

# CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 08:  
Storyboarding and  
Video Prototyping

James Fogarty  
Alex Fiannaca  
Lauren Milne  
Saba Kawas  
Kelsey Munsell

Tuesday/Thursday  
12:00 to 1:20



# Today

## Milestones

Use This Week to Refine and Decide  
Design Review (“1x2”) Due Friday

Reading 3 Due Friday

Getting the Right Design Due Tuesday

Presentations Start Thursday

## Class

Storyboarding and Video Prototyping

Design Check-In (“3x4”) Peer Critique

# Tasks in Design

Tasks guide your exploration of a design

Creating scenarios for each task illustrates

what a person does

what they see

step-by-step performance of task

# 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, \$4.00 infant

Map-IT

<u>Art of War</u>	☆☆☆
(10:00)-(1:00)-4:00-7:00-10:00	
<u>Bittersweet Motel</u>	☆☆☆☆
(11:00)-(1:30)-4:00-6:30-9:00	
<u>Godzilla</u>	☆☆
(10:30)-(2:00)-5:30-9:00	
<u>The Cell</u>	☆☆☆☆
(11:00)-(1:00)-3:00-5:00-7:00-9:00	

## STORE FOR THE STYLE-CHALLENGED

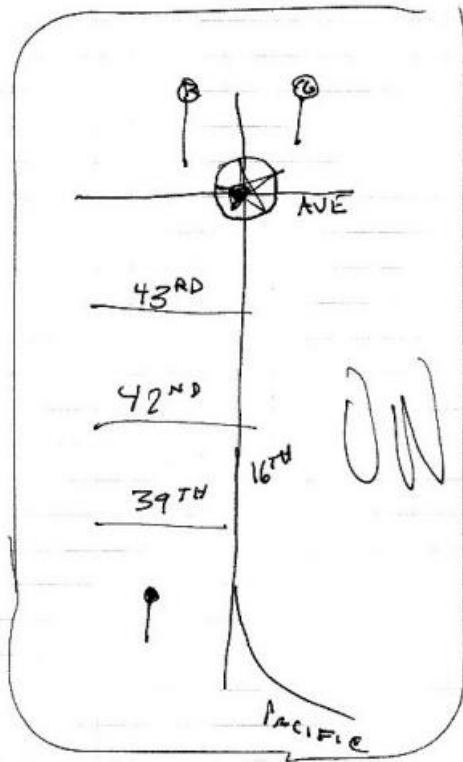


### As it should be...

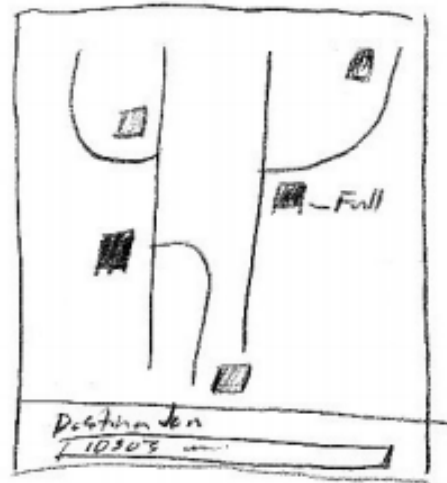


(pre-selected to match so you don't have to choose.)

# Sketching

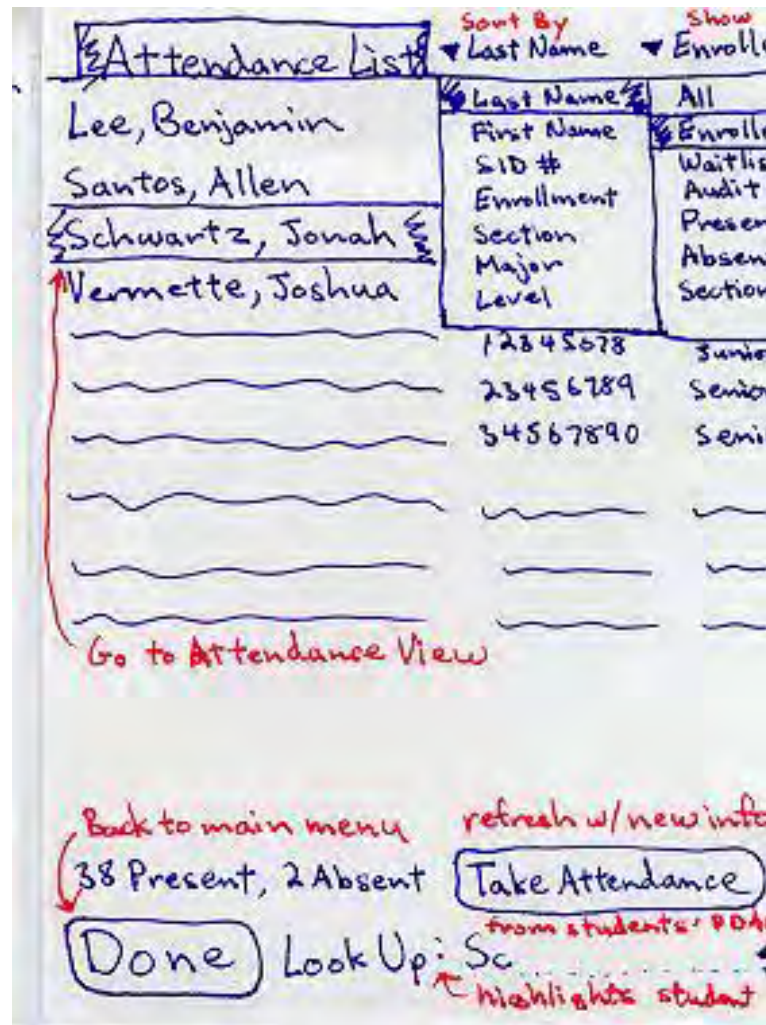


MAP SHOWING PARKING AVAILABILITY BASED ON INPUTTED DATA, INPUTTED ON MAP



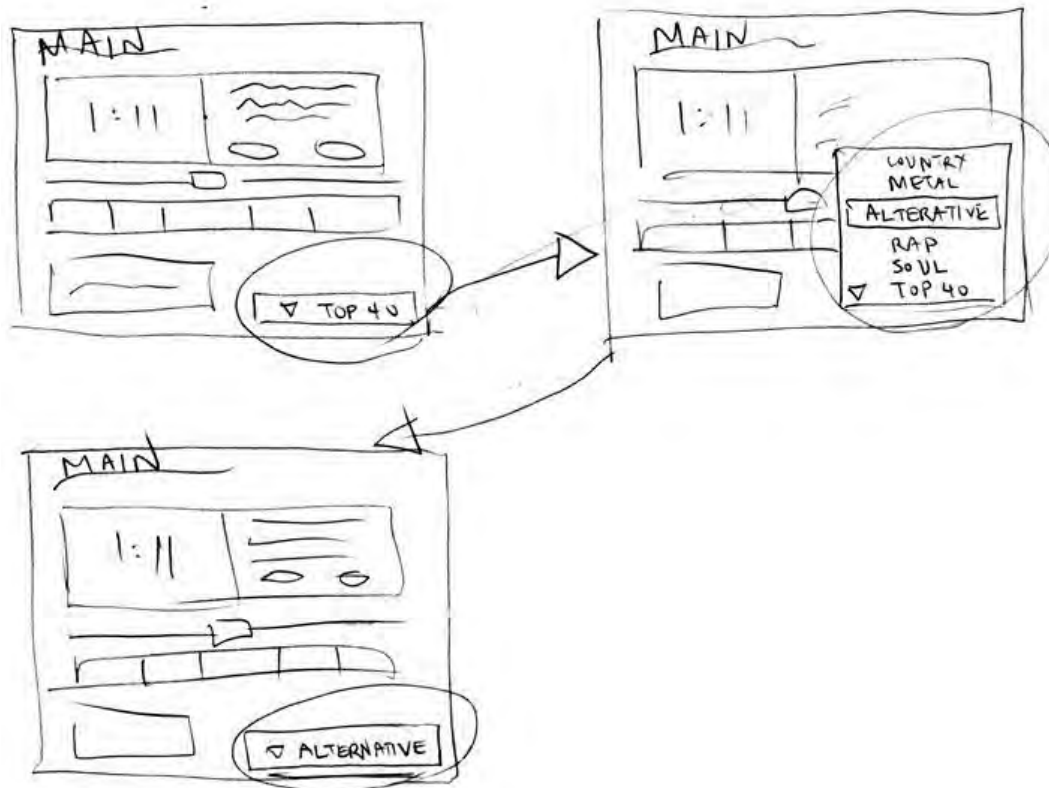
- Different colors
- highlights availability
-

# Sketching and Storyboards

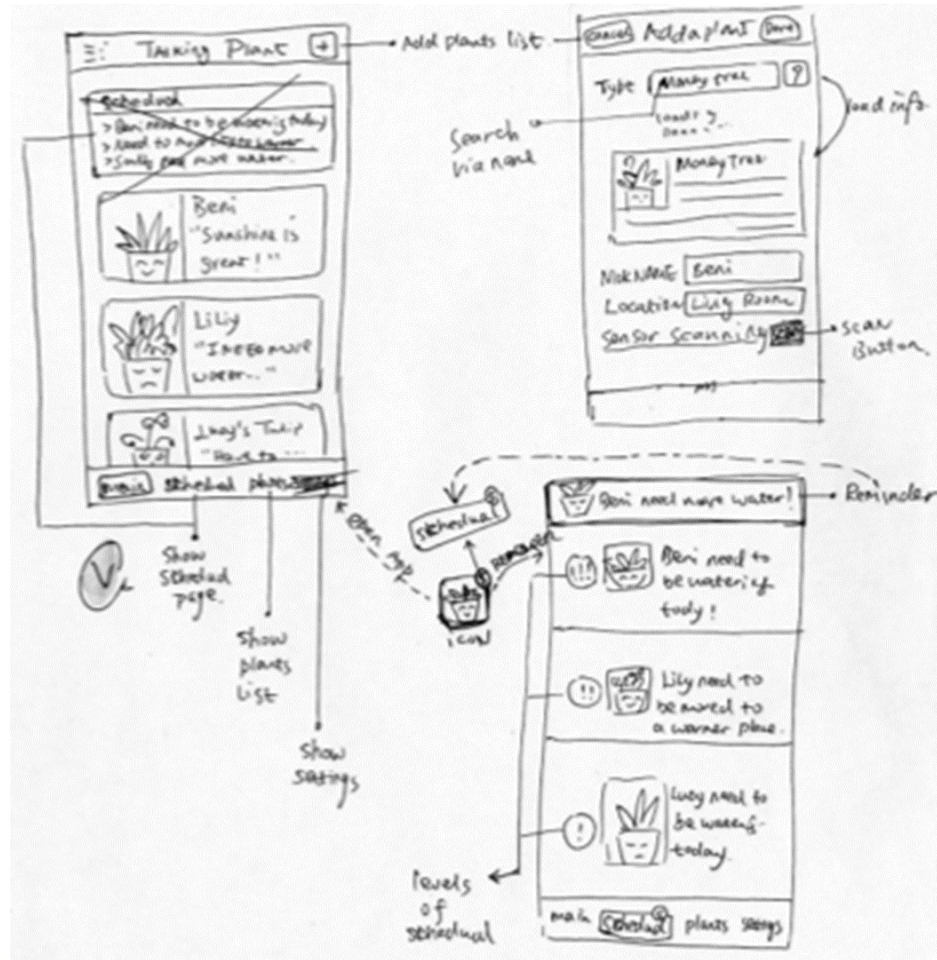


# Sketching and Storyboards

SCENARIO 1 "I want to listen to alternative music"

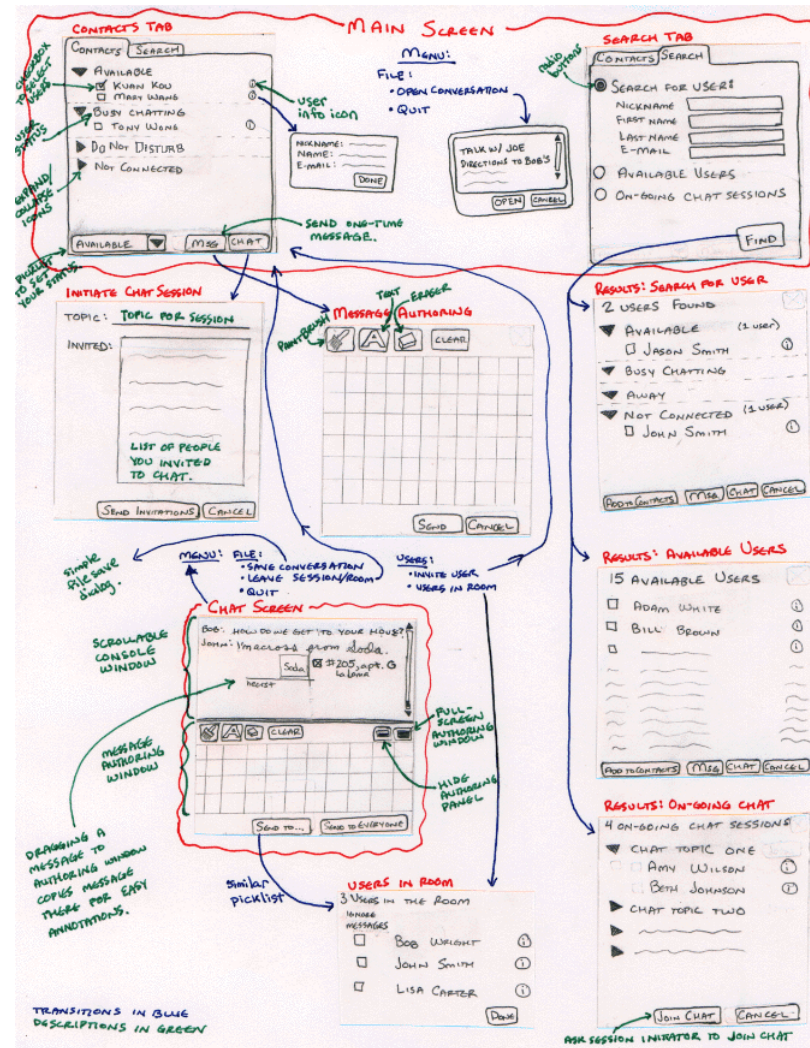


# Sketching and Storyboards

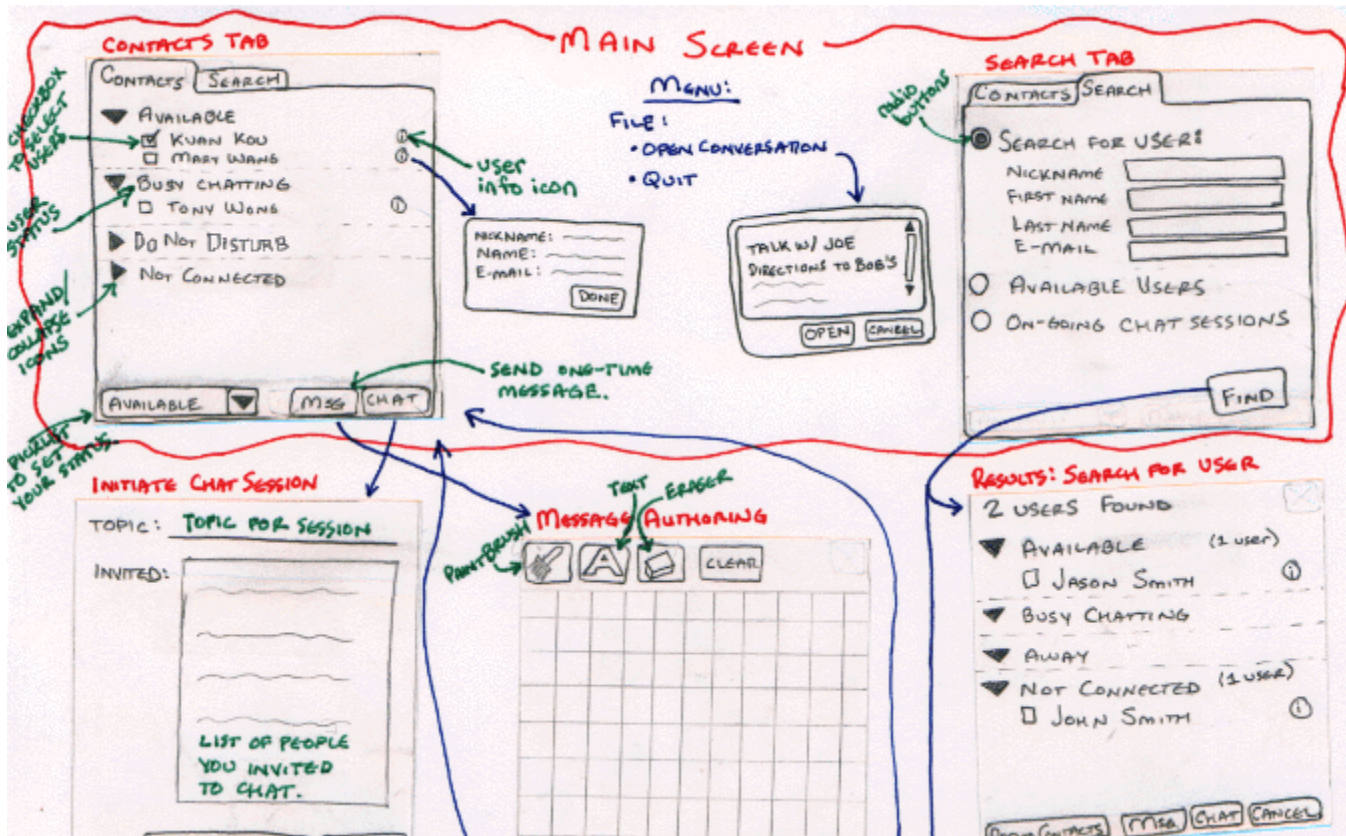




# Sketching and Storyboards



# Sketching and Storyboards



# Illustrating Time

Storyboards come from film and animation

Give a “script” of important events

leave out the details

concentrate on the important interactions



# Storyboards

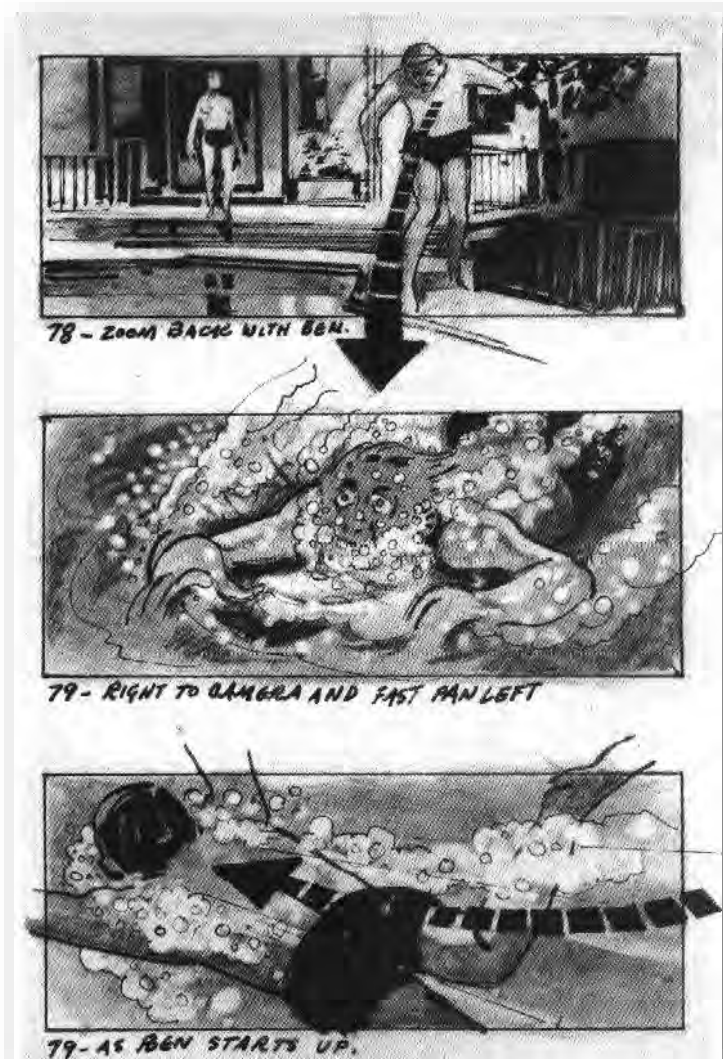
Can be used to explore

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

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

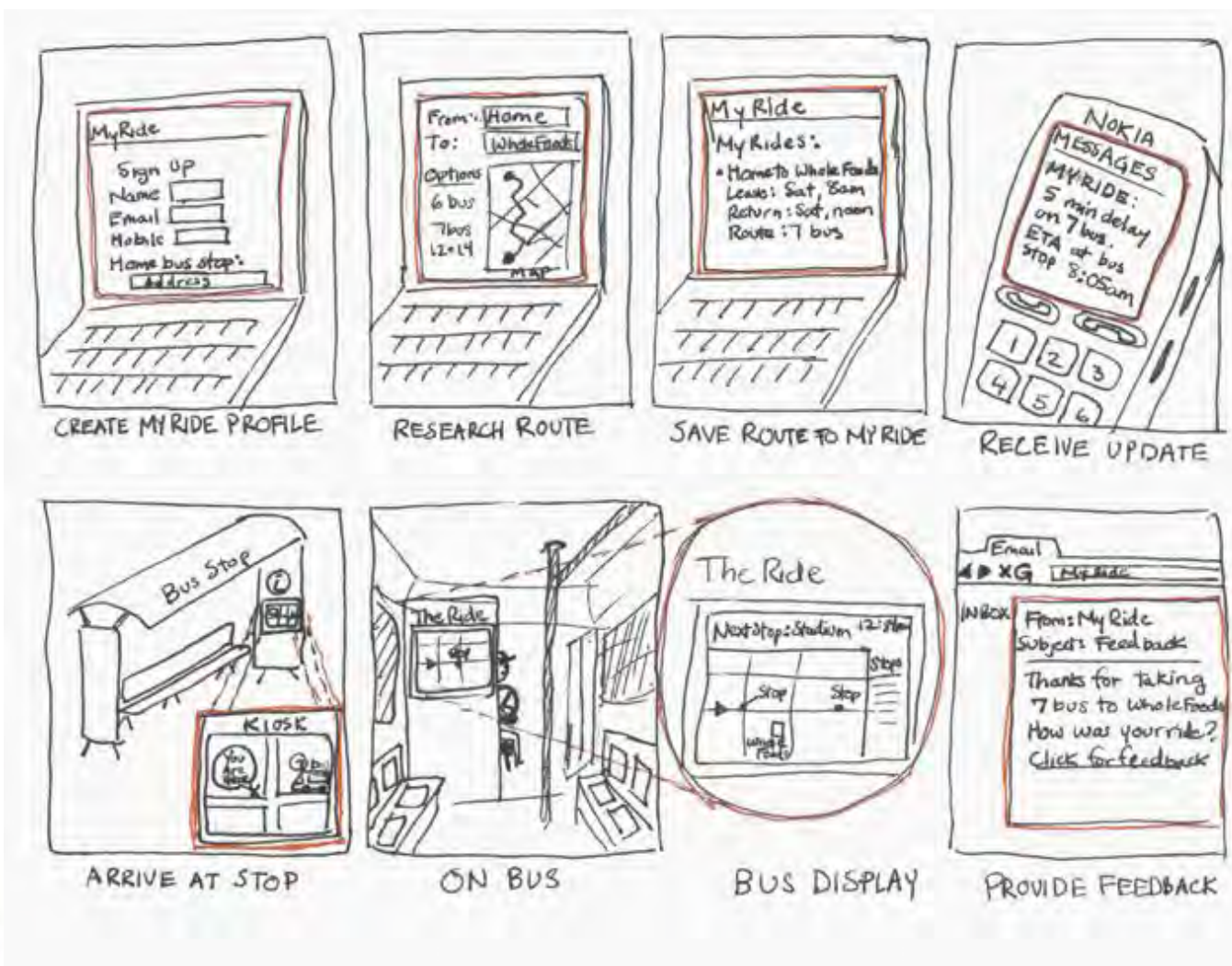


# Storyboards

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



# Basic Storyboard



# Storytelling

## Stories have an audience

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

## Stories have a purpose

Gather and share information about people, tasks, goals

Put a human face on analytic data

Spark new design concepts and encourage innovation

Share ideas and create a sense of history and purpose

Giving insight into people who are not like us

Persuade others of the value of contribution



# 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 satisfied

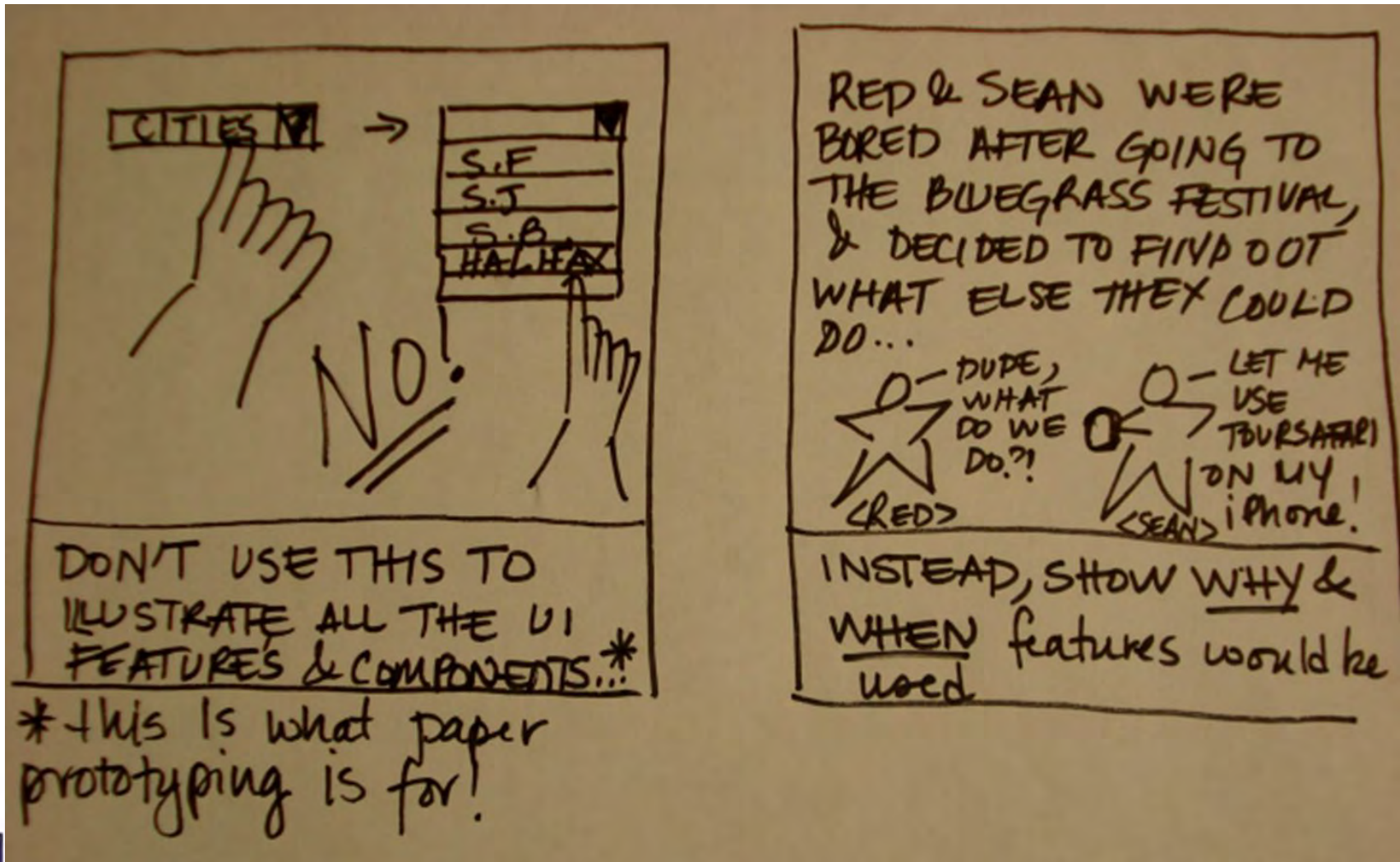
Details of interface features and components are not necessarily surfaced, they can often be developed and conveyed more effectively with other methods

Can help surface details that might otherwise be ignored

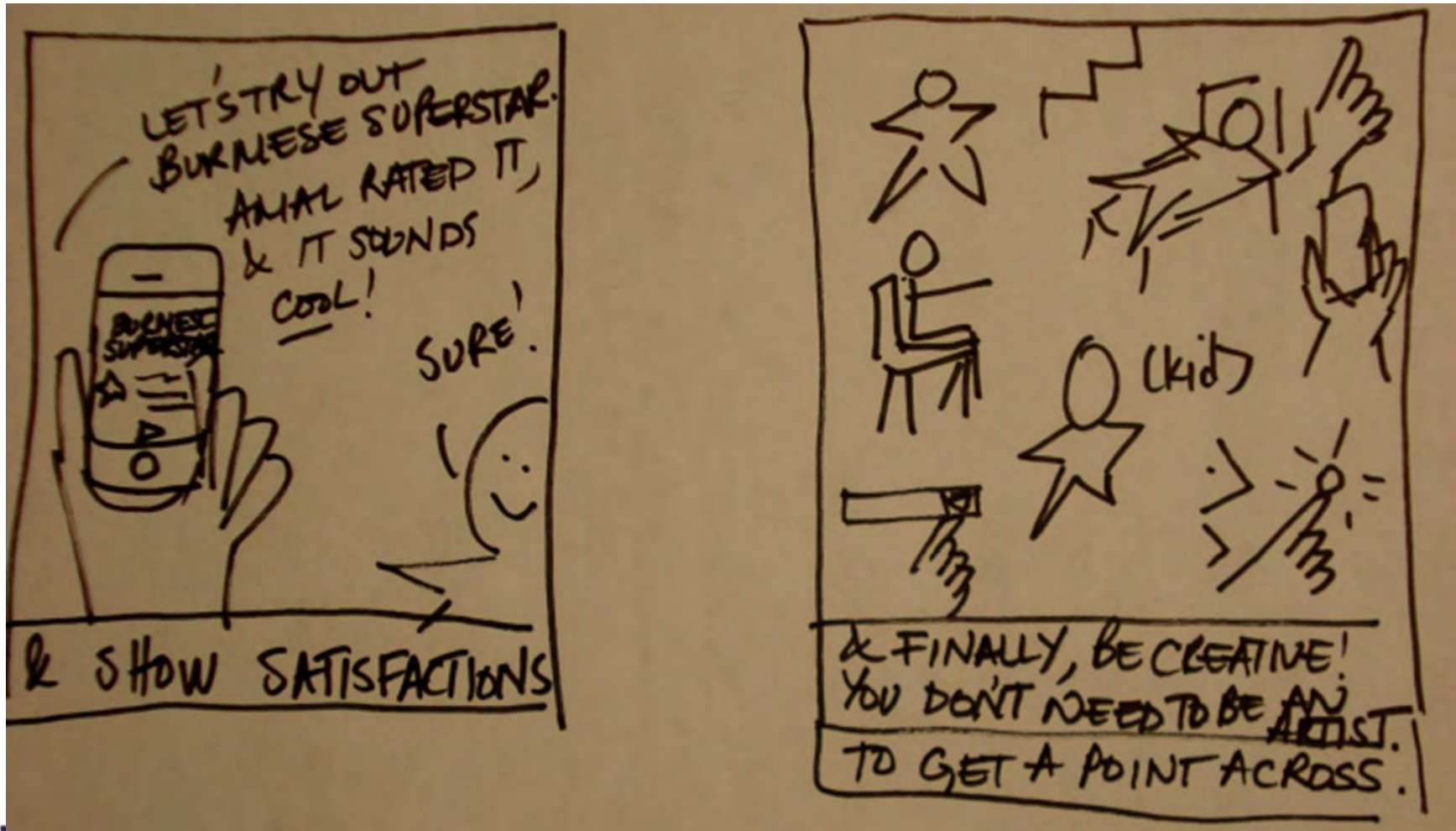
Grocery store application:

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

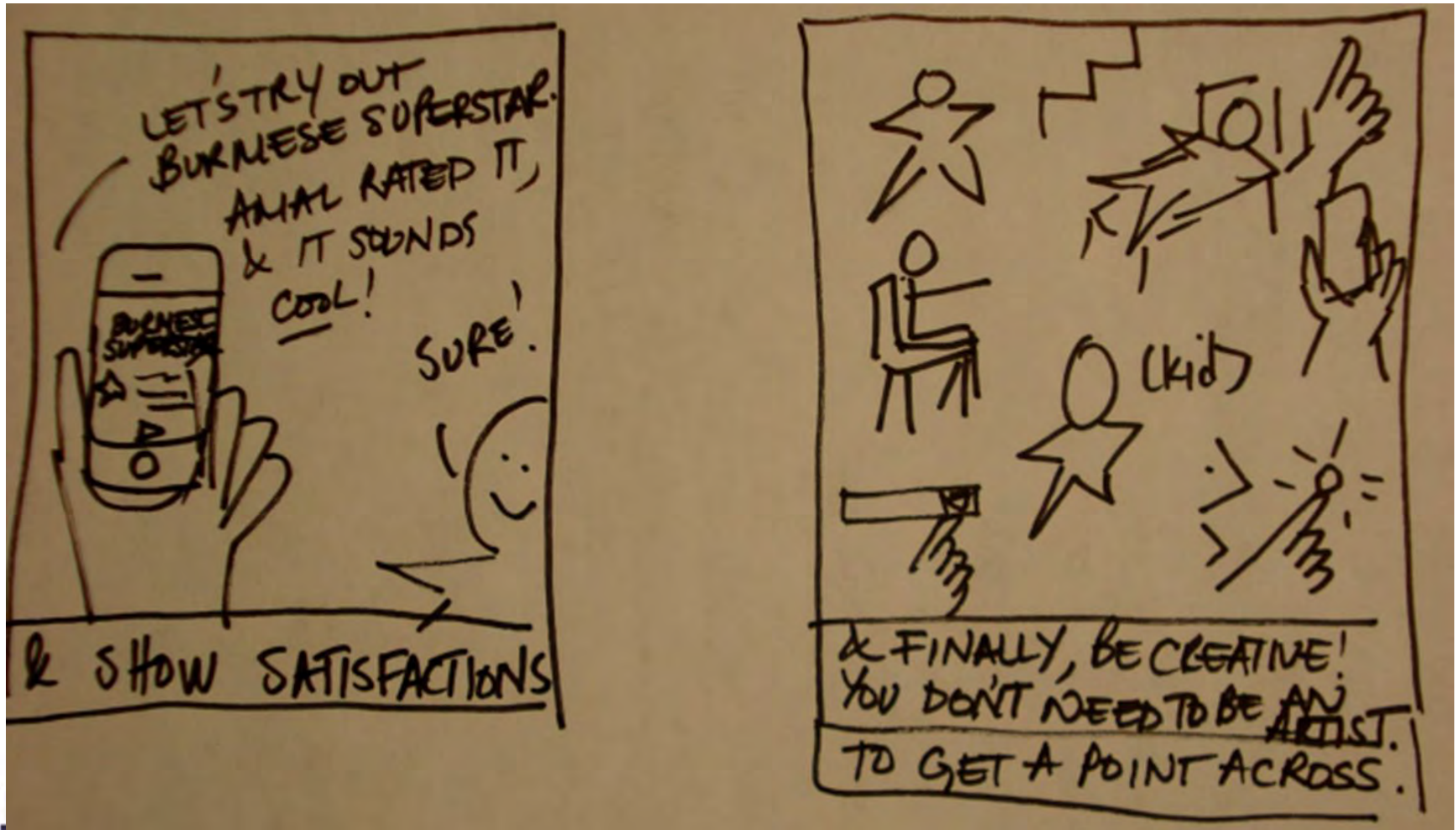
# Amal's Guide to Storyboarding



# Amal's Guide to Storyboarding



# Amal's Guide to Storyboarding



# 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

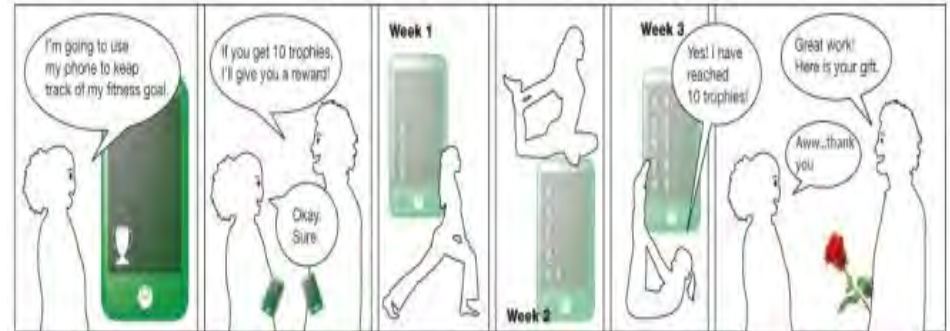
Level of detail

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

# 1. How Much Detail?

Guideline: too much detail can lose universality



Scott McCloud

# 1. How Much Detail?

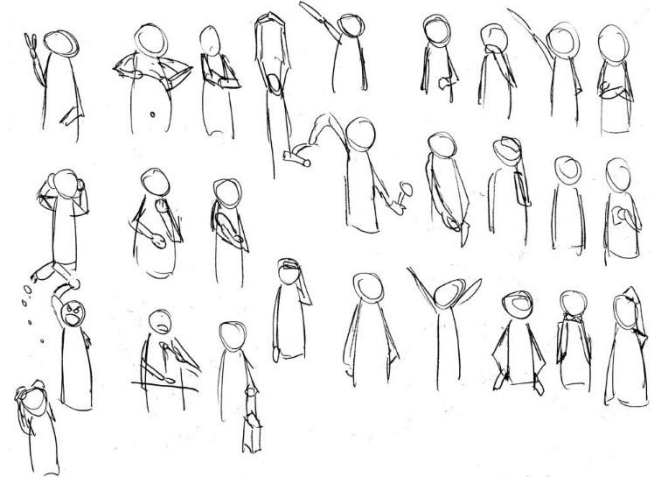
## Sketching People



PERSON



Star people  
by Bill Verplank



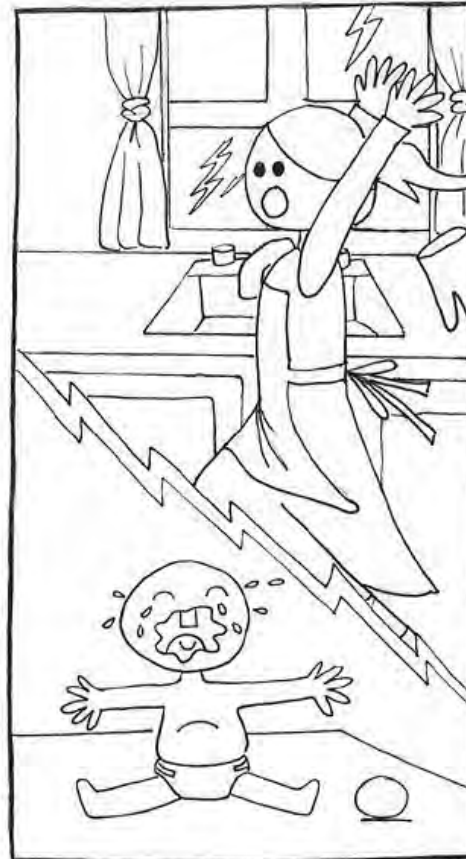
(c) 2009 SACHA CHUA



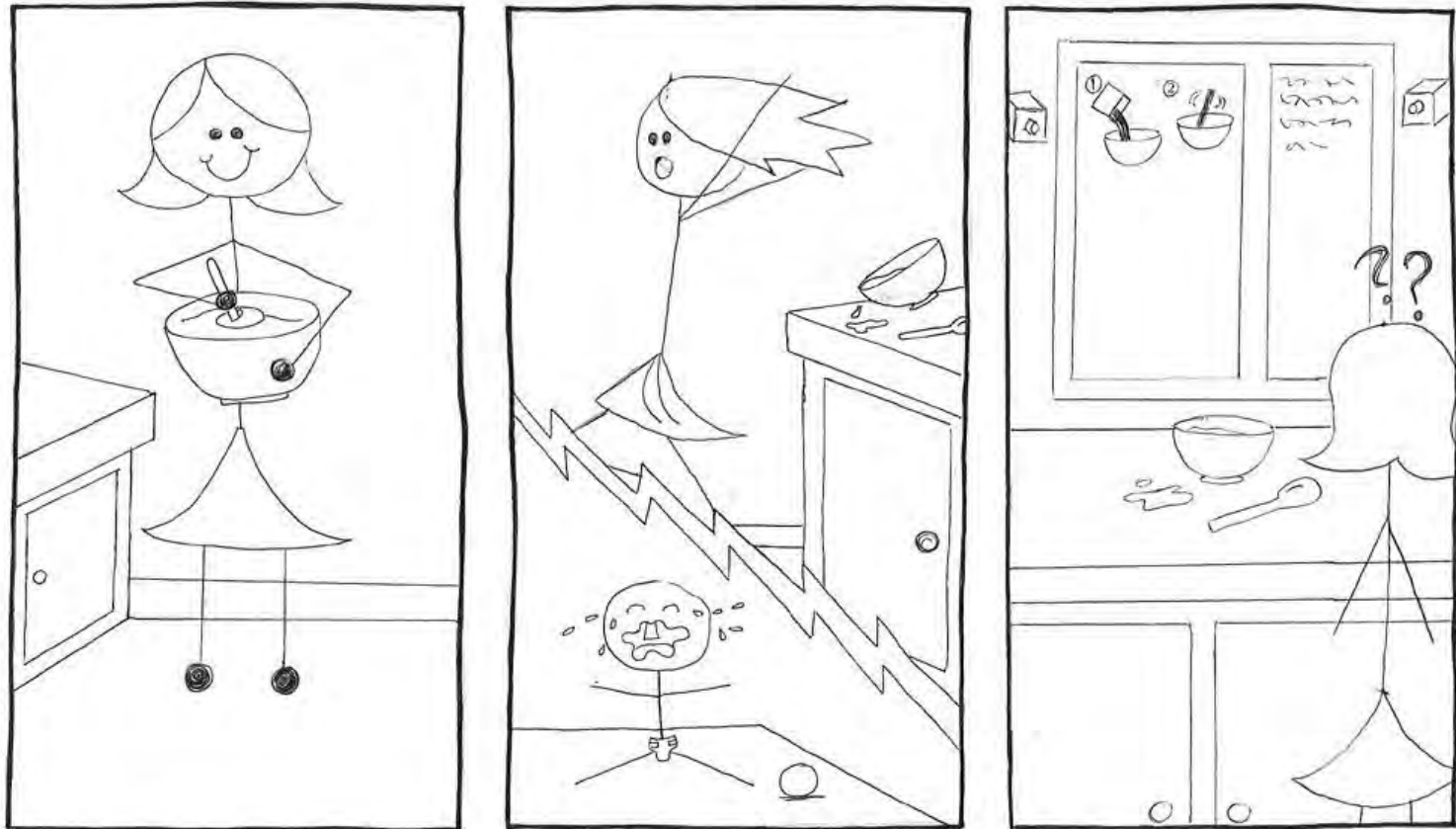
Keith Haring



# 1. How Much Detail?



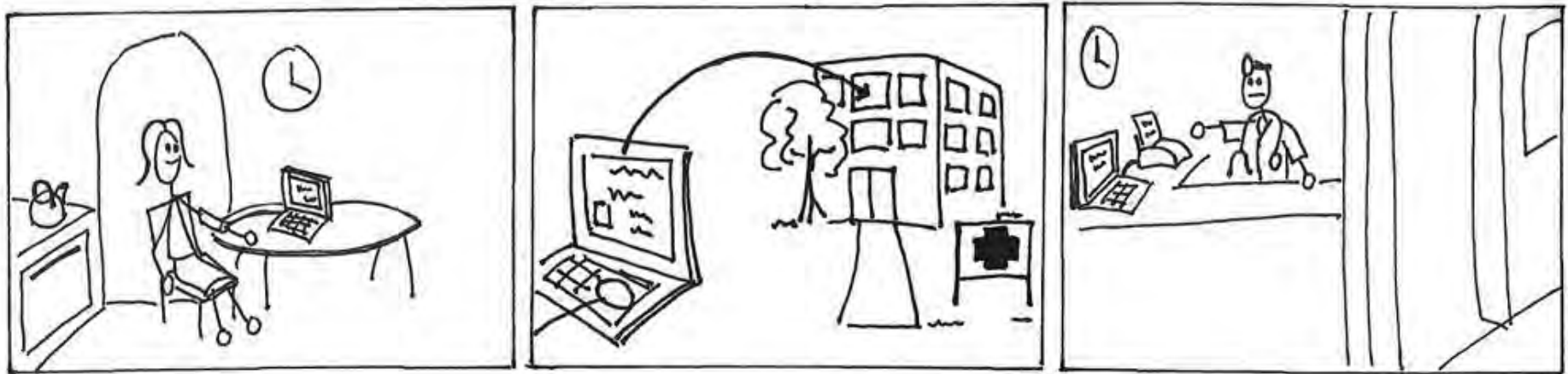
# 1. How Much Detail?



Unnecessary details distract from the story

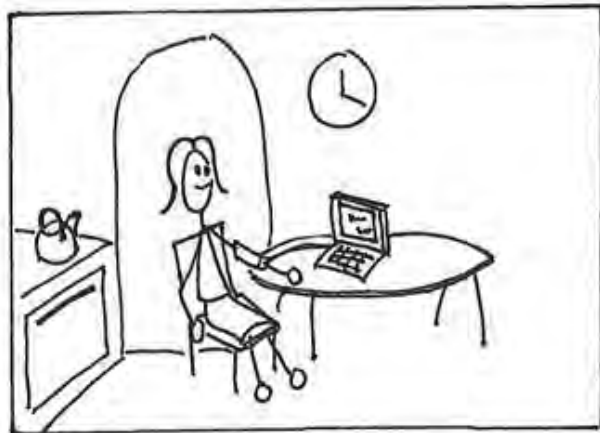
## 2. Use of Text

Guideline: It is often necessary, but keep it short

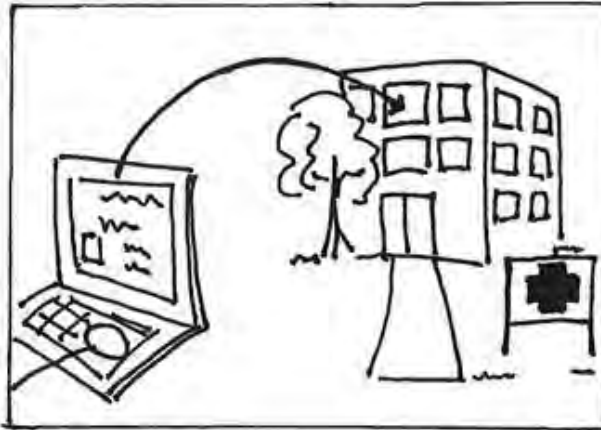


## 2. Use of Text

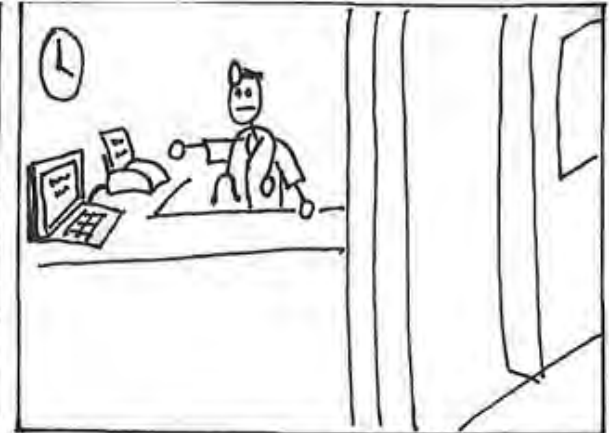
Guideline: It is often necessary, but keep it short



1. At home, Mary checks her blood pressure.



2. After a few simple key presses, her blood pressure readings get sent to a clinic.



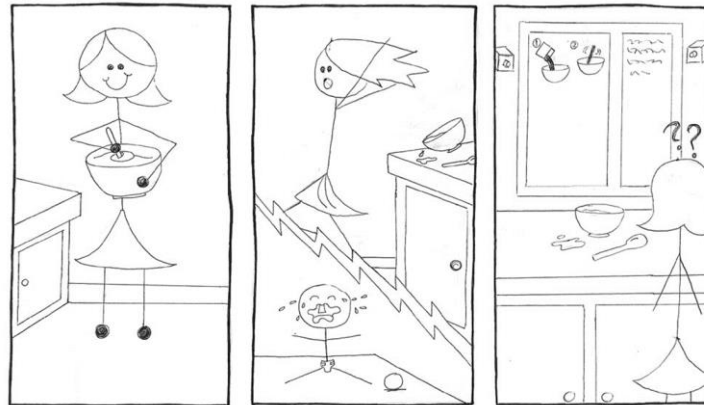
3. The information is made available to her doctor.

Short text is more effect, 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

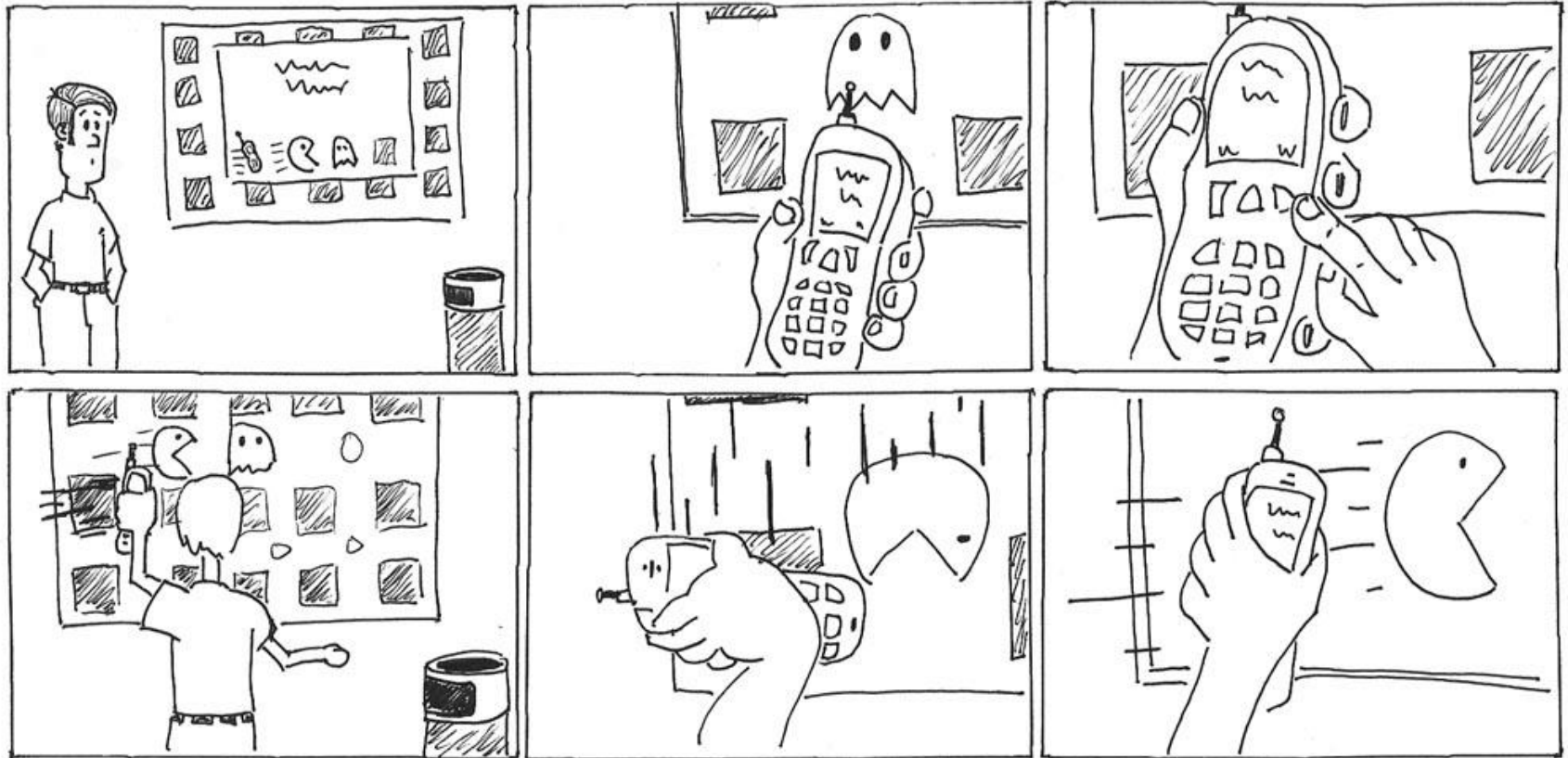
Potentially longer for design clients

More is not always better

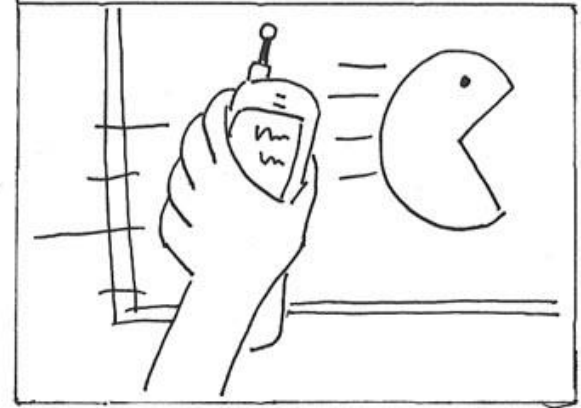
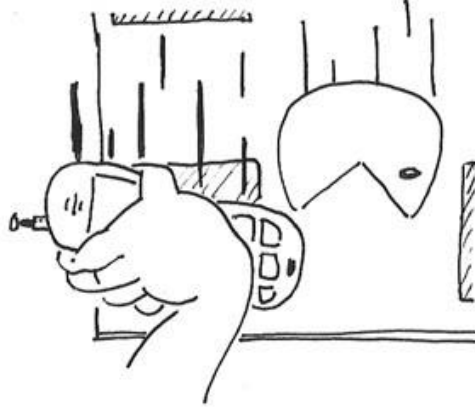
May lose focus of story

May lose attention

# 4. How many frames?



# 4. How many frames?

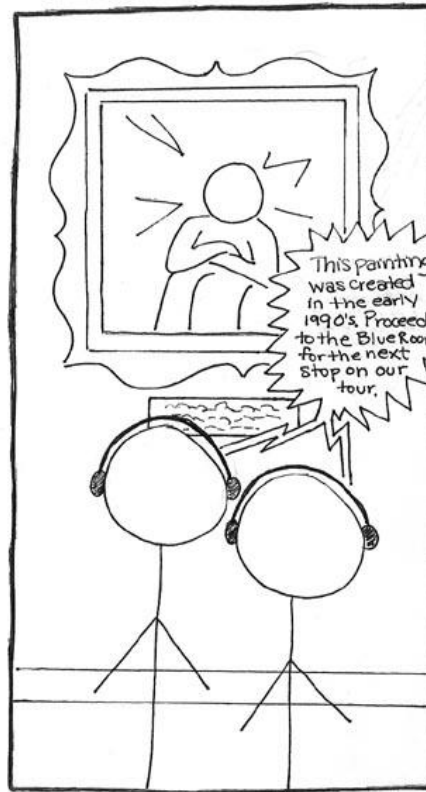
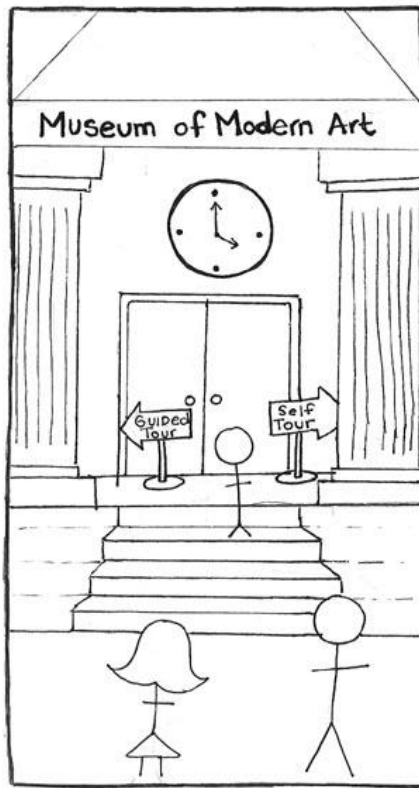


People found the extra panels were not needed



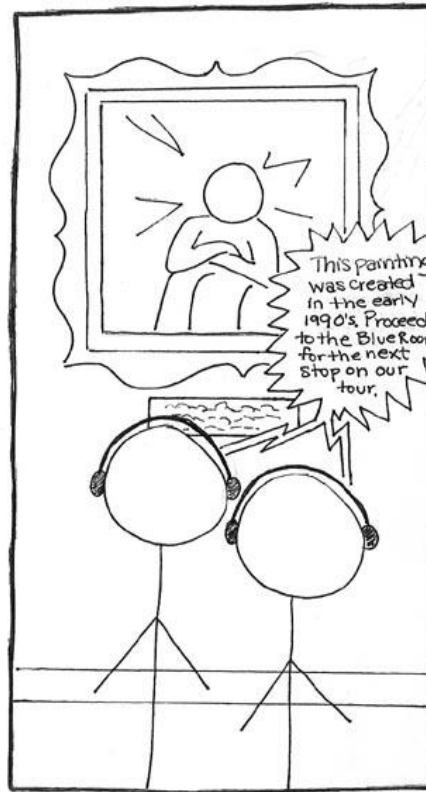
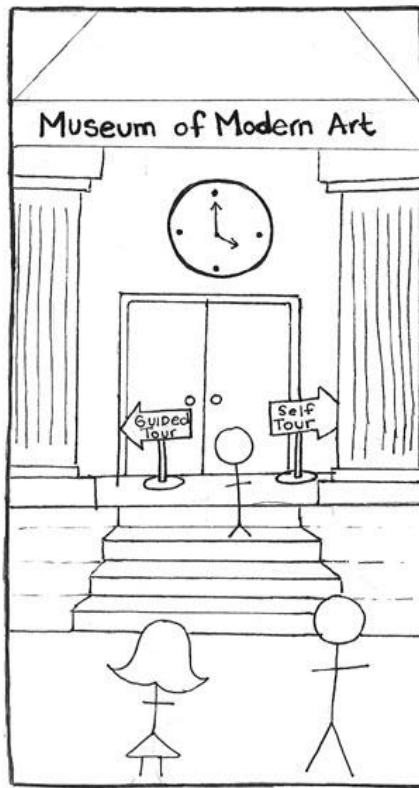
# 5. Passage of Time

Guideline: Only use if necessary to understand



# 5. Passage of Time

Guideline: Only use if necessary to understand



Inclusion of the clock distracts

# Storyboards for Comparing Ideas

## Authoritative



Cell phone is used to keep track of one's fitness goal.

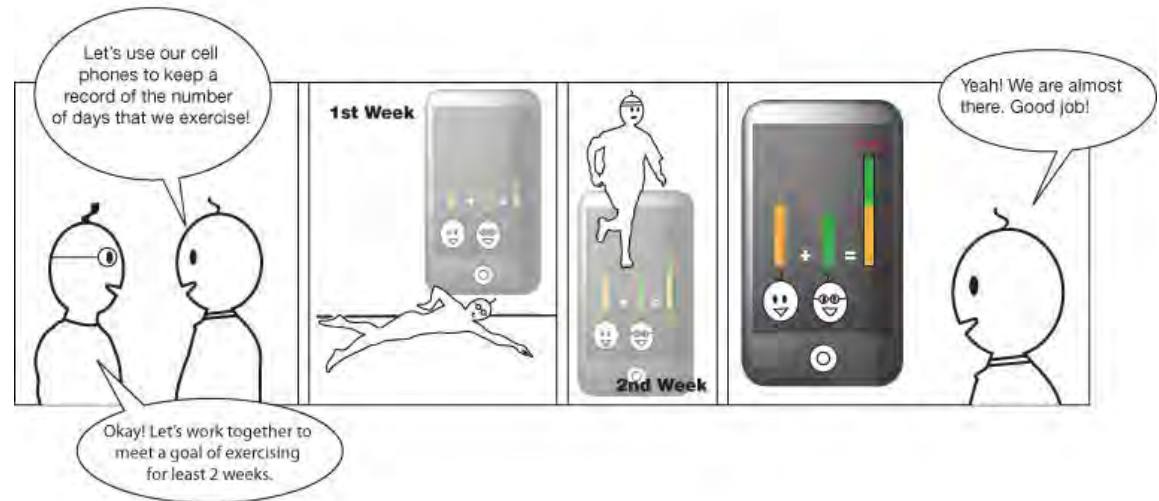
## Supportive



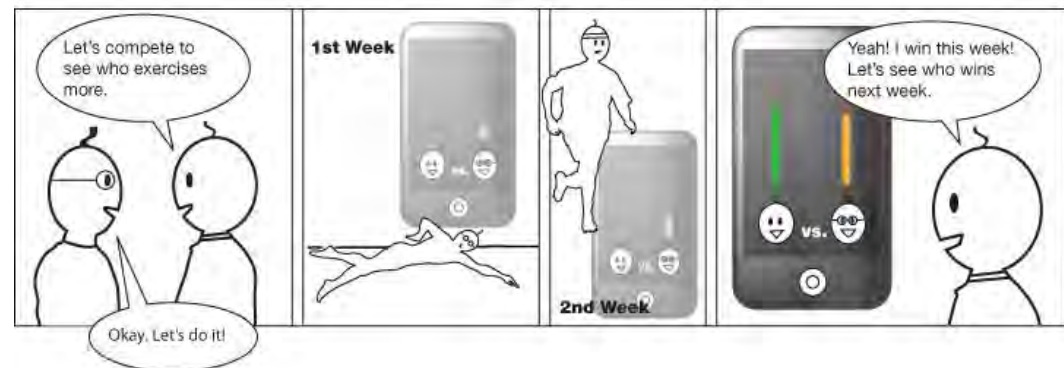
Cell phone is used to keep track of one's fitness goal.

# Storyboards for Comparing Ideas

## Cooperative



## Competitive

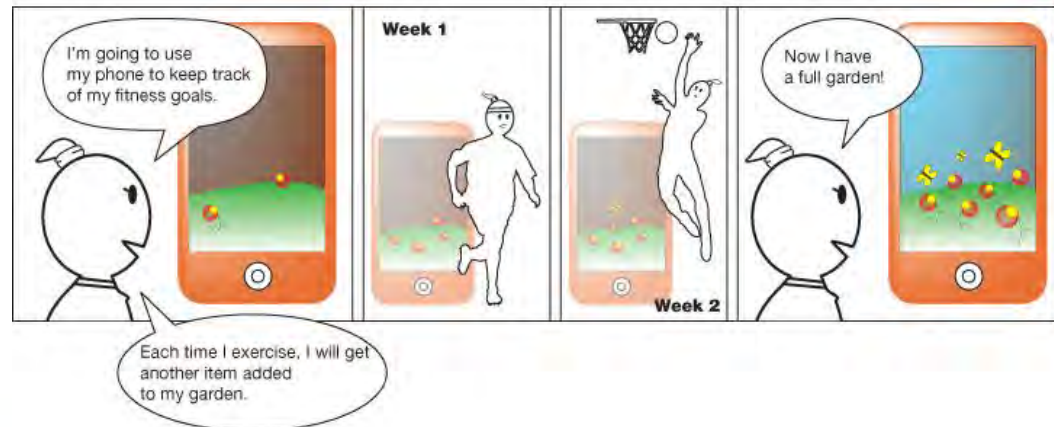


# Storyboards for Comparing Ideas

## Negative Reinforcement



## Positive Reinforcement

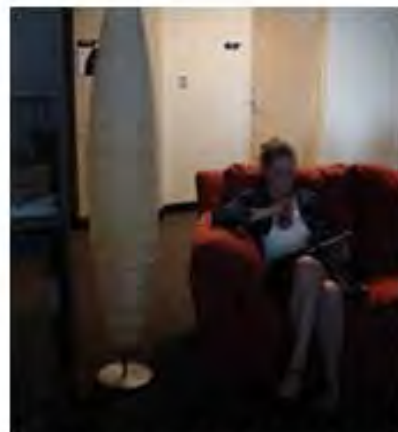


# Examples and Tricks in Storyboarding

# Drawing is Hard



IT IS SO DARK JANE CAN  
HARDLY READ HER BOOK



SHE GESTURES IN FRONT OF HER  
SPECIAL PENDANT TO TURN ON  
THE LIGHTS



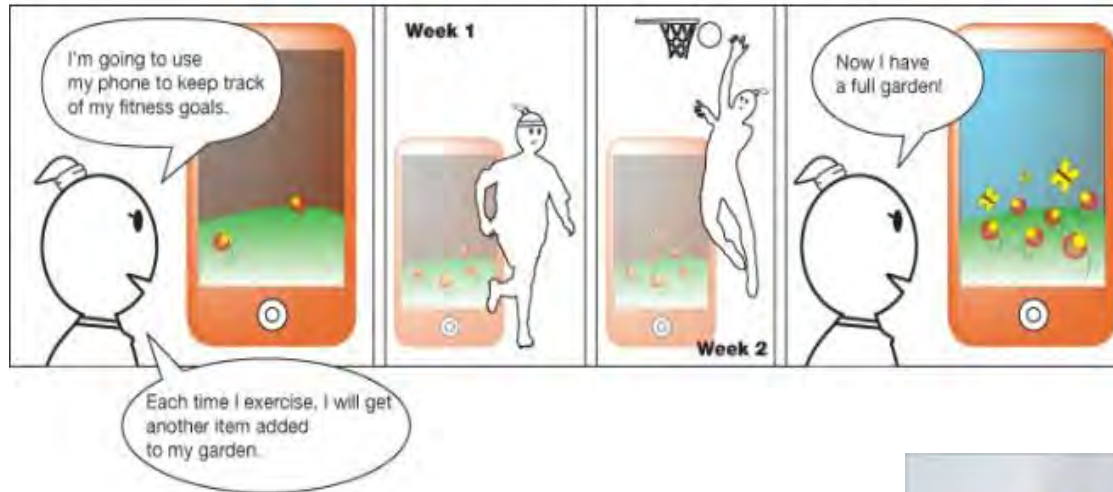
THE LIGHTS TURN ON!



FINALLY, SHE CAN  
READ HAPPILY.

Will a picture work instead?

# Existing Images from Other Sources



<http://designcomics.org/>

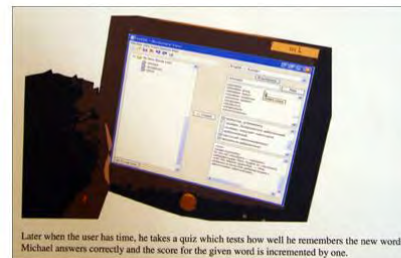
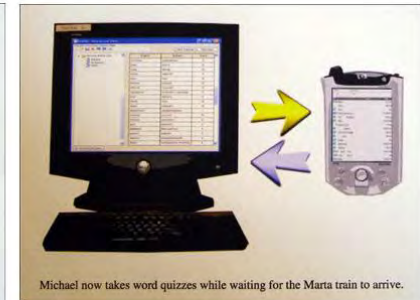
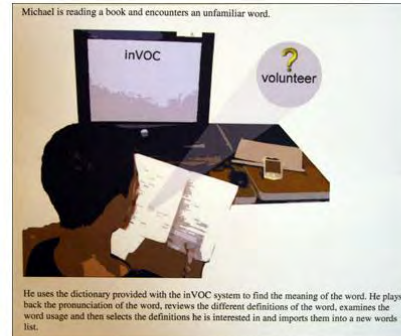
<http://www.pdclipart.org/>



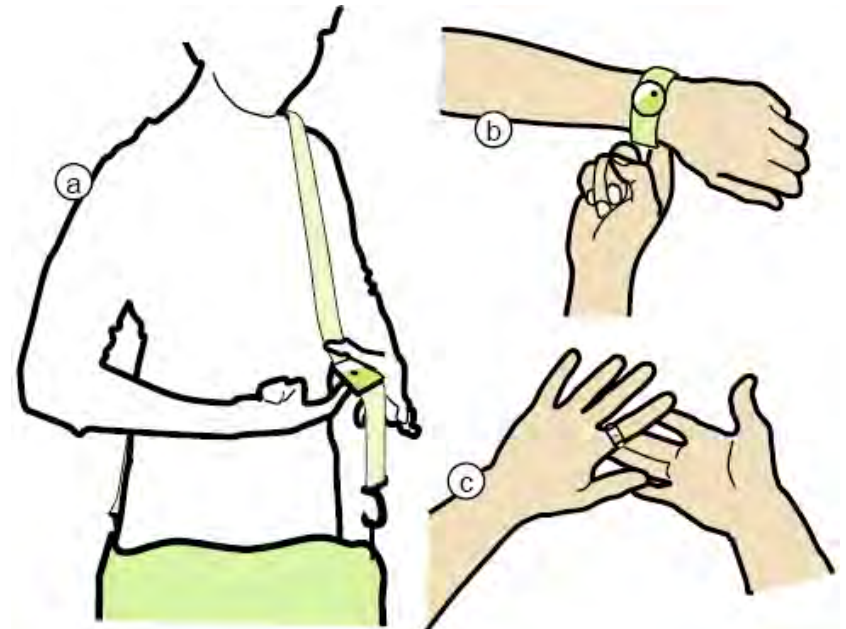
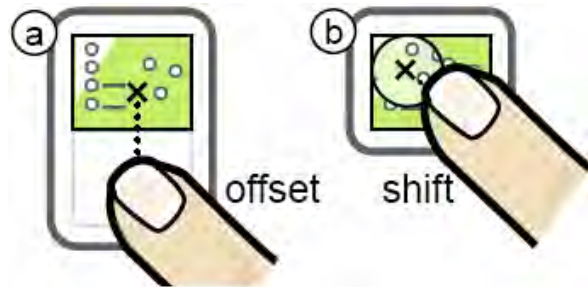


# Blur Out Unnecessary Detail

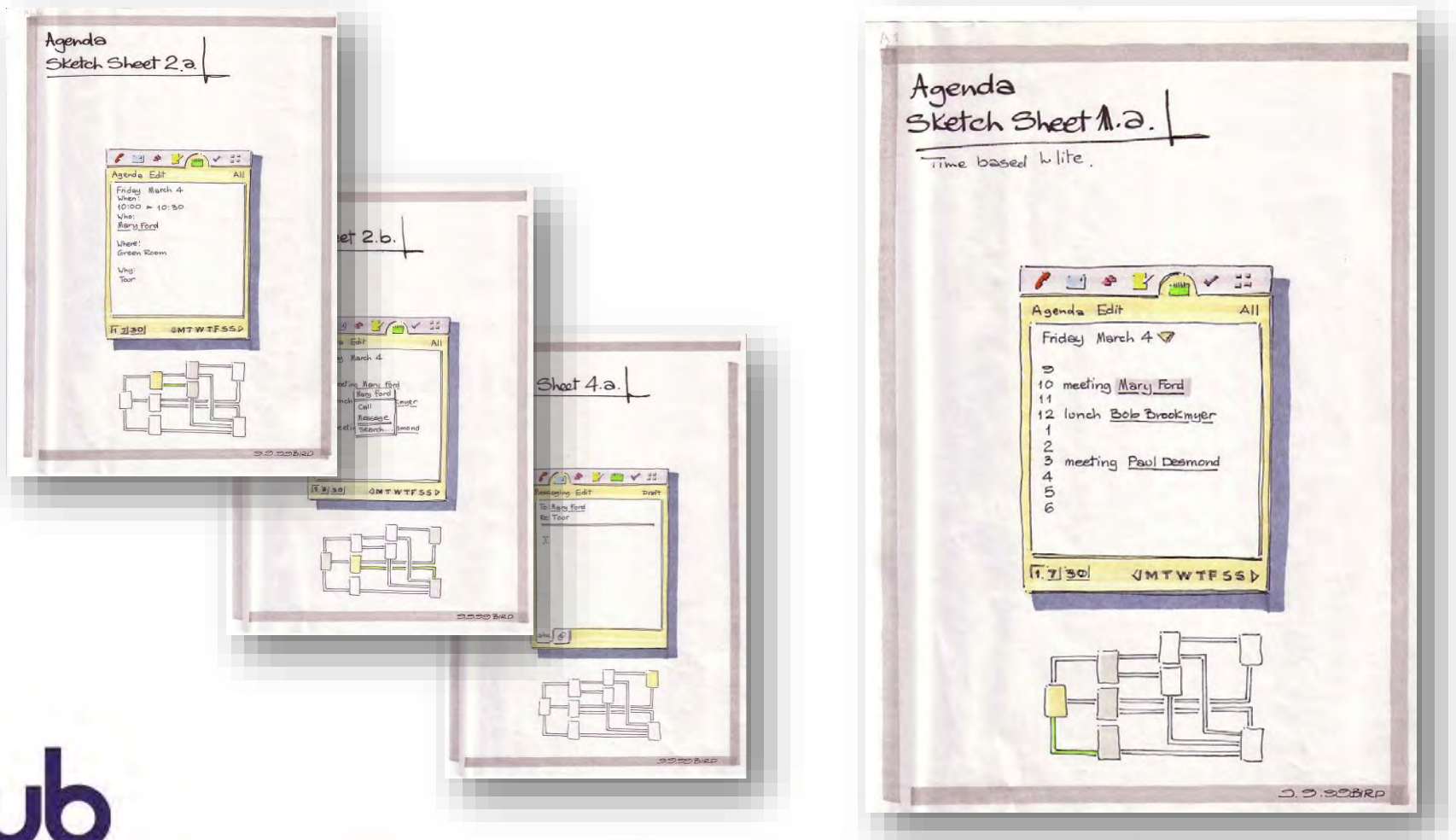
Using image editing software to simplify photos into sketches



# Tracing Photos



# Mapping the Space of Interaction



# Comic Presentation

Thought bubbles argue for the design



7 SEATTLE CYCLING FORUM

LATER THAT SAME YEAR...

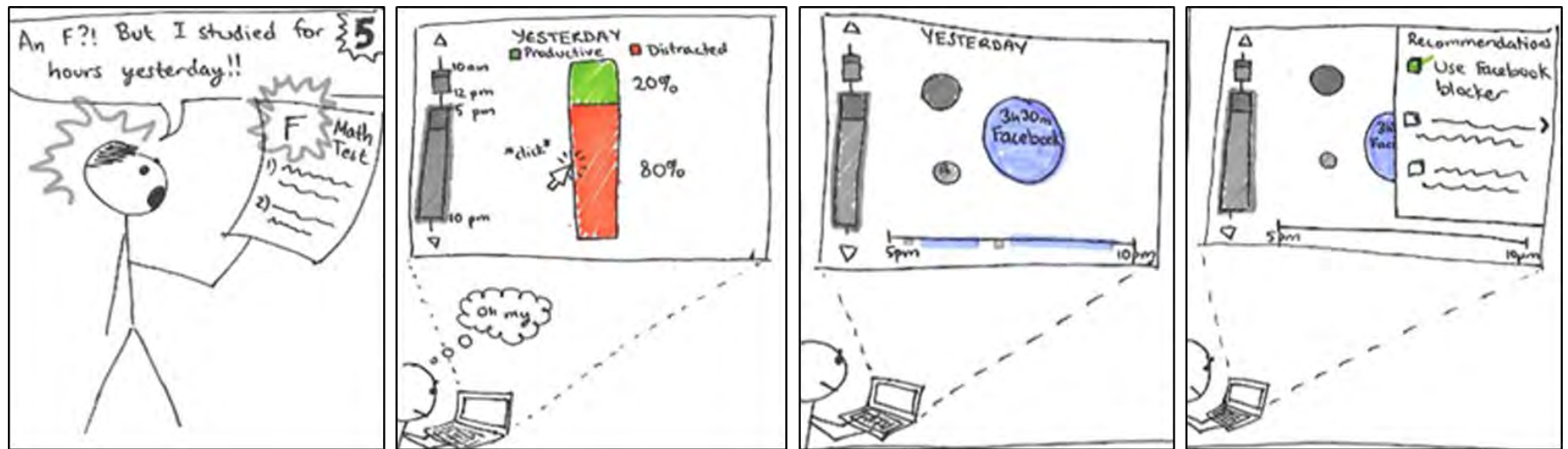
	last post	replies
Good bike repair shops on Capitol Hill?		7
Need help figuring out safe bus route (District to Fremont)		4
Special critical mass tomorrow in downtown bike lanes!		14
What's your favorite fun ride on the eastside?		

MORE BIKE LANES DOWNTOWN WOULD MAKE MY COMMUTE A LOT SAFER. I SHOULD DO THE CRITICAL MASS RIDE.



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.

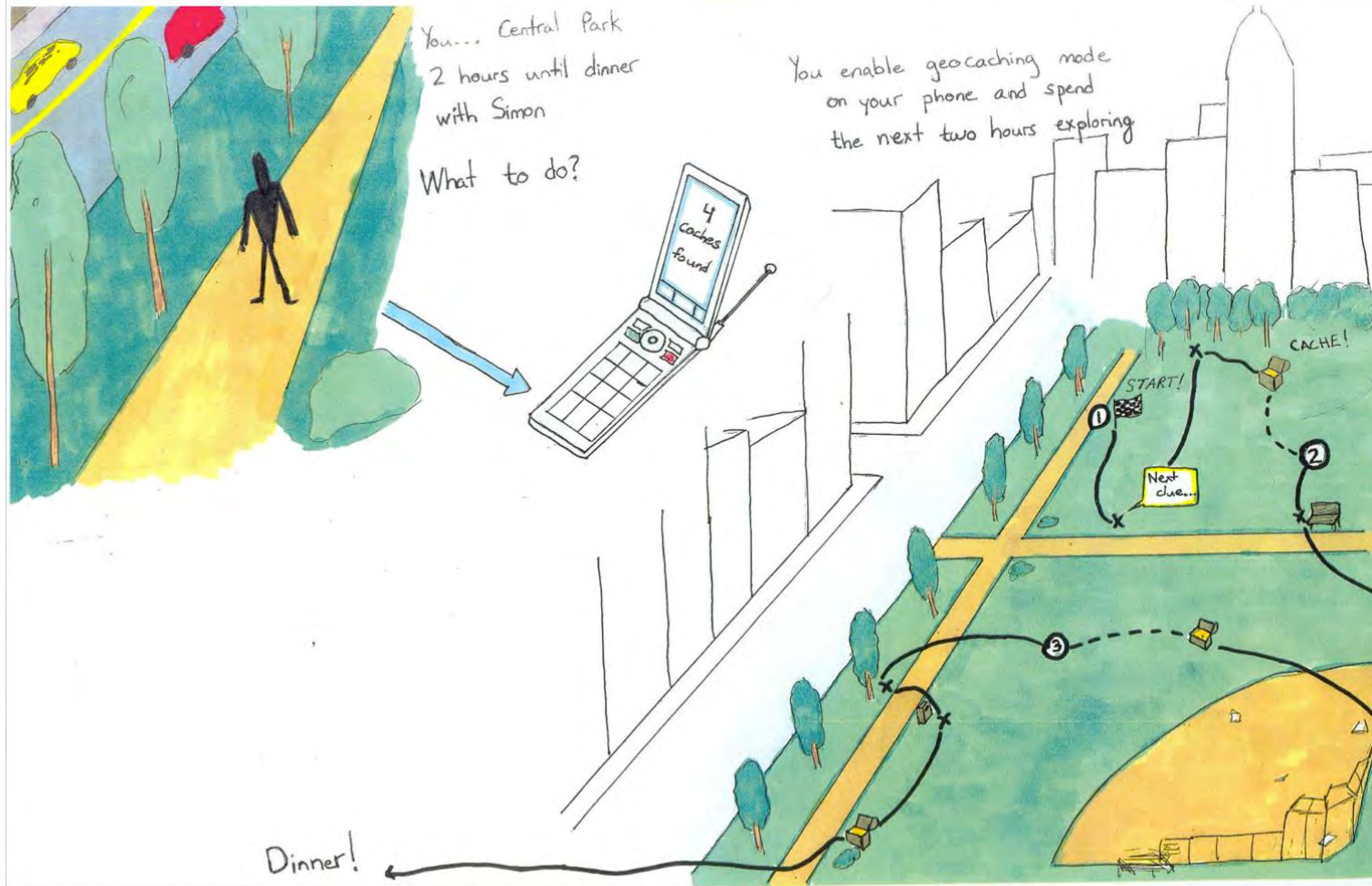
# Selective Use of Color



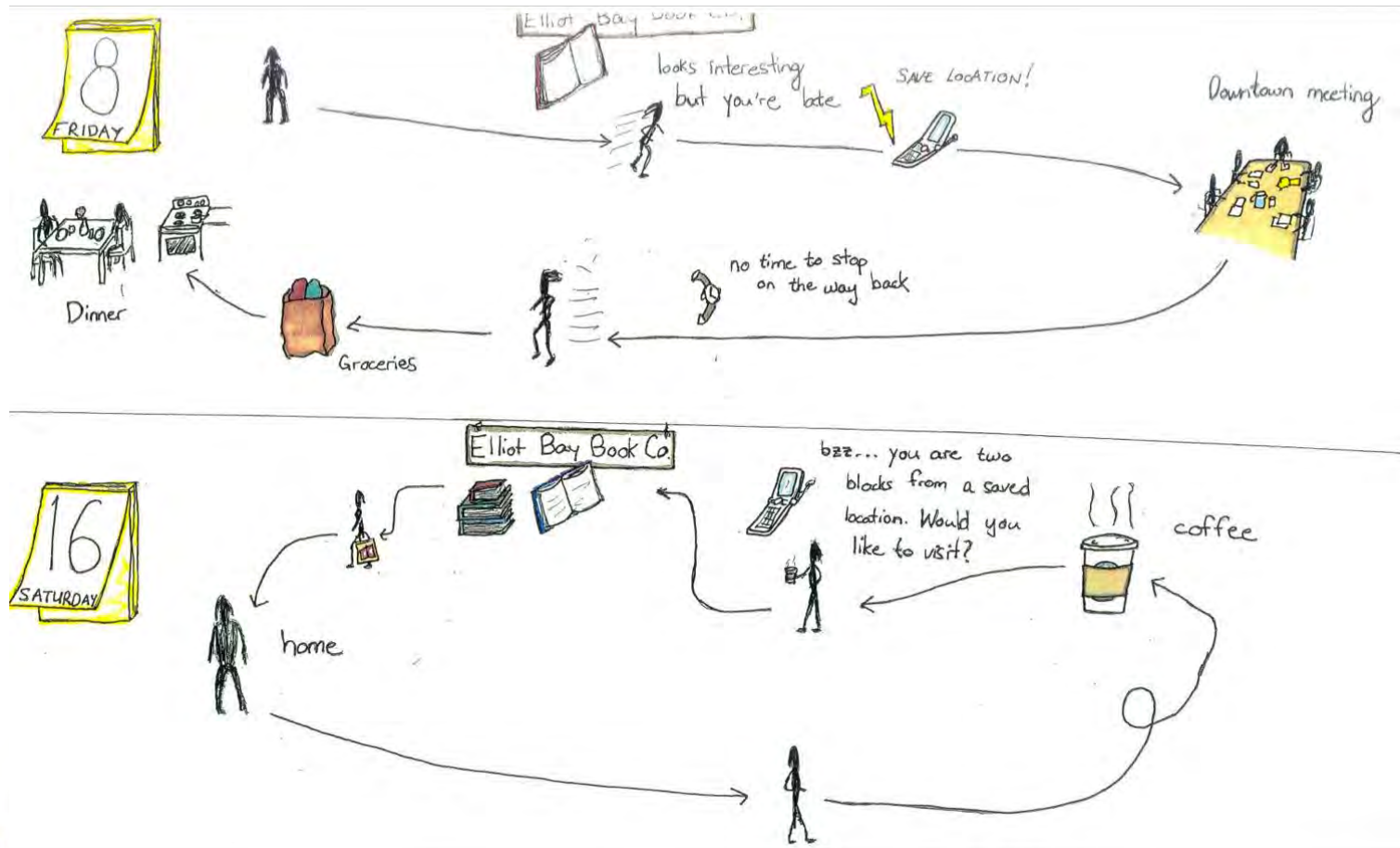
# Route Maps



# Route Maps



# Route Maps





# Route Maps



the movie is over and  
you are hungry, but you  
don't know the area---



you check your phone for  
a list of places people often  
go from here ...



and discuss the  
food options with  
your friends ...



... eventually settling on  
a diner and getting directions  
through your phone.



SM  
10/11/200

# Value of Animation or Video

Can illustrate critical timing

Can be more engaging than written or storyboard

Can more easily 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

# Most Important Trick: Stop Motion



<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/Mackay-StopAction.mp4>

# Most Important Trick: Stop Motion



<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/Mackay-StopActionResult.mp4>

# Video Prototypes

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

Narration optional

Narrator explains, actors move or illustrate interaction

Actors perform movements and viewer expected to understand without voice-over

# Steps to Create a Video Prototype

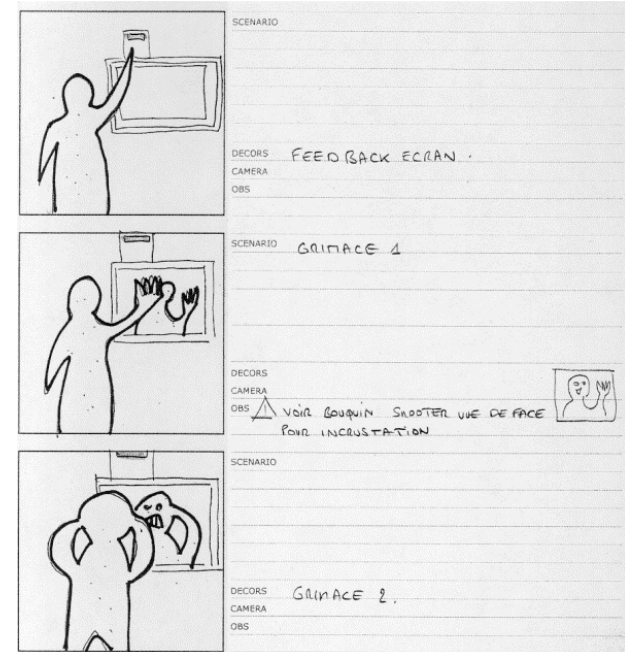
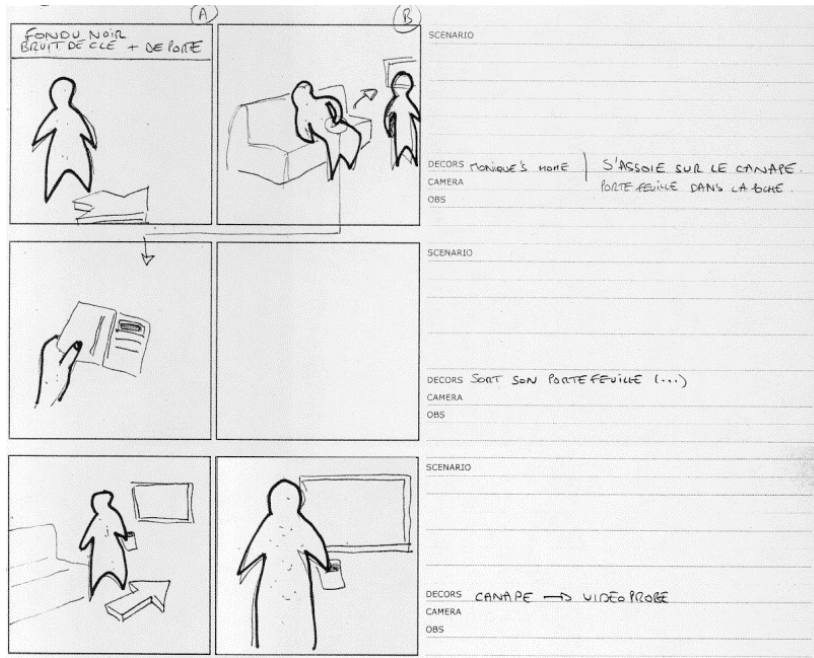
Review field data

Review ideas from brainstorm

Create text for usage scenarios

Develop storyboard, with each scene on a card, illustrating each action/event with annotations explaining what is happening

# Steps to Create a Video Prototype



# Steps to Create a Video Prototype

Shoot a video clip for each storyboard card

Avoid editing in the camera, just shoot your scenes

Use titles to separate clips

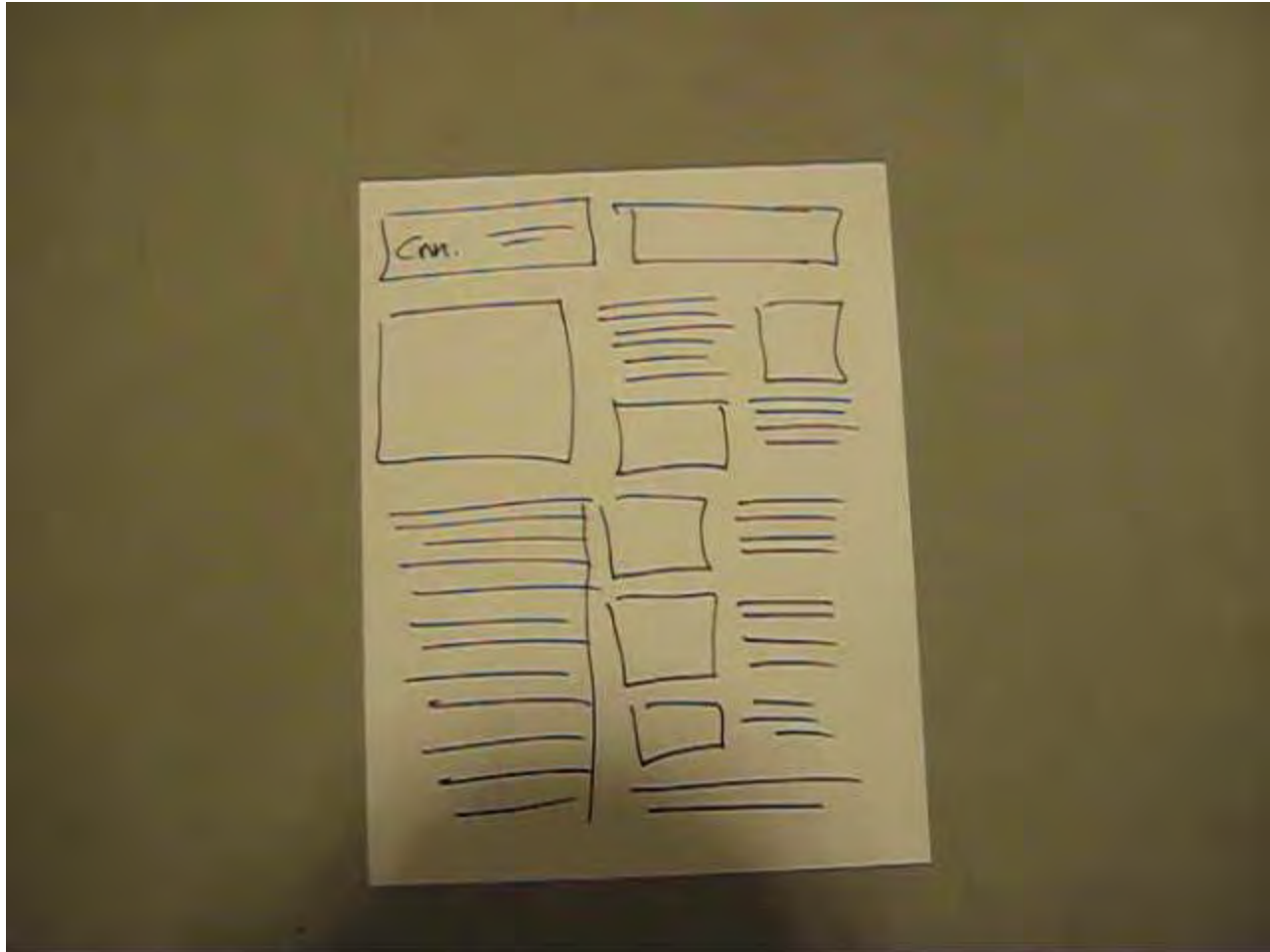
Like a silent movie

Digital changes these tradeoffs a little, but respect the spirit of doing this quickly to get point across

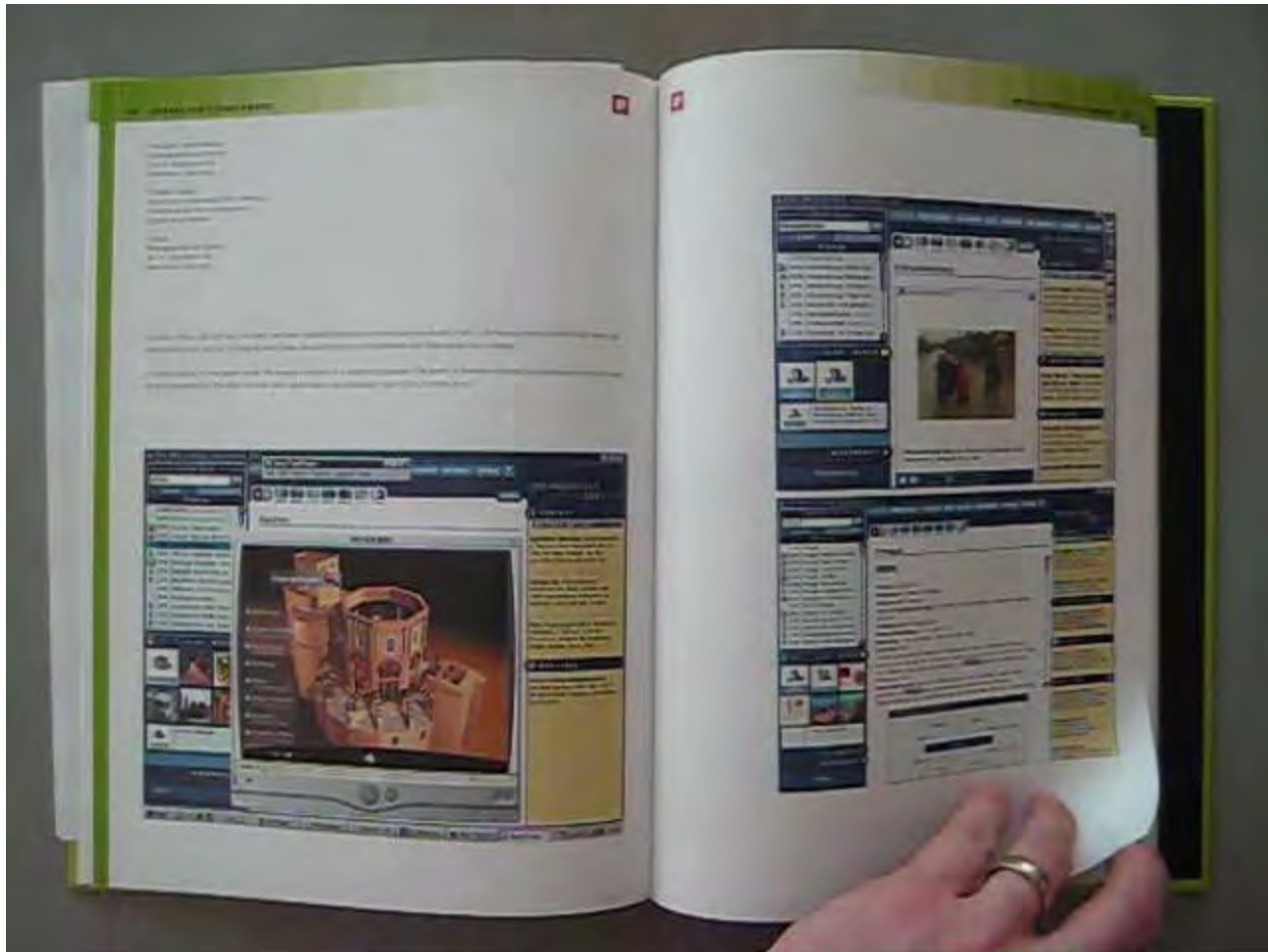
If you make an error, just reshoot it



# Prototyping Microsoft Surface



# Prototyping Microsoft Surface



# Lessons from Prior Video Prototypes

Narration, Pace, and Flair

Three versions of “Don’t Forget”

Using Projectors and Simple Props

“Buddy Map”

Watch for Pace and Scene Relevance

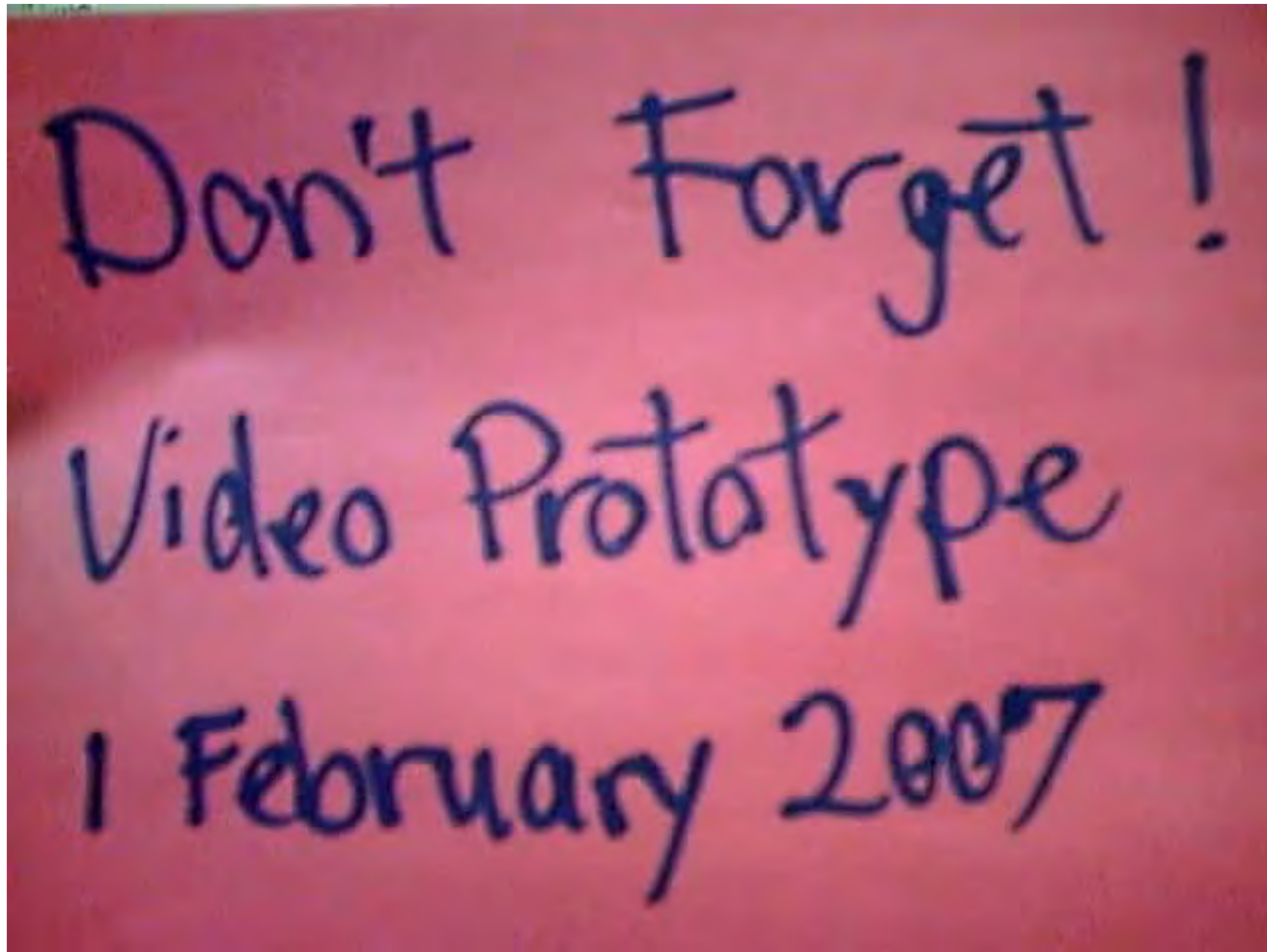
“Consumester”

# Narration, Pace, and Flair

**Don't Forget**  
by **Carolyn Holmes and Fred Potter**

<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/Don't-Forget-1.mp4>

# Narration, Pace, and Flair



# Narration, Pace, and Flair

**"Don't Forget" Video Prototype**  
**Chris Govella - Peter Woodman**

<http://courses.cs.washington.edu/courses/cse440/videos/ideoprototyping/Don't-Forget-3.mp4>

# Using Projectors and Simple Props

**Team Buddy Map**

**Backcountry Savior**

Craig Panthen : Philip Kuo : Heidi Tanamulia : Christopher White  
CSE 440F : Professor Landay

# Watch for Pace and Scene Relevance

**Consumester**  
Video Prototype



# Lessons from Prior Video Prototypes

Split Presentation, Simple Effects

“PickUp”

Still-Frame, More Effects

“Graffiti Karma”

# Split Presentation, Simple Effects

Daniel Swisher  
Ian Crofoot

Mitchell Ishimitsu  
Sunil Garg



**PickUp**  
It's more than a game It's a community

CSE 440 Video Prototype

# Still-Frame, More Effects



# Lessons from Prior Video Prototypes

Scenario with a Contrast

“ParkSmart” (note that screens are static images)

Playful while Keeping Pace

“Plantr”

# Scenario with a Contrast



**ParkSmart**  
VIDEO PROTOTYPE

# Playful while Keeping Pace



# Range of Purposes

## Illustrating Low-Level Techniques

Microsoft Surface examples convey timing

## Illustrate Designs

Focus in this course

## High-Level Visions

StarFire, Knowledge Navigator, A Day Made of Glass

# Sun's "Starfire" (1994)



<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/Vision-Sun-Starfire.mp4>



# Apple's "Knowledge Navigator" (1987)



Knowledge Navigator

<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/Vision-Apple-Knowledge-Navigator.mp4>

# Corning's "A Day Made of Glass" (2011)



# LuciaMug Sketch: A Contrast

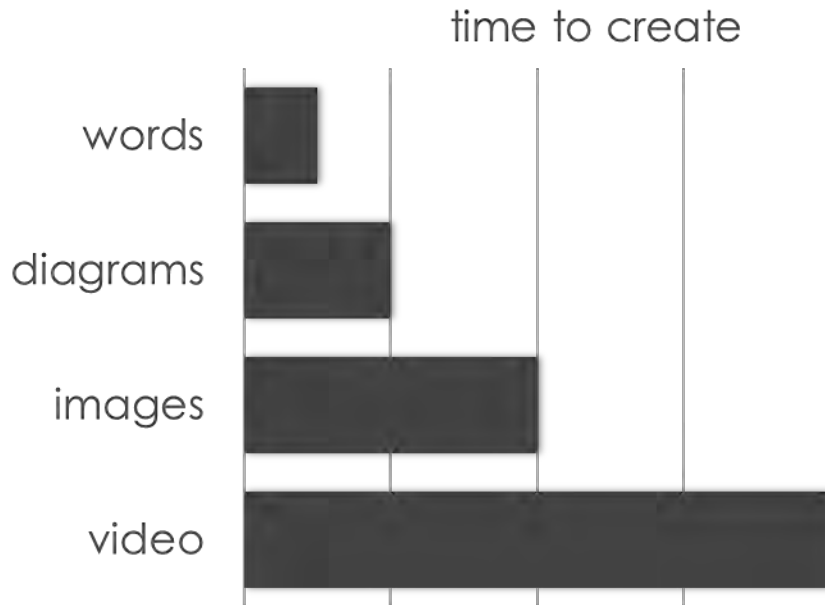


FLUIDUM



FLUIDUM

# Fidelity Takes Time: Stay Low Fidelity



Completely made-up bar length

But it is probably at least this bad

If you need a video, do you really need footage?

If you need an animation, do you really need Flash?

If you need a photo, do you really need to shoot?

# Summary

Think about your audience

Think about your time constraints

Think about how much you want to tell

Think about options for presenting your story

# CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 08:  
Storyboarding and  
Video Prototyping

James Fogarty  
Alex Fiannaca  
Lauren Milne  
Saba Kawas  
Kelsey Munsell

Tuesday/Thursday  
12:00 to 1:20

