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

Lecture 08: Storyboarding and Video Prototyping

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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

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 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 is...

As it should be...

outfit#1  outfit#2  outfit#3

(pre-selected to watch 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 showing a navigation flow from main to alternative music options.
Sketching and Storyboards

[Diagram showing a user interface for a plant care application, with sketches of different screens and user interactions.]
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

CITIES

S.F.
S.J.
S.B.
HAL-HEX

No!

Don’t use this to illustrate all the UI features & components.

* This is what paper prototyping is for!

Red & Sean were bored after going to the Bluegrass Festival, & decided to find out what else they could do...

Dude, what do we do now? Let me use yours?

On my phone!

Instead, show why & when features would be used.
Amal’s Guide to Storyboarding

Let's try out Burmese superstar. Amal rated it and it sounds cool. Sure!

Show satisfactions & final, be creative! You don't need to be an artist to get a point across.
Amal’s Guide to Storyboarding

Let’s try out Burmese superstar. Amal rated it & it sounds cool! Sure!

& show satisfactions

& finally, be creative! You don’t need to be an artist to get a point across.

Kid
## Storytelling

<table>
<thead>
<tr>
<th>Good stories</th>
<th>Bad stories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand audience</td>
<td>Do not account for audience</td>
</tr>
<tr>
<td>Provide context of use</td>
<td>Boring or un-engaging</td>
</tr>
<tr>
<td>Are well-motivated</td>
<td>Fantastical or unrealistic</td>
</tr>
<tr>
<td>Memorable</td>
<td>Wrong story for purpose</td>
</tr>
<tr>
<td>Evokes a reaction</td>
<td>Too long to hold attention</td>
</tr>
<tr>
<td>Evokes empathy</td>
<td>tl;dr</td>
</tr>
<tr>
<td>Illustrate experience</td>
<td></td>
</tr>
<tr>
<td>Convey emotions</td>
<td></td>
</tr>
<tr>
<td>Short and to-the-point</td>
<td></td>
</tr>
</tbody>
</table>
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

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

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Scott McCloud
1. How Much Detail?

Sketching People

Star people by Bill Verplank

Keith Haring

(c) 2009 SACHA CHUA

University of Washington
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

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
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

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

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

1st Week

Yeah! We are almost there. Good job!

2nd Week

Competitive

Let's compete to see who exercises more.

Let's do it!

1st Week

Okay, I win this week! Let's see who wins next week.

2nd Week
Storyboards for Comparing Ideas

**Negative Reinforcement**

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

Week 1

Week 2

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

Now I have lots of flowers in my garden!

**Positive Reinforcement**

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

Week 1

Week 2

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

Now I have a full 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

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

Thought bubbles argue for the design

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.
Selective Use of Color
Route Maps
Route Maps
Route Maps

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

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

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

...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

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

http://courses.cs.washington.edu/courses/cse440/videos/vid261R.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

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

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

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
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

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

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?

Completely made-up bar length

But it is probably at least this bad
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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