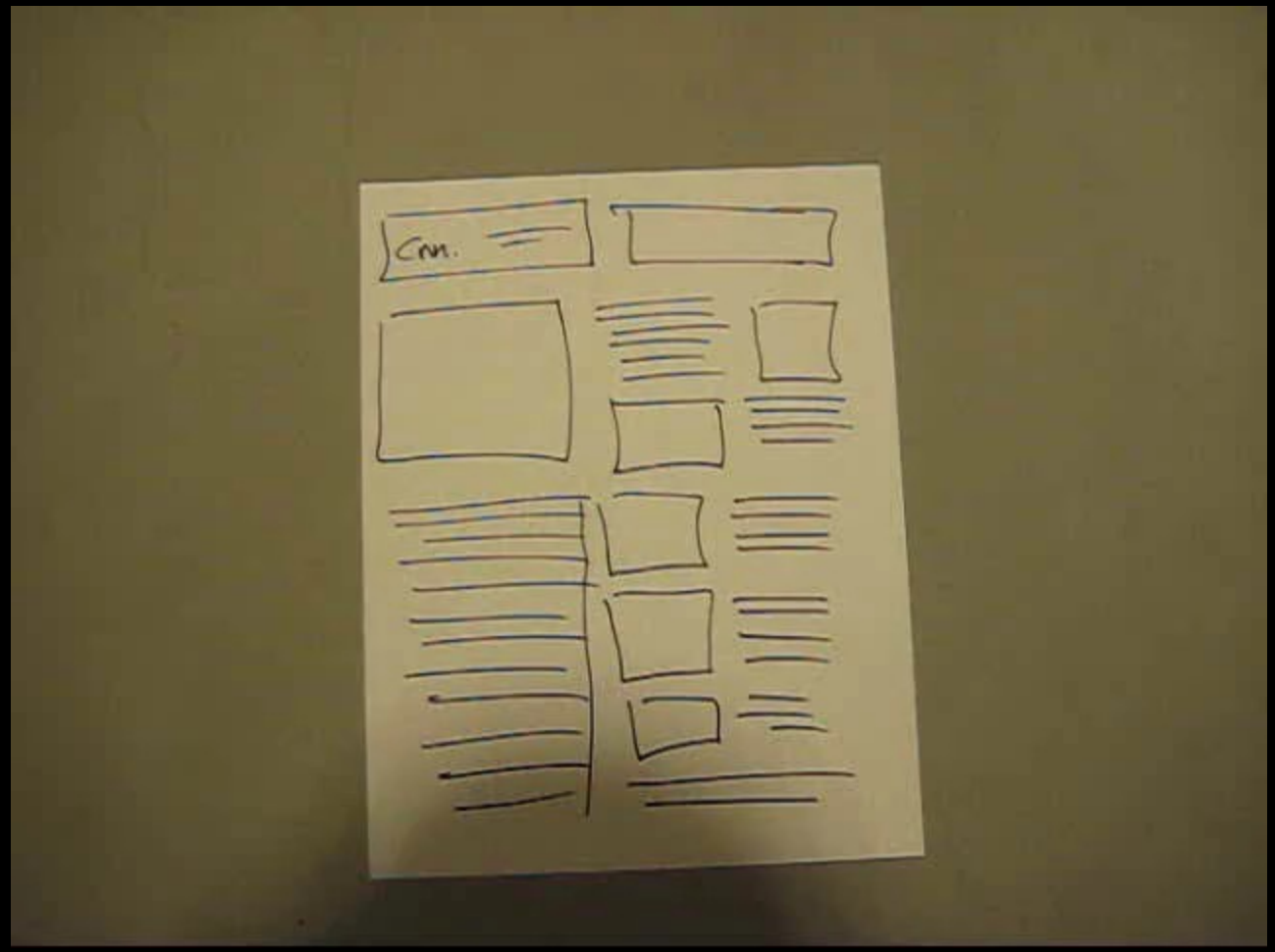
Narration optional

- Narrator explains context and motivation, actors or object demonstrate interaction

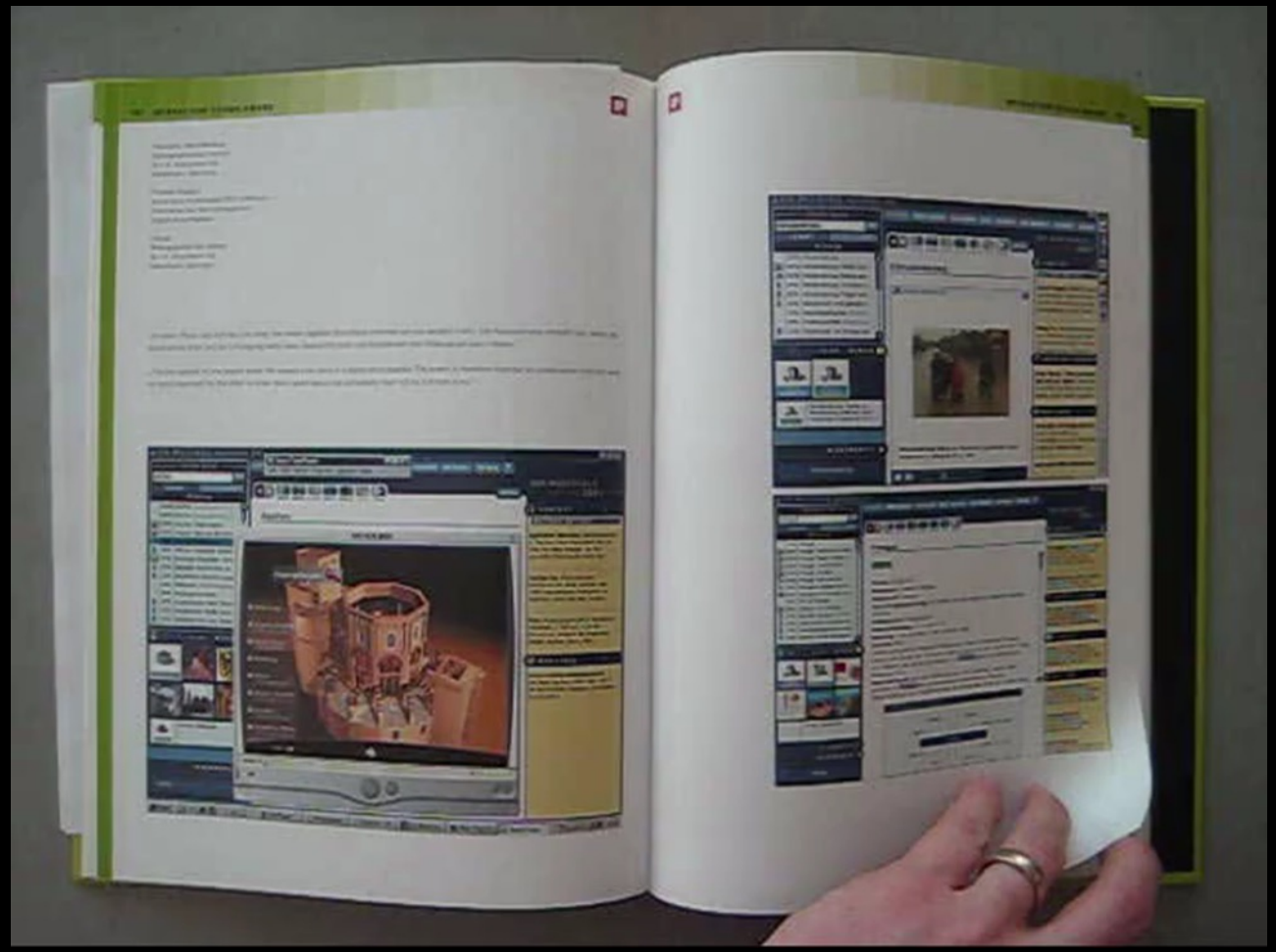
# Prototyping Microsoft Surface



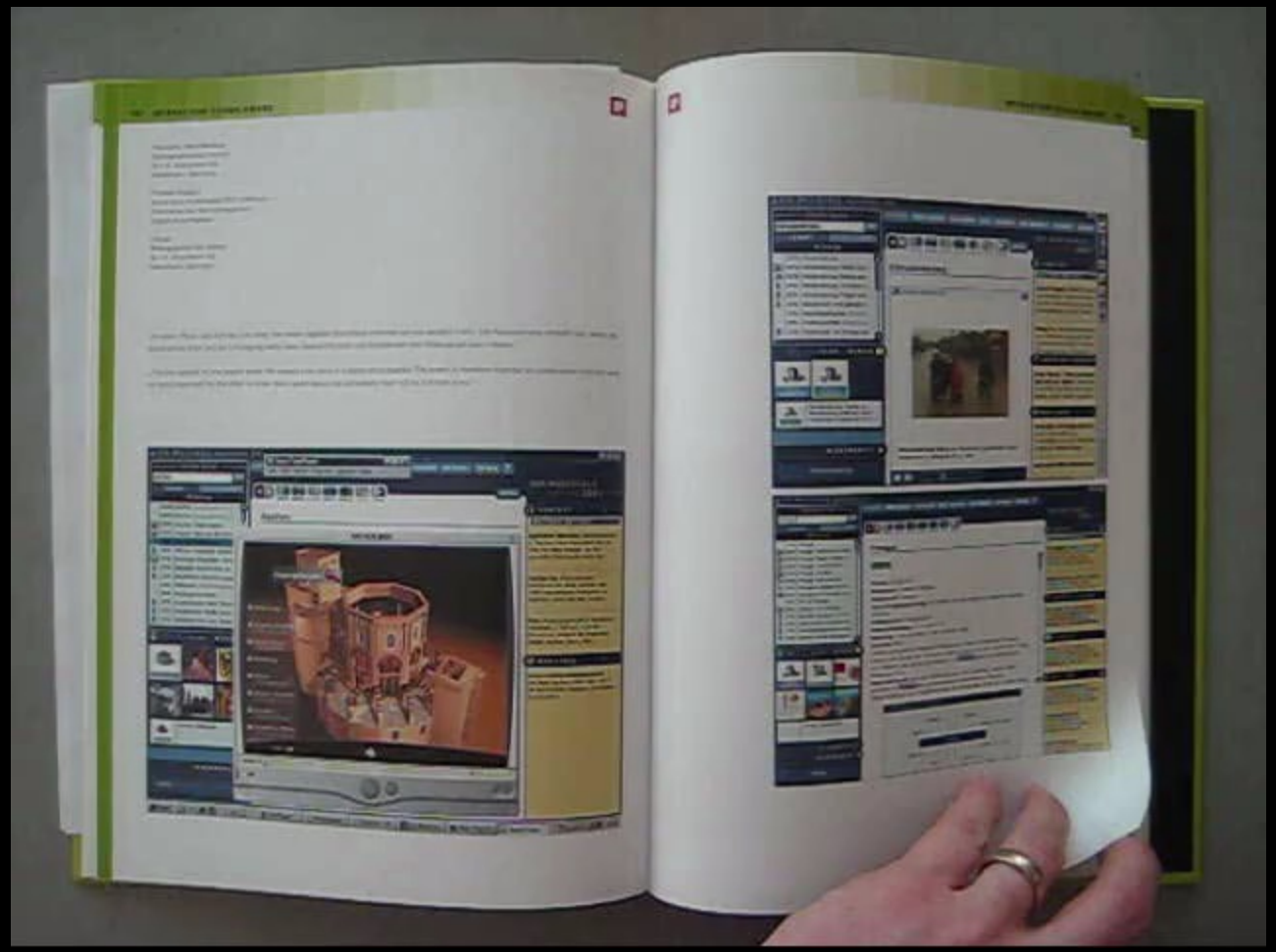
# Prototyping Microsoft Surface



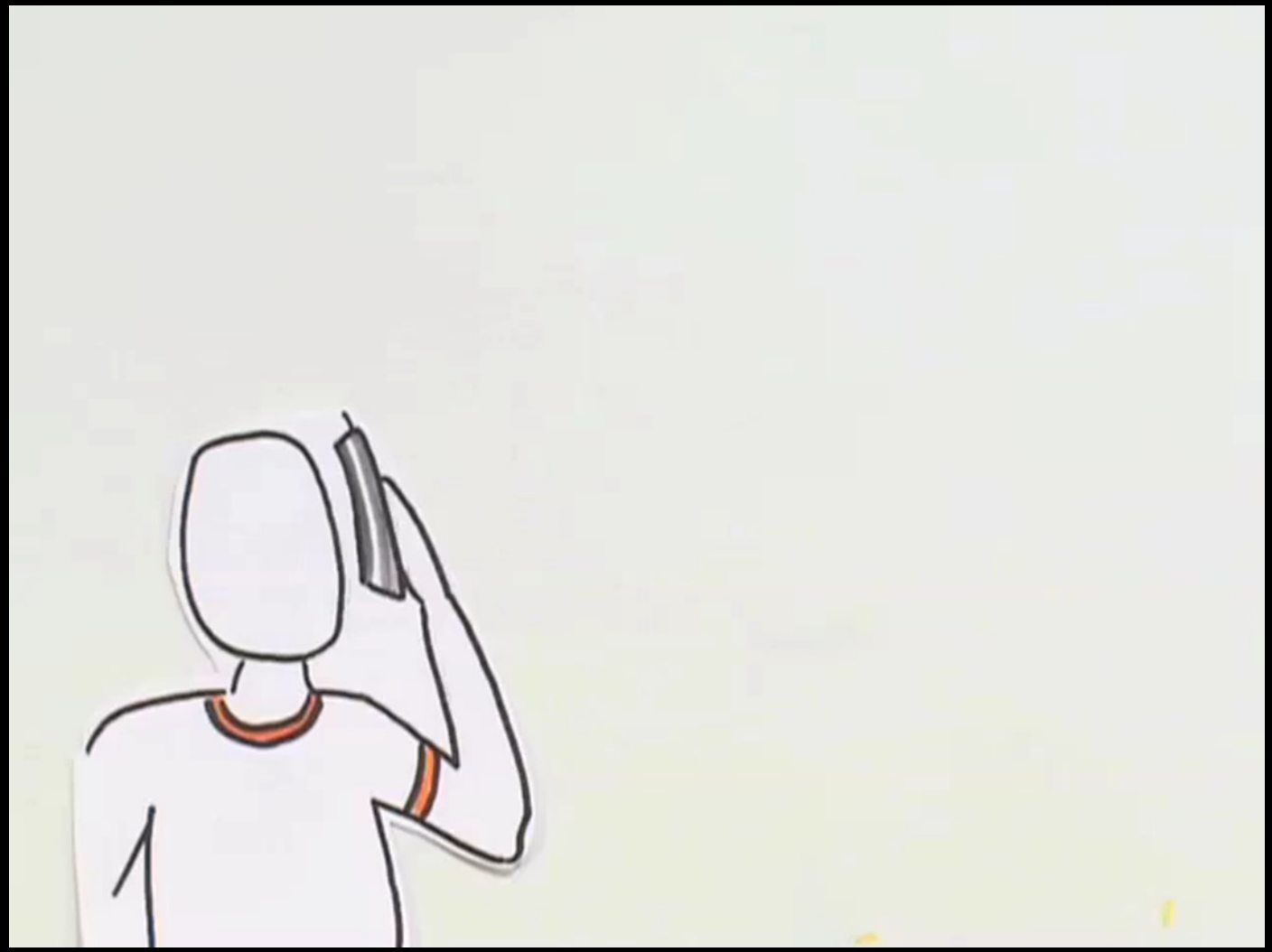
# Prototyping Microsoft Surface



# Prototyping Microsoft Surface

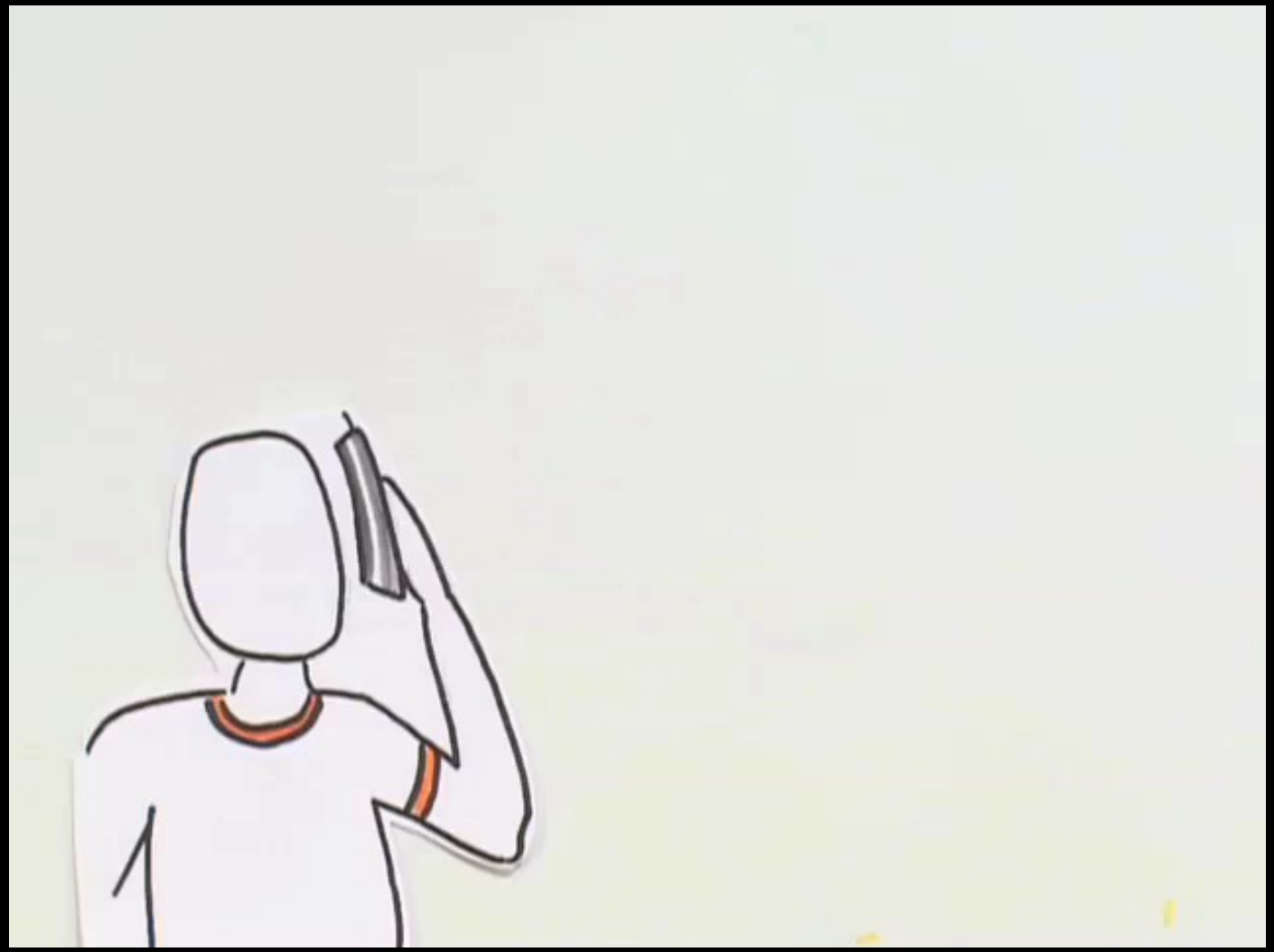


# Explaining Social Media in 2000



CommonCraft

# Explaining Social Media in 2000



CommonCraft

# Elements of the Story

Has a positive motivation
- But then a problem to overcome

Had a character
- Some minor humor, but not to a point of distraction

Showed several tasks
- “Here's how it works”
- Signing up
- Seeing updates from others
  - satisfaction of seeing new information about her friend
- Sharing her own updates
  - satisfaction of sharing her passion

Reminders of key features, reminder of value
- “Find out what your friends are doing"

# Fidelity in Prototyping

## High Fidelity

Prototypes look like
the final product

## Low Fidelity

Designer sketches
with many details missing



We have discussed the value of staying lightweight in sketching, but this also applies to prototyping

# High-Fidelity Prototypes

Time and creativity

- 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

- Representation communicates “finished”
- Comments often focus on color, fonts, alignment

# Low-Fidelity Prototypes

Traditional methods take too long

- Sketches → Prototype → Evaluate → Iterate

Instead simulate the prototype

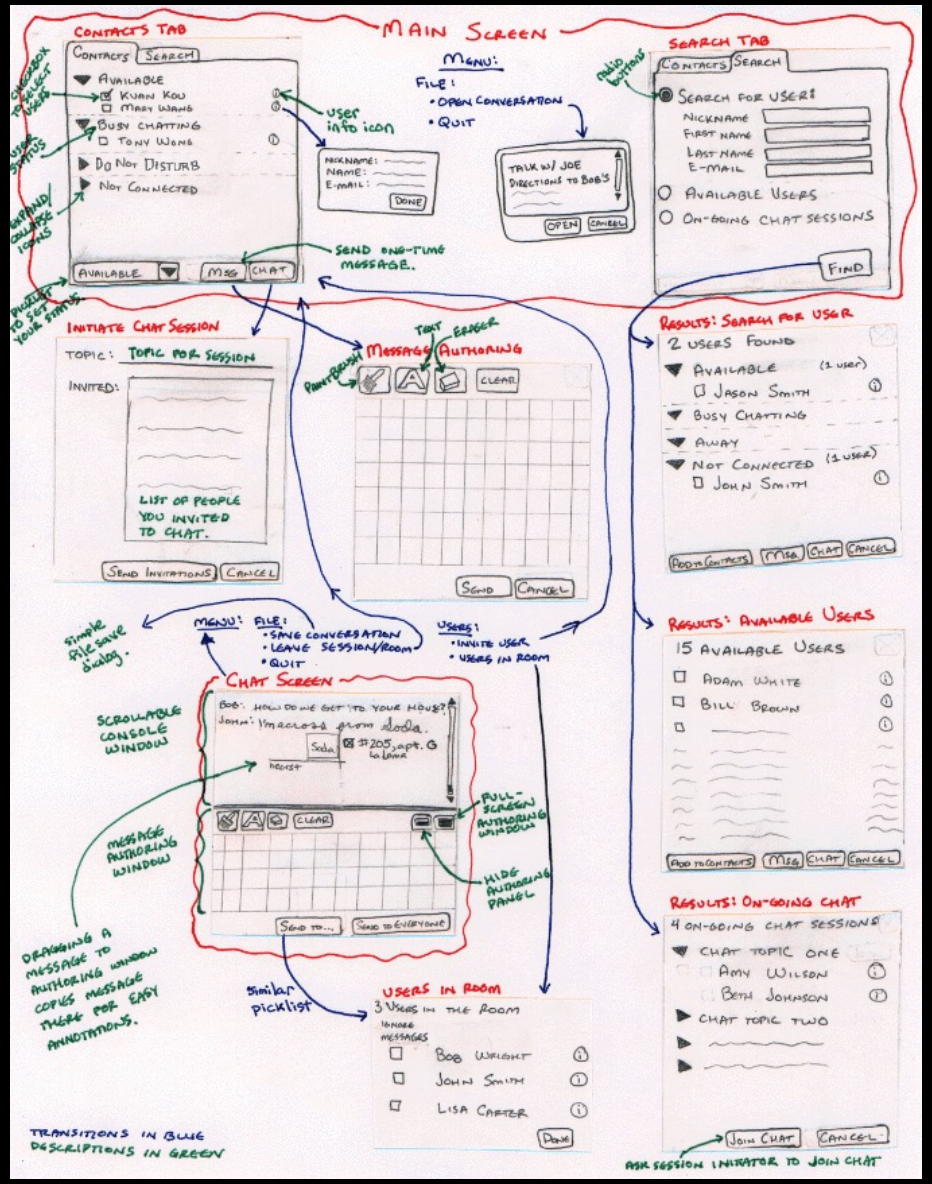
- Sketches → Evaluate → Iterate

Sketches act as prototypes

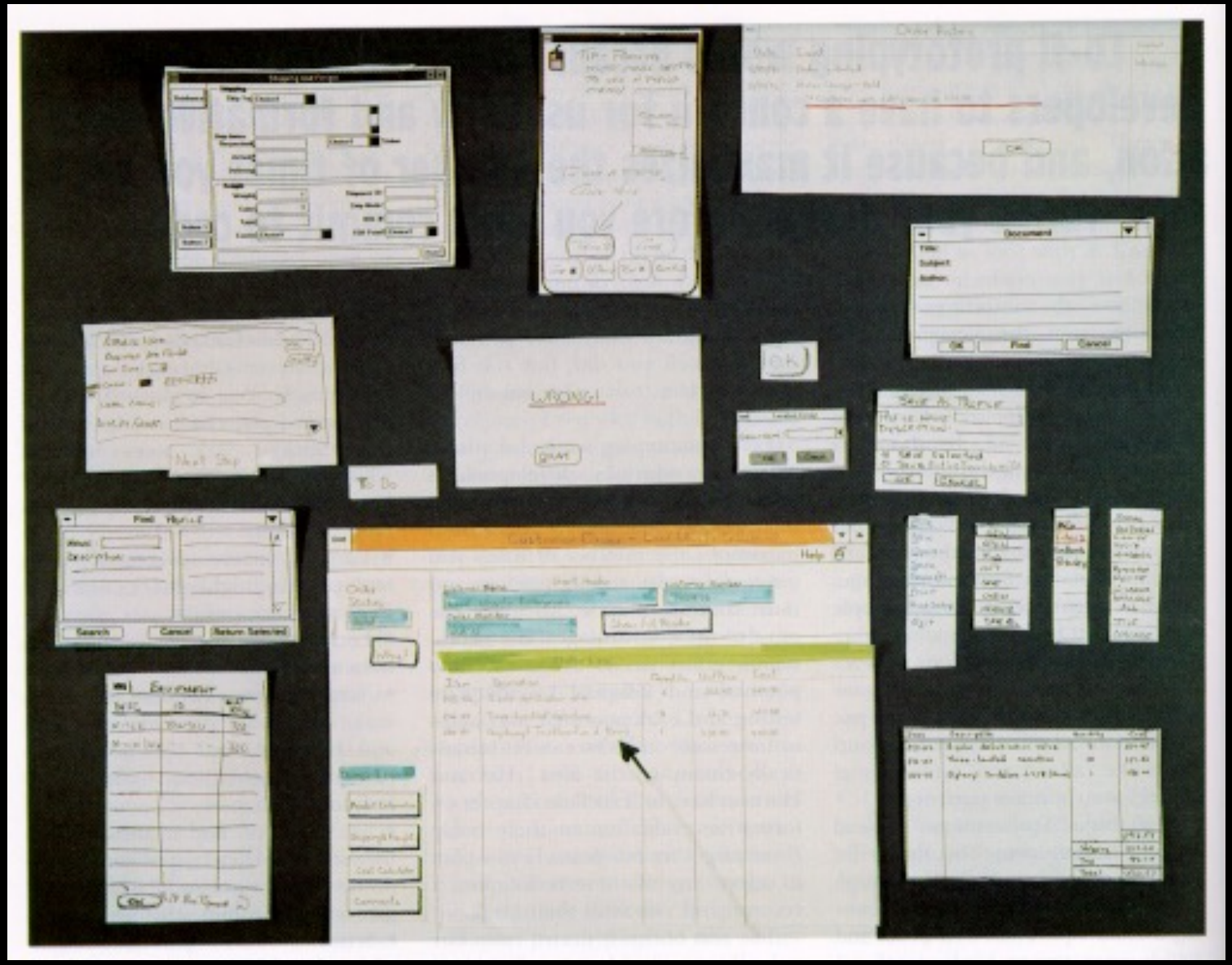
- A designer "plays computer"
- Other design team members observe & record

Kindergarten implementation skills reduce barriers to participation in design and testing

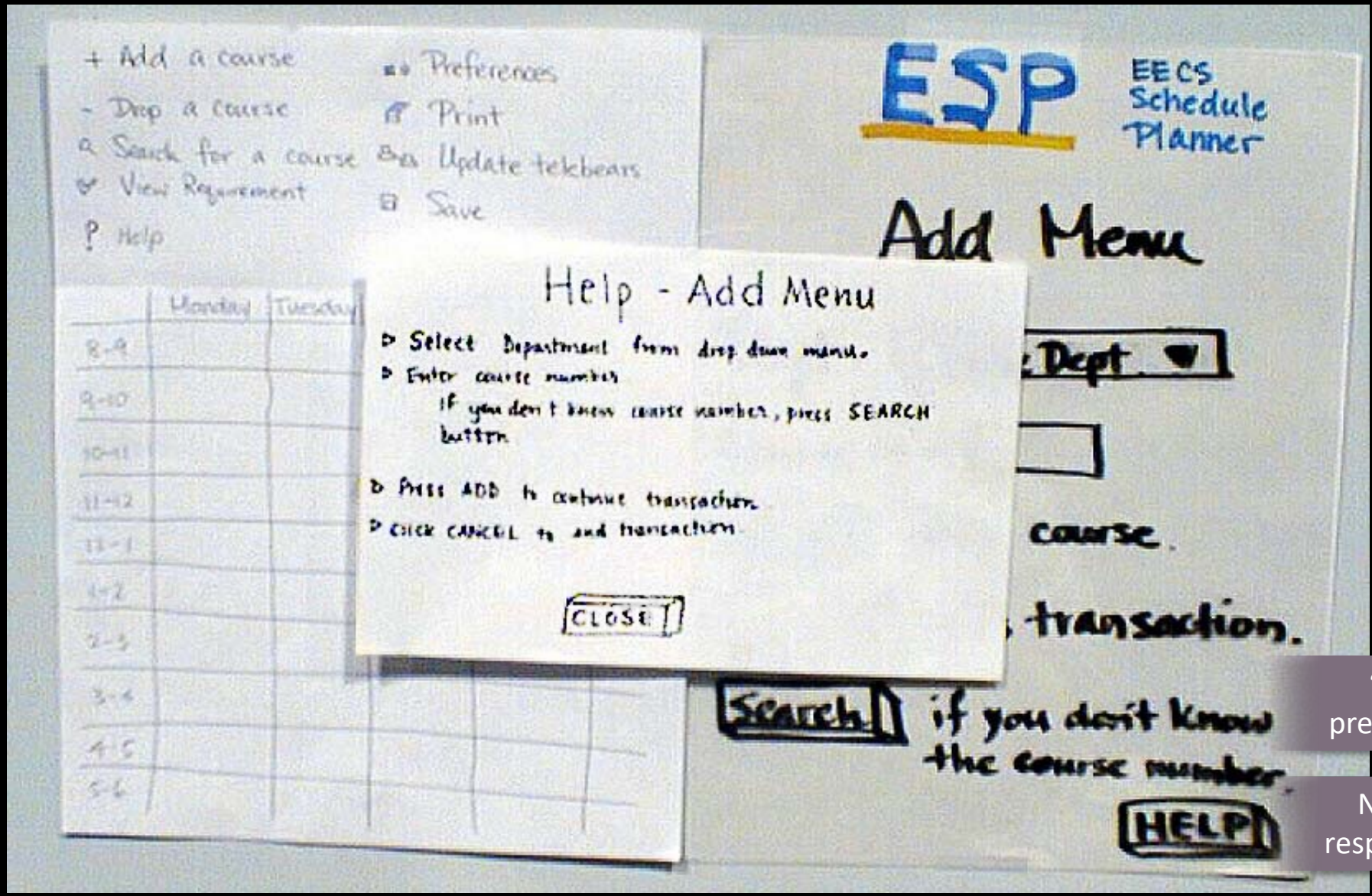
# Sketches


MAIN SCREEN
CONTACTS TAB
SEARCH TAB
MENU:
FILE:
• OPEN CONVERSATION
• QUIT
AVAILABLE
KUAN KOU
MARY WANG
BUSY CHATTING
TONY WONG
DO NOT DISTURB
NOT CONNECTED
SEARCH FOR USER:
NICKNAME
FIRST NAME
LAST NAME
E-MAIL
AVAILABLE USERS
ON-GOING CHAT SESSIONS
FIND
SEND ONE-TIME MESSAGE.
INITIATE CHAT SESSION
TOPIC: TOPIC FOR SESSION
INVITED:
LIST OF PEOPLE YOU INVITED TO CHAT.
SEND INVITATIONS
CANCEL
MESSAGE AUTHORING
CLEAR
SEND
CANCEL
RESULTS: SEARCH FOR USER
2 USERS FOUND
AVAILABLE (1 USER)
JASON SMITH
BUSY CHATTING
AWAY
NOT CONNECTED (1 USER)
JOHN SMITH
ADD TO CONTACTS
MSG
CHAT
CANCEL
RESULTS: AVAILABLE USERS
15 AVAILABLE USERS
ADAM WHITE
BILL BROWN
RESULTS: ON-GOING CHAT
4 ON-GOING CHAT SESSIONS
CHAT TOPIC ONE
AMY WILSON
BETH JOHNSON
CHAT TOPIC TWO
JOIN CHAT
CANCEL
ASK SESSION INITIATOR TO JOIN CHAT
CHAT SCREEN
SCROLLABLE CONSOLE WINDOW
MESSAGE AUTHORING WINDOW
FULL-SCREEN AUTHORING WINDOW
HIDE AUTHORING PANEL
SEND TO...
SEND TO EVERYONE
USERS IN ROOM
3 USERS IN THE ROOM
IGNORE MESSAGES
BOB WRIGHT
JOHN SMITH
LISA CARTER
DONE
similar picklist
simple file save dialog.
USERS:
• INVITE USER
• USERS IN ROOM
TRANSITIONS IN BLUE
DESCRIPTIONS IN GREEN

# Paper Prototype



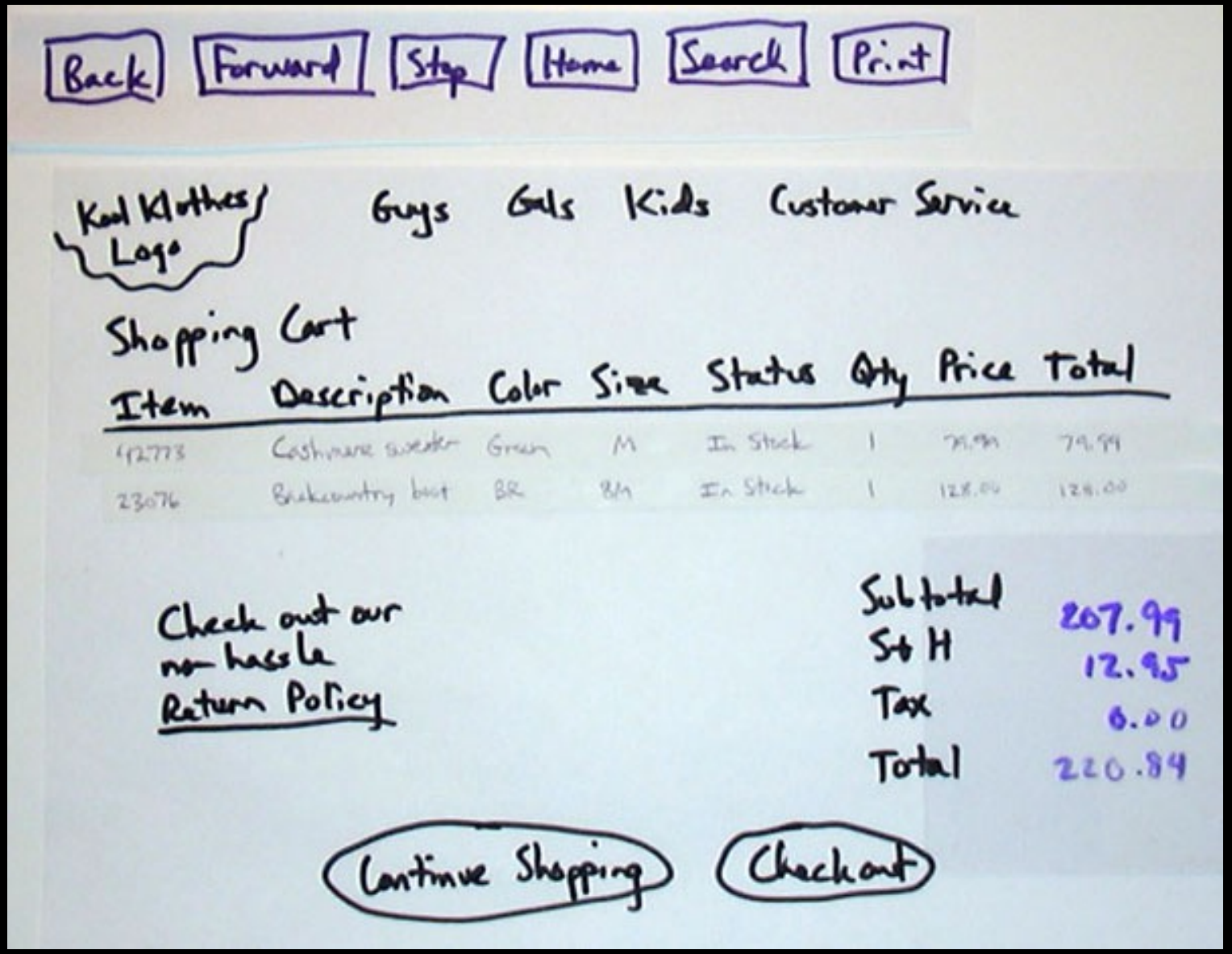
# Paper Prototype




"Screen" faked with pre-constructed pieces

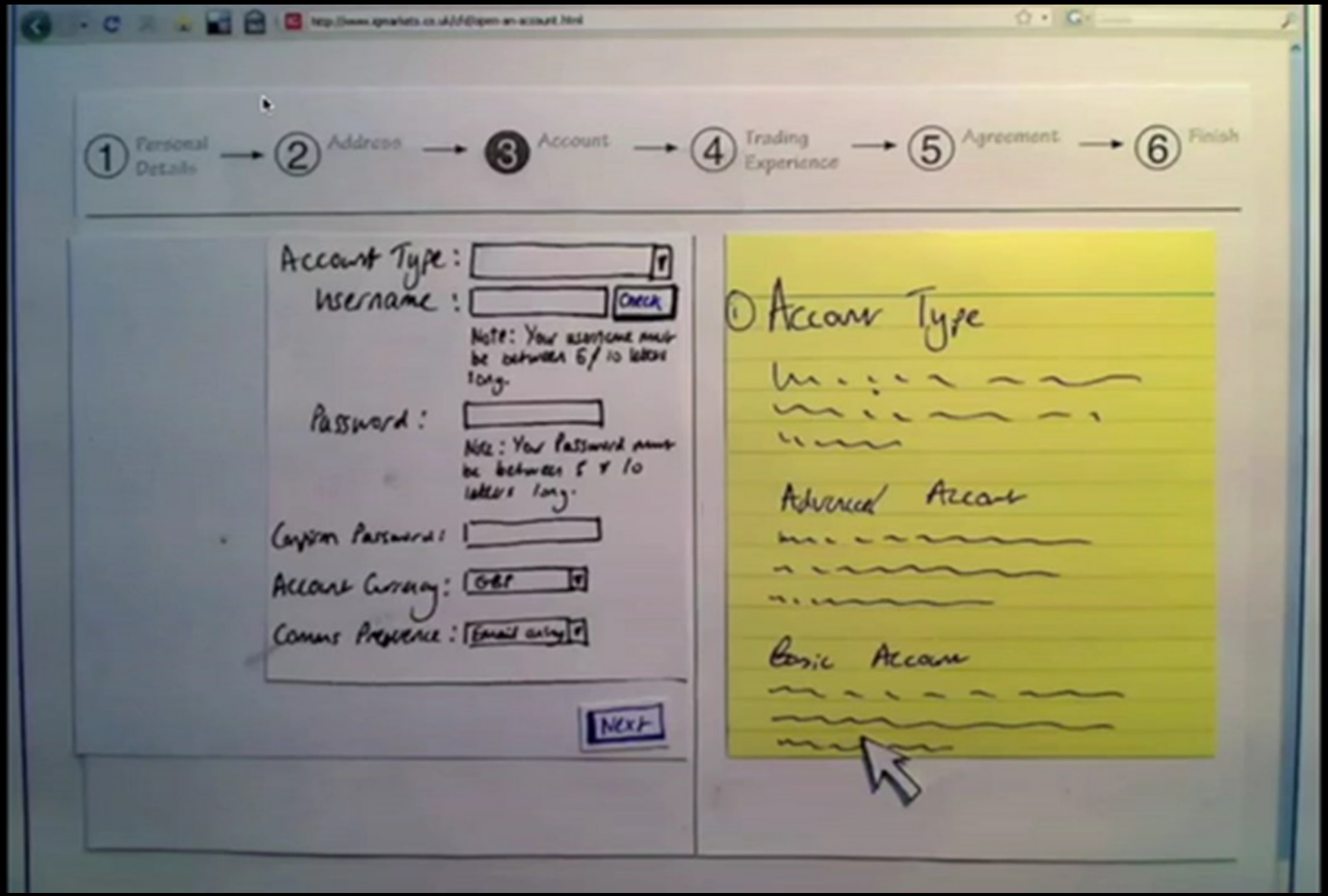
New pieces added in response to interaction

# Paper Prototype

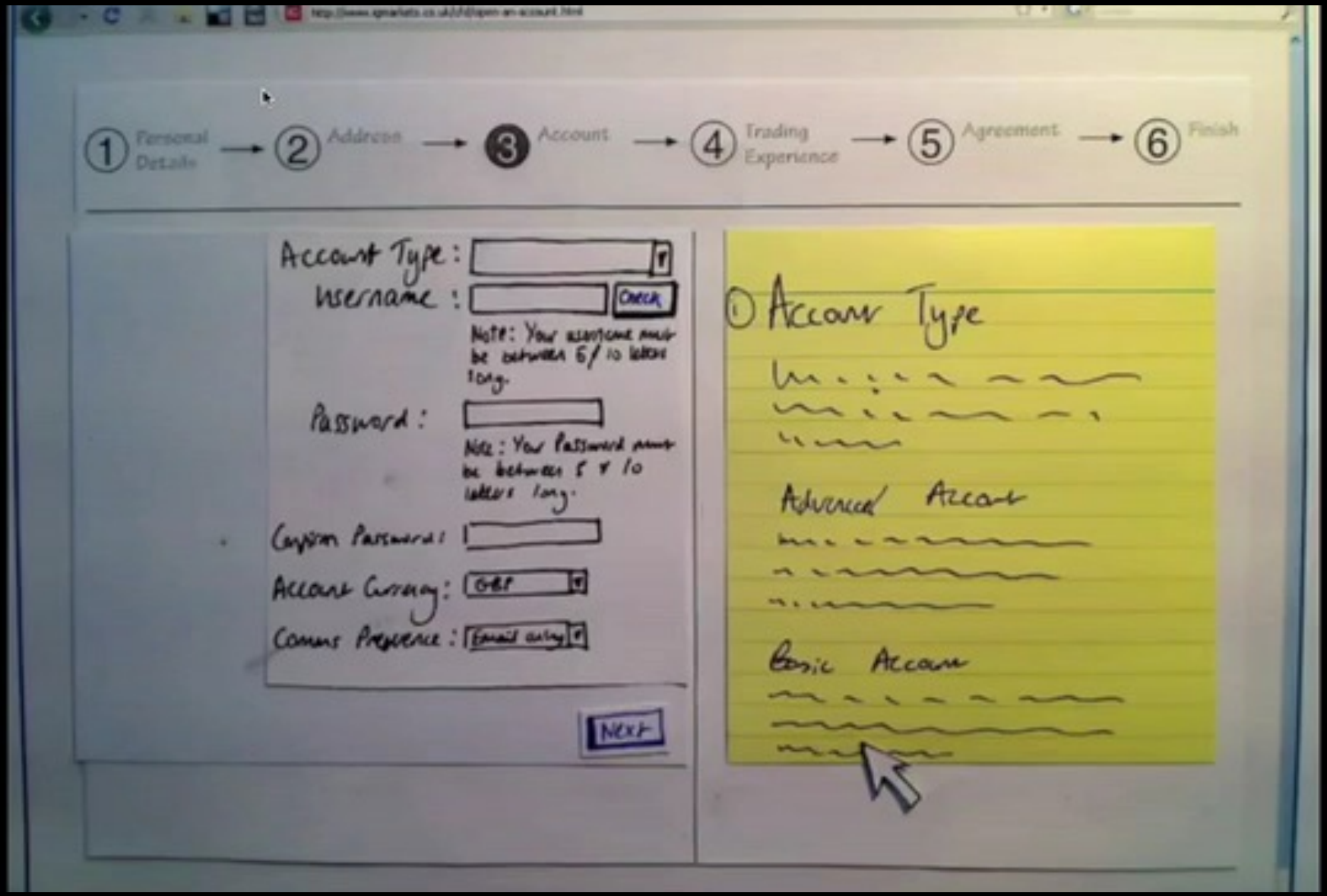



Transparencies allow flexible use of text

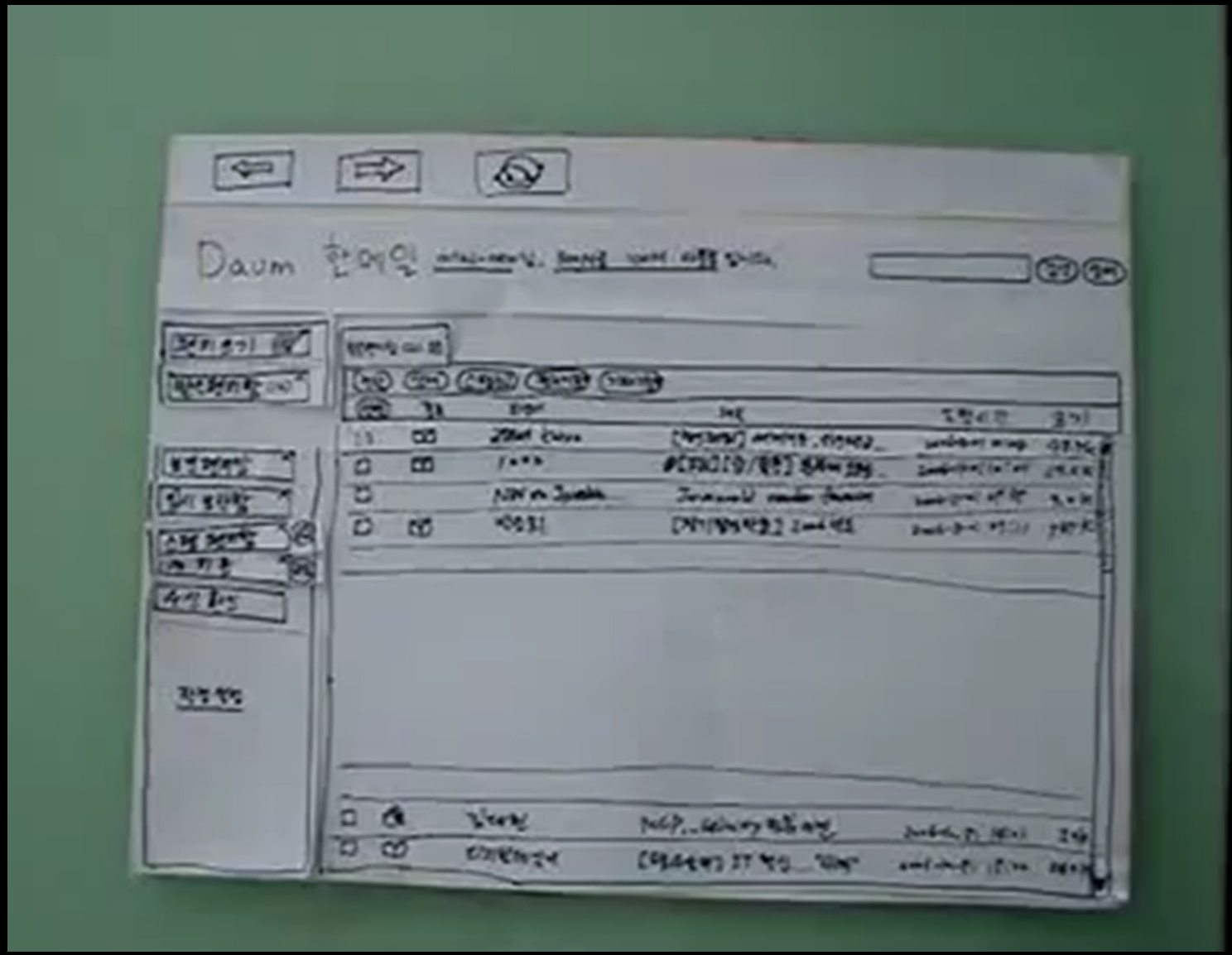
# Paper Prototype as Communication



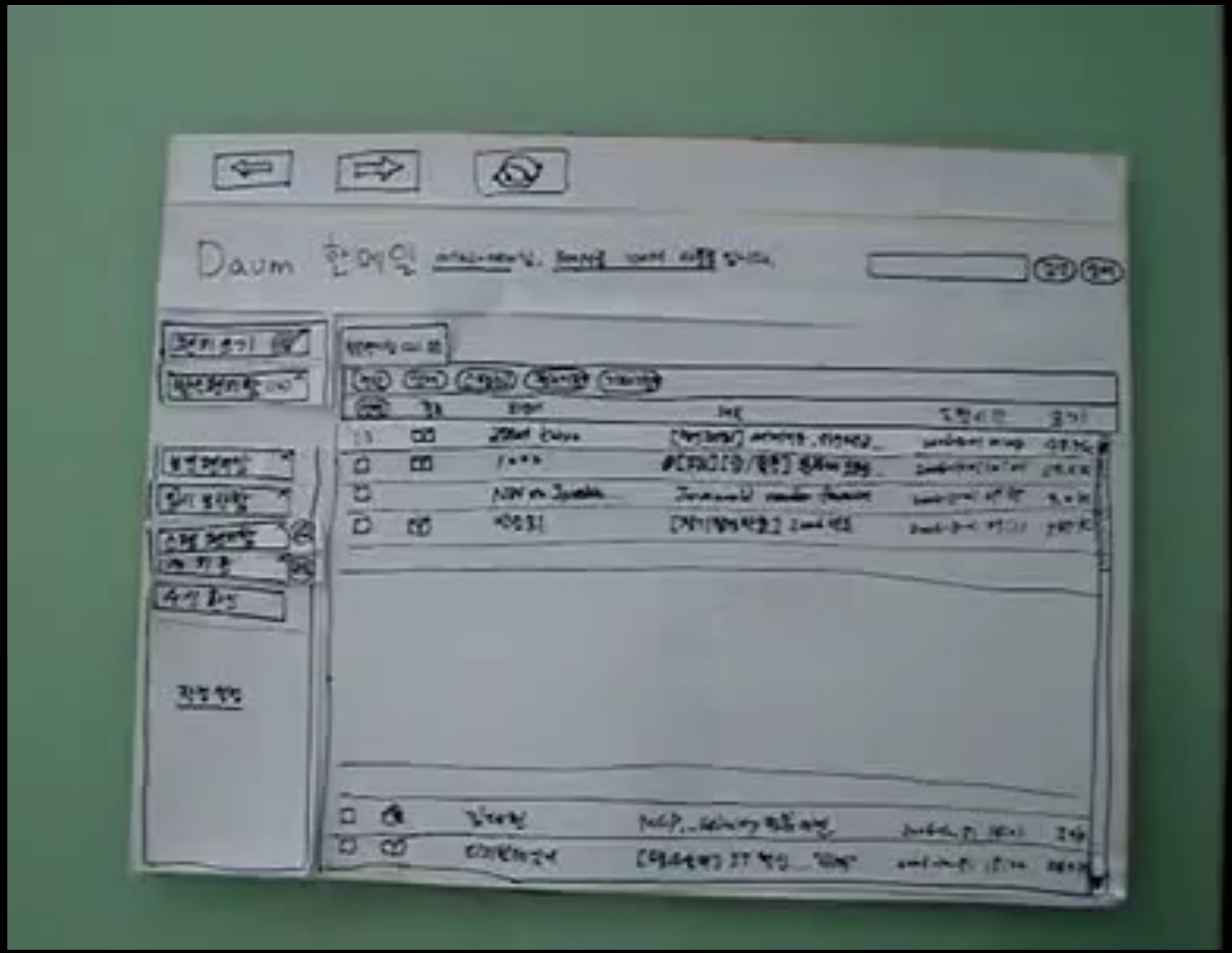
# Paper Prototype as Communication



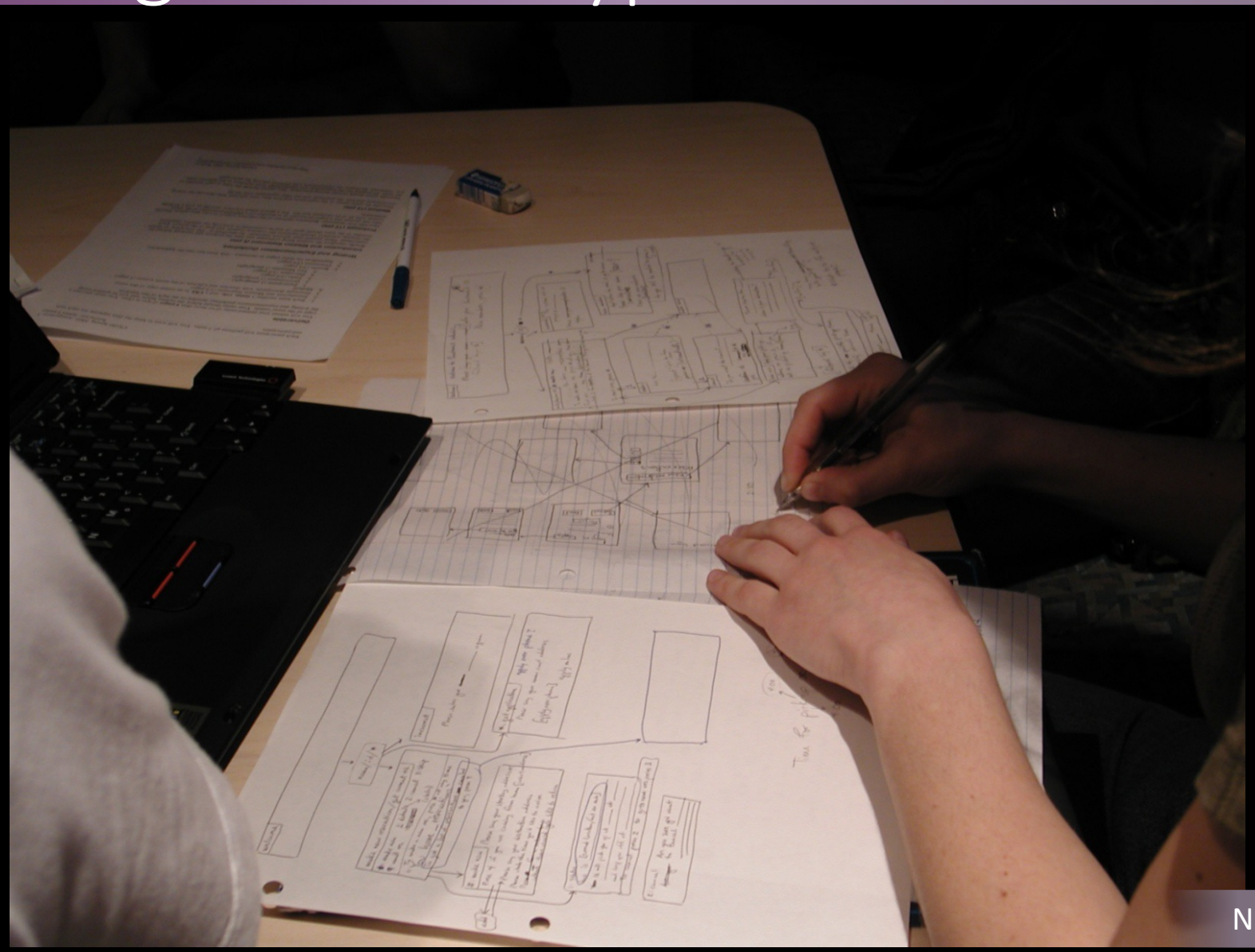
# Paper Prototype as Evaluation



# Paper Prototype as Evaluation

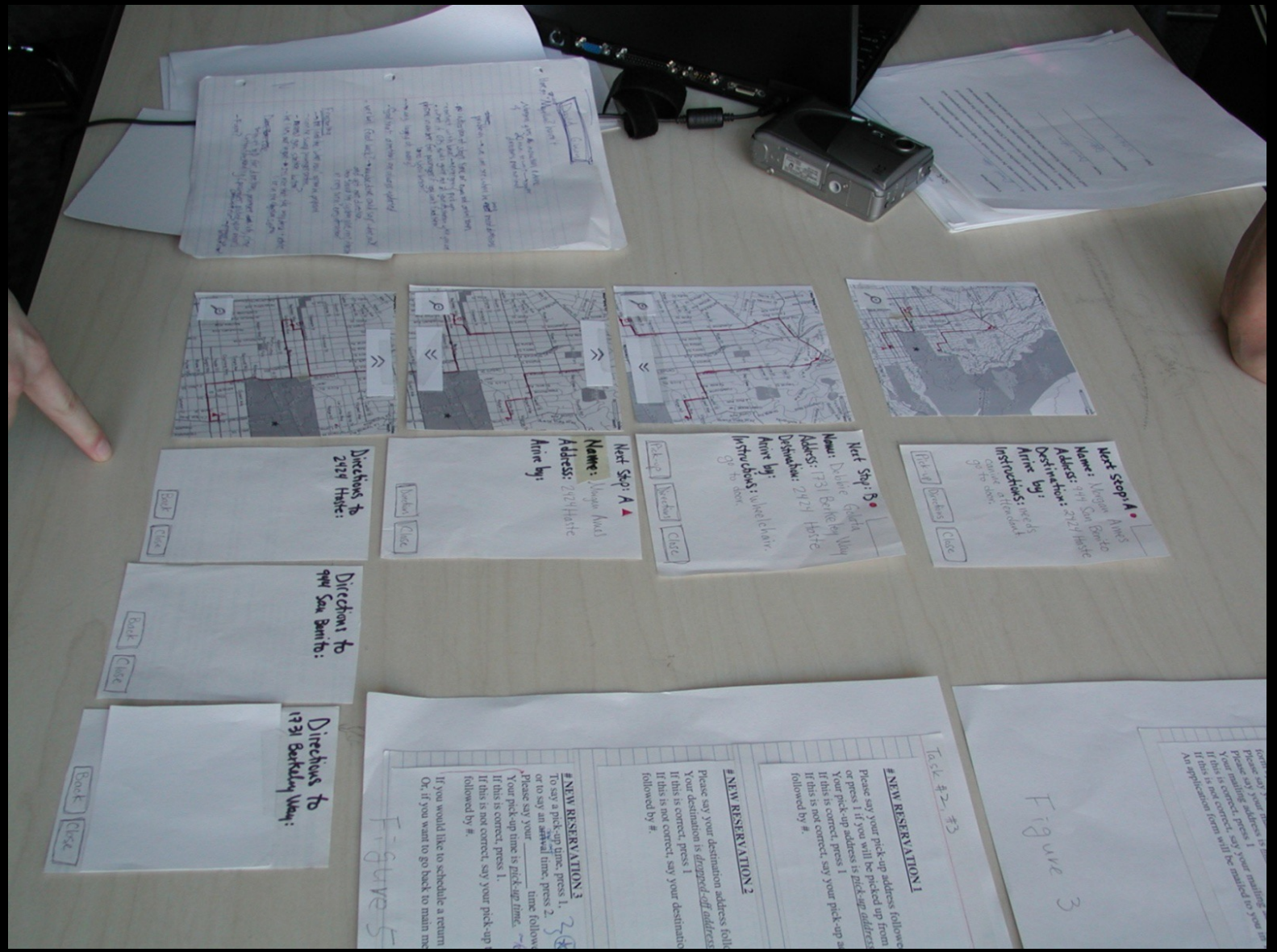


# Constructing the Prototype



Note the sketching continues

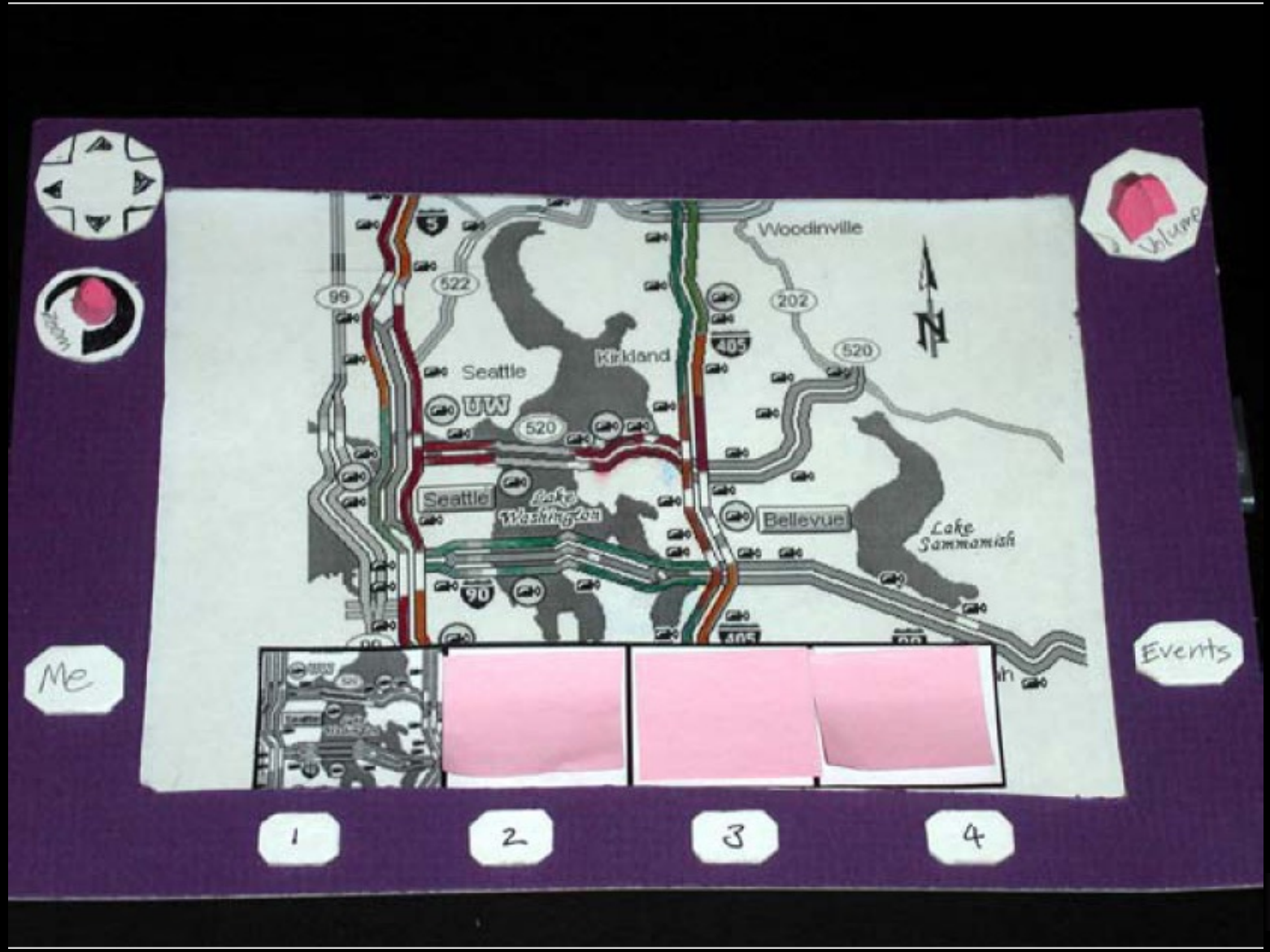
# Constructing the Prototype




Use copier or printer for many versions

Planning what is needed given tasks

# Constructing the Prototype



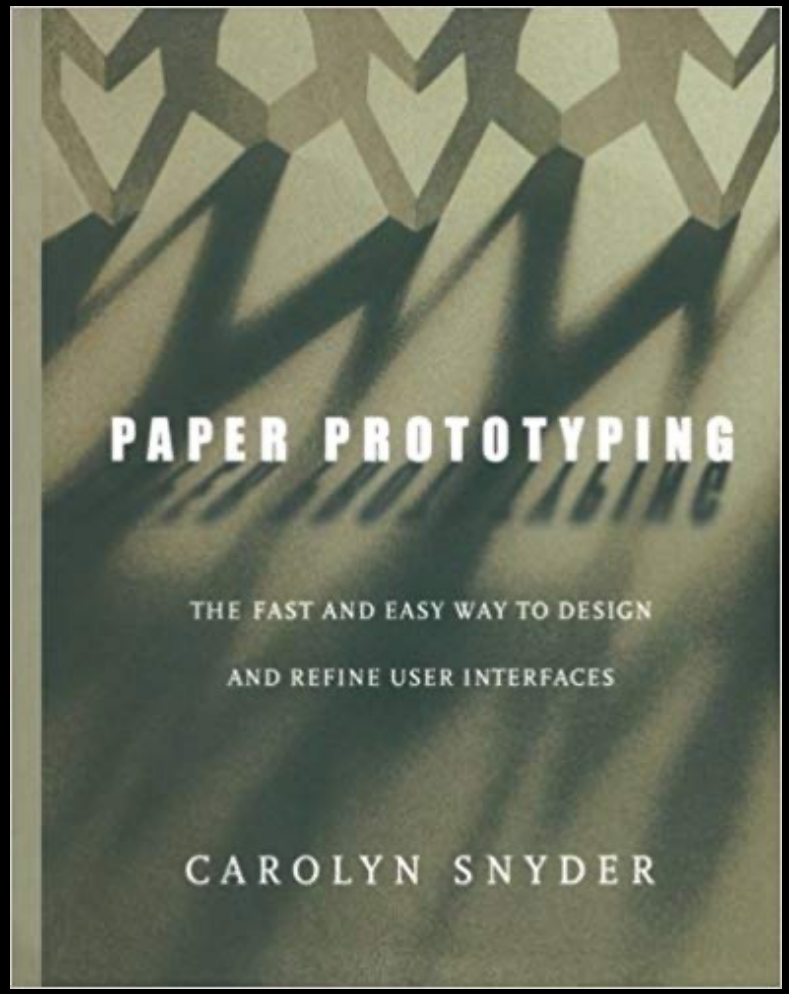

Prototyping physical form

# Constructing the Prototype


Remember your target platform constraints

# Additional Reading

Chapter 4 is a practical introduction to paper prototyping




See Canvas Resources

# Overview

Storyboarding

Prototyping

- Video Prototyping
- Paper Prototyping

**Usability Testing**

- Tasks in Usability Testing
- Ethics in Usability Testing
- Wizard of Oz Methods

# Is My Design Good?

This is not a meaningful question

- It can and will be answered with “Yes”

At least consider asking:

- “What are three good things about this design?”
- “What are three bad things about this design?”

But really the answer is “it depends”

- Remember that designs are used for tasks
- We should ask this in the context of tasks

# Task-Based Usability

Set up an overall context

> "We are interested in improving people's ability to save, update, and use contacts in their 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 206-867-5309

Tasks can be chained to naturally lead to next

# Deciding What Data to Collect

Process data

- Observations of what people do and think
- Focused on improving this process

Summary, statistical, or bottom-line data

- Summary of what happened (time, errors, success)
- Focused on measurement

Often focus on process data

- Gives overview of where the problems are
- More useful than “too slow” or “too many errors”

# Not a Scientific Experiment

- Focus is on improving the design
  - Experimental control is not as necessary
  - Data measurement is not as precise
  - Number of participants is fairly small
- Changes can be made
  - Fix the obviously broken design
  - Quickly explore alternatives
  - Modify the focus of testing between participants

# 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

# Introducing the Test

## Address Feelings of Judgment

"Today we are interested in learning about the design.
That's where you come in!"

"Another team developed the design.
I just want to know what the problems are with the design."

"It is the design being tested here, not you."

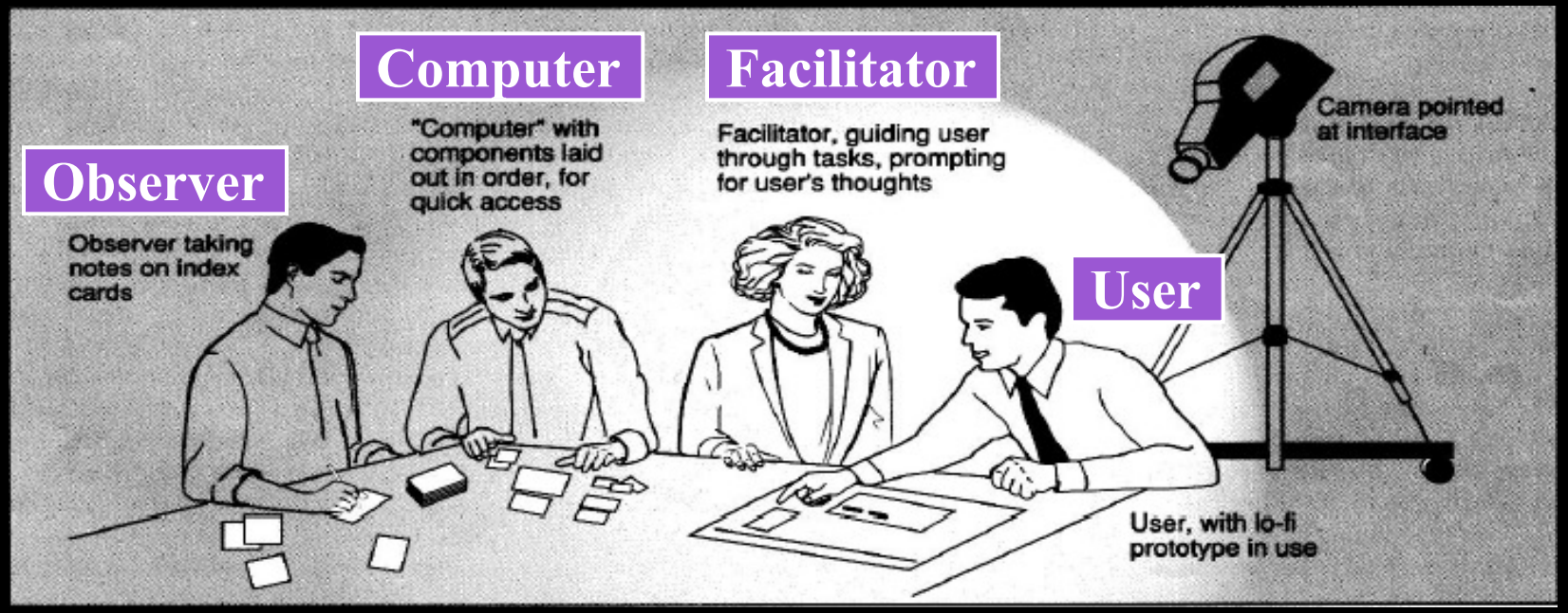
# Introducing the Test

## Set Expectations for Process

"It is important you think out loud while working with the design. Constantly say what you are thinking, looking for, wondering, confused about, or surprised by. If you stop talking, I will prompt you to talk."

"Do you have any questions before we start?"

# Conducting a Test




See the Snyder Chapter 8 and Gommol for tips on running a usability test session

Rettig, 1994

# Talk-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

# Answering Questions

Remember the purpose of this test

- You would not be there “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

- Note any help you provide as a major failure
- Do not allow observing engineers to help

# 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

Tests yield many forms of data

Quantitative counts

- time, success/failure
- confusions, errors, workarounds

Observations

- notes about when, where, why, how above occur

Participant comments and feedback

- during session of via a questionnaire

# Analyzing and Reporting the Results

Summarize the data

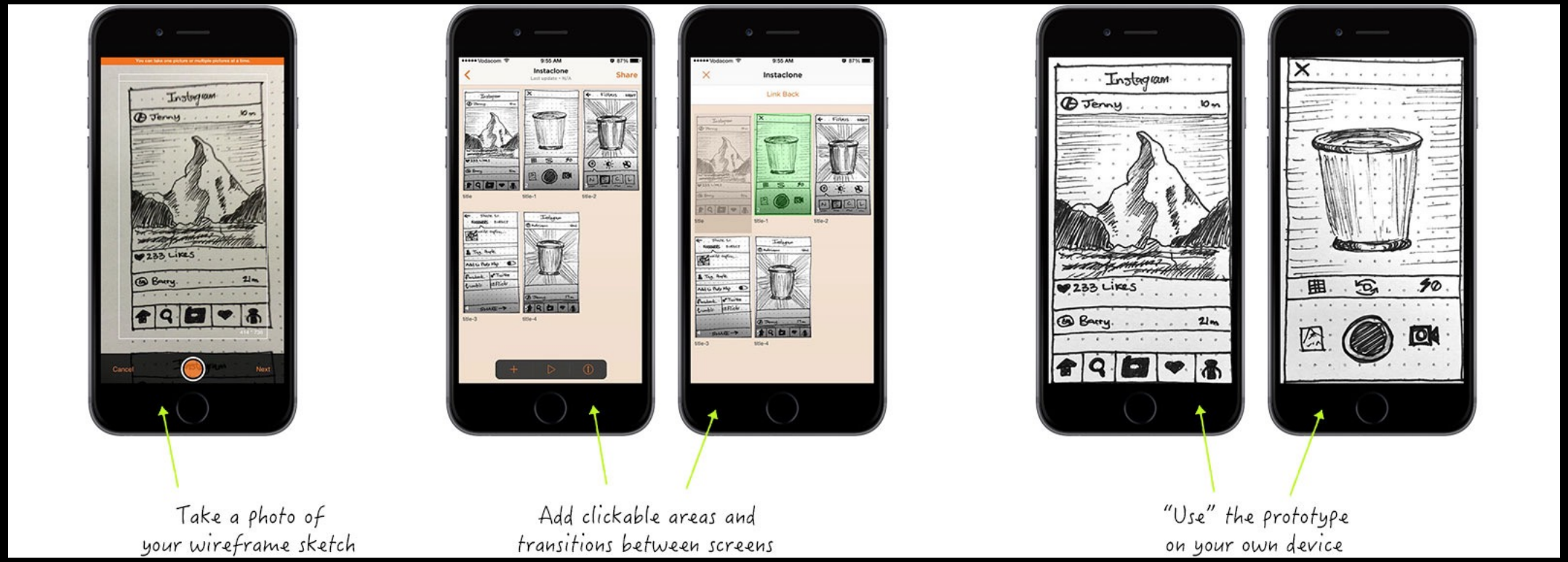
Make a list of critical incidents

- 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

# Tradeoffs in Certain Techniques




POP

# Task Design is Important

The goal of a test is to figure out how a person interacts with an interface in the wild...

There are two possible explanations for why a test does not find significant problems:

- The interface does not have significant problems
- The test itself has significant problems

# Bad: Artificial Subgoals

People using the design “in the wild”
may not necessarily form these same subgoals

The task should give one top-level goal,
people should form their subgoals while pursuing this

> Now you want to choose the type of paper you want to print your document on. Lets imagine that Bin “B” has the paper you want to print your paper on, please complete this task.
>
> Now set the darkness of your copies to about 50% dark.
> After setting the darkness, you decide you want to print 2 sides of copies on two sides of paper. Please complete this task.

# Bad: Artificial Ordering

Without an artificial ordering of information or subgoals, people might not proceed in this order

The ordering might also be biased towards the layout of the interface, which would conceal any problems with finding the appropriate control

- Enter in 10 copies, with lightness set to 10%.
- Choose 1 sided to 2 sided, use paper source bin A.
- Cover sheet needed, using paper bin B for cover sheet.
- Set stapling feature on and collating on.
- Start printing.

# Bad: Changing the Task

The task is to make copies, and this happens to involve entering information in the copier interface

But this task description is a data entry task,
“Here is some information. Put it in the interface.”

- Make 23 copies
- With collate
- Cover sheets
- Default darkness
- 1 Sided-> 1 Sided

# Bad: Giving the Answers

Tells the person what terminology the interface uses, which they might not otherwise know

lighten = contrast, sorted = collated?

> You are a teacher and are trying to make 40 copies of a one-sided magazine article that is 10 pages long for your class tomorrow. Due to the large number of copies, you print the article double-sided, in other words 10 page article would be printed on 5 sheets of paper. Due to the high contrast of the article, you must lighten the copy, in other words change the contrast. You then want the copies to be collated and stapled.

# Good: Giving Context

Giving realistic context through scenarios can reduce the artificiality of the task

It's your first day in the office, starting a new job. You would like to make some copies of several documents that your boss gave you to browse through. Your colleague in the next cubicle tells you that you need an access code to make copies. The code is 5150. You walk over to the copy machine at the end of the hall and realize that it is not the Xerox copier that you are accustomed to...

Make 2 copies of the "Company Annual Report".

# Consider: Under-Specified Tasks

Many realistic goals are under-specified,
as people have only a general idea what they want

By under-specifying the task,
you can elicit realistic confusion and decision-making

> You just finished fixing up the old hot rod in the garage and now its time to sell her. Make a couple copies of the pictures you took to send into the used car sales magazines. It's ok that they're in black and white but maybe you should lighten them up a bit. Your account billing code is 5150.

# Task Design Summary

Task design is difficult and important

Poorly designed tasks mask interface failures

Have others help you “debug” them before testing

# Ethical Considerations in Usability Testing

Testing is stressful

- Can be distressing,
  leave people in tears

You have a responsibility to alleviate

- make voluntary with informed consent
- avoid pressure to participate
- let them know they can stop at any time
- stress that you are testing the system, not them
- make collected data as anonymous as possible

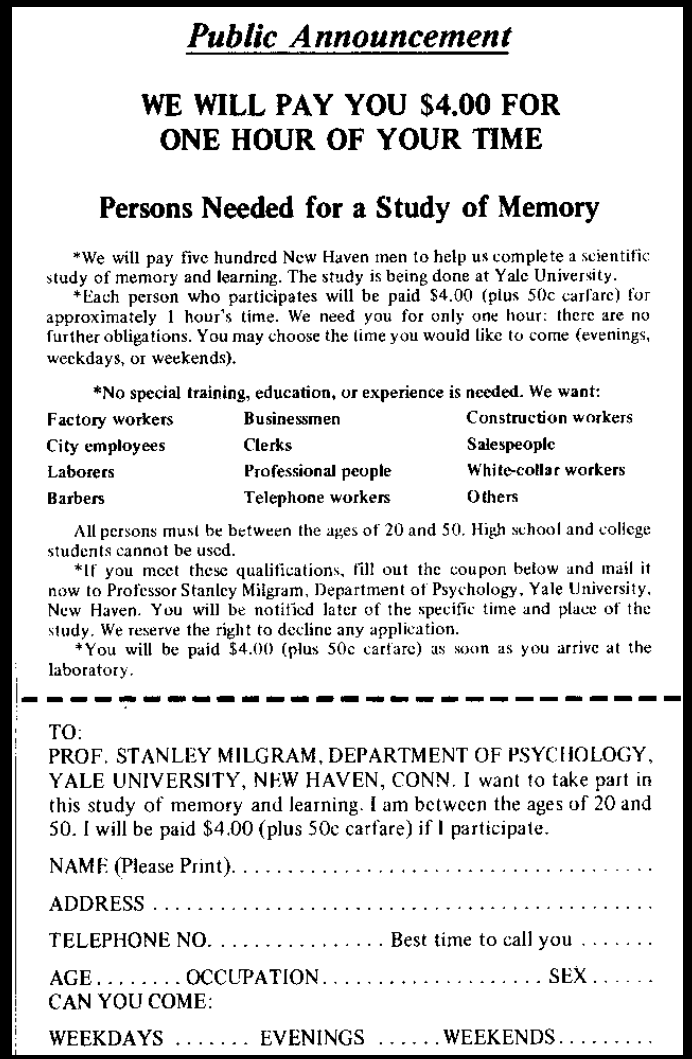
# Human Subjects Approvals

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



***Public Announcement***

**WE WILL PAY YOU $4.00 FOR ONE HOUR OF YOUR TIME**

**Persons Needed for a Study of Memory**

*We will pay five hundred New Haven men to help us complete a scientific study of memory and learning. The study is being done at Yale University.

*Each person who participates will be paid $4.00 (plus 50c carfare) for approximately 1 hour's time. We need you for only one hour: there are no further obligations. You may choose the time you would like to come (evenings, weekdays, or weekends).

***No special training, education, or experience is needed. We want:**

| | | |
|---|---|---|
| Factory workers | Businessmen | Construction workers |
| City employees | Clerks | Salespeople |
| Laborers | Professional people | White-collar workers |
| Barbers | Telephone workers | Others |

All persons must be between the ages of 20 and 50. High school and college students cannot be used.

*If you meet these qualifications, fill out the coupon below and mail it now to Professor Stanley Milgram, Department of Psychology, Yale University, New Haven. You will be notified later of the specific time and place of the study. We reserve the right to decline any application.

*You will be paid $4.00 (plus 50c carfare) as soon as you arrive at the laboratory.

TO:
PROF. STANLEY MILGRAM, DEPARTMENT OF PSYCHOLOGY, YALE UNIVERSITY, NEW HAVEN, CONN. I want to take part in this study of memory and learning. I am between the ages of 20 and 50. I will be paid $4.00 (plus 50c carfare) if I participate.

NAME (Please Print). . . . . .

ADDRESS . . . . . .

TELEPHONE NO. . . . . Best time to call you . . . . . .

AGE . . . . . OCCUPATION . . . . . SEX . . . . . .
CAN YOU COME:

WEEKDAYS . . . . . EVENINGS . . . . . WEEKENDS . . . . . .

# A Fine Line: “Deception” in Testing

Sometimes we *think* we need to keep secrets from the tester about what’s “really going on”

Usually, lying to the tester only brings pain

- VERY quick way to lose trust / rapport with a tester
- Testers are way smarter than most engineers/designers care to concede

In **SOME** cases, this is fine:

- Wizard of Oz methods
- Studies about unconscious biases
- Extending “social grace” for critique

# “Wizard of Oz” Methods

Technique to allow testing and
iterative improvement of interfaces not yet implemented

- Human simulation of necessary functionality
- Paper prototyping is a simple example

Other methods more explored in research

- HCI interest credited to
  Gould et al, 1983
  “Composing Letters with
  a Simulated Listening Typewriter”

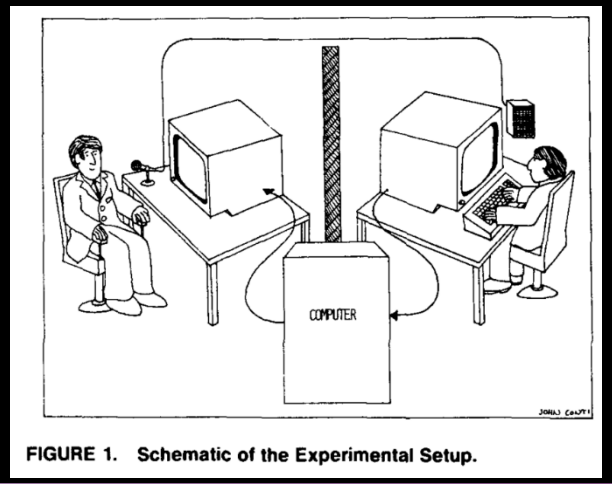
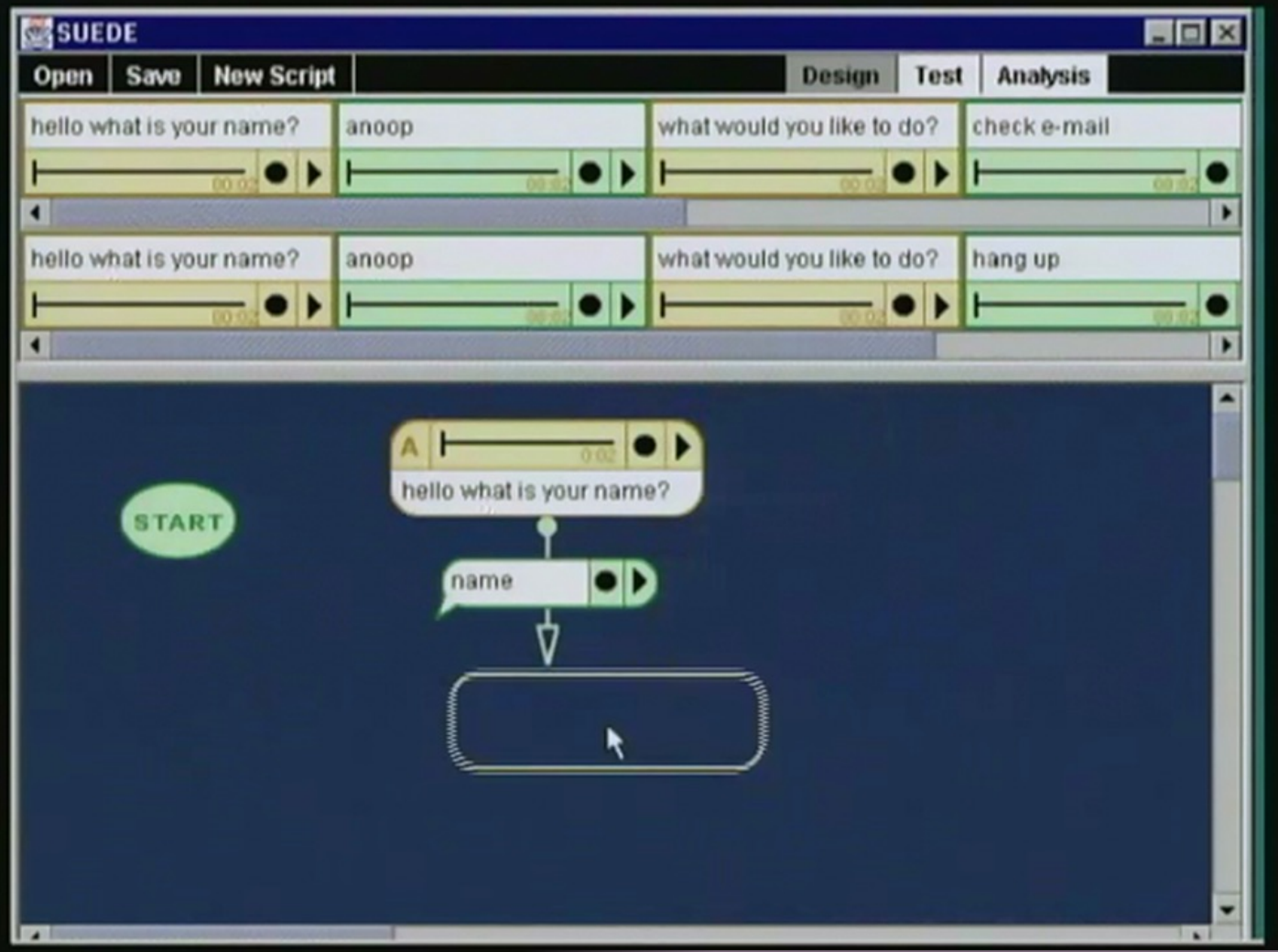


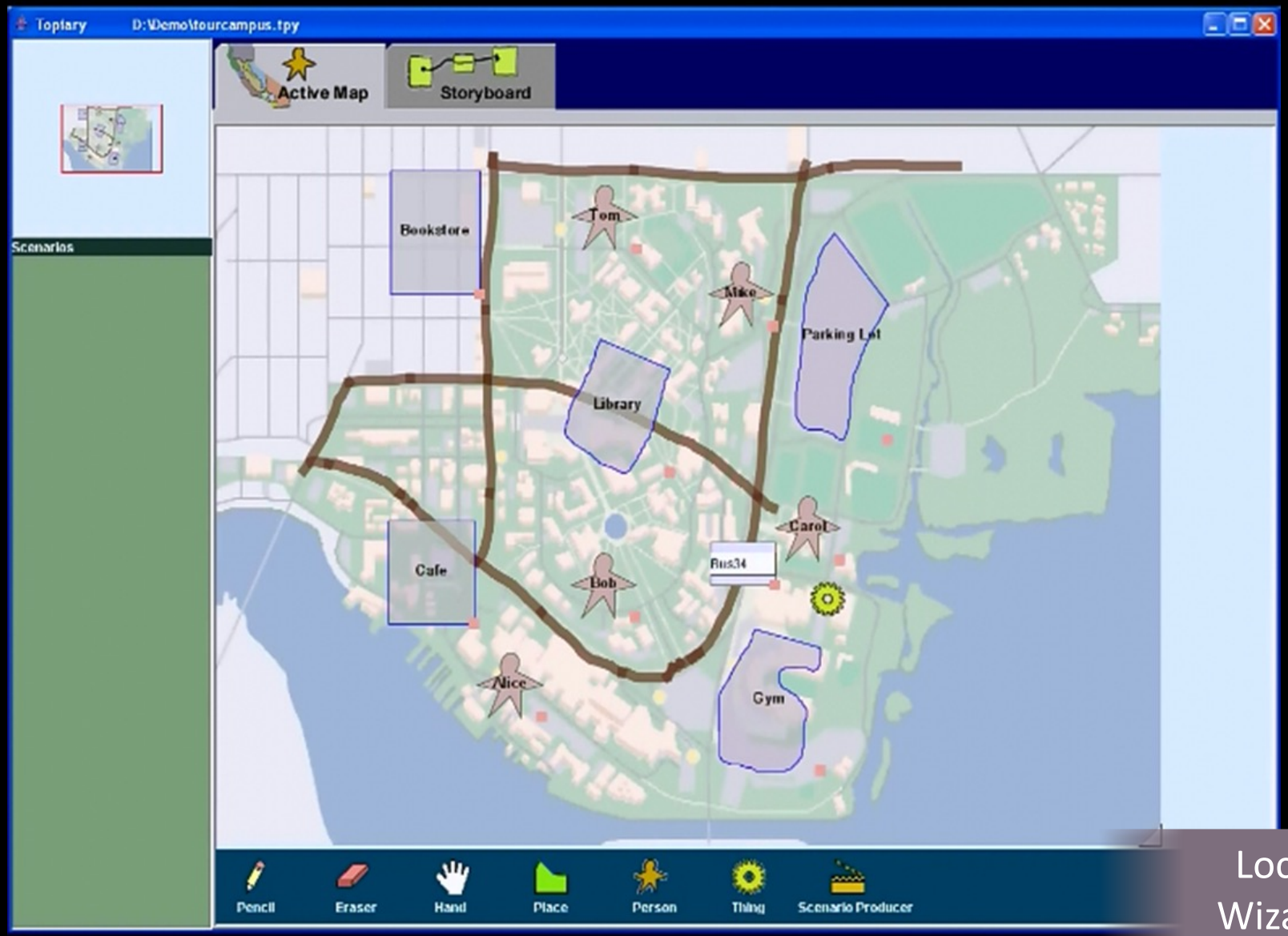

FIGURE 1. Schematic of the Experimental Setup.

# SUEDE




Low-Fidelity Is Not Just About Ink, Wizard of Oz for Speech

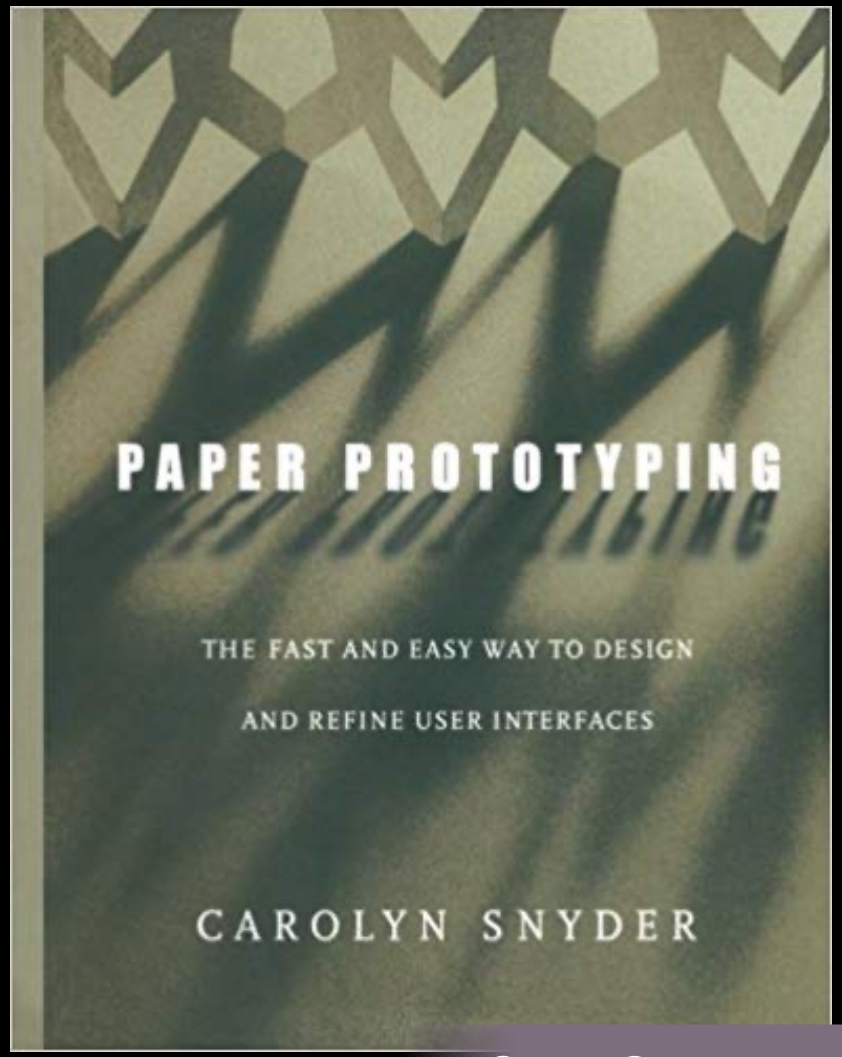
# Topiary




Location-Based Designs,
Wizard of Oz for Location

# Additional Reading

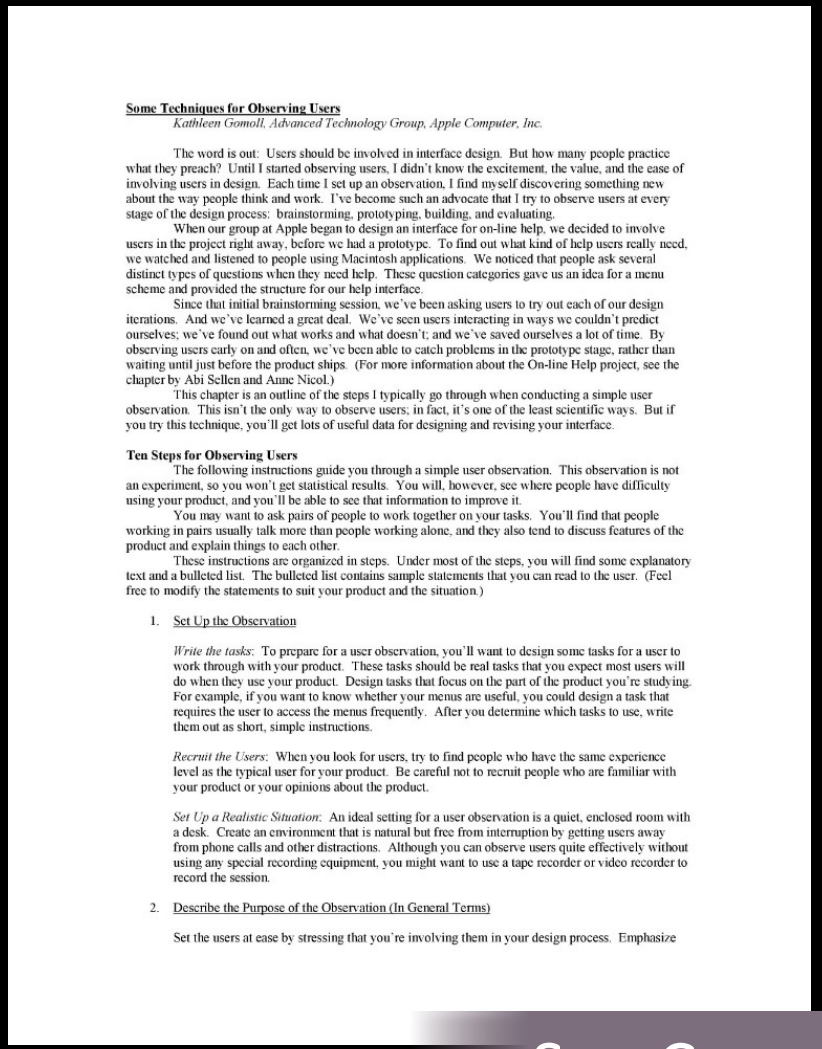
Chapter 8 is a practical introduction to usability testing




See Canvas Resources

# Additional Reading

## Checklist for a usability session



**Some Techniques for Observing Users**

*Kathleen Gomoll, Advanced Technology Group, Apple Computer, Inc.*

The word is out: Users should be involved in interface design. But how many people practice what they preach? Until I started observing users, I didn't know the excitement, the value, and the ease of involving users in design. Each time I set up an observation, I find myself discovering something new about the way people think and work. I've become such an advocate that I try to observe users at every stage of the design process: brainstorming, prototyping, building, and evaluating.

When our group at Apple began to design an interface for on-line help, we decided to involve users in the project right away, before we had a prototype. To find out what kind of help users really need, we watched and listened to people using Macintosh applications. We noticed that people ask several distinct types of questions when they need help. These question categories gave us an idea for a menu scheme and provided the structure for our help interface.

Since that initial brainstorming session, we've been asking users to try out each of our design iterations. And we've learned a great deal. We've seen users interacting in ways we couldn't predict ourselves; we've found out what works and what doesn't; and we've saved ourselves a lot of time. By observing users early on and often, we've been able to catch problems in the prototype stage, rather than waiting until just before the product ships. (For more information about the On-line Help project, see the chapter by Abi Sellen and Anne Nicol.)

This chapter is an outline of the steps I typically go through when conducting a simple user observation. This isn't the only way to observe users; in fact, it's one of the least scientific ways. But if you try this technique, you'll get lots of useful data for designing and revising your interface.

**Ten Steps for Observing Users**

The following instructions guide you through a simple user observation. This observation is not an experiment, so you won't get statistical results. You will, however, see where people have difficulty using your product, and you'll be able to see that information to improve it.

You may want to ask pairs of people to work together on your tasks. You'll find that people working in pairs usually talk more than people working alone, and they also tend to discuss features of the product and explain things to each other.

These instructions are organized in steps. Under most of the steps, you will find some explanatory text and a bulleted list. The bulleted list contains sample statements that you can read to the user. (Feel free to modify the statements to suit your product and the situation.)

1. Set Up the Observation

   *Write the tasks*: To prepare for a user observation, you'll want to design some tasks for a user to work through with your product. These tasks should be real tasks that you expect most users will do when they use your product. Design tasks that focus on the part of the product you're studying. For example, if you want to know whether your menus are useful, you could design a task that requires the user to access the menus frequently. After you determine which tasks to use, write them out as short, simple instructions.

   *Recruit the Users*: When you look for users, try to find people who have the same experience level as the typical user for your product. Be careful not to recruit people who are familiar with your product or your opinions about the product.

   *Set Up a Realistic Situation*: An ideal setting for a user observation is a quiet, enclosed room with a desk. Create an environment that is natural but free from interruption by getting users away from phone calls and other distractions. Although you can observe users quite effectively without using any special recording equipment, you might want to use a tape recorder or video recorder to record the session.

2. Describe the Purpose of the Observation (In General Terms)

   Set the users at ease by stressing that you're involving them in your design process. Emphasize

See Canvas Resources

CSE 440:
Introduction to HCI

# 09: Storyboards, Prototyping and Usability Testing

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Jesse J. Martinez | Avery Mack | Simona Liao