HCI+D: USER INTERFACE DESIGN + PROTOTYPING + EVALUATION

Design Exploration

Prof. James A. Landay
Computer Science Department
Stanford University

Autumn 2014

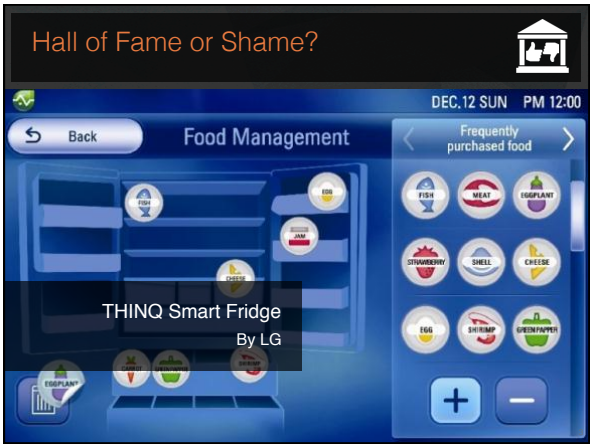
October 2, 2014

** 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*

Hall of Fame or Shame?

THINQ Smart Fridge
By LG

Hall of Fame or Shame?



THINQ Smart Fridge
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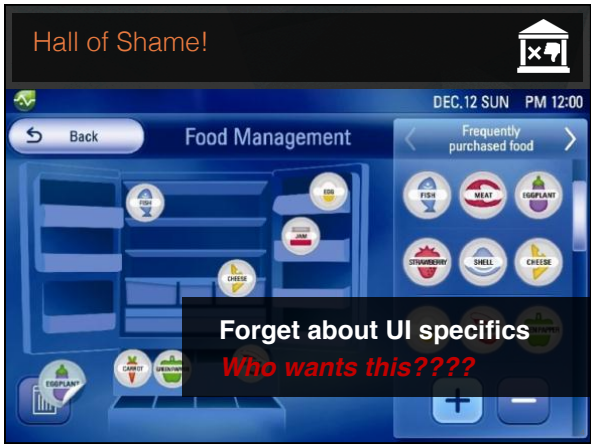
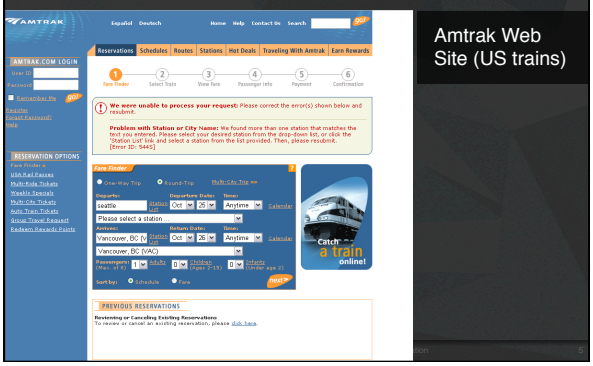
Hall of Shame!



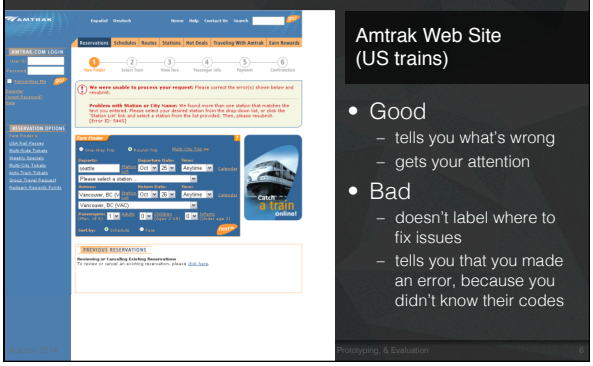
Forget about UI specifics
Who wants this????

Interface Hall of Shame or Fame?



Amtrak Web Site (US trains)

Interface Hall of Fame/Shame!

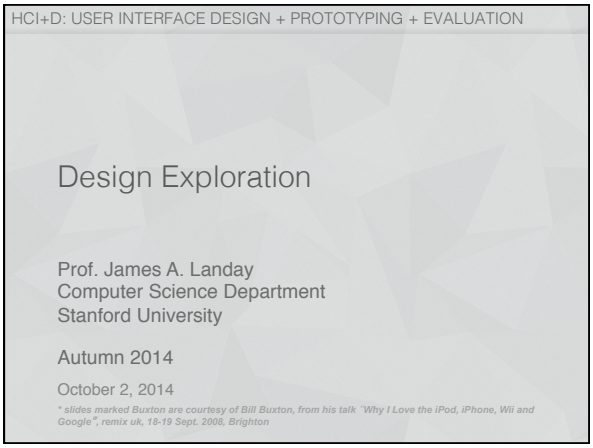


Amtrak Web Site (US trains)

- Good
  - tells you what's wrong
  - gets your attention
- Bad
  - doesn't label where to fix issues
  - tells you that you made an error, because you didn't know their codes

Hall of Fame or Shame?
Podcasts App
Apple Inc.

Hall of Shame!
Good
– At first glance, is fun and unique
– Well polished, aesthetically pleasing
Bad
– What does a **tapedeck** have to do with **podcasts**? – confused metaphor is difficult to understand
– Focus on 'retro' means the user has to wait 5 seconds to watch animation of tape loading before anything plays
Podcasts App
Apple Inc.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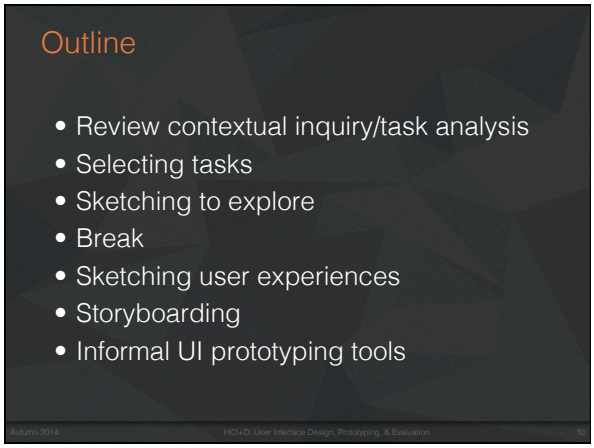
Outline
• Review contextual inquiry/task analysis
• Selecting tasks
• Sketching to explore
• Break
• Sketching user experiences
• Storyboarding
• Informal UI prototyping tools
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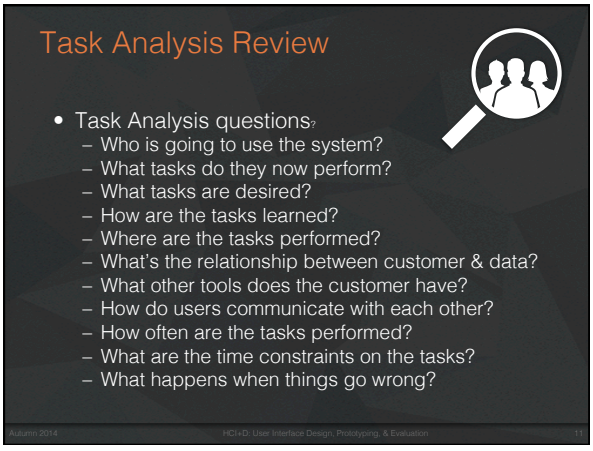
Task Analysis Review
• Task Analysis questions
– Who is going to use the system?
– What tasks do they now perform?
– What tasks are desired?
– How are the tasks learned?
– Where are the tasks performed?
– What's the relationship between customer & data?
– What other tools does the customer have?
– How do users communicate with each other?
– How often are the tasks performed?
– What are the time constraints on the tasks?
– What happens when things go wrong?
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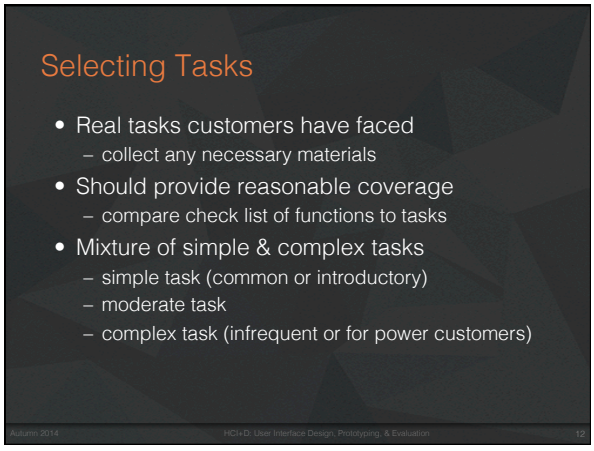
Selecting Tasks
• Real tasks customers have faced
– collect any necessary materials
• Should provide reasonable coverage
– compare check list of functions to tasks
• Mixture of simple & complex tasks
– simple task (common or introductory)
– moderate task
– complex task (infrequent or for power customers)
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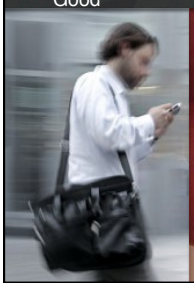
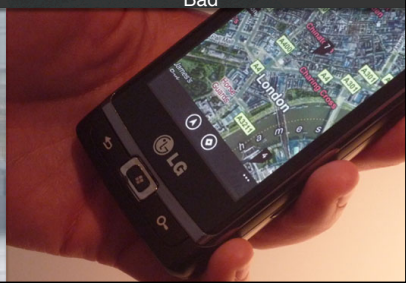
What Should Tasks Look Like?

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

Good



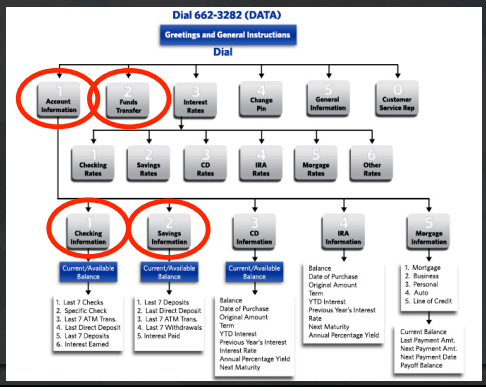
Bad



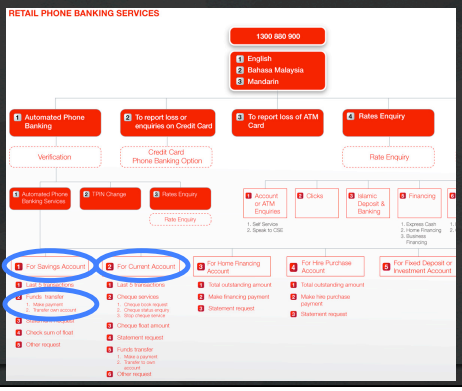
What Should Tasks Look Like?

- Say what customer wants to do, but not how
  - allows comparing different design alternatives
- Be very 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
    - example: file browser story or dentists forms
- Some should describe a complete job
  - forces us to consider how features work together
    - example: phone-in bank functions

What Should Tasks Look Like?



What Should Tasks Look Like?



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

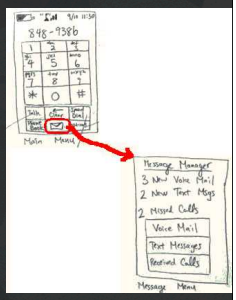
> Manny is in the city at a club and would like to call his girlfriend, Sherry, to see when she will be arriving a the club. She called from a friends house while he was on the subway, so he couldn't answer the phone. He would like to check his missed calls and find the number so that he can call her back.

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
  - at *least 30 sketches* on the CI/TA assignment!
- Produce scenarios 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

Scenarios (cont.)

- Scenarios are *design specific*, tasks aren't
- Scenarios force us to
  - show how various features will work together
  - settle design arguments by seeing examples
    - only examples → sometimes need to look beyond
- Show users storyboards
  - get feedback



Design Process: Discovery

Discovery
Design Exploration
Design Refinement
Production

Assess Needs

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

Design Process: Exploration

Discovery
Design Exploration
Design Refinement
Production

Expand Design Space

- brainstorming
- sketching
- storyboarding
- prototyping

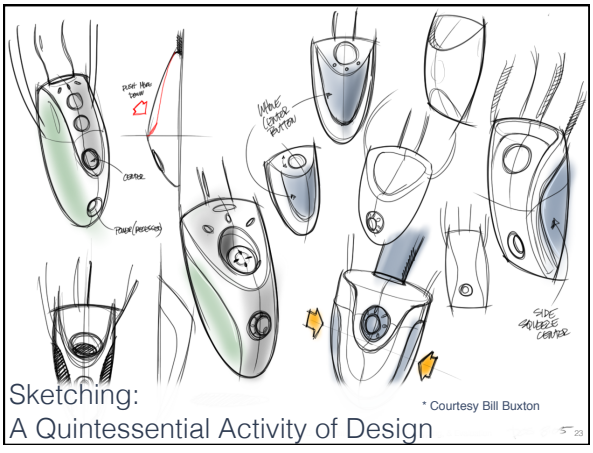
Iteration

At every stage!

Design

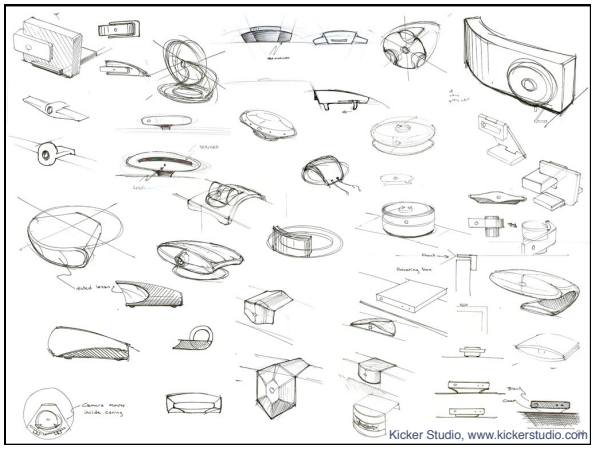
Prototype
Sketch
Paper
Video
Tool
Program

Evaluate
Gut
Crit
Expert Eval
Lo-fi Test
User Study

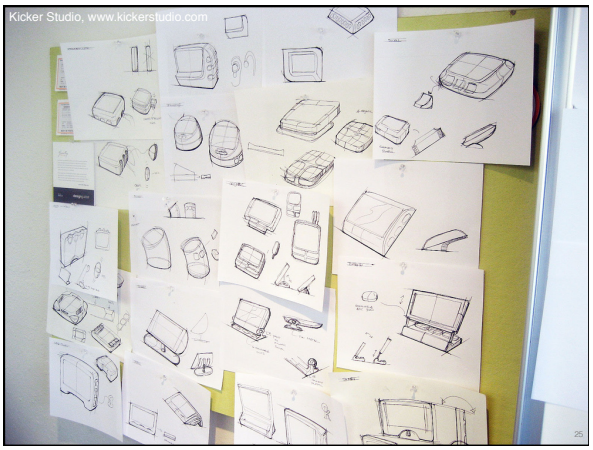


Sketching:
A Quintessential Activity of Design

* Courtesy Bill Buxton



Kicker Studio, www.kickerstudio.com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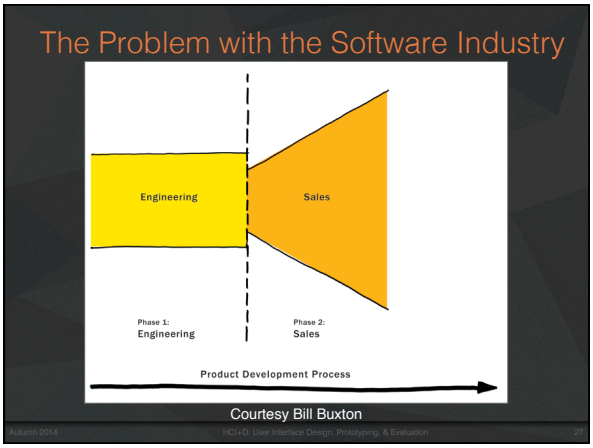
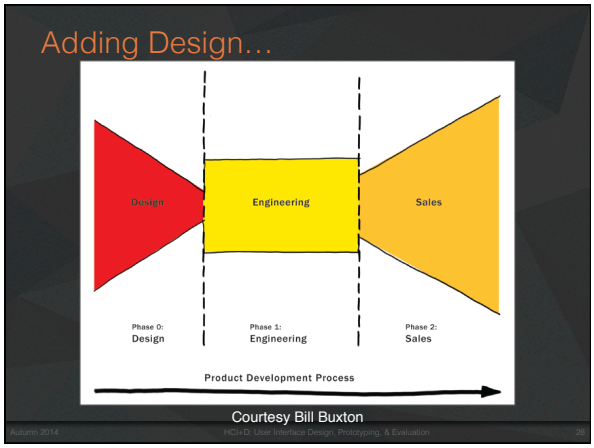
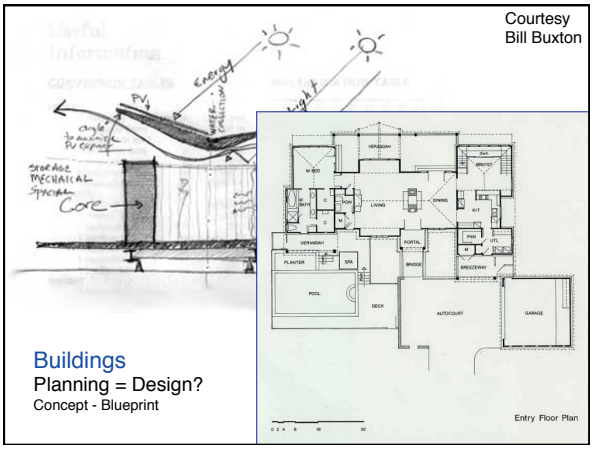
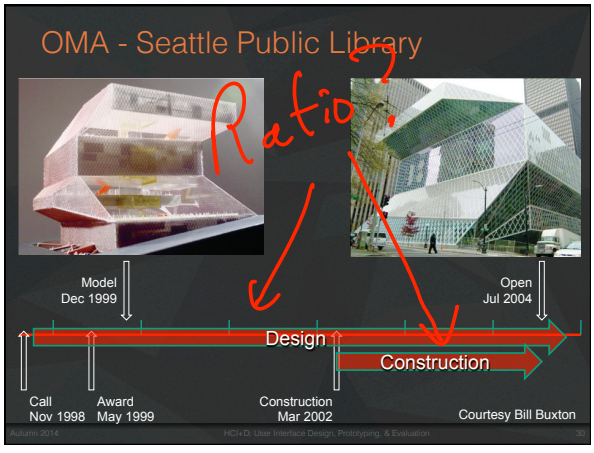
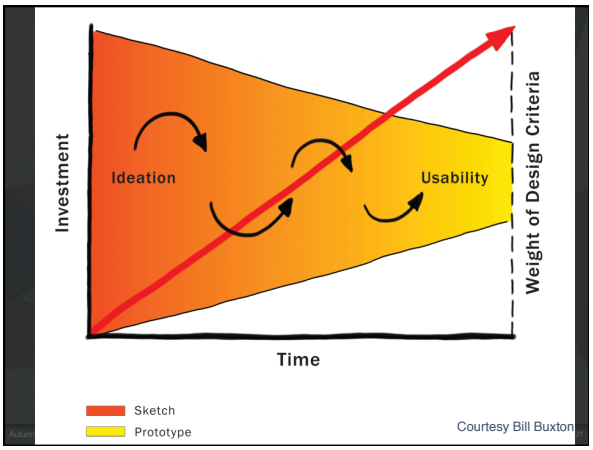
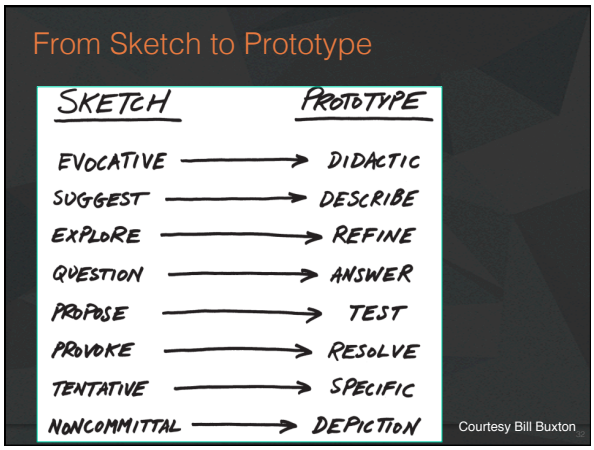

The Problem with the Software Industry
Engineering
Sales
Phase 1:
Engineering
Phase 2:
Sales
Product Development Process
Courtesy Bill Buxton


Adding Design…
Design
Engineering
Sales
Phase 0:
Design
Phase 1:
Engineering
Phase 2:
Sales
Product Development Process
Courtesy Bill Buxton


Courtesy
Bill Buxton
Buildings
Planning = Design?
Concept - Blueprint
Entry Floor Plan


OMA - Seattle Public Library
Ratio?
Model
Dec 1999
Open
Jul 2004
Design
Construction
Call
Nov 1998
Award
May 1999
Construction
Mar 2002
Courtesy Bill Buxton

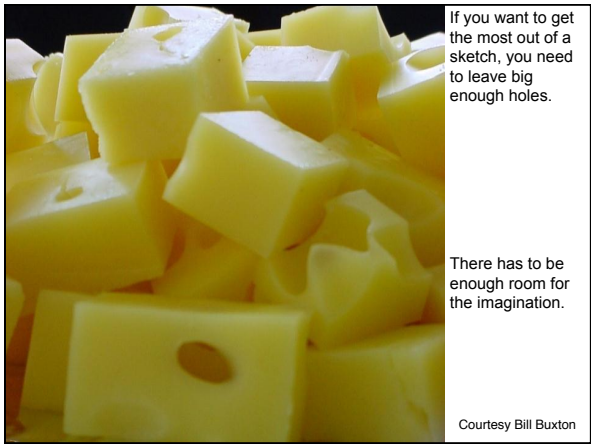




The Anatomy of Sketching

- 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



If you want to get the most out of a sketch, you need to leave big enough holes.

There has to be enough room for the imagination.

Courtesy Bill Buxton

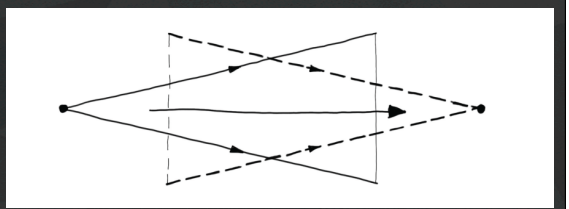
Sketching in Interaction Design

- Analogous to traditional sketching
- Shares all of the same key attributes
- More feel than look
- Must accommodate time & dynamics
- Phrasing

Courtesy Bill Buxton

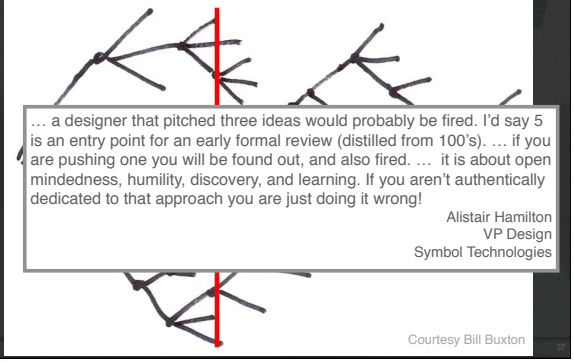
Design as Choice

Elaboration **Reduction**



Courtesy Bill Buxton Laseau (1980)

Exploration of Alternatives

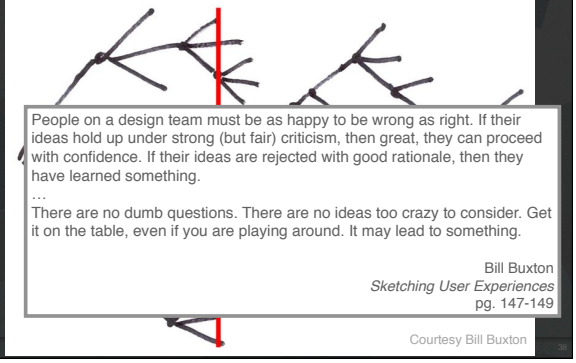


… a designer that pitched three ideas would probably be fired. I'd say 5 is an entry point for an early formal review (distilled from 100's). … if you are pushing one you will be found out, and also fired. … it is about open mindedness, humility, discovery, and learning. If you aren't authentically dedicated to that approach you are just doing it wrong!

Alistair Hamilton
VP Design
Symbol Technologies

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

Q U I Z

URL HERE

B R E A K

Administrivia

- Friday studio this week is very important
  - Team Formation
  - If you are unable to attend, email your CA & Nicole Zhu & say why – you will need to fill out a survey by the time of your studio session (or earlier)!
- If you are ***not*** taking the class, now is the time to let us know!
- Questions on Hall of Fame/Shame assignment?

Design

Courtesy Bill Buxton

Experience Design

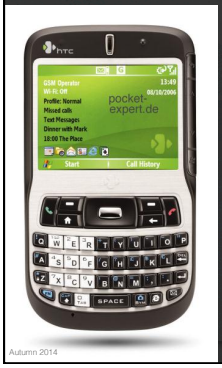
"The experience of even simple artifacts does not exist in a vacuum but, rather, in dynamic relationship with other people, places, and objects" – Buchenau & Suri 2000

Courtesy Bill Buxton

Experience vs. Interface Design

CitrusMate Plus | Mighty OJ Manual Juicer | OrangeX Manual Juicer

Experience Design

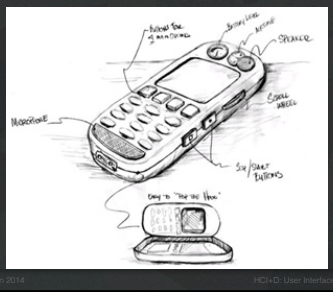


- Draw my phone
- Draw my phone's interface
- Draw the experience of using my phone
- Which is the true object of design?

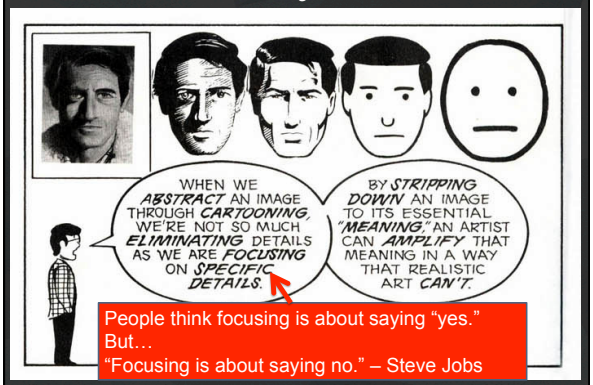
Courtesy Bill Buxton

Minimal Detail

Include only what is required to render the intended purpose or concept



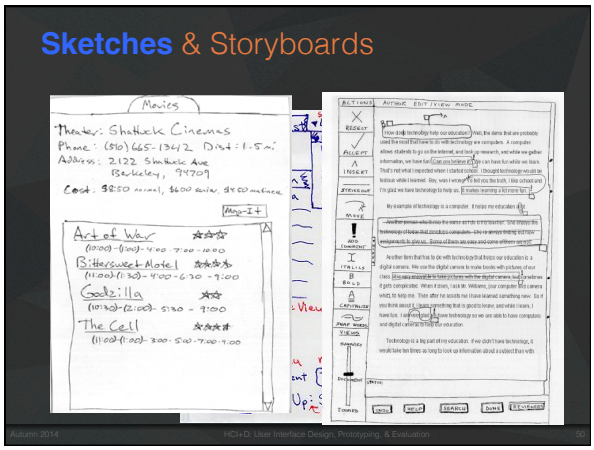
Scott McCloud's *Understanding Comics*

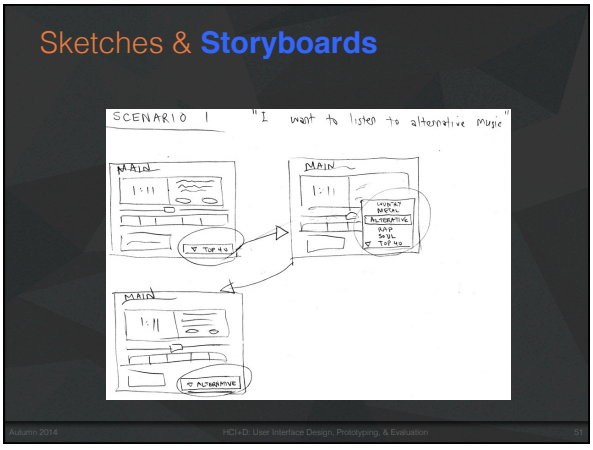


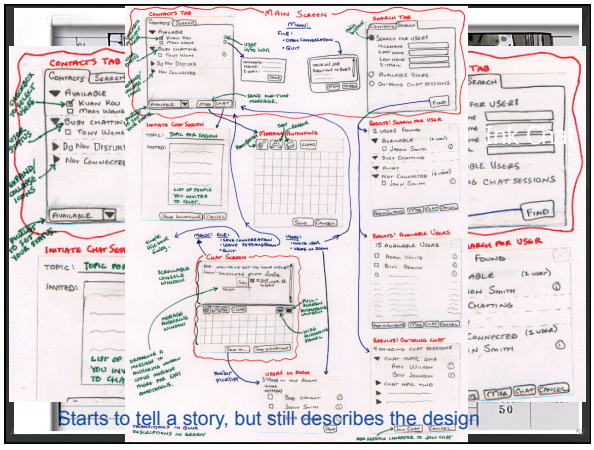
People think focusing is about saying "yes." But…
"Focusing is about saying no." – Steve Jobs

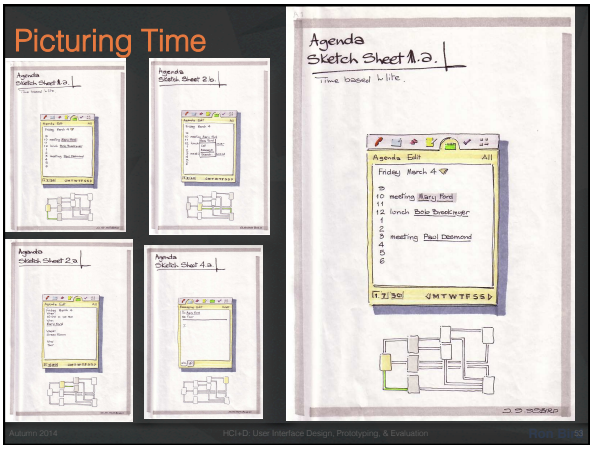
Sketches & Storyboards

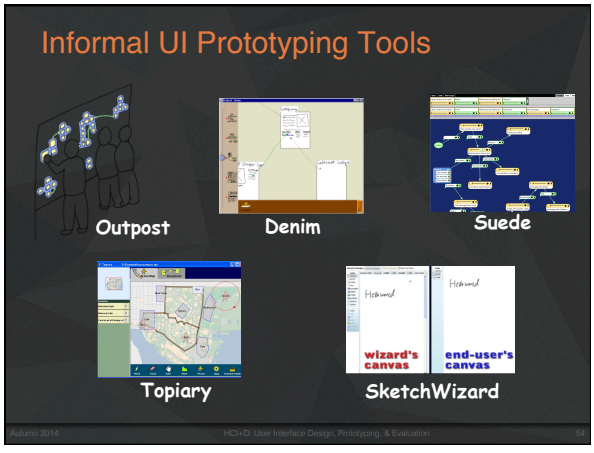
- Where do storyboards come from?
  - film & animation
- Give you a "script" of important events
  - leave out the details
  - concentrate on the important interactions


Sketches & Storyboards


Sketches & Storyboards
SCENARIO 1
"I want to listen to alternative music"

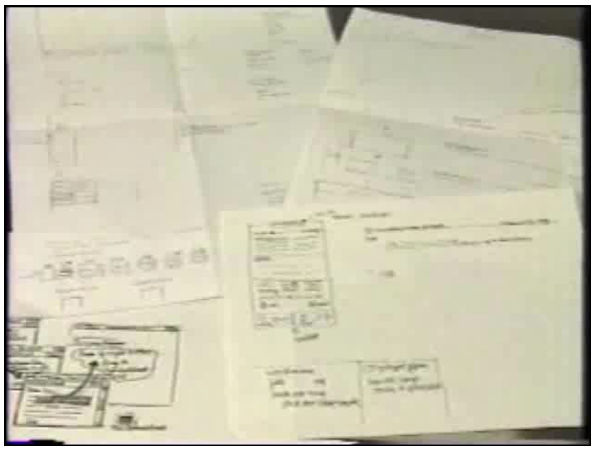

Starts to tell a story, but still describes the design


Picturing Time

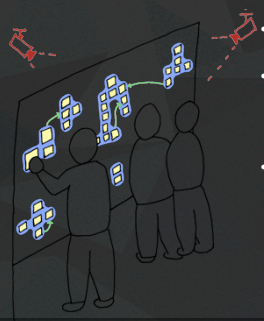

Informal UI Prototyping Tools
Outpost
Denim
Suede
Topiary
wizard's canvas
end-user's canvas
SketchWizard

Informal UI Prototyping Tools

- Support advantages of low-fi paper prototypes
  - brainstorming
    - consider different ideas rapidly
    - do not require specification of details
  - incomplete designs
    - need not cover all cases, just illustrate important examples
- Add advantages of electronic tools
  - evolve easily
  - support for "design memory"
  - transition to other electronic tools
  - allow end-user interaction



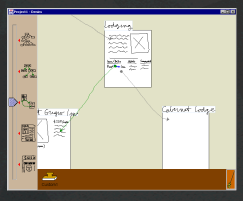
Designers' Outpost:
A Tangible Interface for Designing Information Architectures

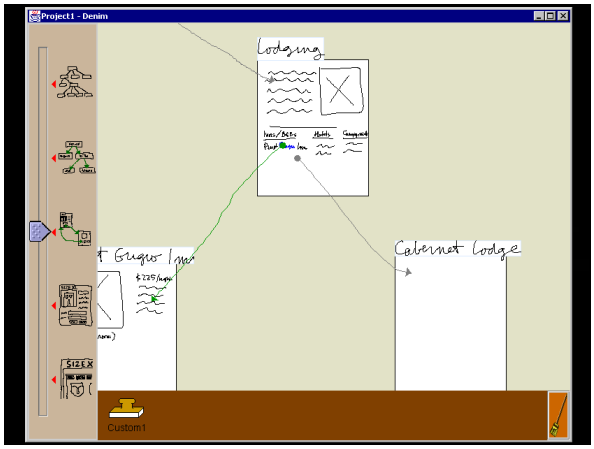


- Combines physical & virtual
  - physical post-its, virtual feedback
- Supports existing practice
  - affordances of paper
  - collaboration
  - large, persistent representation
- Adds advantages of e-media
  - editing, reuse, distribution
  - hand-off later to other tools

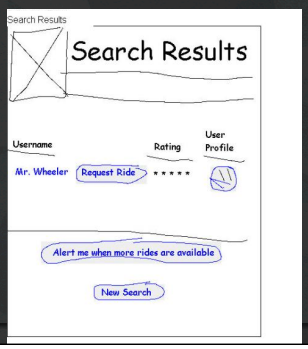
DENIM:
Designing Web Sites by Sketching

- Early-phase navigation & interaction design
- Integrates multiple views
  - site map – storyboard – page sketch





Low-fi Prototyping & Testing



Summary

- Selecting tasks ?
  - real tasks with reasonable functionality coverage
  - complete, specific tasks of what customer wants to do
- 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
- Informal prototyping tools bridge the gap between paper & high-fi tools

Next Time

- Studio (Friday)
- Lecture (Tuesday)
  - Working as a team
  - Read
    - Tips for Working Successfully in a Group by Randy Pausch
    - The Discipline of Teams, by Katzenbach & Smith, *Harvard Business Review*
  - Watch Online videos BEFORE class (TBD)
  - In class team exercises
- Lecture (Thursday)
  - Video Prototyping & Concept Videos
- Studio (next Friday)
  - CI/Task Analysis/Sketches Presentation (1 team member)