CSE 510: Advanced Topics in HCI

HCI as Design I

James Fogarty
Daniel Epstein

Tuesday/Thursday
10:30 to 12:00
CSE 403
“Do the Work” vs “Understand It”

HCI practice includes both

CSE 440 teaches an intense project sequence
Interjects higher-level understanding

Today will focus on conceptual material
Thursday will focus on a typical design process

Highly abridged presentation of this material
Ideation Rules

Defer judgement.
Encourage wild ideas.
Build on the ideas of others.
Stay focused on the topic.
One conversation at a time.
Be visual.
Go for quantity.

From IDEO: https://openideo.com/blog/seven-tips-on-better-brainstorming
Quantity versus Quality

One class told they will be graded on quality, another on quantity

Art & fear
Observations On The Perils (and Rewards) of ARTMAKING

Bayles and Orland, 2001
Quantity versus Quality

The quantity class produces better pots. Why?

“While the quantity group was busily churning out piles of work—and learning from their mistakes—the quality group had sat theorizing about perfection, and in the end had little more to show for their efforts than grandiose theories and a pile of dead clay”

Bayles and Orland, 2001
Sketching User Experiences

“Bill Buxton brings design leadership and creativity to Microsoft. Through his thought-provoking personal examples he is inspiring others to better understand the role of design in their own companies.”

Bill Gates—Chairman, Microsoft Corp.
Sketching

Movies

Theater: Shattuck Cinemas
Phone: (510) 655-1342
Office: 1-8
Address: 2122 Shattuck Ave
Berkeley, 94704
Cost: $2.50 incl. tax, $3.00 incl. tax, $4.00 incl. tax

As it is...

Art of War

Bitter Sweet Motel

Godzilla

The Cell

As it should be...

outfit#1

outfit#2

outfit#3

(pre-selected to match so you don't have to choose)
Sketching

A process that enables you to think through ideas and convey design ideas to others very early in the design phase.
Quintessential Activity of Design
Design as Choice

Elaboration  palette of choices

Reduction  heuristics to choose
Design as Choice

Two openings for creativity

- Palette of choices
- Heuristics used to choose

Why is your contextual inquiry so important?

What you learn directly informs both of these, shaping everything you do this entire quarter
The Design Diamond

start \rightarrow generate \rightarrow select \rightarrow intentional! \rightarrow select \rightarrow generate \rightarrow start

danger! danger! danger! danger!
Properties of Sketches

Quick
Timely
Inexpensive
Disposable
Plentiful
Clear Vocabulary

Distinct Gesture
Minimal Detail
Appropriate Refinement
Suggest and Explore
Ambiguous
Quick

A sketch is quick to make, or at least gives that impression
Timely

A sketch can be provided when needed
Inexpensive

Cost must not inhibit the ability to explore a concept, especially early in design.
Disposable

If you cannot afford to throw it away, then it is not a sketch

Investment is in the process, not the physical sketch

But they are not "worthless"
Plentiful

Sketches do not exist in isolation

Meaning and relevance is in the context of a collection or series
Clear Vocabulary

The way it is rendered makes it distinctive that it is a sketch (e.g., style, form, signals)

Could be how a line extends through endpoints

Physical sketches have their own vocabulary
Distinct Gesture

Fluidity of sketches gives them a sense of openness and freedom.

Opposite of engineering drawing, which is tight and precise.

vs.
Minimal Detail

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

When we abstract an image through cartooning, we're not so much eliminating details as we are focusing on specific details.

By stripping down an image to its essential "meaning," an artist can amplify that meaning in a way that realistic art can't.
Appropriate Degree of Refinement

Make the sketch as refined as the idea

If you have a solid idea, make the sketch look more defined

If you have a hazy idea, make the sketch look rougher and less defined
Suggest and Explore Rather than Confirm

Sketch should act as a catalyst to the desired and appropriate behaviors, conversations, and interactions
Ambiguity

Intentionally ambiguous

Value comes from being able to be interpreted in different ways, even by the person who created them

Sketches have holes
Sketching as Conversation

Mind
knowledge, new knowledge

Sketch
representation

Create

Interpret

Requires ambiguity
## Sketch vs. Prototype

<table>
<thead>
<tr>
<th>Sketch</th>
<th>Prototype</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invite</td>
<td>Attend</td>
</tr>
<tr>
<td>Suggest</td>
<td>Describe</td>
</tr>
<tr>
<td>Explore</td>
<td>Refine</td>
</tr>
<tr>
<td>Question</td>
<td>Answer</td>
</tr>
<tr>
<td>Propose</td>
<td>Test</td>
</tr>
<tr>
<td>Provoke</td>
<td>Resolve</td>
</tr>
<tr>
<td>Tentative, non committal</td>
<td>Specific Depiction</td>
</tr>
</tbody>
</table>

The primary differences are in the intent.
Sketching the Mouse

Making the Macintosh:
http://www-sul.stanford.edu/mac/index.html
Sketching the Mouse
Physical Sketching
Physical Sketching
Physical Sketching
Physical Sketching
Physical Sketching
Idea Oscillation

start → generate → select

danger! → intentional! → danger!

danger!
Critiquing Sketches is Important

Ideas are both good and bad

Both are useful in design
By making clear what is a bad design, we can avoid actually implementing it
Bad ideas help you justify your good ideas

Feedback can turn a good idea into a great idea

Sketching generates too many ideas to implement
Idea Oscillation

start \quad generate \quad intentional! \quad select \quad intentional! \quad prototype
Iteration Toward a Design
Exploration of Alternatives

... a designer that pitched 3 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
Is this a sketch? Why or why not?
Is this a sketch? Why or why not?
Is this a sketch? Why or why not?
Is this a sketch? Why or why not?
Is this a sketch? Why or why not?
Is this a sketch? Why or why not?
Is this a sketch? Why or why not?
Is this a sketch? Why or why not?
Some Evidence

Task:
Create a web banner ad for Ambidextrous magazine.
Feedback in Parallel or Serial

Parallel condition

Serial condition

Dow et al. TOCHI 2010.
Procedure

serial prototyping condition

parallel prototyping condition

Dow et al. TOCHI 2010.
Parallel: more diverse, better, more clicks

- Expert quality rating (0-50)
  - Parallel: higher ratings
  - Serial: lower ratings

- Similarity
  - Parallel: more similar
  - Serial: less similar

- Clicks per million impressions
  - Parallel: more clicks
  - Serial: less clicks

Dow et al. TOCHI 2010.
Share one or share your best?

- Share multiple condition
- Share best condition
- Make one condition

Dow et al. TOCHI 2010.
Share Multiple: better, more clicks

- Make one
- Share best
- Share multiple

Expert quality rating (0-7)

Clicks per million impressions

Dow et al. TOCHI 2010.
Some Evidence

Greater divergence in designs
  Prevents sticking with the first idea
  Allows mashing ideas together

Alternatives facilitate feedback
  Enable comparison
  Can improve tone of critique
Sketching and the Design Diamond

The design diamond is fundamental to understanding effective iteration in design

Much of your education, including in CSE, has taught you to focus on having the right answer

Here it matters what you do long before the end

Most ideas get thrown out, including yours

Better ideas are great criticism, and frequently would never have come about otherwise
What Is This Course?

Time for a Door Quiz:

Say out loud what action you use to open the door

Push
Pull
Door Quiz
Door Quiz
Door Quiz
Door Quiz
Door Quiz
Door Quiz
Door Quiz
Door Quiz
Door Quiz
What is so Special about Computers?

Nothing! It is about good designs and bad designs

We all make push/pull decisions many times per day

We all encounter doors that do this badly

We all see signs that do not change what we do
What is so Special about Computers?

Yet we blame ourselves

Absolutely everything we encounter in the made world was designed

Too often poorly designed

Read this book

Be warned you cannot unread it, you become angry
Norman’s Execution-Evaluation Cycle

1. Establish the goal.
2. Form the intention.
3. Specify the action sequence.
4. Execute the action sequence.
5. Perceive the system state.
6. Interpret the system state.
7. Evaluate the system state with respect to the goals and intentions.

Revise Goals
Turning on the Light

1. Establish the goal
   Increase light in the room
2. Form the intention
   To turn on the lamp
3. Specify the action sequence
   Walk to the lamp, reach for the knob, twist the knob
4. Execute the action sequence
   [walk, reach, twist]
5. Perceive the system state
   [hear “click” sound, see light from lamp]
6. Interpret the system state
   The knob rotated. The lamp is emitting light. The lamp seems to work
7. Evaluate the system state with respect to the goals and intentions
   The lamp did indeed increase the light in the room [goal satisfied]
Norman’s Execution-Evaluation Cycle

1. Evaluate Goals
2. Form Intention
3. Develop Action Plan
4. Execute Actions
5. Observe State
6. Interpret State
7. System Change
8. Goals

Gulf of Execution
Gulf of Evaluation
Bridging the Gulfs

Gulf of Execution: “How do I do it?”
Commands and mechanisms need to match the goals, thoughts, and expectations of a person

Gulf of Evaluation: “What does it mean?”
Output needs to present a view of the system that is readily perceived, interpreted, and evaluated

People build mental models to anticipate and interpret system response to their actions
What can I do?                  How do I do it?
What result will it have?      What is it telling me?
Cooper’s Mental Model Terminology

Implementation Model
How it works
(aka Design Model, Designer’s Conceptual Model)

Manifest Model
How it presents itself
(aka System Image)

Mental Model
How a person thinks it works
(aka User Model, User’s Conceptual Model)

These terms are sloppy and ambiguous out in the world
Manifest and Mental Models

Designer projects their model into an artifact
Person forms their model based on interaction
People struggle until model matches manifest model
Update mental model in response to breakdowns
Not necessarily matching the implementation model
Mental Models

Problem: freezer too cold, fresh food just right
What if I want to make just the freezer warmer?
A Sensible Mental Model

“The Freezer Control controls the freezer temperature and the Fresh Food Control controls the fresh food temperature”
The Implementation Model
A Problem with Feedback

1. Set both controls
2. Allow 24 hours to stabilize
The Implementation Model

Why do we have a problem?

Can you fix the problem?
The Implementation Model

Why do we have a problem?
Cost constraints

Can you fix the problem?
Make controls correspond to a person’s mental model
Make controls correspond to the implementation model
Building the Right Model

Having the right model helps people bridge the Gulf of Execution and the Gulf of Evaluation

How can we help people build the right models:

- Affordances
- Visibility
- Constraints
- Consistency
- Metaphors
- Knowledge in the World
- Mapping
- Modes
Affordances
Visual clue to interaction

knobs afford turning

levers afford moving

buttons afford pushing
Affordances

“The affordances of the environment are what it offers animals, what it provides or furnishes, for good or ill.”

Gibson, part of an ecological approach to psychology

“The term ‘affordance’ refers to the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used.”

Norman
What’s the Affordance?
Affordances
Affordances

Technology affordances are often based in affordances from the physical world
Affordances

What is the affordance here?

Where does it come from?
Affordances

What is the affordance here?

Where does it come from?
Sequential Affordance

Acting on a perceptible affordance leads to information indicating new affordances

Figure 4. Sequential affordances: one affordance leads to another. Visual information indicates grasping (A & B); tactile information indicates turning (B & C).
Sequential Affordance

Acting on a perceptible affordance leads to information indicating new affordances

Figure 4. Sequential affordances: one affordance leads to another. Visual information indicates grasping (A & B); tactile information indicates turning (B & C).

Now does the door push or pull?
Nested Affordances

Affordances due to spatial relationships revealing what actions can be done

Proximate to, contained in, part of
In Other Words

An affordance is what a thing communicates about how it can be used, often by its appearance

“In general, when the apparent affordances of an artifact matches its intended use, the artifact is easy to operate. When apparent affordances suggest different actions than those for which the object is designed, errors are common.”

Gaver

Challenges arise if there is a mismatch between implied use versus intended use
False Affordances

When there is perceptual information suggesting an implied use that does not exist

(Just an image of a button, not one that responds)
False Affordances
False Affordances
False Affordances
False Affordances
Hidden Affordances

When there is no perceptual information suggesting an actual intended use
Hidden Affordances
Hidden Affordances

Logos linking to home is a convention, but not afforded by the page
Confusion of the Term

“Note also that affordances are not intrinsic, but depend on the background and culture of users. Most computer-literate user will click on an icon. This is not because they go around pushing pictures in art galleries, but because they have learned that this is an affordance of such objects in a computer domain…”

Dix

Disagree. Icons do not afford “pushability” or “clickability” by their attributes. They do not give an indication of their intended use, except by convention.
Clarification on Convention

“Designers sometimes will say that when they put an icon, cursor, or other target on the screen, they have added an ‘affordance’ to the system. This is a misuse of the concept. ... It is wrong to claim that the design of a graphical object on the screen ‘affords clicking.’ ... Yes, the object provides a target and it helps the user know where to click and maybe even what to expect in return, but those aren’t affordances, those are conventions, and feedback, and the like. ... Don’t confuse affordances with conventions.”

Norman
Metaphors

Suggest an existing mental model

“horseless carriages”, “iron horses”, “wireless”

Desktop metaphor

Not an attempt to simulate a real desktop
Leverages knowledge of files, folders, trash
Explains why some windows seem hidden
Metaphors

Suggest an existing mental model

“horseless carriages”, “iron horses”, “wireless”

Desktop metaphor

Not an attempt to simulate a real desktop

Leverages knowledge of files, folders, trash

Explains why some windows seem hidden
Mail Metaphor
Calendar Metaphor
Health Metaphor

The image shows a window for configuring actions in VirusScan on Access Scan Properties. The actions include:

- **Clean infected files automatically**: This option instructs VirusScan to clean files automatically when a virus is detected.
- **Move infected files to a folder**: This option instructs VirusScan to automatically move all infected files to the quarantine folder, which is configured on the "General" tab under "General Settings".
Shallow or Inappropriate Metaphors

Informs a small range of possibilities, or none at all

It is just a menu and a dialog box?

What does the living room add?
Mixed Metaphors

Two or more different metaphors coexist with some supposed relation

The desktop metaphor
Windows into content

Good? Bad?
Neither? Both?

Windows are views into larger content regions
No desktop has windows
Broken Metaphors

Are not consistent, do not operate in every circumstance, or do not uphold things consistent with what the metaphor would suggest.
Mechanical-Age Metaphors

Operate as their mechanical-age counterparts did, not taking advantage of the digital domain to escape the limitations of the original
Dead Metaphors
Lost the original imagery of their meaning
Metaphors versus Idioms

Idioms

- rely on shared experience or custom
- are learned, often early in life
- are supported or revealed by context
- become conventions
- do not rely on metaphors

Idiomatic widgets (e.g., screen splitter, draggable title bar)

Single click to select, double click to open

Hyperlinks
Metaphors and Affordances

Affordances “jump start” a model for interaction
Metaphors “jump start” a model of a system

But if designed poorly, both can be damaging

- Lead to an incorrect model, undermining interaction
- Can limit designer creativity
- Can reduce the advantages of software
- Can be “cute” at the expense of functional
Visibility

Phones

How do you put somebody on hold change volume
Visibility

Location of Controls

Display

During a conversation, the call duration is displayed. (Example: 15 minutes, 30 seconds)

- The unit is in the programming mode (p. 9, 16, 20).
- The AUTO button was pressed while dialing or storing phone numbers for the Speed Dialer (p. 16, 19).
- The LOWER button was pressed (p. 21, 23).
- The ringer is set to OFF (p. 10).
- The MUTE button was pressed during a conversation (p. 24).
- The dial lock mode is set. To cancel the mode, see page 27.
- The FLASH button was pressed while storing phone numbers.
- The PAUSE button was pressed while dialing or storing phone numbers.
- You pressed 10 while dialing or storing phone numbers in the TONE mode.
- You pressed 11 while dialing or storing phone numbers in the TONE mode.
- While storing a phone number in an UPPER memory location for the One-Touch Dialer, “*” will appear when you press a one-touch auto dial button (p. 20).
- While storing a phone number in a LOWER memory location for the One-Touch Dialer, “*” will appear when you press a one-touch auto dial button (p. 21).
- The MUTE button was pressed as a secret button while storing phone numbers (p. 18, 22).
- While programming function items, such as the dialing mode, “*” will flash as a cursor.
Visibility

Changing Ringer Volume

Press “Program”
Press “6”
Set Volume
   Low - Press “1”
   Medium - Press “2”
   High - Press “3”
Press “Program”
Visibility

Controls available on watch with 3 buttons?

Too many and they are not visible

Compare to controls on simple car radio

Number of controls $\approx$ Number of functions

Controls are labeled and grouped together
Knowledge in the World
Constraints

Prevent some actions while allowing others

Prevent errors before they can happen

Disruptive error messages are a last resort
Constraints
Constraints
Constraints
Mapping

Correspondence between an interface and the corresponding action in ‘the world’

Minimize cognitive steps to transform action into effect, or perception into comprehension (i.e., execution and evaluation)
Very Bad Mapping
Slightly Better Mapping
Good Mapping
Not this Stove
Great Mapping
Mapping
Mapping
Mapping
Mapping
Consistency

Interfaces should be consistent in meaningful ways

Ubiquitous use of same keys for cut/copy/paste

Types of consistency

Internal (i.e., within itself)
   e.g., same terminology and layout throughout

External (i.e., with other applications)
   e.g., common widget appearance
   e.g., design patterns common across applications
Is Consistent Always Better?

Should “new” & “delete” be in the same place?
Is Consistent Always Better?

Should “new” & “delete” be in the same place?

New is common, delete is not
Is Consistent Always Better?
Is Consistency Always Better?
Is Consistency Always Better?
Is Consistency Always Better?
Modes

Modes force people to divide their model
Active versus Passive Modes

Active modes require constant action to maintain. Once that action has retired, so does the mode. For example, Shift.

Passive modes require action to set, and a separate action to unset, or to set again. For example, CAPS LOCK.

Active modes are generally preferred.
Standardization

If all else fails, standardize

- Fewer things to memorize
- Reduced learning time
- Adapt to new situations faster

- e.g., keyboard layout not optimal, but standard
Norman’s Seven Principles for Design

Use knowledge in the head and in the world
Simplify the structure of tasks
Making things visible
Get the mappings right
Exploit the power of constraints
Design for error
When all else fails, standardize
Limitations of Testing

Drives hill-climbing, but not overall design

A design may be better, but is it good?

Impossible for new designs to compete

Can be difficult to scale to many features
Design Equals Solutions

Design is about finding solutions

Designers often reinvent

- Hard to know how things were done before
- Why things were done a certain way
- How to reuse solutions
Design Patterns

Design patterns communicate common design problems and solutions

First used in architecture [Alexander]

How to create a beer hall where people socialize?

A Pattern Language

Somewhere in the community at least one big place where a few hundred people can gather, with beer and wine, music, and perhaps a half-dozen activities, so that people are continuously criss-crossing from one to another.
Using Design Patterns

Not too general and not too specific

use a solution “a million times over, without ever doing it the same way twice”

Design patterns are a shared language for “building and planning towns, neighborhoods, houses, gardens, and rooms”

Beer hall is part of a center for public life
Beer hall needs spaces for groups to be alone ALCOVES
A Web of Design Patterns

(8) Mosaic of Subcultures

(31) Promenade

(33) Night Life

(90) Beer Hall

(95) Building Complex

(179) Alcoves

(181) The Fire

Cities & Towns

Local Gatherings

Interiors
Web Design Patterns

Communicate design problems & solutions

how to create navigation bars for finding relevant content

how to create a shopping cart that supports check out

how to make e-commerce sites where people return & buy
Problem: Customers need a structured, organized way of finding the most important parts of your Web site.
NAVIGATION BAR (K2)

Solution diagram

Captures essence on how to solve problem
Patterns organized by group

A. Site genres
B. Navigational framework
C. Home page
D. Content management
E. Trust and credibility
F. Basic ecommerce
G. Advanced ecommerce
H. Completing tasks
I. Page layouts
J. Search
K. Page-level navigation
L. Speed
M. The mobile web
PROCESS FUNNEL (H1)

Problem:

Need a way to help people complete highly specific stepwise tasks

Ex. Create a new account
Ex. Fill out survey forms
Ex. Check out
PROCESS FUNNEL (H1)
• What’s different?
  – No tab rows
  – No impulse buys
  – Only navigation on page takes you to next step

• What’s the same?
  – Logo, layout, color, fonts
PROCESS FUNNEL (H1)

Problem:

What if users need extra help?
PROCESS FUNNEL (H1)
CONTEXT-SENSITIVE HELP (H8)
FLOATING WINDOWS (H6)
FLOATING WINDOWS (H6)
PROCESS FUNNEL (H1)

Solution Diagram
Related Patterns

(A1) E-Commerce

(A10) Web Apps

(A11) Intranets

(H1) Process Funnel

(K2) Navigation Bars

(K3) Tab Rows

(K4) Action Buttons

(H8) Context-Sensitive Help

(I2) Above the Fold

(K5) High-Viz Action Buttons

(K12) Preventing Errors

(K13) Meaningful Error Messages
Patterns Support Creativity

Patterns come from successful examples

sites that are so successful that lots of people
are familiar with their paradigms
interaction techniques/metaphors that work well
across many sites (e.g., shopping carts)

Not too general and not too specific

you need to specialize to your needs

Patterns let you focus on the hard,
unique problems of your design situation
Principles, Guidelines, Templates

Patterns help design without over-constraining

unlike principles, patterns are not too general

unlike guidelines, patterns discuss tradeoffs, show good examples, and tie to other patterns

unlike style guides, patterns not too specific, can be specialized to a design

unlike templates, patterns illustrate flows and relationships among different pages
Web Design Patterns

Pattern Name and Number

Exemplar

Forces & Solution

Background

Problem Statement

Figure 4: Dell uses a process funnel consisting of several logical steps that guide customers to quickly configure and purchase a personal computer. Information in a pop-up window shows additional details but keeps customers in the funnel so that they can continue to complete.

Problem Statement:

Customers often need to complete highly specific tasks on websites, but pages with tangential links and many questions can prevent them from carrying out these tasks successfully. People enjoy completing the tasks they start. Yet all kinds of distractions—including links that lead off the critical path, extra steps, and extra content—can inadvertently lead them away from accomplishing their goals. These diversions can have legitimate purposes, however, such as providing continuity, giving visitors opportunities to explore, providing instructions, or providing extra details. Striking a balance between these elements can be challenging.

Dell uses a process funnel consisting of several logical steps that guide customers to quickly configure and purchase a personal computer. Information in a pop-up window shows additional details but keeps customers in the funnel so that they can continue to complete.

Background:

All web applications that lead visitors through stepped tasks—e-commerce (A1), self-service government (A4), web apps must work (A10), and managing dynamic (A11)—need ways to help people succeed at completing the tasks.

Problem:

Customers often need to complete highly specific tasks on websites, but pages with tangential links and many questions can prevent them from carrying out these tasks successfully. People enjoy completing the tasks they start. Yet all kinds of distractions—including links that lead off the critical path, extra steps, and extra content—can inadvertently lead them away from accomplishing their goals. These diversions can have legitimate purposes, however, such as providing continuity, giving visitors opportunities to explore, providing instructions, or providing extra details. Striking a balance between these elements can be challenging.

Dell uses a process funnel consisting of several logical steps that guide customers to quickly configure and purchase a personal computer. Information in a pop-up window shows additional details but keeps customers in the funnel so that they can continue to complete.

Problem Statement:

Customers often need to complete highly specific tasks on websites, but pages with tangential links and many questions can prevent them from carrying out these tasks successfully. People enjoy completing the tasks they start. Yet all kinds of distractions—including links that lead off the critical path, extra steps, and extra content—can inadvertently lead them away from accomplishing their goals. These diversions can have legitimate purposes, however, such as providing continuity, giving visitors opportunities to explore, providing instructions, or providing extra details. Striking a balance between these elements can be challenging.

Dell uses a process funnel consisting of several logical steps that guide customers to quickly configure and purchase a personal computer. Information in a pop-up window shows additional details but keeps customers in the funnel so that they can continue to complete.
Web Design Patterns

Solution Summary

Bus Stops

Solution Diagram

Related Patterns

**Consider These Other Patterns**

Many kinds of Web sites use process funnels, including sites for personal e-commerce (A1), self-service government (A2), and Web apps that work (A16), and enabling customers (A31). Customers use process funnels when they finalize purchases through check-out (F1), when they create new accounts through sign-up forms (F2), and when they post new messages to a discussion community (G4), to name some examples.

- **Remove Navigation Bars (K2)**, **Tab Rows (K3)**, and **Unobtrusive Action Buttons (K4)**, **Location Break Points (K5)**, and **Enhanced Links (K7)** to ensure that customers stay on their paths. However, keep strong site branding (E1) so that customers will know where they are.
- **Design process funnels to prevent errors (K12)**, and provide meaningful error messages (K13) when errors do occur.
- **Track your customers through persistent customer sessions (HP)** to avoid problems with the **Back** button, and to save customer-entered information.
- **Move error cues, such as context-sensitive help (E8) and frequently asked questions (E7)**, to **popup windows (E6)** to keep the main task page on the screen. Make the main task visible by keeping it above the fold (E2) and by using high-visibility action buttons (K5).
Patterns

When you see advice, consider its depth

Result of an individual study
Pre-pattern based on some meta-analysis
Established pattern

Be aware of misapplying patterns
And be aware of anti-patterns
Touch and Microsoft Windows

2004

2012
Consistency vs. Specialization

Beware of simply copying a design language

Consistency is your friend until is it not your friend

Not limited to platform-level decisions

One “look” for your app
Or targeted at each device
Dark Patterns

A Dark Pattern is an interface that has been carefully crafted to trick people into doing things, such as buying insurance with their purchase or signing up for recurring bills.

Disguised Ads

Ads that are disguised as other kinds of content or navigation, in order to get users to click on them.
Dark Patterns

A Dark Pattern is an interface that has been carefully crafted to trick people into doing things, such as buying insurance with their purchase or signing up for recurring bills.

Friend Spam

A site or game asks for your credentials, then goes on to publish content or send out bulk messages
Dark Patterns

After Lawsuit Settlement, LinkedIn's Dishonest Design Is Now A $13 Million Problem

HOPEFULLY. THIS WILL BE A LESSON TO OTHER COMPANIES WHO USE DARK UX PATTERNS TO TRICK THEIR USERS.

Anyone who has ever signed up, or even known anyone who has signed up, for LinkedIn has probably found themselves on the receiving end of dozens of follow-up emails, inviting you to "expand your professional network." Even worse, they're virtually impossible to opt-out of. It's a sordid use of dark UX patterns by a company that should know better. Now, LinkedIn is going to be paying for it as part of a class-action lawsuit, to the tune of $13 million.

Presented in San Jose's U.S. District Court, the key issue in Perkins v. LinkedIn is spam. Namely, during the user sign-up process, LinkedIn claims that it "will not store your password or email anyone without your permission." Despite this, LinkedIn sends automated follow-up email reminders on a new user's behalf to any contacts harvested from their webcam accounts, which are presented in such a way as to appear as if they came directly from the user.

Under California law, the sitting judge says he deemed this illegal. Consequently, if you were a member of LinkedIn's "add connection" program between September 2011 and October 2014, you can submit a claim to get a refund.
CSE 510: Advanced Topics in HCI

HCI as Design I

James Fogarty
Daniel Epstein

Tuesday/Thursday
10:30 to 12:00
CSE 403