CSE 440: Introduction to HCI
User Interface Design, Prototyping, and Evaluation

Lecture 08: Storyboarding

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Tuesday/Thursday
10:30 to 11:50
MOR 234
Today

Milestones

- Design Review (“1x2”) Due Friday
- Getting the Right Design Due Tuesday
- Presentations Start Thursday

Class

- Storyboarding
- Design Check-In (“3x4”) 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

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

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 it should be...

outfit #1  outfit #2  outfit #3
(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
- High lights availability
Sketching and Storyboards
Sketching and Storyboards

SCENARIO 1

"I want to listen to alternative music"

Diagram of user interface elements.

University of Washington
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
Storyboards

Can be used to convey

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

Truong et al, 2006
1. How Much Detail?

Guideline: too much detail can lose universality

Scott McCloud
1. How Much Detail?
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.
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?
5. Passage of Time

Guideline: Only use if necessary to understand
Storyboards for Comparing Ideas

**Authoritative**

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

Hey! You need to exercise at least 20 days a month.

Oh! Um... Okay.

1st Week

Good job!

Phew.

2nd Week

**Supportive**

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

Hey! I will keep a record of days you exercise.

Okay! Let’s do it.

1st Week

Good job! You’ve exercised more than 20 days a month!

Thanks!

2nd Week
Storyboards for Comparing Ideas

Cooperative

1st Week

Let’s use our cell phones to keep a record of the number of days that we exercise!

2nd Week

Okay! Let’s work together to meet a goal of exercising for 2 weeks.

Yeah! We are almost there. Good job!

Competitive

1st Week

Let’s compete to see who exercises more.

2nd Week

Okay. Let’s do it!

Yeah! I win this week! Let’s see who wins next week.
Storyboards for Comparing Ideas

**Negative Reinforcement**

I'm going to use my phone to keep track of my fitness goals.

Oh no! My virtual garden on my phone is ugly. I need to exercise to keep the flowers alive!

**Positive Reinforcement**

I'm going to use my phone to keep track of my fitness goals.

Each time I exercise, I will get another item added to my garden.

Now I have lots of flowers in my garden!
Examples and Tricks in Storyboarding
Drawing is Hard

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

offset  shift

Baudisch and Chu, 2009
Mapping the Space of Interaction
Comic Presentation

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

UHH! 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...

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

NOT SURE... JUST GOOGLE IT.

WILL DO. CYA LATER.

ALVERTO 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 ALVERTO, 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 ALVERTO CYCLING FORUM IS A GOOD PLACE TO START.

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 the same during and after the field trial.
Route Maps

THE FAMILY CIRCUS

Will you go gather some firewood, Billy?
Okay, Mommy!

Okay, Mommy!

Okay, Mommy!

Okay, Mommy!

Okay, Mommy!

Okay, Mommy!

Okay, Mommy!

Okay, Mommy!

Okay, Mommy!

Okay, Mommy!

Okay, Mommy!

Okay, Mommy!

Okay, Mommy!

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Okay, Mommy!

Okay, Mommy!
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...

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

and discuss the food options with your friends...
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
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

1. **Scenario**
   - Feedback bar
   - Camera
   - Audio

2. **Scenario**
   - Gimmage 1
   - Camera
   - Audio

3. **Scenario**
   - Gimmage 2
   - Camera
   - Audio
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

Don't Forget!

Video Prototype

1 February 2007

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

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
Lessons from Prior Video Prototypes

Split Presentation, Simple Effects

“PickUp”

Still-Frame, More Effects

“Graffiti Karma”
Split Presentation, Simple Effects

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
Playful while Keeping Pace

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

Corning’s “A Day Made of Glass” (2011)

LuciaMug Sketch: A Contrast

[Sketch: The Mug Metaphor Interface]

[HiFi: The Mug Metaphor Interface]

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 Times: Stay Low Fidelity

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
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