

CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 07:
Storyboarding and
Video Prototyping

James Fogarty
Eunice Jun
David Wang
Elisabeth Chin
Ravi Karkar



Tuesday / Thursday
10:30 to 11:50

Tasks in Your Projects

Say what is accomplished, not how

Real tasks that people currently encounter,
or new tasks your design will enable

Reasonable coverage of the interesting aspects
of your problem and your design space

Range of difficulty and complexity

Park at the zoo on a weekday

Park Friday night in Ballard business district

Park at the airport

Combine with Other Methods

Personas

Concept Mapping

Competitive Analysis



“If you want to create a product that satisfies a broad audience ..., logic will tell you to make it as broad in its functionality as possible to accommodate the most people. Logic is Wrong.”

Method 63



Combine with Other Methods

Personas

Concept Mapping

Competitive Analysis

Example Personae:

Parent concerned about safety

Carpenter transporting tools

Executive wants a sporty car

More specific is effective

Give the person detail

Give them a name

Make it believable

Careful of stereotyping

Web littered with examples

Method 63



Combine with Other Methods

Personas

Concept Mapping

Competitive Analysis



Method 16



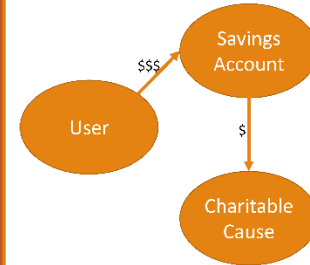
Combine with Other Methods

Personas

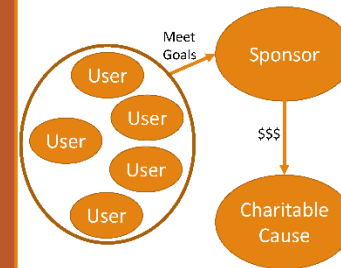
Concept Mapping

Competitive Analysis

Application Idea:
Save for Social Good



Application Idea:
Sponsored
Group Goals



Application Idea:
Springboard



Method 16

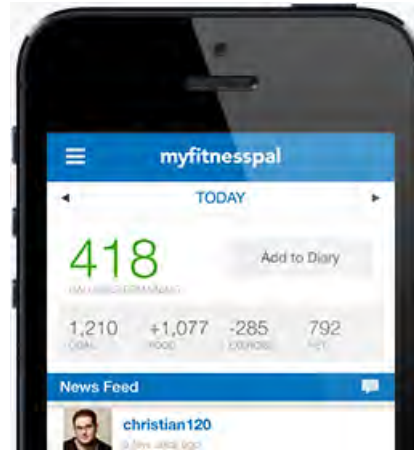


Combine with Other Methods

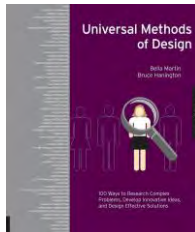
Personas

Concept Mapping

Competitive Analysis



Method 15



Using Tasks in Design

Write up a description of tasks

formally or informally

run by people and rest of the design team

get more information where needed

Manny is in the city at a restaurant and would like to call his friend Sherry to see when she will be arriving. She called from a **friend's** house while he was in the bus tunnel, so he missed her call. He would like to check his missed calls and find the number to call her back.

Using Tasks in Design

Rough out an interface design

discard features that do not support your tasks
or add a real task that exercises that feature
major elements and functions, not too detailed
hand sketched

Produce scenarios for each task

what person does and what they see
step-by-step performance of task
illustrate using storyboards

Scenarios

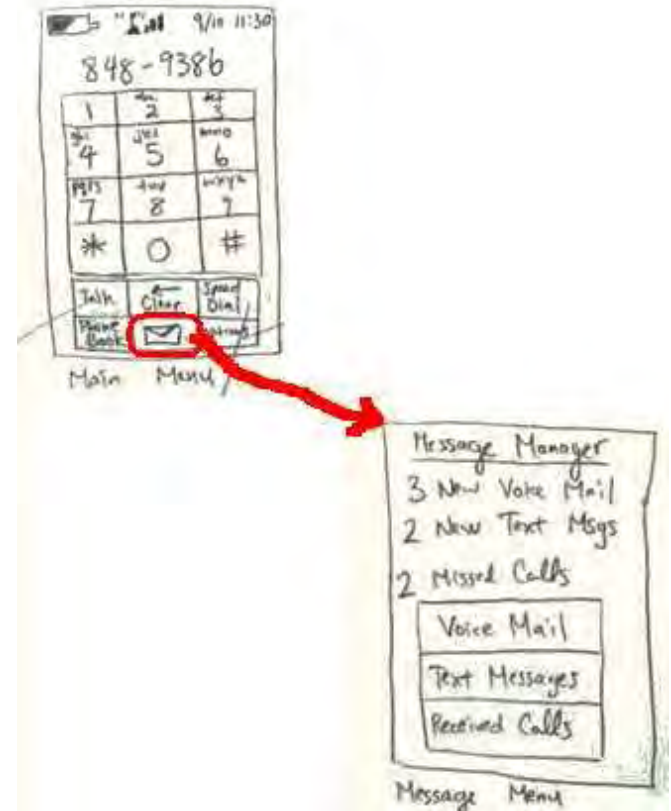
Scenarios are design specific, tasks are not

Scenarios force us to show how things work together, fill in details with examples

But these are only examples, and we may need to look beyond early flaws

Convey design in storyboards

Today's Focus



Tasks, Personas, and Scenarios

Task: a design-agnostic objective

Persona: a fictional person with a backstory

Scenario: narrative that demonstrates a persona completing a task using a particular design

Use Case: in software engineering, describes requirements using one or more scenarios

Project Status

Looking Forward

2e: Task Review due this Friday 1/27

2f: Design Check-In (3x4) Due Tuesday 1/31

2g: Design Review (1x2) Due Friday 2/3

2h: “Getting the Right Design” Report due 2/6

Presentations in lecture 2/9 and section 2/10

Other Assignments

Reading 2 Due this Friday 1/27

Tasks in Sketching and 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 with a design

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

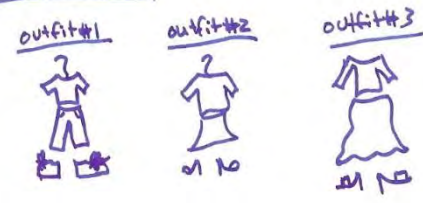
Map-IT

<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

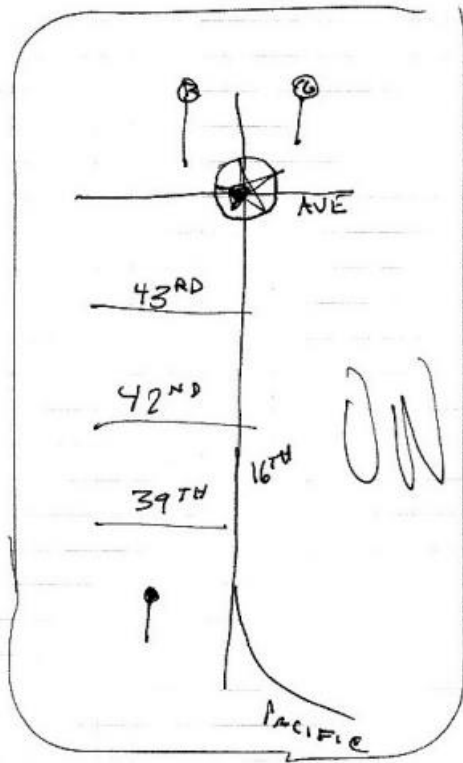


As it should be...

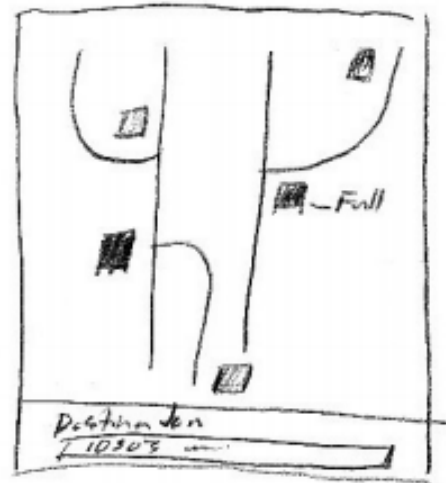


(pre-selected to match so you don't have to choose.)

Sketching

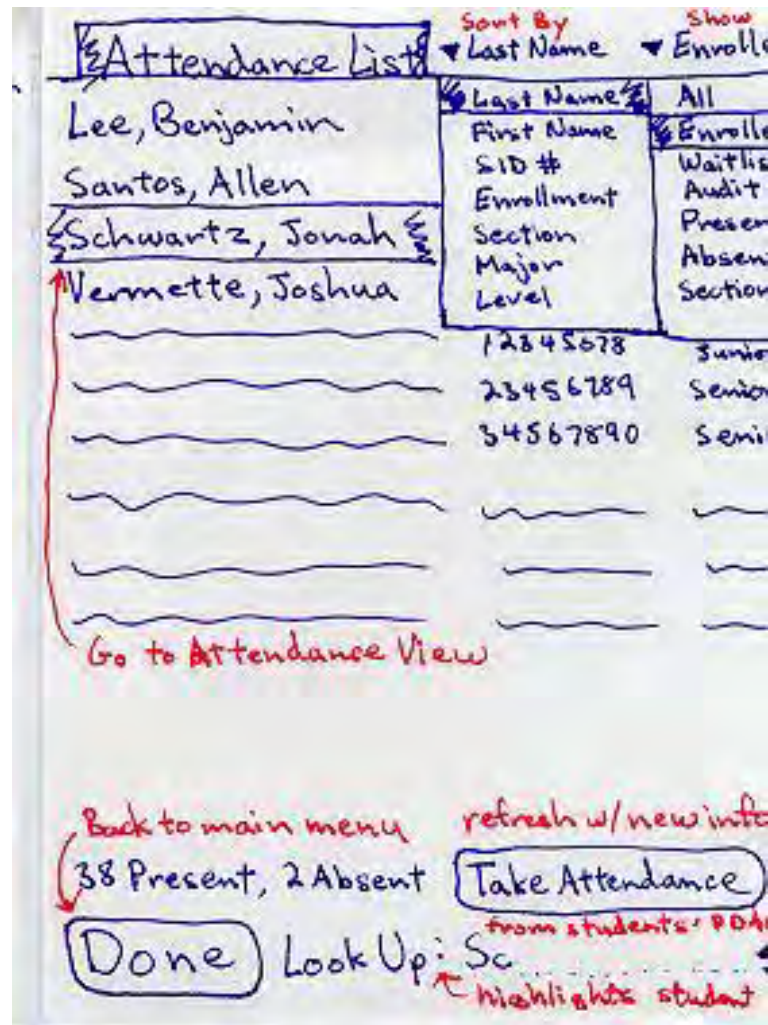


MAP SHOWING PARKING
AVAILABILITY BASED ON INPUTTED
DATA, INPUTTED ON MAP



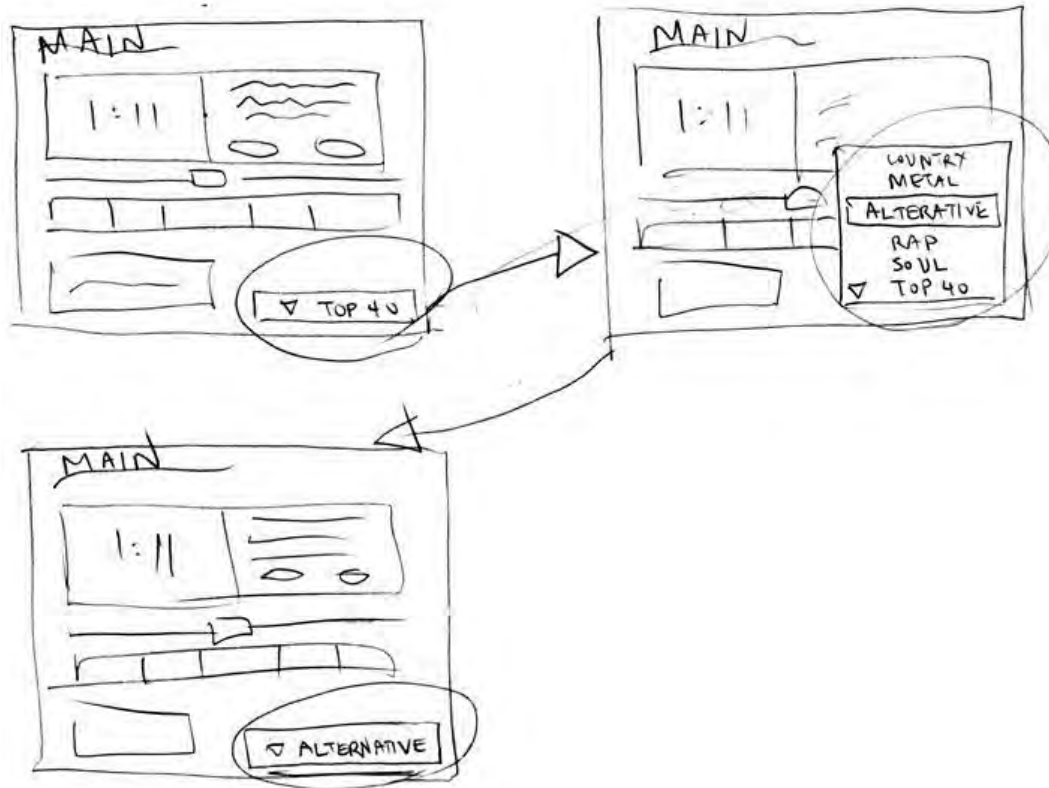
- Different colors
- highlights availability
-

Sketching and Tasks

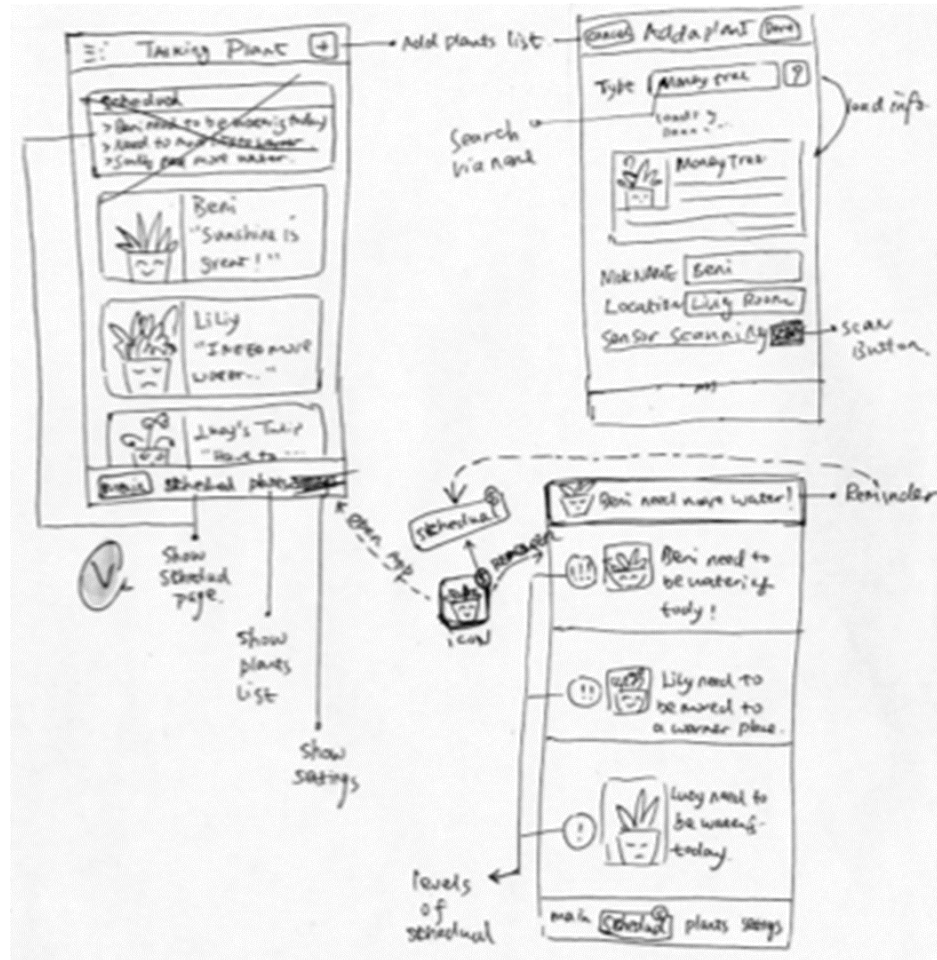


Sketching and Tasks

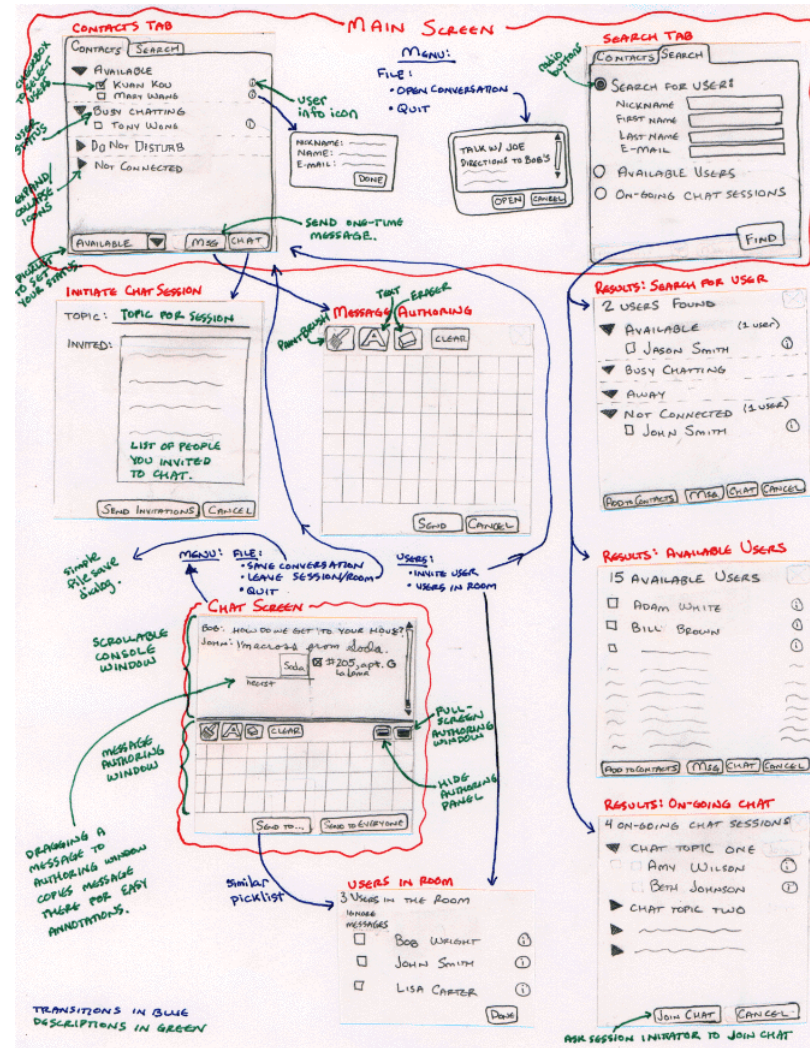
SCENARIO 1 "I want to listen to alternative music"



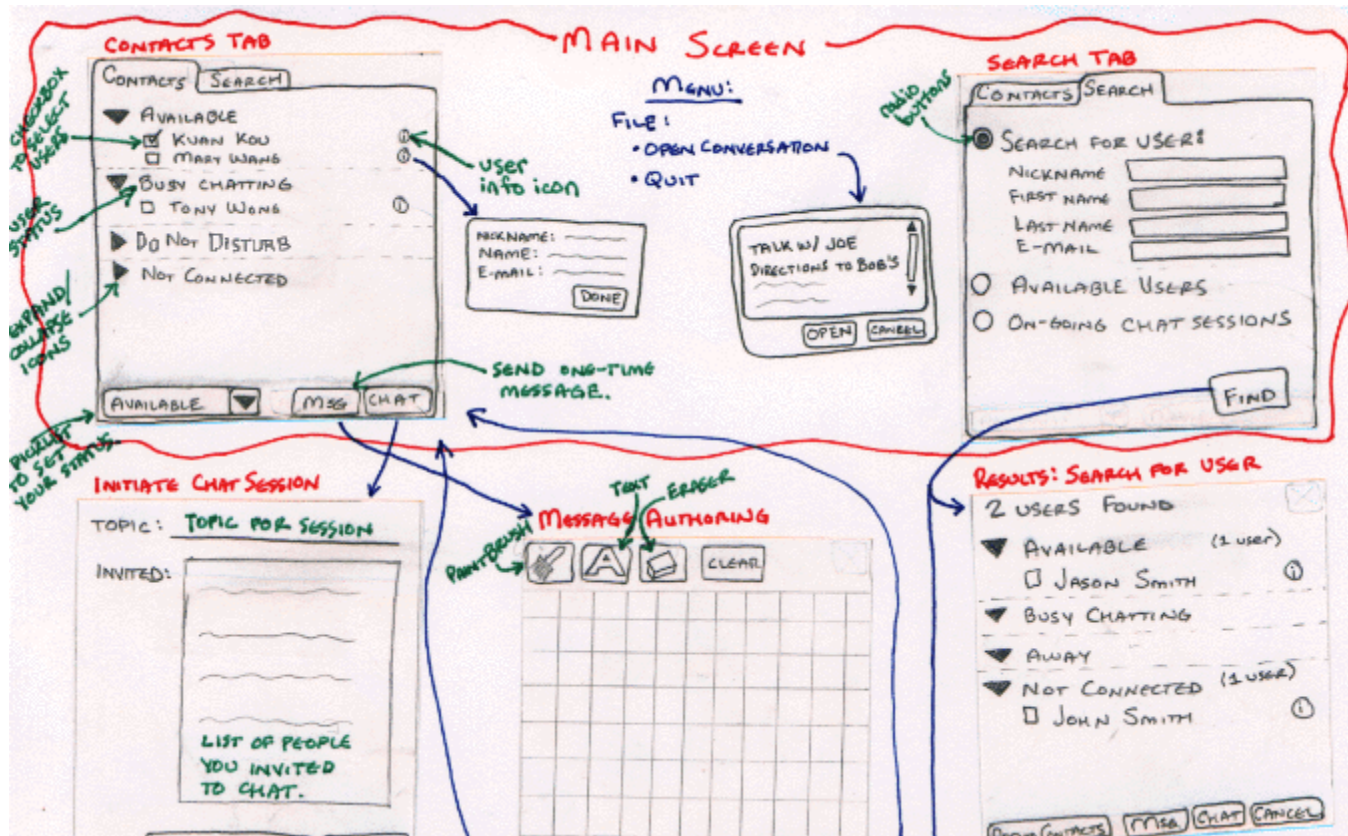
Sketching and Tasks



Sketching and Tasks



Sketching and Tasks



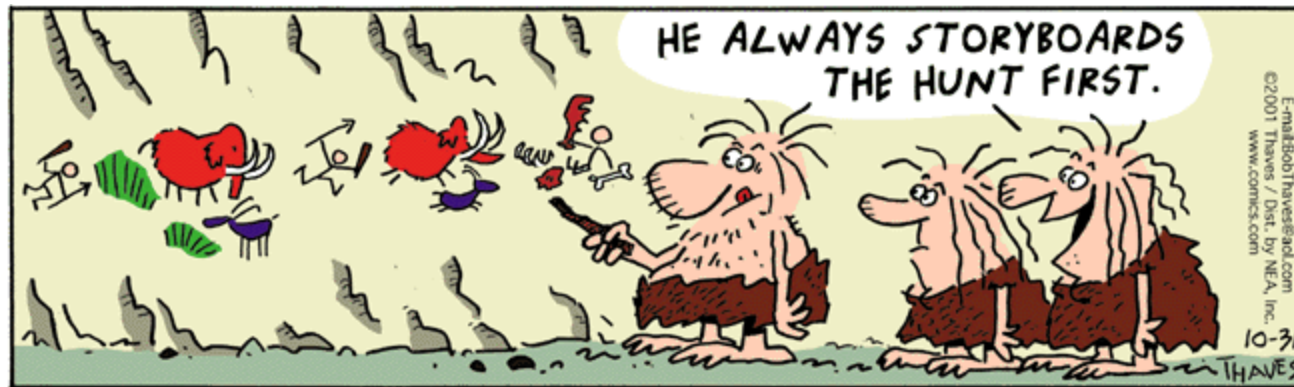
Illustrating Time

Storyboards come from film and animation

Give a “script” of important events

leave out the details

concentrate on the important interactions



Storyboards

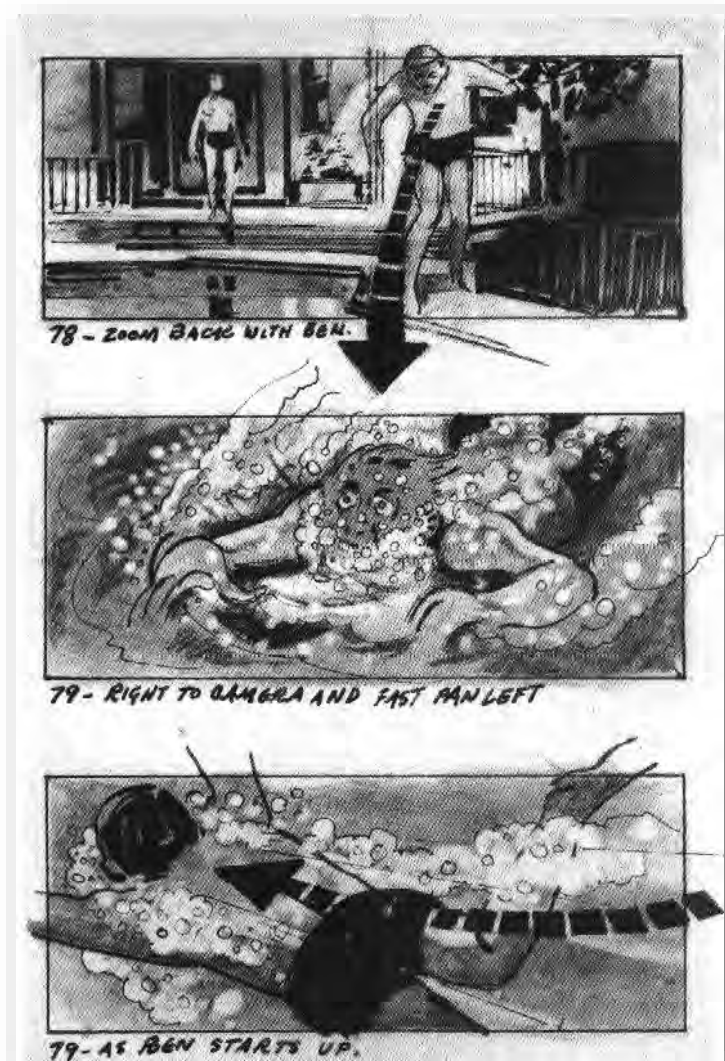
Can be used to explore

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

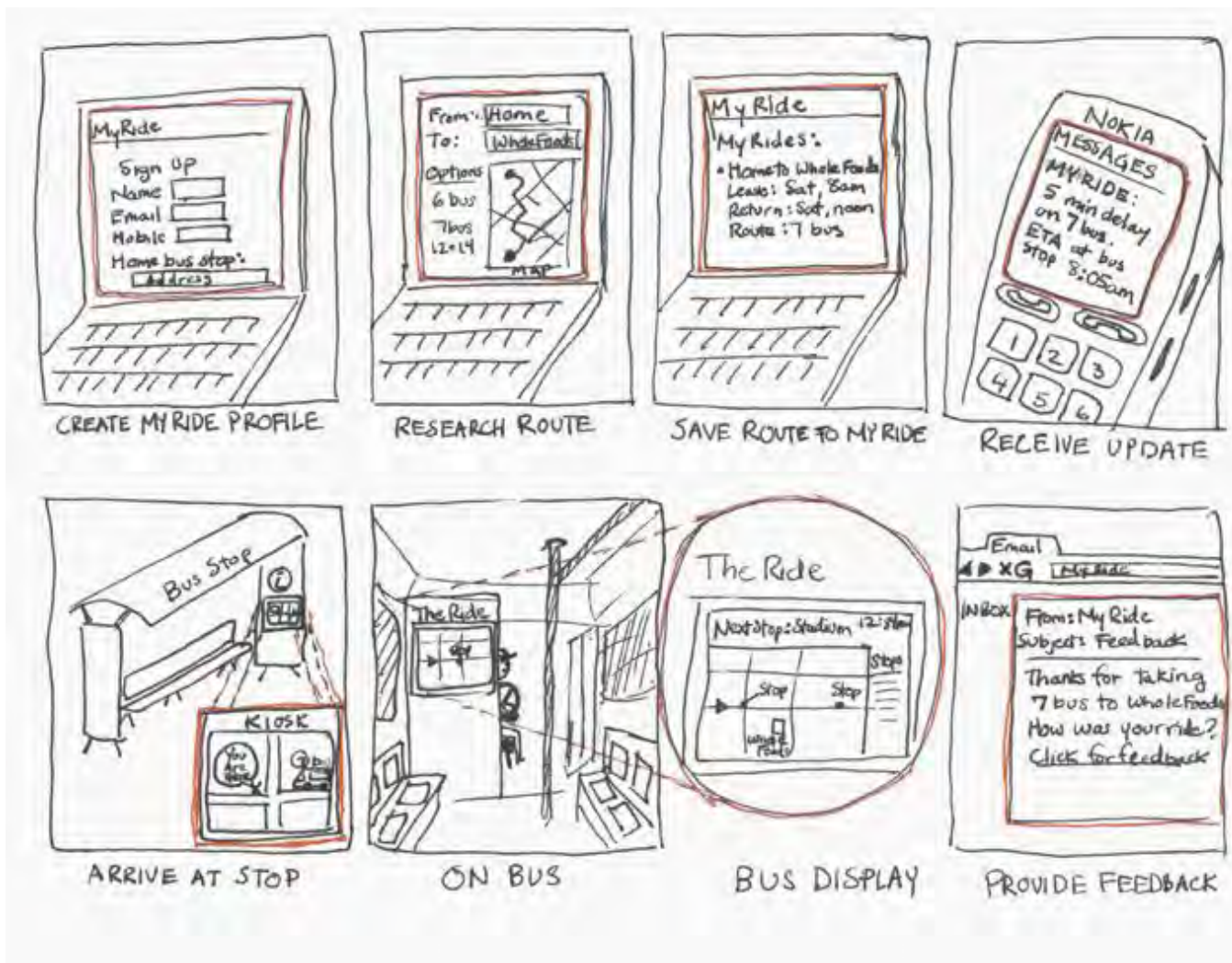
Can be used to convey

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

Imagine explaining this in text, for various audiences



Basic Storyboard

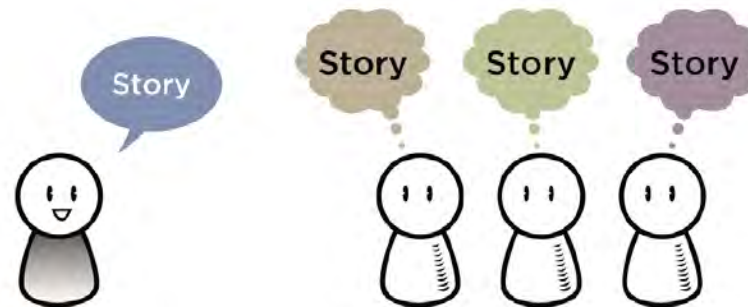


Storytelling



Stories have an audience

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



Stories need to match audience and purpose

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

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

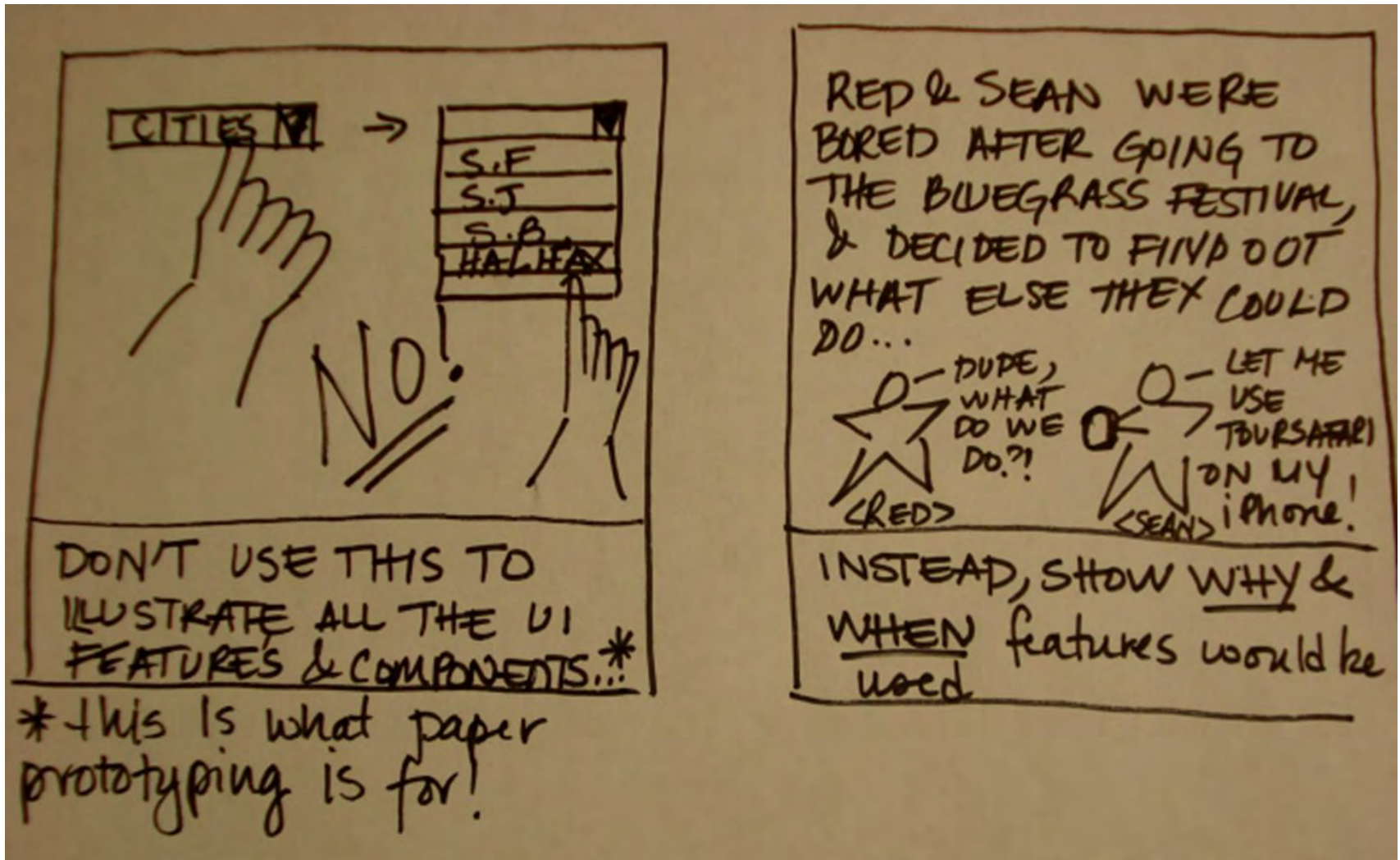
Details of interface features and components are not necessarily surfaced, they can often be developed and conveyed more effectively with other methods

Can help surface details that might otherwise be ignored

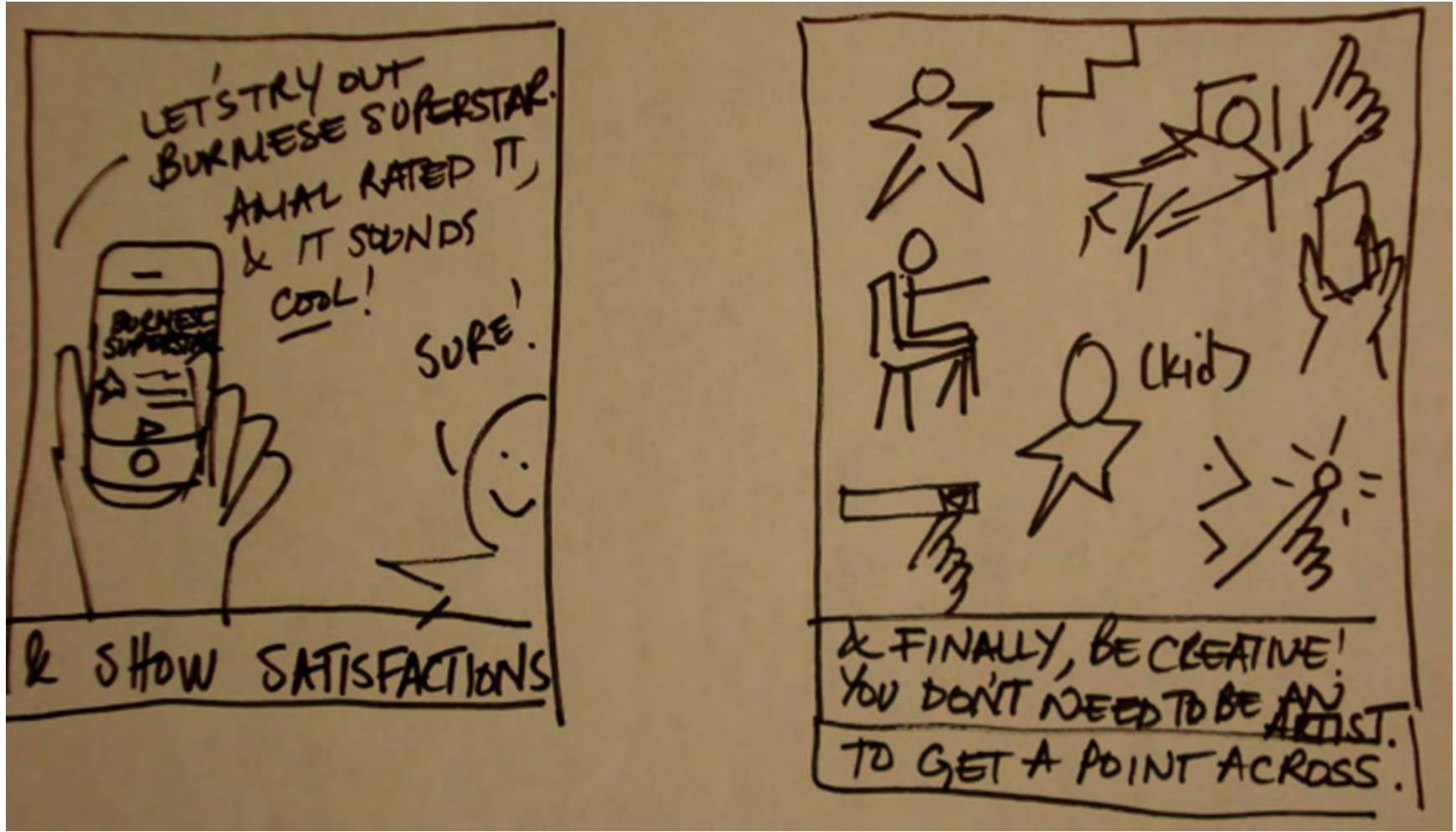
Grocery store application:

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

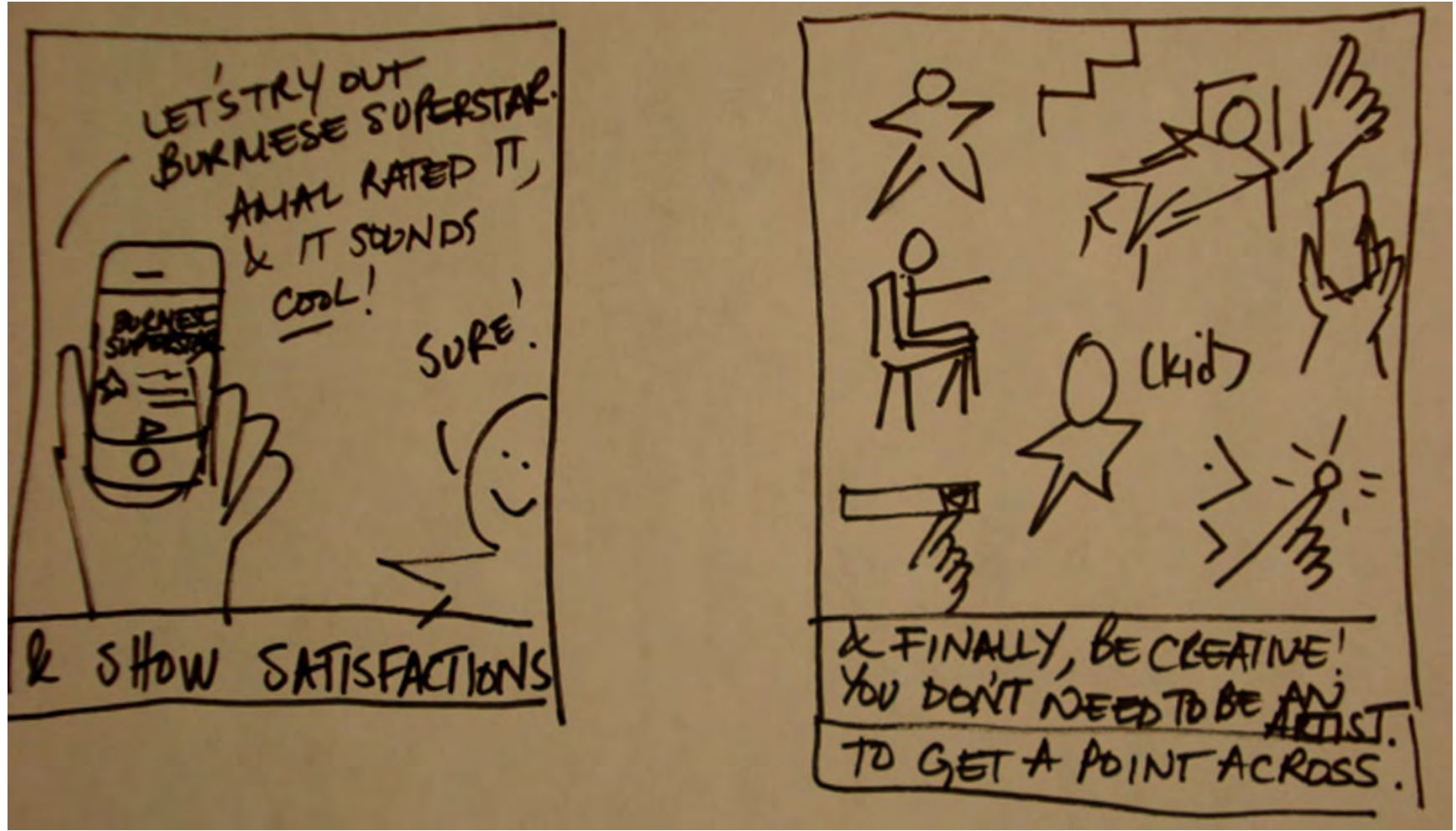
Amal's Guide to Storyboarding



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?

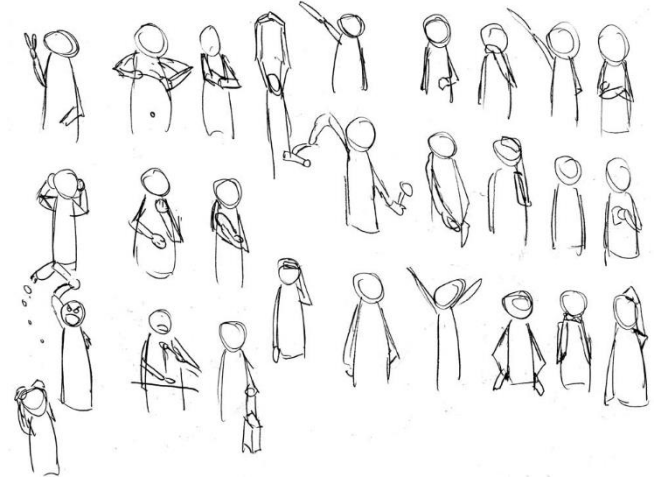
Sketching People



PERSON



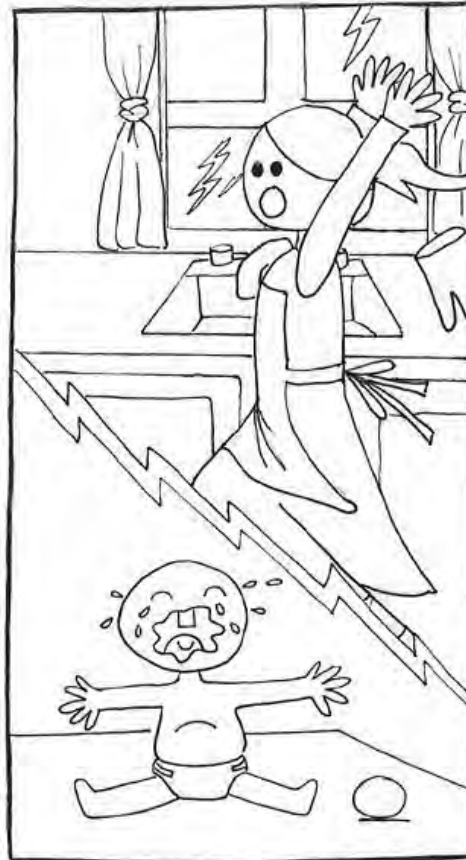
Star people
by Bill Verplank



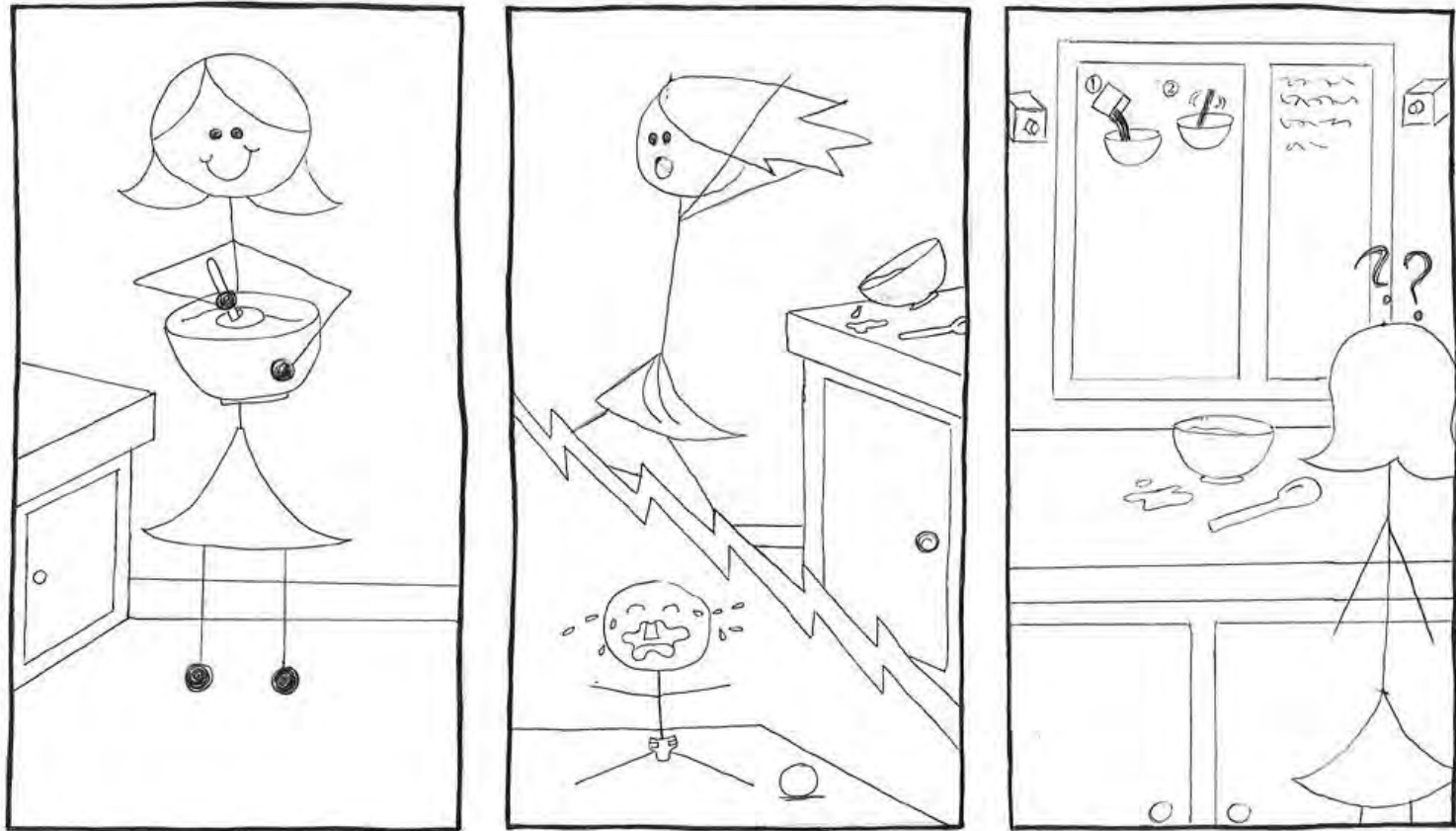
(c) 2009 SACHA CHUA



1. How Much Detail?



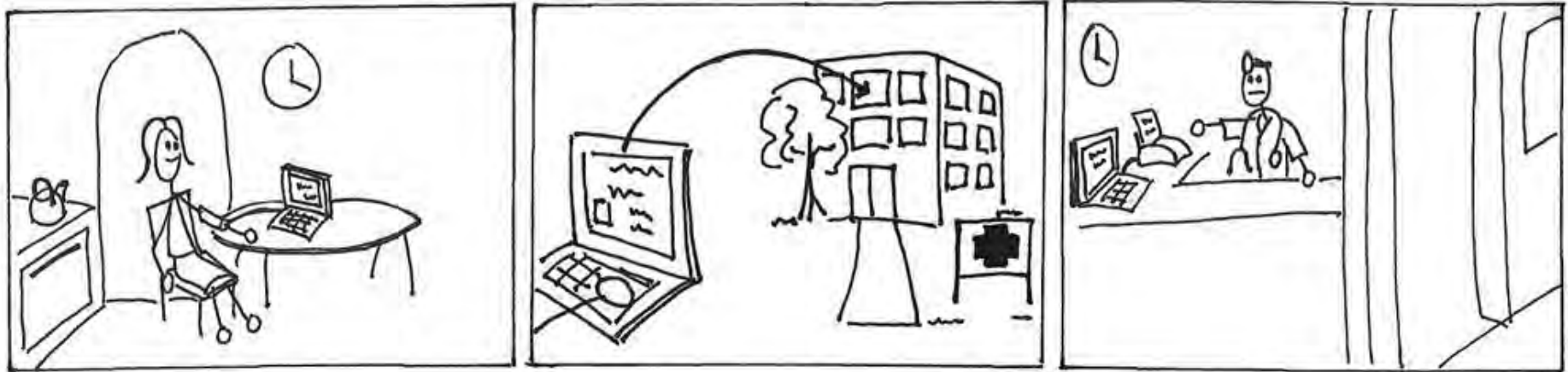
1. How Much Detail?



Unnecessary details distract from the story

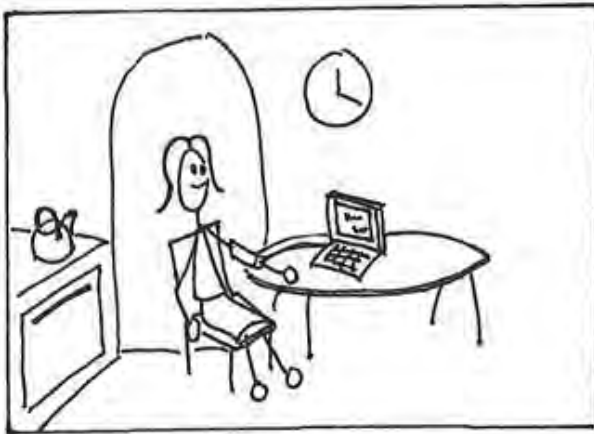
2. Use of Text

Guideline: It is often necessary, but keep it short

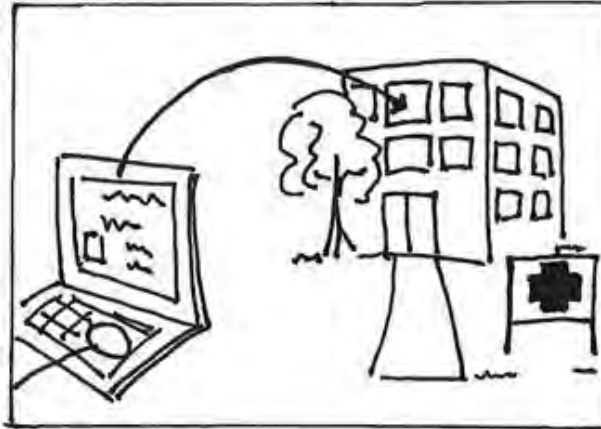


2. Use of Text

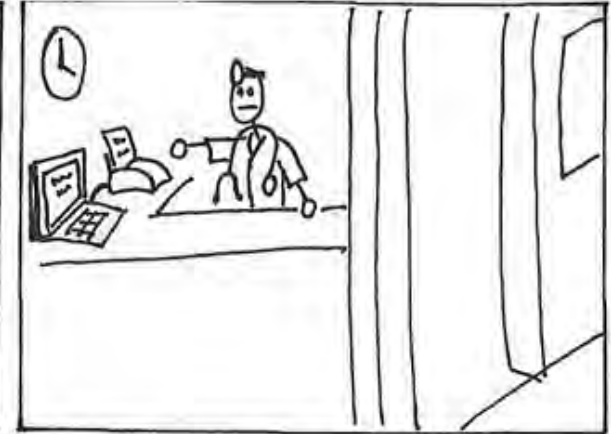
Guideline: It is often necessary, but keep it short



1. At home, Mary checks her blood pressure.



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



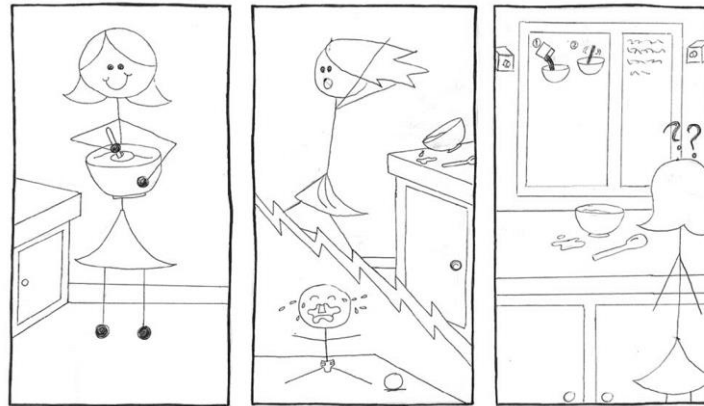
3. The information is made available to her doctor.

Short text is more 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

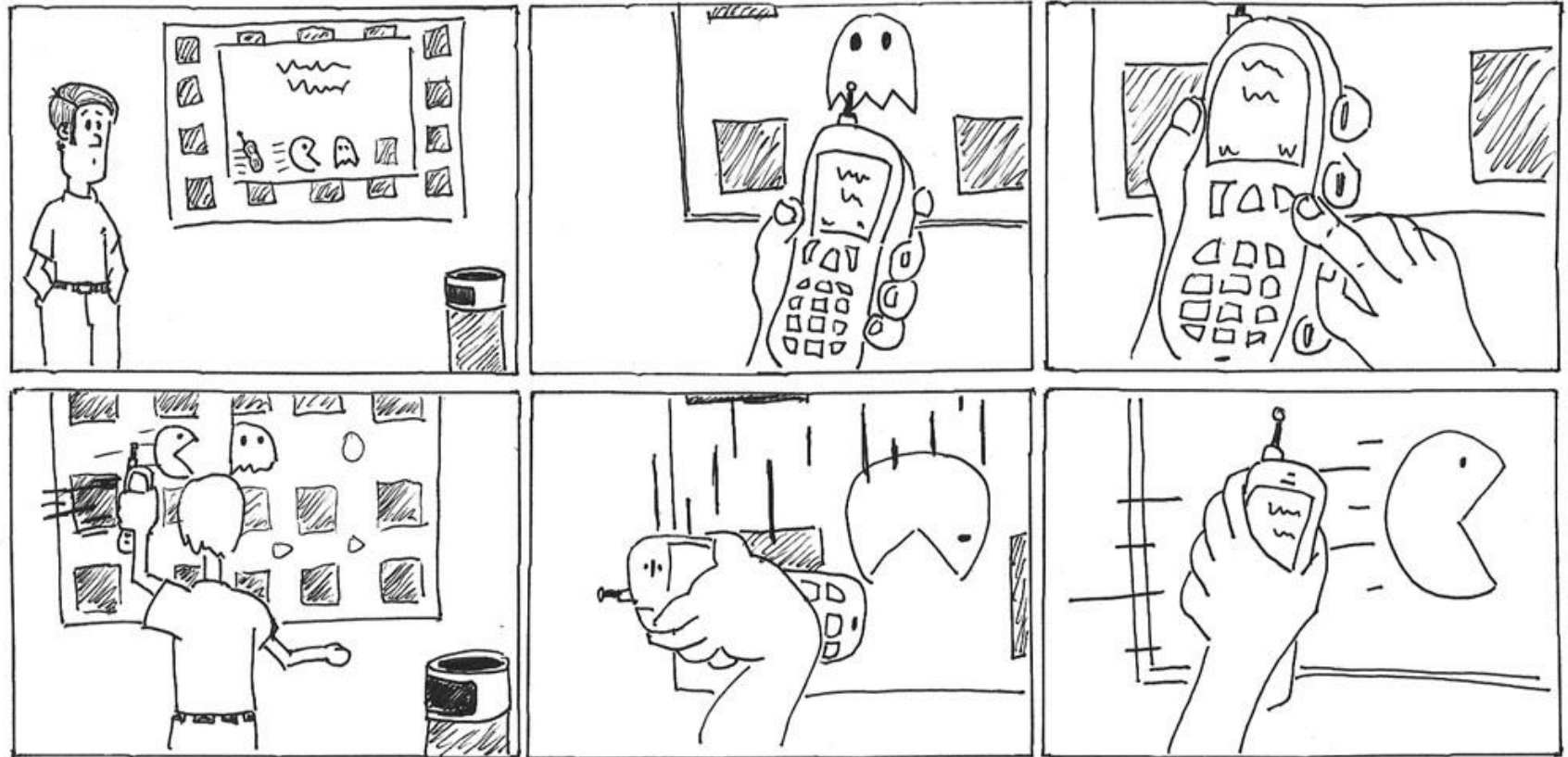
- Potentially longer for design clients

More is not always better

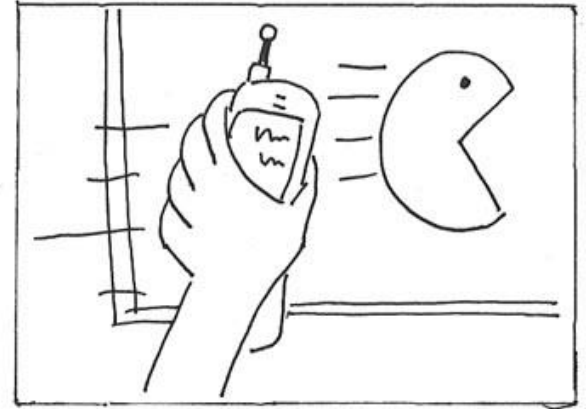
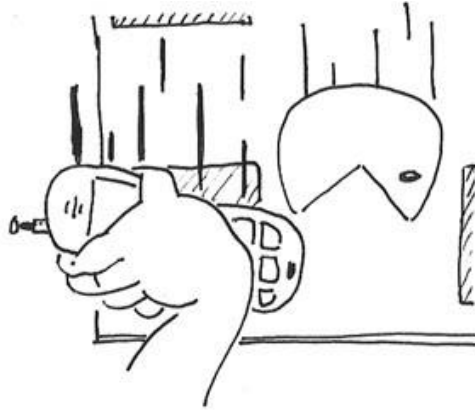
- May lose focus of story

- May lose attention

4. How many frames?



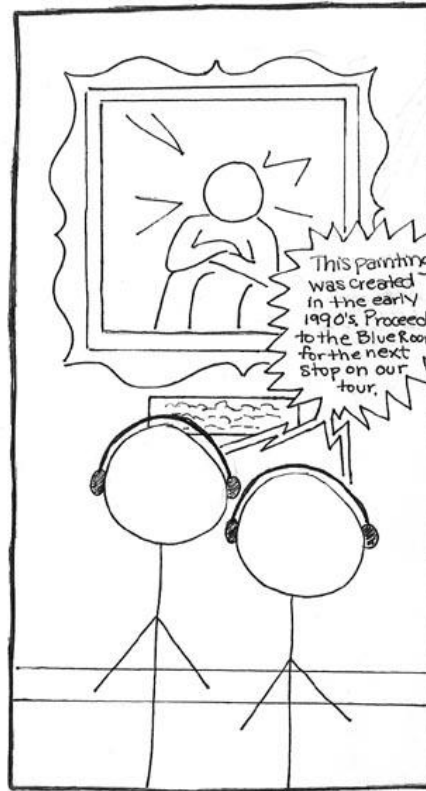
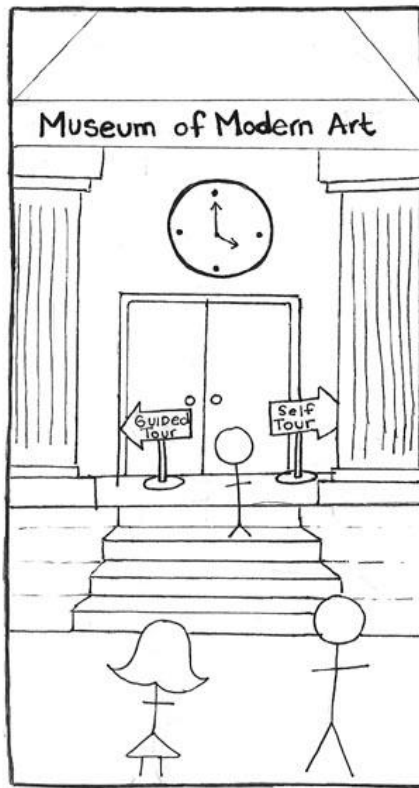
4. How many frames?



People found the extra panels were not needed

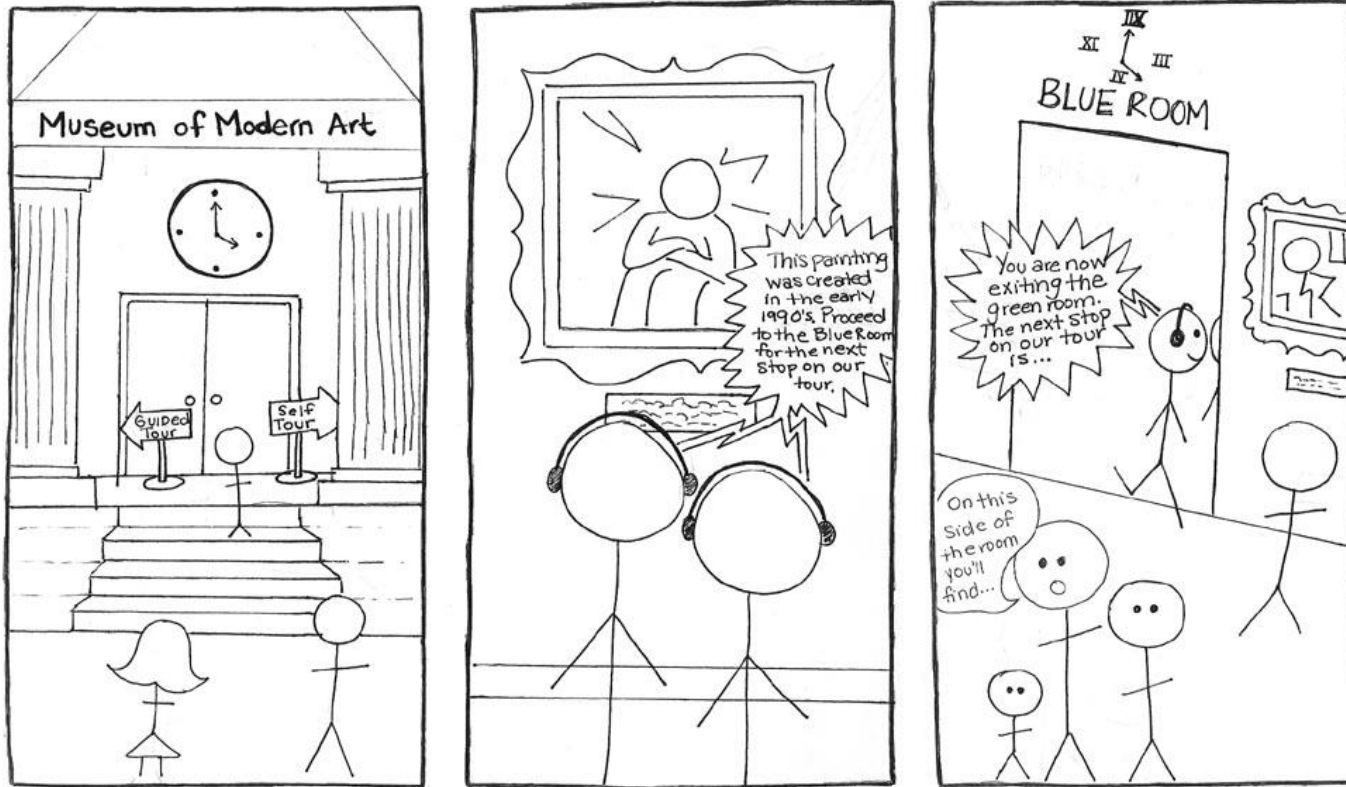
5. Passage of Time

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.

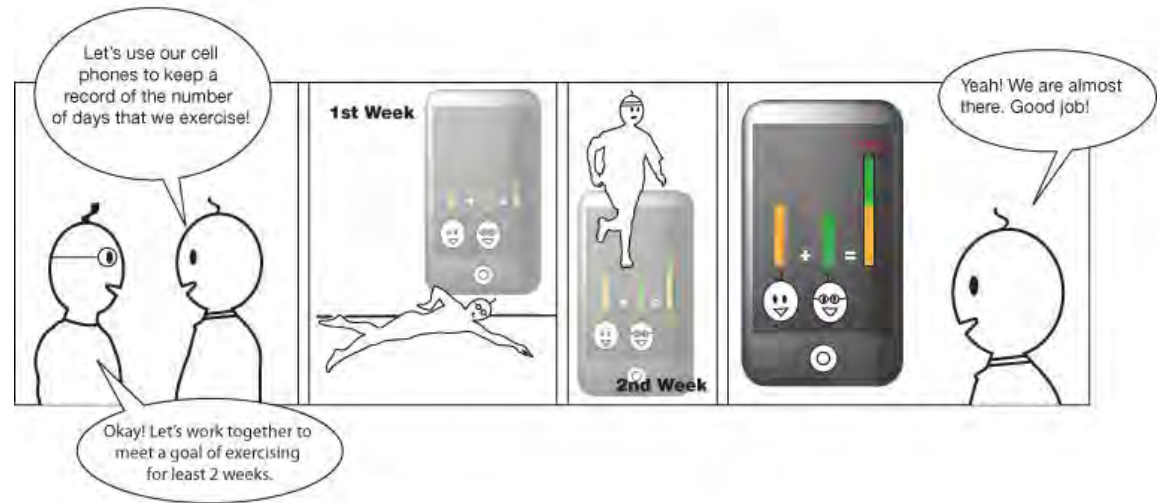
Supportive



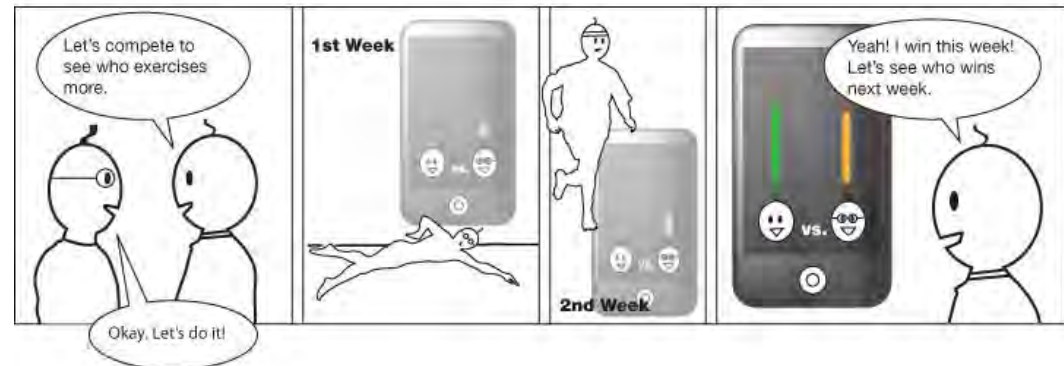
Cell phone is used to keep track of one's fitness goal.

Storyboards for Comparing Ideas

Cooperative

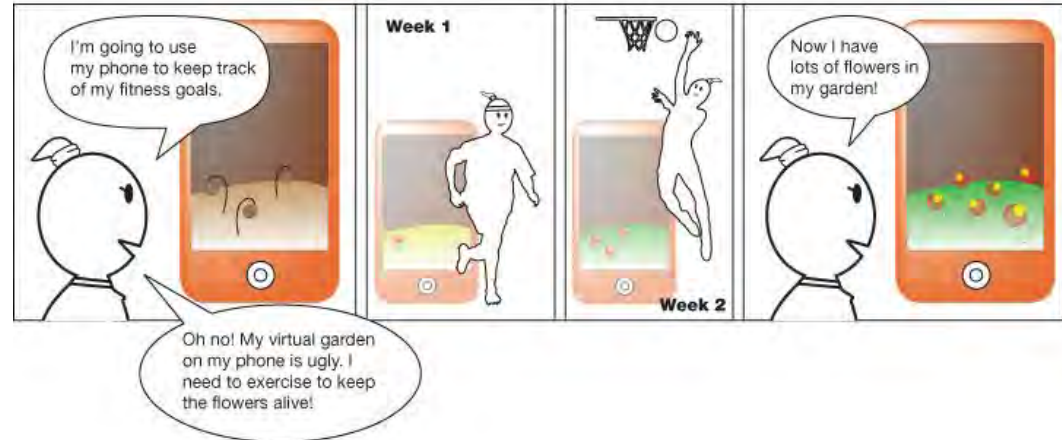


Competitive

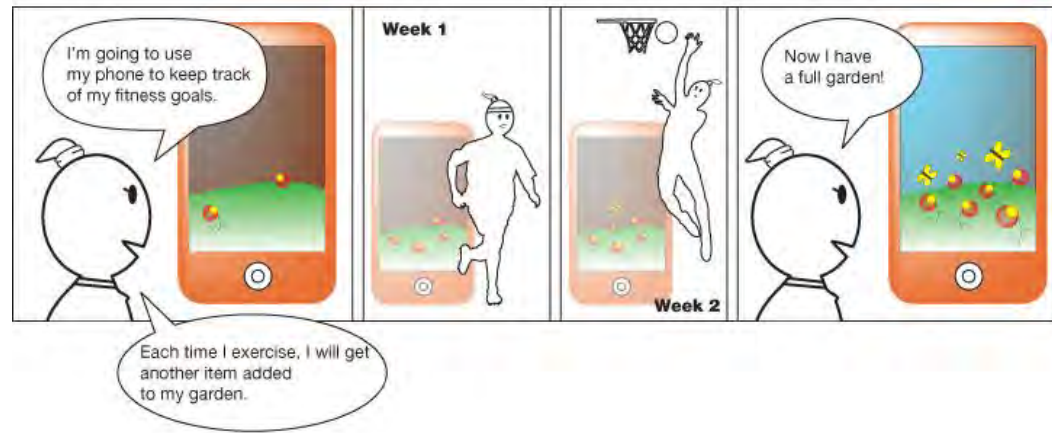


Storyboards for Comparing Ideas

Negative Reinforcement



Positive Reinforcement



Examples and Tricks in Storyboarding

This is also the focus of Reading 2

Due Friday night
(not needed for Friday section)

Will go over these quickly, especially the videos

You then view them outside of class

Drawing is Hard



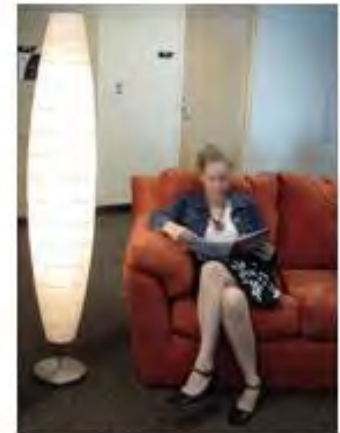
IT IS SO DARK JANE CAN
HARDLY READ HER BOOK



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



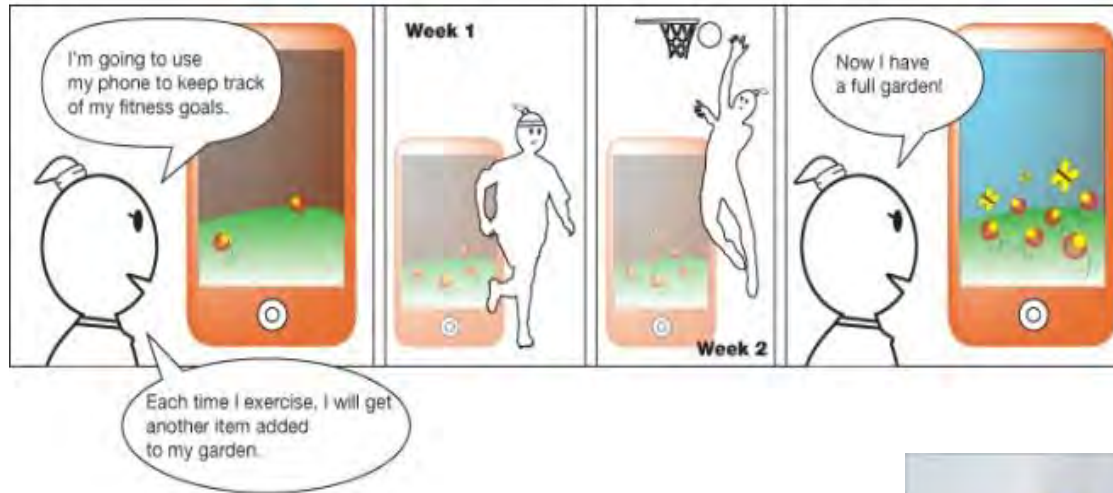
THE LIGHTS TURN ON!



FINALLY, SHE CAN
READ HAPPILY.

Will a picture work instead?

Existing Images from Other Sources



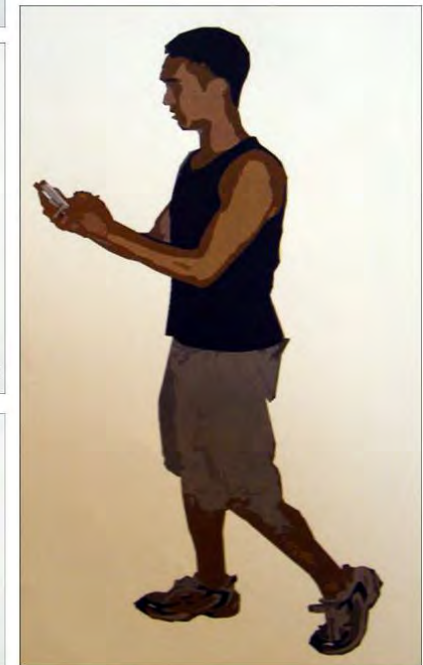
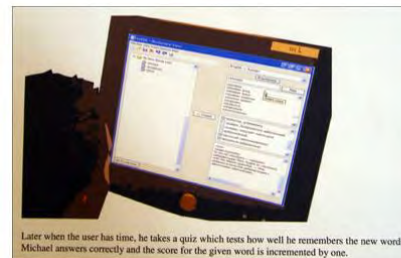
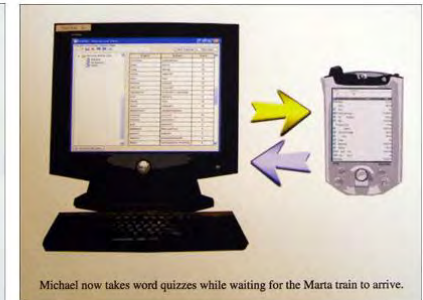
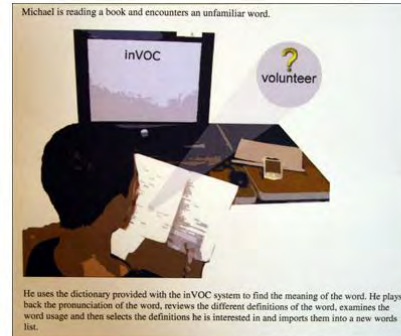
<http://designcomics.org/>

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

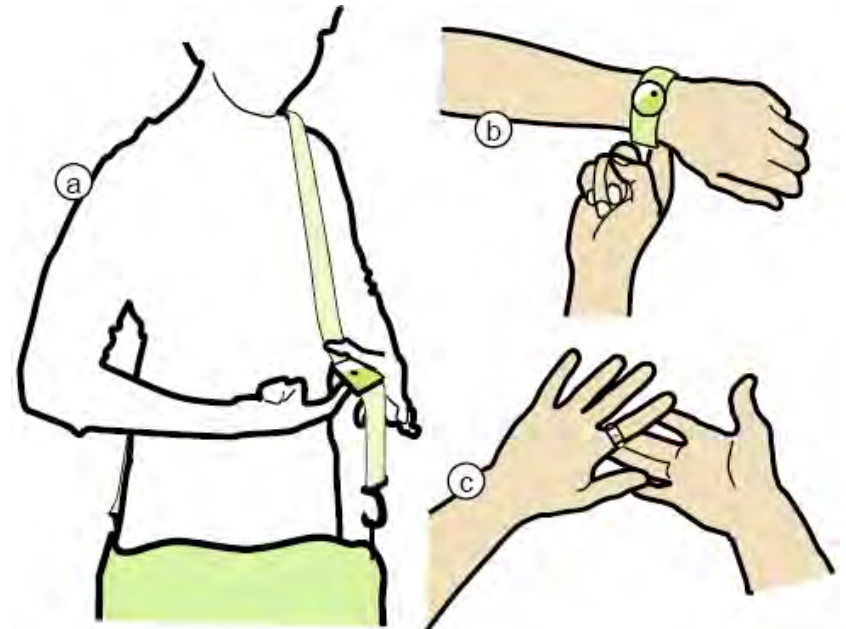
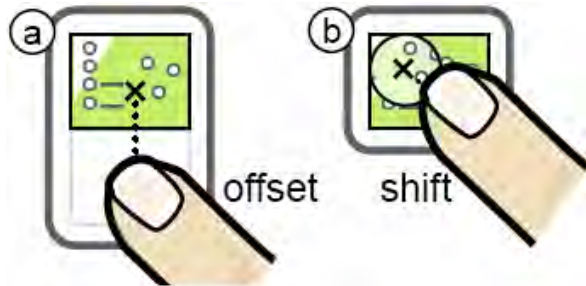


Blur Out Distracting Details

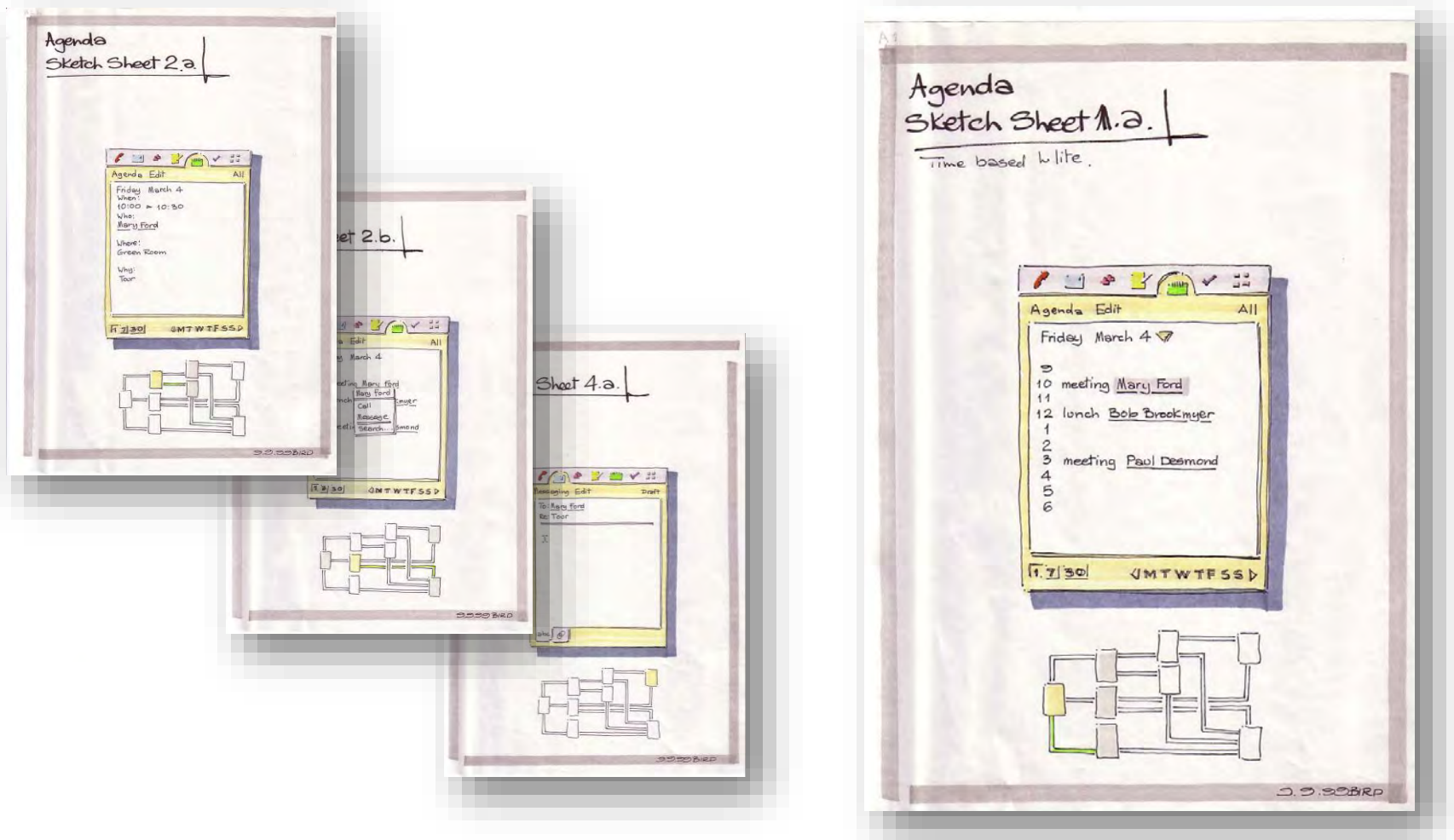
Using image editing software to simplify photos into sketches



Tracing Photos



Mapping the Space of Interaction



Comic Presentation

Thought bubbles argue for the design

altVerto FROM APATHY TO ADVOCACY

AFTER A LONG WORKDAY, JEN DECIDES TO CHECK TRAFFIC BEFORE HEADING HOME...

UGH! YOU'VE GOT TO BE KIDDING.

I'D RATHER WAIT THAN DRIVE IN THIS.

HUH... THEY'RE PROMOTING SOME SORT OF TRANSIT PLUGIN

WHY DON'T I GIVE IT A SHOT?

ONE WEEK LATER...

HI JEN, WE'RE GOING TO LINDA'S TAVERN FOR DRINKS AROUND 7 TONIGHT. YOU INTERESTED?

SOUNDS GOOD. WHAT'S THE BEST WAY TO DRIVE THERE FROM MY PLACE?

NOT SURE... JUST GOOGLE IT.

WILL DO. CYA LATER.

ALTVERTO SUGGESTS: TAKE THE BUS AND SAVE MONEY!

HUH, I DIDN'T KNOW THIS ROUTE.

THE BUS IT IS THEN.

A MONTH GOES BY...

ACCORDING TO ALTVERTO, I'VE SAVED A LOT OF MONEY BY TAKING THE BUS.

IT'S A SHAME THAT THERE AREN'T CONVENIENT BUS ROUTES FOR MY COMMUTE

AREN'T YOU ALWAYS TELLING ME ABOUT YOUR WEEKEND BIKE RIDES?

WHY NOT BIKE?

MAYBE... I'D HAVE TO GET SOME ADVICE AND FIGURE OUT A GOOD ROUTE FIRST.

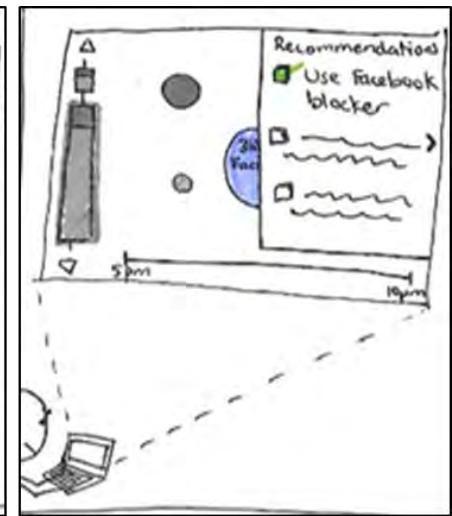
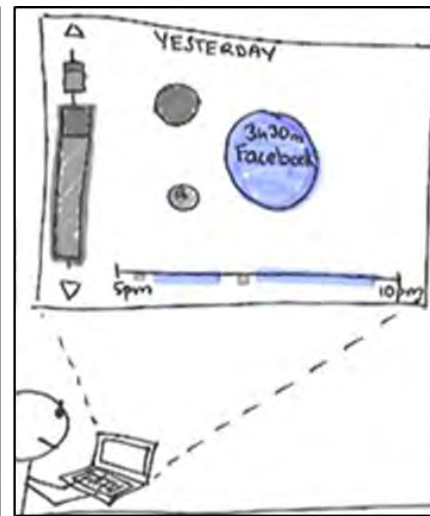
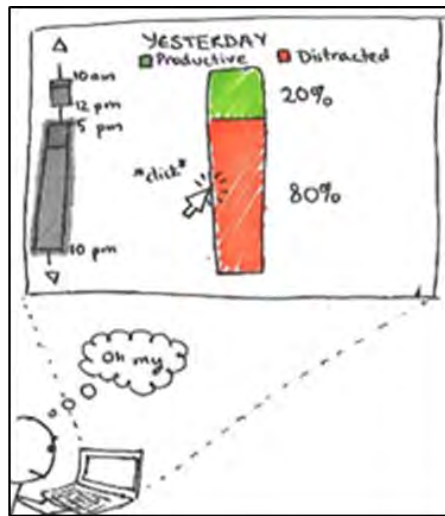
SEEMS LIKE THE ALTVERTO CYCLING FORUM IS A GOOD PLACE TO START.

7 SEATTLE CYCLING FORUM		
LATER THAT SAME YEAR...	last post	replies
Good bike repair shops on Capitol Hill? mackenzie89		7
Need help figuring out safe bus route (District to Fremont) ridafreezezone		4
Special critical mass tomorrow in downtown bike lanes! ballardcot		14
What's your favorite fun-ride on the eastside? nwhiker		

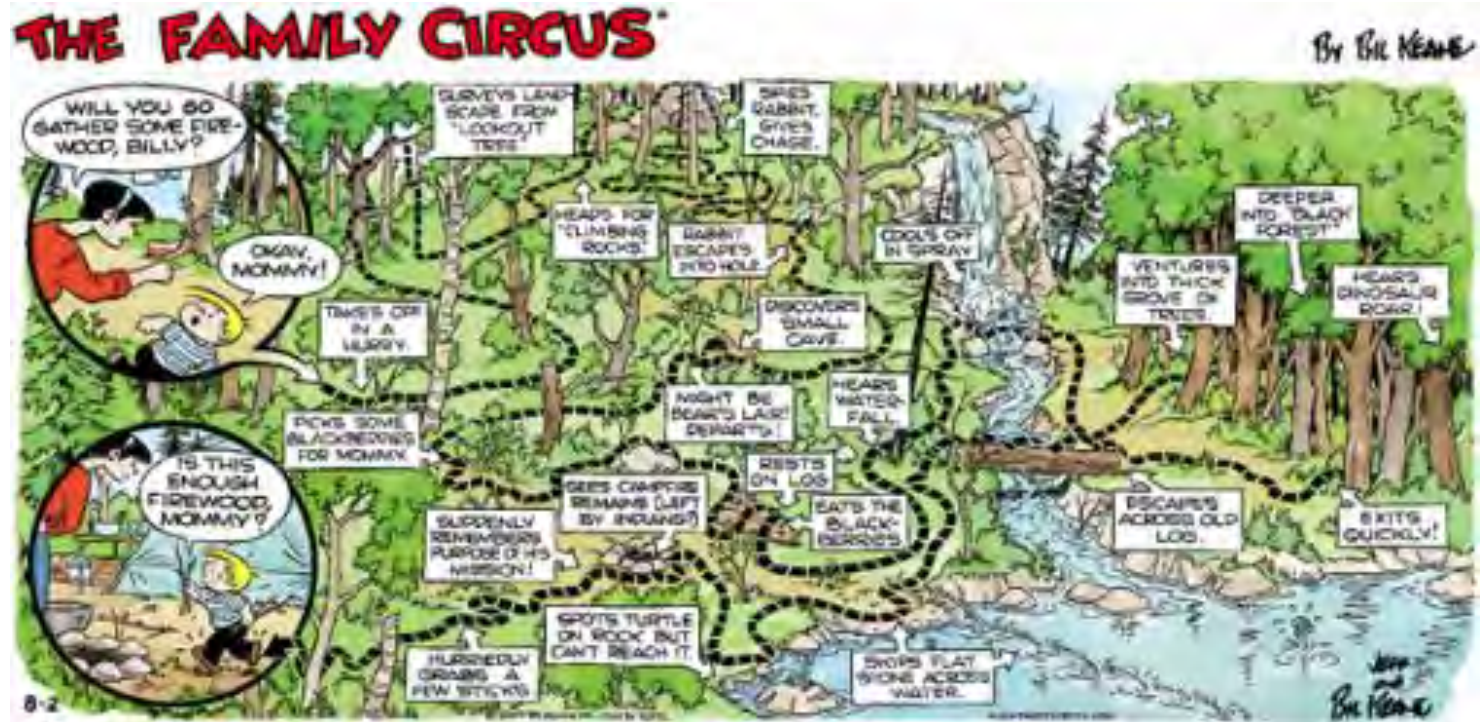
MORE BIKE LANES DOWNTOWN WOULD MAKE MY COMMUTE A LOT SAFER. I SHOULD DO THE CRITICAL MASS RIDE.

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.

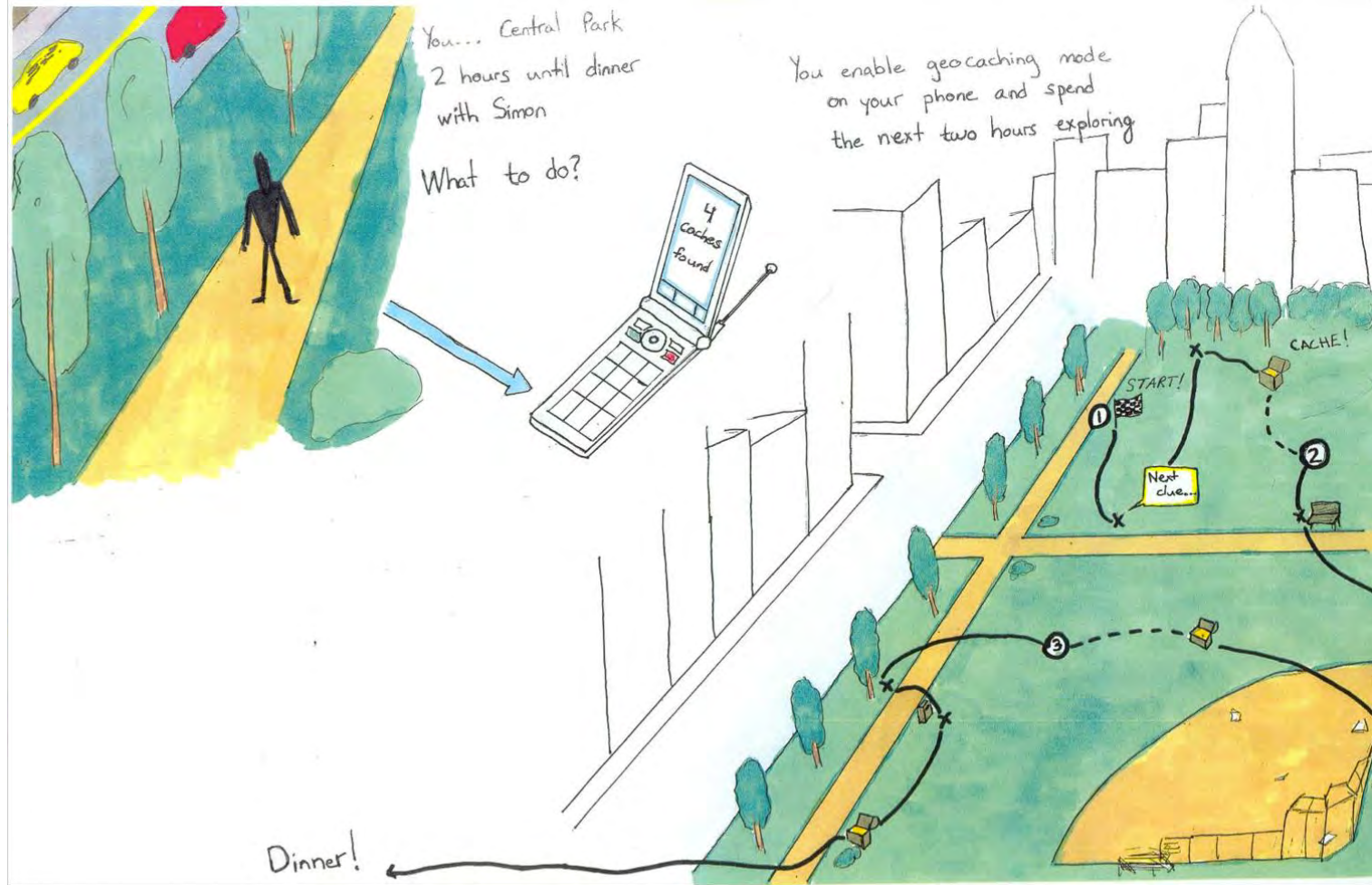
Selective Use of Color



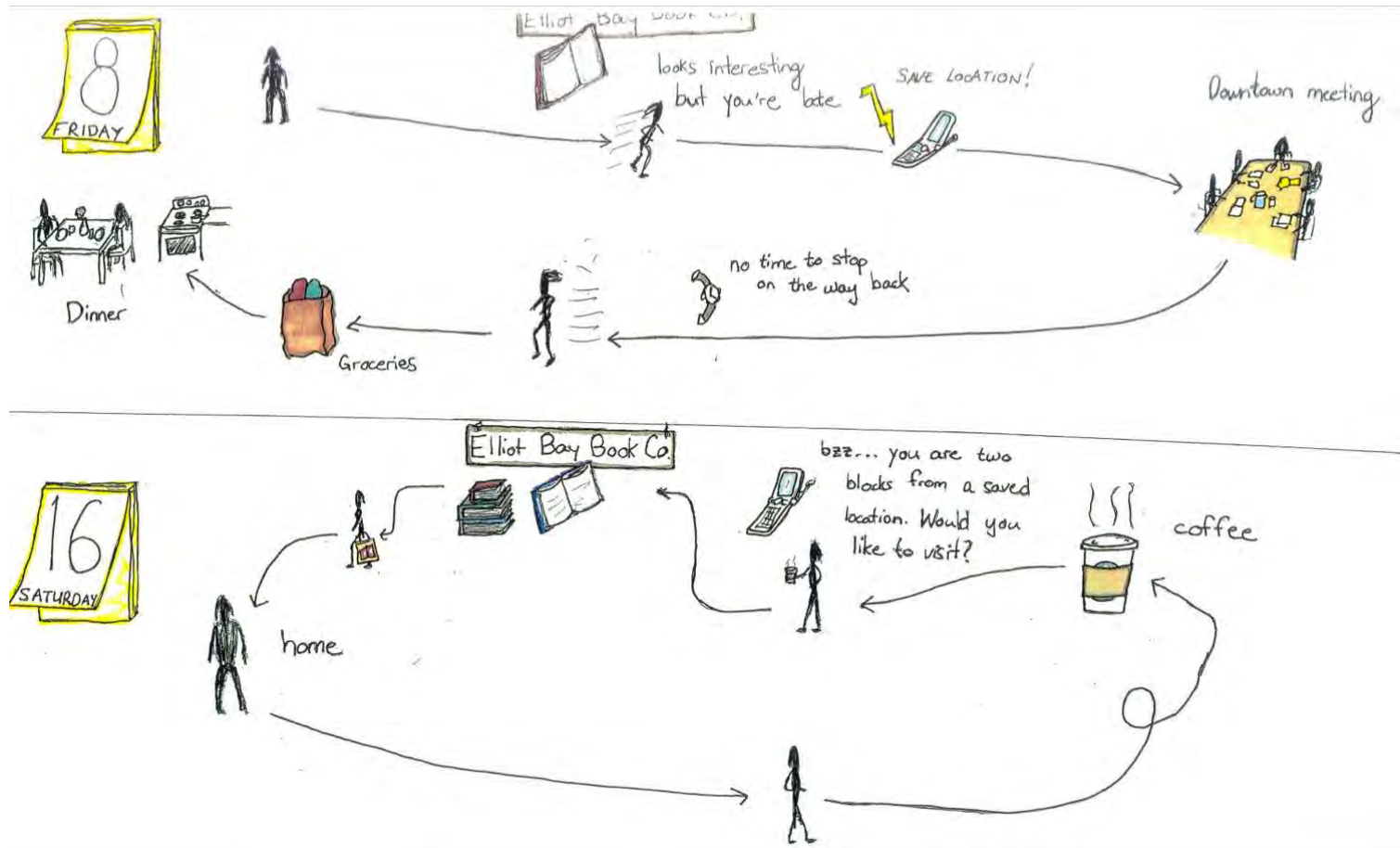
Route Maps



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 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

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

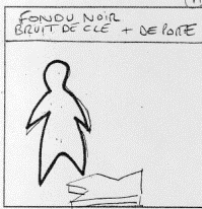
Create text for usage scenarios

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

Steps to Create a Video Prototype

(A)

FONDU NOIR
BRUIT DE CLE + DE PORTE



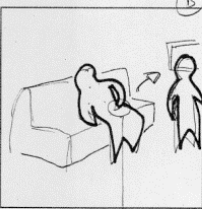
SCENARIO

DECORS MONIQUES MOTE | S'ASSOIE SUR LE CANAPE

CAMERA

OBS PORTE FERMEE DANS LA BUHE

(B)

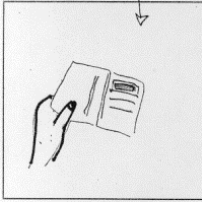


SCENARIO

DECORS SORT SON PORTEFEUILLE (...)

CAMERA

OBS

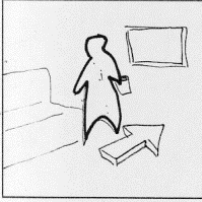
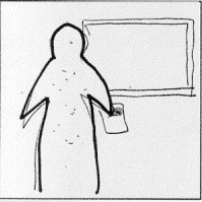
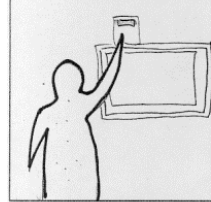


SCENARIO

DECORS CANAPE → VIDEO PROBE

CAMERA

OBS

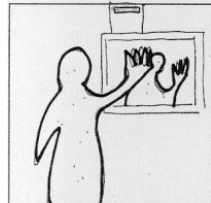




SCENARIO

DECORS FEEDBACK ECRAN

CAMERA


OBS

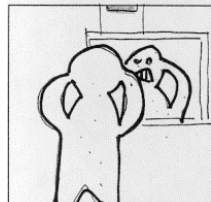


SCENARIO GRINACE 1

DECORS

CAMERA

OBS  VOIR BOUQUIN SPOOTER VUE DE FACE POUR INCrustATION



SCENARIO

DECORS GRINACE 2

CAMERA

OBS

Steps to Create a Video Prototype

Shoot a video clip for each storyboard card

Avoid editing in the camera, just shoot scenes

Use titles to separate clips

Like a silent movie

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

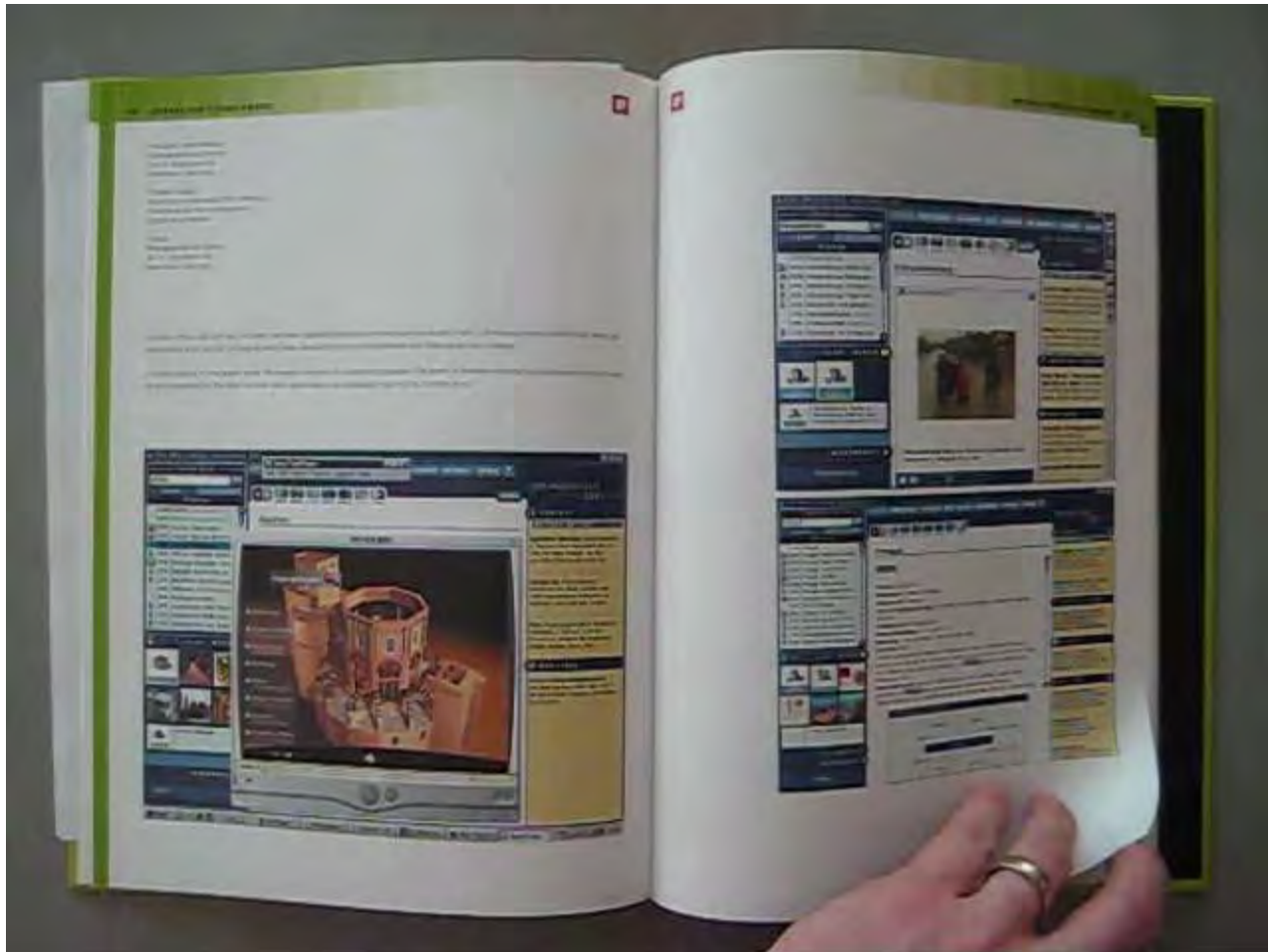
If you make an error, just reshoot it

Prototyping Microsoft Surface



<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/Surface-Document-Interaction.mp4>

Prototyping Microsoft Surface



<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/Surface-Context-Lens.mp4>

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

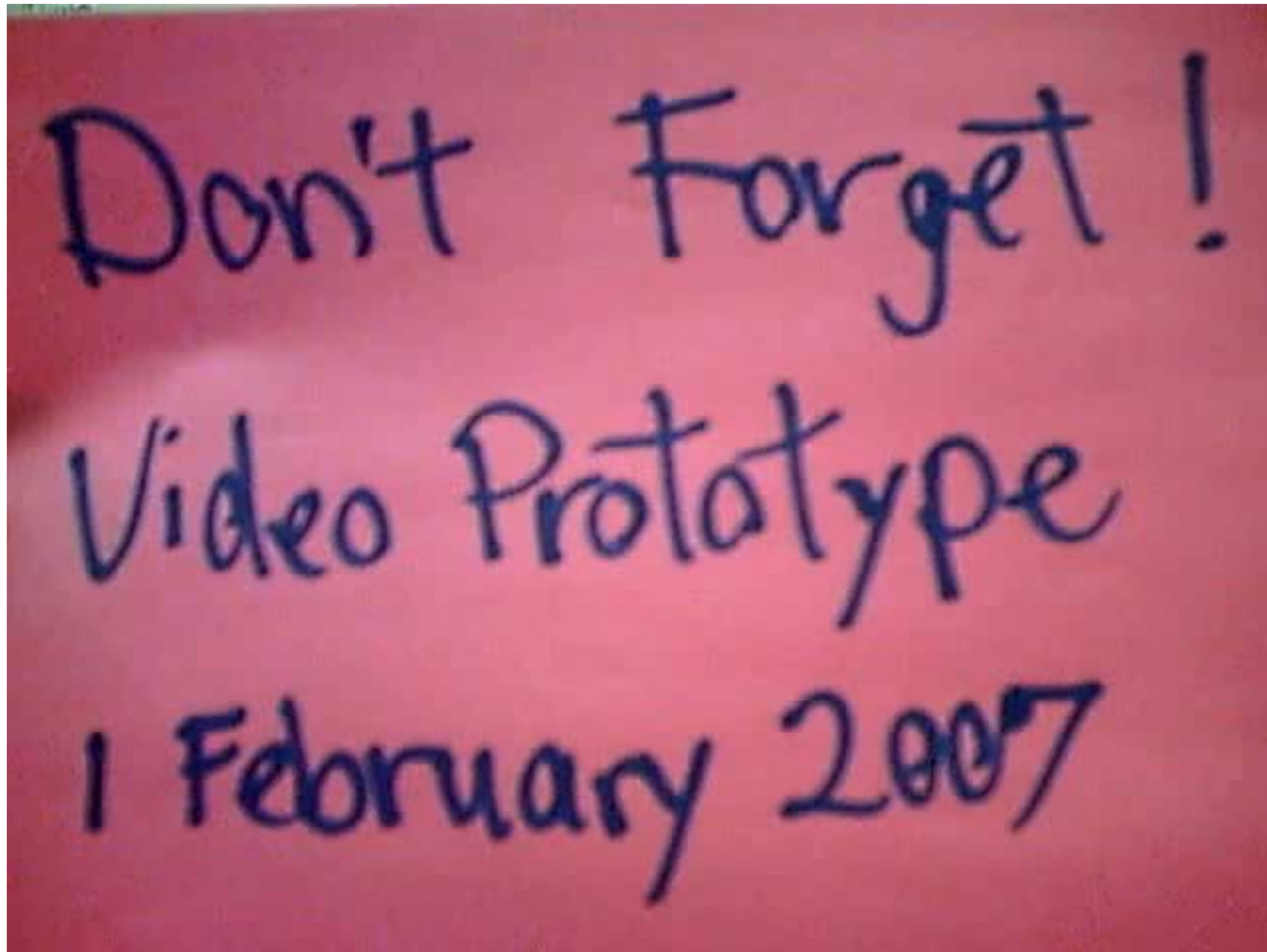
“Consumester”

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



<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/Don't-Forget-2.mp4>

Narration, Pace, and Flair

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

<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/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

<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/Buddy-Map-Backcountry.mp4>

Watch for Pace and Scene Relevance

Consumester
Video Prototype

<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/Consumester.mp4>

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

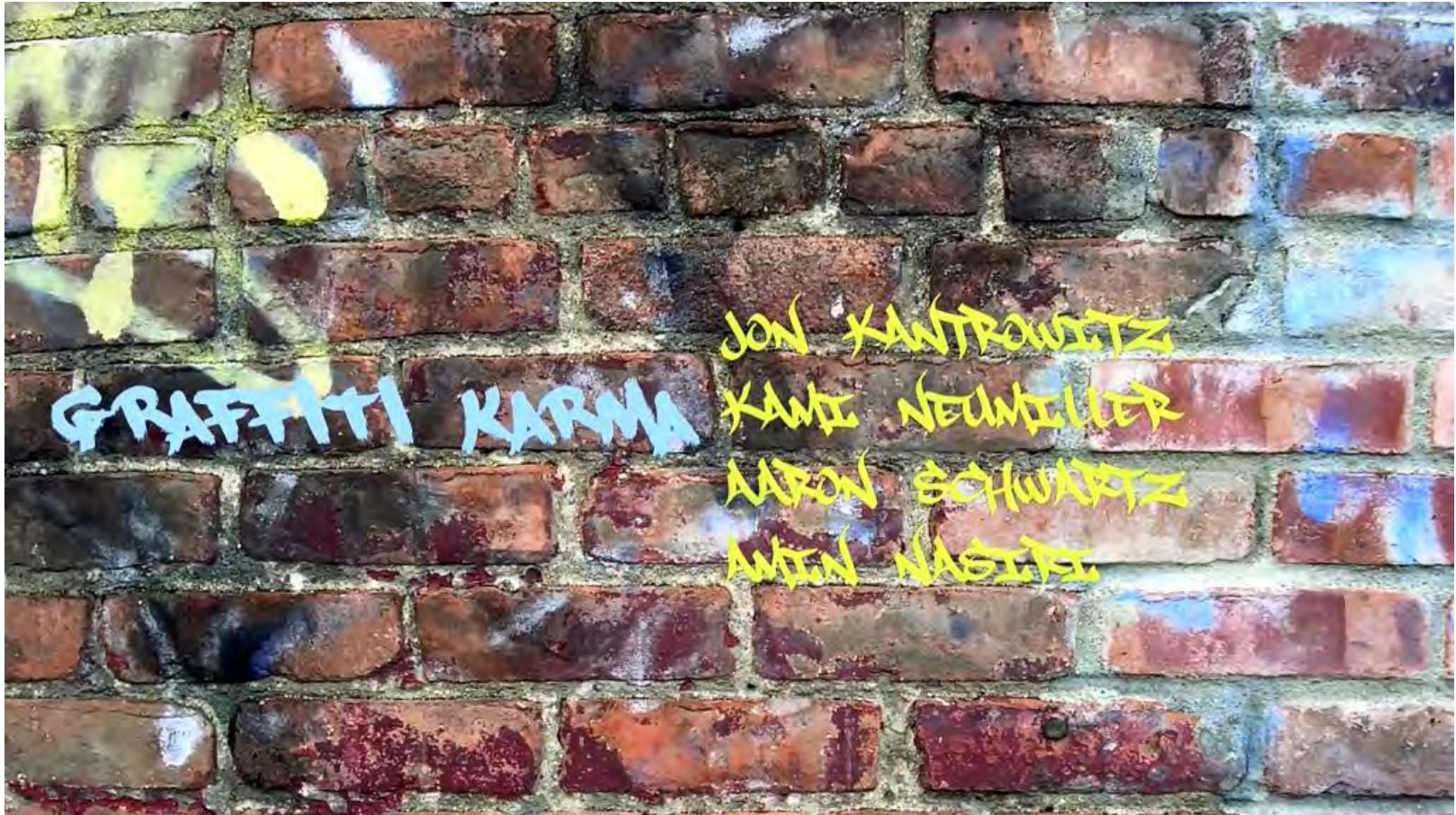
PickUp
It's more than a game it's a community



CSE 440 Video Prototype

<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/Pickup.mp4>

Still-Frame, More Effects



<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/Graffiti.mp4>

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



<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/Parksmart.mp4>

But watch for pace and scene relevance

ParkSmart

Playful while Keeping Pace



<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/Plantr.mp4>

Reminder on Fidelity



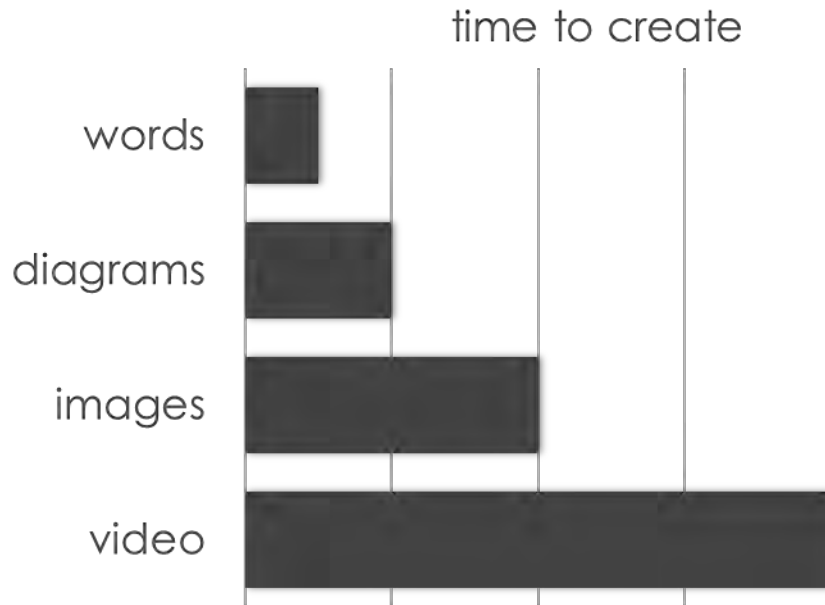
 FLUIDUM



 FLUIDUM

<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/Mug-Sketch.mp4>
<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/Mug-HiFi.mp4>

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?

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)



<http://courses.cs.washington.edu/courses/cse440/videos/videoprototyping/Vision-Corning-A-Day-Made-Of-Glass.mp4>

Summary

Think about your audience

Think about your time constraints

Think about the purpose of your story

Think about options for effective presentation

CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 07:
Storyboarding and
Video Prototyping

James Fogarty
Eunice Jun
David Wang
Elisabeth Chin
Ravi Karkar



Tuesday / Thursday
10:30 to 11:50