

Informatics 134

Software User Interfaces
Spring 2023

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4/17/2023

Agenda

1. Upcoming
2. Designing User Interfaces
3. Preparing Your Team Project
4. T2: Concept Evaluations

Upcoming

Upcoming

- Today Lecture/Discussion
- Group work time: concept evaluation
- T2 Due Wednesday
- A1 Due next Wednesday

Designing User Interfaces

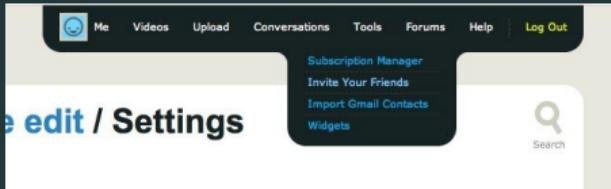
Designing User Interfaces

UI's are hard to implement...

From a programming perspective

From a design perspective

```
var target = document.querySelector('.box');
var player = target.animate([
  {transform: 'translate(0)'},
  {transform: 'translate(100px, 100px)'}
], 500);
player.addEventListener('finish', function() {
  target.style.transform = 'translate(100px, 100px)';
});
```



Designing User Interfaces

Thinking About Design

“Design is a plan for arranging elements in such a way as best to accomplish a particular purpose.”

—Charles Eames

Designing User Interfaces

"Design is a **plan** for **arranging elements** in such a way as best to **accomplish a particular purpose.**"

When applied to HCI

a plan: processes and methods

arranging elements: a naturally creative endeavor

best: user experience

accomplish: through tools or other things

particular purpose: human use and other people-centered concerns

Designing User Interfaces

By now you've probably noticed that in HCI we talk a lot about users and experiences...

User Centered Design

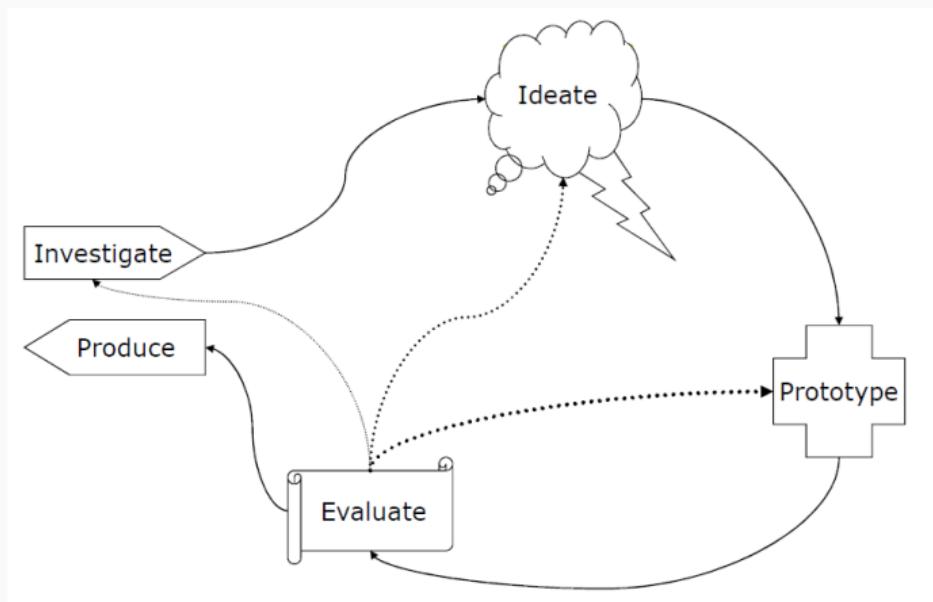
Human Centered Design

User Experience Design

Inclusive Design

What process do they have in common?

Look familiar?



Designing User Interfaces

At the heart of any creative endeavor in HCI is the iterative process

We Investigate

We Ideate

We Prototype

We Evaluate

And We Produce

Designing User Interfaces

Investigate

Learn about stakeholders

Discover goals and needs

How is it done now?

What is wanted?

What else has been tried?

Designing User Interfaces

Ideate

Generate **lots** of ideas

Grasp issues and potential solutions

Why?

Ideate

Generate **lots** of ideas

Grasp issues and potential solutions

Why?

- Creativity does not just pop up in bursts of brilliance!
- The more ideas the better chance for success
- Systematic evaluation of a large volume of ideas
- Be sure to avoid picking your first idea!

Designing User Interfaces

Prototype

Why?

Produce something tangible

Identify challenges

Uncover subtleties

Designing User Interfaces

Prototype

Produce something tangible

Identify challenges

Uncover subtleties

Why?

- It's hard to evaluate a thing that does not exist
- Helps your audience understand abstract concepts
- Helps **you** identify future constraints and bring potential obstacles into view

Designing User Interfaces

Evaluate

Discover problems

Assess progress

Determine next steps

Why?

Evaluate

Discover problems

Assess progress

Determine next steps

Why?

- Feedback on your direction and ideas
- Increase chance to discover major issues
- Help to resolve disagreements

Designing User Interfaces

What are some ways that you can (or have) ideate, prototype, and evaluate?

Designing User Interfaces

What are some ways that you can ideate?

"Idea Oscillation" - gradually iterate through micro-changes

Immersion (storytelling, bodystorming)

Generation (keep a design notebook, rapid-fire post-its)

Sketching and storyboarding

Talk (and listen) to anyone ... everyone

Modify what already exists

Mix and match across domains

Read/watch science fiction!

Designing User Interfaces

What are some ways that you can prototype?

Paper prototypes

Power point (*e.g.*, [Kelly, 2007])

Software tools

Designing User Interfaces

What are some ways that you can evaluate?

Ask a friend, ask a stranger

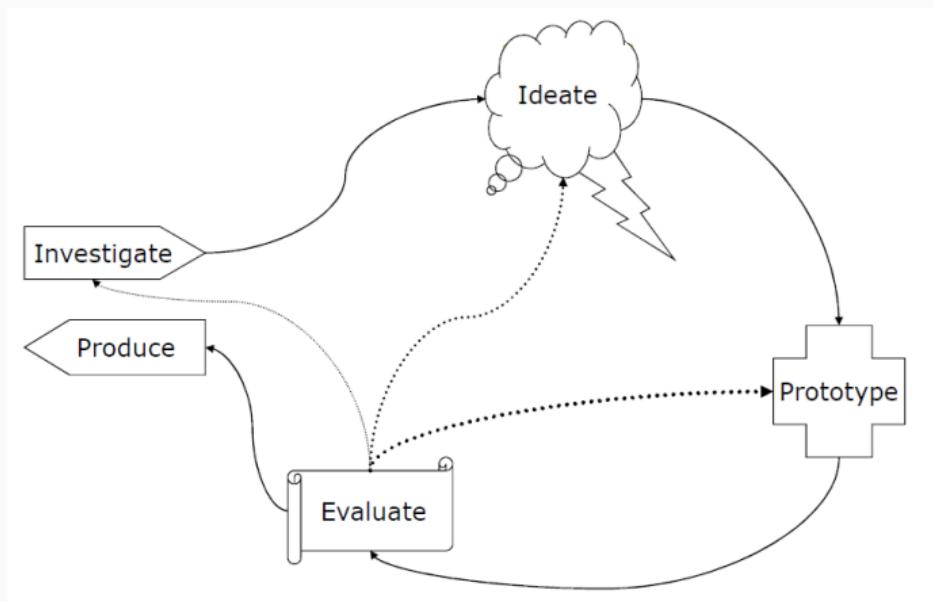
Share with your team

A/B testing

Publish low-fidelity online, ask for feedback

Controlled via lab setting

What's the point?



Designing User Interfaces

Designing (good) user interfaces is hard!

We rely on proven methods and processes to ensure that the final output, whatever it may be, can be used successfully by as many people as possible.

Preparing Your Team Project

Preparing Your Team Project

For Team Assignment 2, you are refining your concept through artifact generation that will lead you to concrete prototypes that can be used for evaluation.

Preparing Your Team Project

What are prototypes?

In designing interactive systems, a prototype can be:

- a series of screen designs (e.g., Photoshop)
- a storyboard
- a slide deck or html pages
- a video simulating use of a system
- a physical artifact like wood, cardboard, or paper
- a piece of software with limited functionality

Preparing Your Course Project

You have already learned a few core methods of the iterative process in previous courses. While you are free to use whichever methods that you and your team prefer, let's briefly review a few of the most useful.

Preparing Your Course Project

Brainstorming

Working in groups is essential

Should approach with fun

Build assets (materials/artifacts) and keep them visible (any thoughts how?)

Preparing Your Course Project

Brainstorming

How?

Start with an open-ended questions ("What are some ways we could tackle our design problem?")

Have each team member spend several minutes in silence jotting down ideas

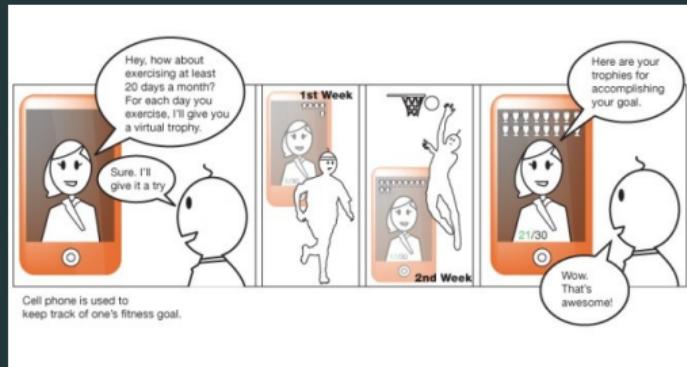
Collect individual ideas by sharing them round robin. No criticism!

Have each team member evaluate ideas (individually and anonymously) and vote for the best ones. Share and tabulate.

Preparing Your Course Project

Storyboarding

What is it?



[Truong et al., 2006]

Preparing Your Course Project

Storyboarding

What is it?

- Adapted from movie industry

- Useful for early round, low stake, idea validation

- Can be used to communicate with team or with users

Preparing Your Course Project

Storyboarding

5 visual elements

Level of detail

Inclusion of text

Inclusion of people and emotions

Number of frames

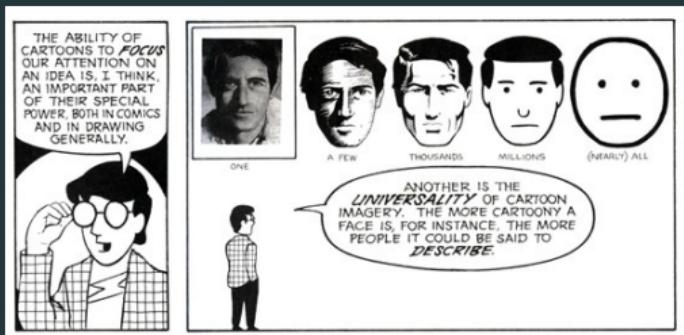
Portrayal of time

Preparing Your Course Project

Storyboarding

Level of detail

Too much detail can lose universality



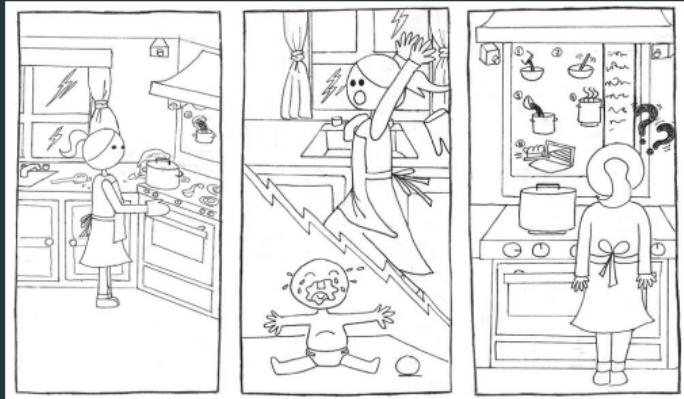
[Truong et al., 2006]

Preparing Your Course Project

Storyboarding

Level of detail

Too much?



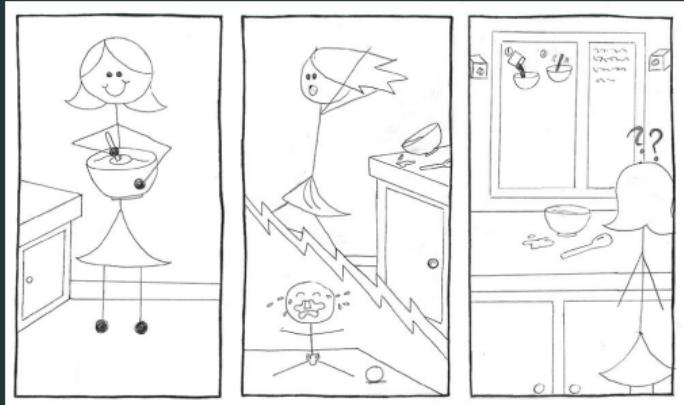
[Truong et al., 2006]

Preparing Your Course Project

Storyboarding

Level of detail

Better?



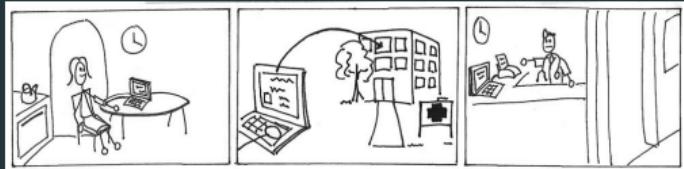
[Truong et al., 2006]

Preparing Your Course Project

Storyboarding

Use of text

It's often necessary, but keep it short!!!



[Truong et al., 2006]

Preparing Your Course Project

Storyboarding

Include people and emotions

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

Convey the *experience* of using the
system

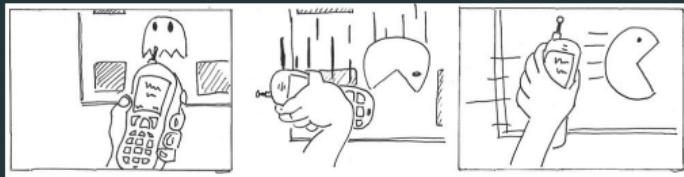
Preparing Your Course Project

Storyboarding

Number of frames

4-6 frames/panels is ideal

More is not always better, can lose focus/attention



Versus:



[Truong et al., 2006]

Preparing Your Course Project

Storyboarding

Passage of time

Only use if it's necessary to understand
story

Preparing Your Course Project

Storyboarding

It doesn't have to be drawings!

What are some techniques that you have used to generate storyboards?



Preparing Your Course Project

Storyboarding

Summary

Think about how long you have a captive audience

Think about how much you want to tell

Think about options for presenting sequences of drawing

Preparing Your Course Project

Paper Prototyping

Why?

Easy and fast to do

Helps you think of specifics

Usually good as a first round prototype

Can use for idea evaluation and usability testing

Preparing Your Course Project

Paper Prototyping

Prototyping can be done at a wide range of fidelities.

Rough sketch, cardboard, foam core

Wireframes

Interactive wireframes, clickable slides

Mockup demo

Functional system

Preparing Your Course Project

Paper Prototyping

Choosing the right level of fidelity

What kind of feedback do you want?

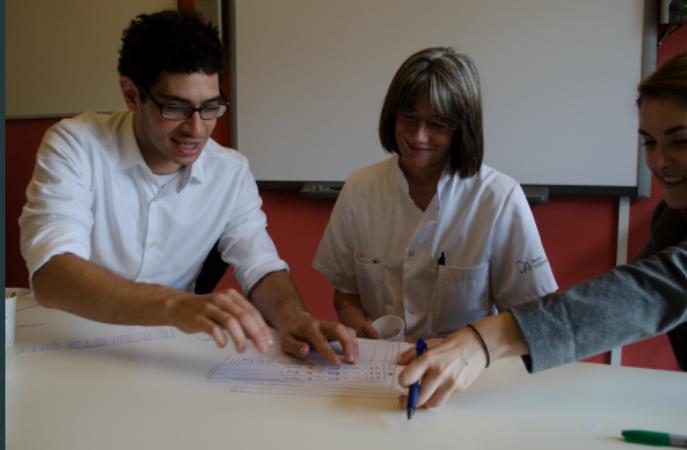
What skills does your team have?

What resources are available?

How much time do you have?

Preparing Your Course Project

Some examples



Preparing Your Course Project

Paper Prototyping

Recommendations

Start early in the process

Avoid evolutionary (refining) prototypes (temptation too great to stick with bad ideas)

Start with idealistic (rather than realistic) prototypes

Level of polish should reflect maturity of the prototype

T2: Concept Evaluations

T2: Concept Evaluations

Remember: It's an iterative process. What you accomplish here today is a good start, but a real world design process would iterate through the evaluate/prototype process many times.

T2: Concept Evaluations

Team Pairings

Visit the course spreadsheet to view the pairings and location for conducting concept evaluations.

Pick a team to go first. The first team will show and describe one of the artifacts they are producing for TA 2.

Assign one team member to 'present' while the rest of the team takes notes.

Switch teams and repeat.

Clean up and aggregate your notes, submit with your T2 materials.



References

References i

-  Kelly, M. (2007).
Interactive prototypes with powerpoint.
-  Truong, K. N., Hayes, G. R., and Abowd, G. D. (2006).
Storyboarding: an empirical determination of best practices and effective guidelines.
In *Proceedings of the 6th conference on Designing Interactive systems*, pages 12–21.