

# Designing & Prototyping Smart Applications

ViaX James Landay CS Summer School

Autumn 2018

Prof. James A. Landay

Stanford University

James Landay CS Summer Camp: Designing & Prototyping Smart Applications

## Design Exploration

Prof. James A. Landay  
Computer Science Department  
Stanford University

Summer 2018  
July 18, 2018

\* slides marked Buxton are courtesy of Bill Buxton, from his talk "Why I Love the iPod, iPhone, Wii and Google" remix uk, 18-19 Sept. 2008, Brighton

Outline

- Sketching to explore user experiences
- Tasks

Design Process: Discovery

```
graph TD; Discovery[Discovery] --> DesignExploration[Design Exploration]; DesignExploration --> DesignRefinement[Design Refinement]; DesignRefinement --> Production[Production]
```

Assess Needs

- understand client's expectations
- determine scope of project
- characteristics of customers & tasks
- evaluate existing practices & products

**Task.** The structured set of activities or high-level actions required to achieve a high level user goal.

**what a user wants to do**

Task-based Design & Evaluation

- Real tasks customers have faced / will face
  - collect any necessary materials
- Do your tasks support the problem you are solving?
- Mixture of simple & complex tasks
  - simple task (common or introductory)
  - moderate task
  - complex task (infrequent or for power customers)

What Should Tasks Look Like?

- Say what customer **wants to do**, but not how
  - allows comparing different design alternatives

Good

Bad

CS171E: Designing for Global Grand Challenges: Designing "Smart" Healthcare

# Designing & Prototyping Smart Applications

ViaX James Landay CS Summer School

Autumn 2018

Prof. James A. Landay

Stanford University

## What Should Tasks Look Like?

- Say what customer **wants to do**, but **not how**
  - allows comparing different design alternatives
- Be specific – stories based on facts!
  - say who customers are (use personas or profiles)
    - design can really differ depending on who
    - name names (allows getting more info later)
    - characteristics of customers (job, expertise, etc.)
  - forces us to fill out description w/ relevant details
- Some should describe a complete goal
  - forces us to consider how features work together
    - example: phone-in bank functions

## Using Tasks in Design

- Write up a description of tasks
  - formally or informally
  - run by customers and rest of the design team
  - get more information where needed

**Let my friends know where I am**  
Manny is in the city at a club that he wasn't planning to go to and would like to let his girlfriend, Sherry, know where he is and be notified when she is about to get to the club.

## Using Tasks in Design (cont.)

- Rough out an interface design
  - discard features that don't support your tasks
    - or add a real task that exercises that feature
  - major screens & functions (not too detailed)
  - hand sketched
- Produce task flows for each task
  - what customer has to do & what they would see
  - step-by-step performance of task
  - illustrate using storyboards
    - sequences of sketches showing screens & transitions

## Task Flows Show How to Do the Task

- Task Flows are **design specific**, tasks aren't
- Task Flows force us to
  - show how various features will work together
  - settle design arguments by seeing examples
- Show users taskflows to get feedback

## Design Process: Exploration

- brainstorming
- sketching
- storyboarding
- prototyping

## Iteration

At every stage!

**Design**

**Prototype**

- Sketch
- Paper
- Video
- Tool
- Program

**Evaluate**

- Gut
- Crit
- Expert Eval
- Lo-fi Test
- User Study

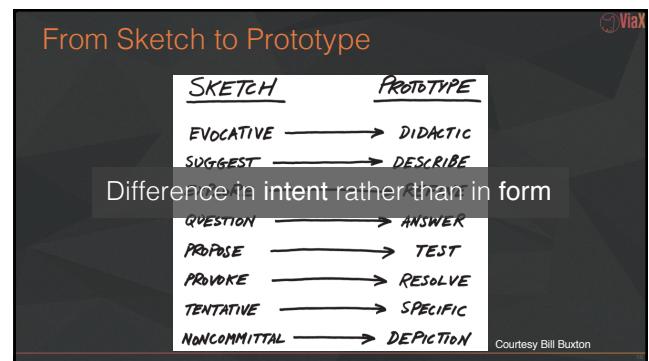
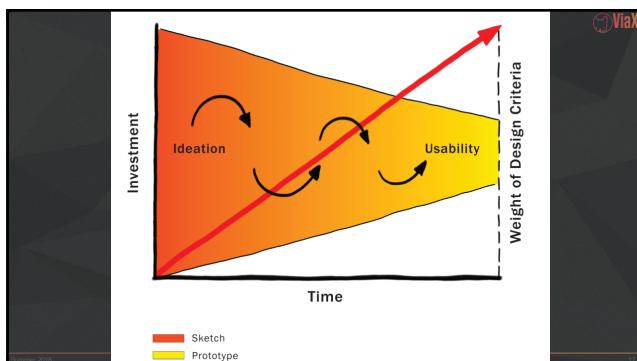
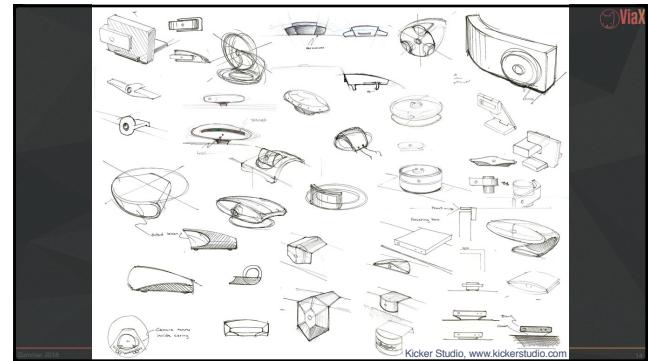
# Designing & Prototyping Smart Applications

ViaX James Landay CS Summer School

Autumn 2018

Prof. James A. Landay

Stanford University



# Designing & Prototyping Smart Applications

ViaX James Landay CS Summer School

Autumn 2018

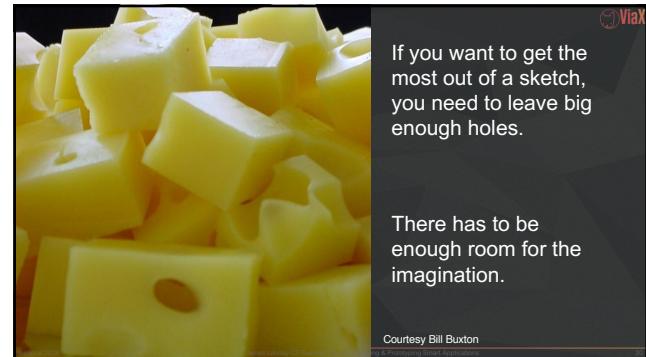
Prof. James A. Landay

Stanford University

## The Anatomy of “Sketching”

- Quick / Timely
- Inexpensive / Disposable
- Plentiful
- Clear vocabulary. You know that it is a sketch (lines extend through endpoints, ...)
- No higher resolution than required to communicate the intended purpose/concept
- Resolution doesn't suggest a degree of refinement of concept that exceeds actual state
- Ambiguous

Courtesy Bill Buxton

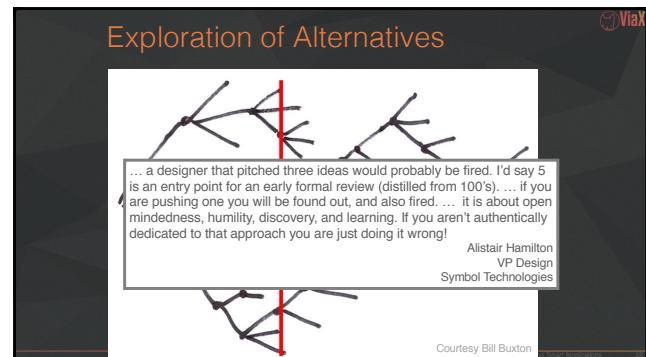


## Design as Choice

Elaboration (“Flare”)      Reduction (“Focus”)

Laseau (1980)

Courtesy Bill Buxton



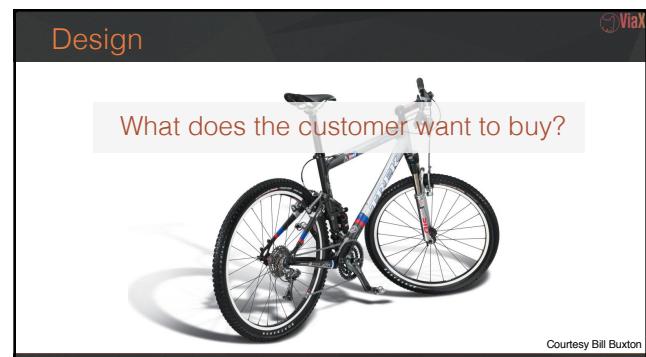
## Exploration of Alternatives

People on a design team must be as happy to be wrong as right. If their ideas hold up under strong (but fair) criticism, then great, they can proceed with confidence. If their ideas are rejected with good rationale, then they have learned something.

... There are no dumb questions. There are no ideas too crazy to consider. Get it on the table, even if you are playing around. It may lead to something.

Bill Buxton  
Sketching User Experiences  
pg. 147-149

Courtesy Bill Buxton



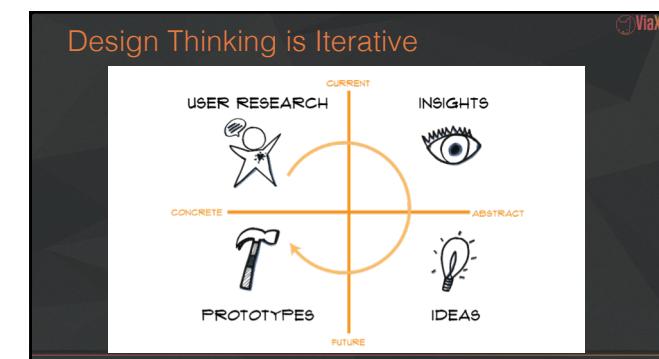
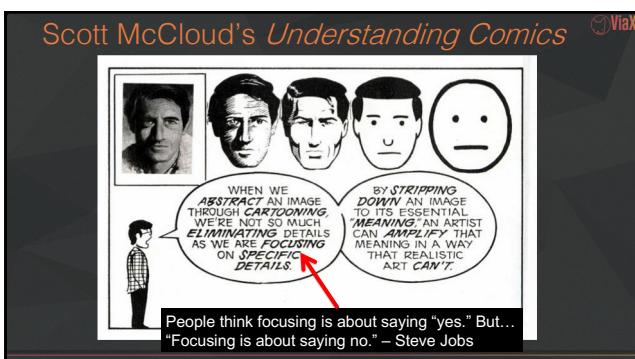
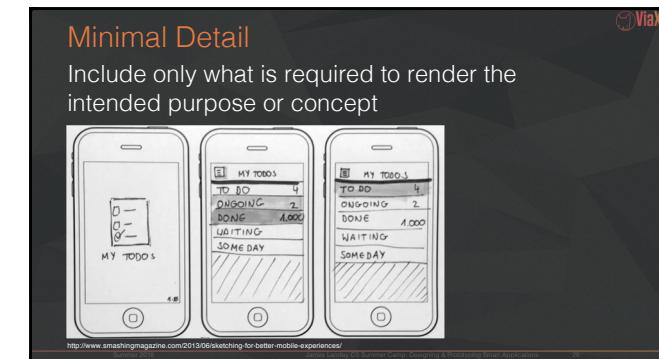
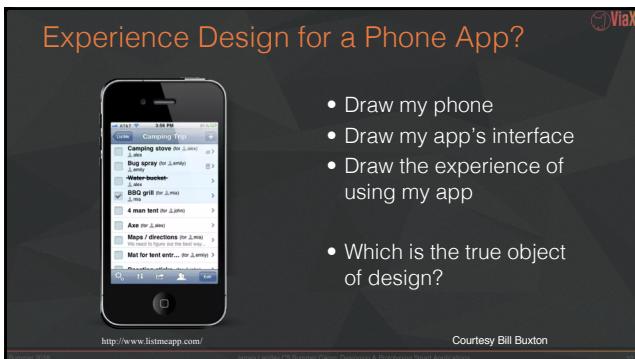
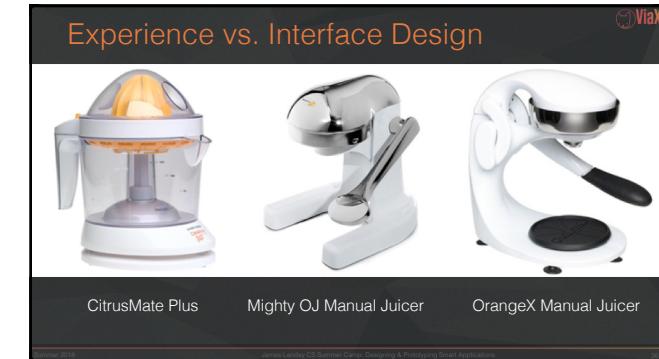
# Designing & Prototyping Smart Applications

ViaX James Landay CS Summer School

Autumn 2018

Prof. James A. Landay

Stanford University



# *Designing & Prototyping Smart Applications*

ViaX James Landay CS Summer School

Autumn 2018

Prof. James A. Landay

Stanford University

Summary

- Sketching allows exploration of many concepts in the very early stages of design
- As investment goes up, need to use more and more formal criteria for evaluation

ViaX

James Landay /CS Summer Camp: Designing & Prototyping Smart Applications