Interaction Design

Chapter 8 (July 5, 2017, 9am-12pm):
Simplicity and Graphical User Interface Design
Recap Day 7:
Fidelity v. Resolution

low resolution
low fidelity

high resolution
low fidelity

high resolution
high fidelity

source: [5]
High Fidelity

Low Fidelity

Open Discussion

Prompting Required

Quick and Dirty

Early Validation

Sharp Opinions

Self Explanatory

Deliberate and Refined

Concrete Ideas

source: [5]
Low Resolution

Less Details
Focus on core interactions
Quick and Dirty
Early Validation

High Resolution

More Details
Focus on the whole
Deliberate and Refined
Concrete Ideas

source: [5]
80/20 rule
A principle for setting priorities: users will use 20% of the features of your product 80% of the time. Focus the majority of your design and development effort (80%) on the most important 20% of the product.

source: [7]
Interaction Design

Chapter 8 (July 5, 2017, 9am-12pm):
Simplicity and Graphical User Interface Design
Part One
"Great design is as much about prospecting in the past as it is about inventing the future."

Bill Buxton
Design and Simplicity

- Bauhaus: History and Directors
- Bauhaus: Structure and Products
- From Bauhaus to Braun
Key Dates:

founded 1919 in Weimar
closed down 1933 in Berlin

Key People - 3 Directors:

[3] Ludwig Mies van der Rohe (1930-1933)
Art and technology - a new entity.

Walter Gropius

The investigation of human needs should be based on science - not formalism.

Hannes Meyer

God is in the details.

Ludwig Mies van der Rohe
Design and Simplicity

• Bauhaus: History and Directors

• Bauhaus: Structure and Products

• From Bauhaus to Braun
Prototyping Design
Basic Shapes
Color Sphere

source: [7]
Marcel Breuer

http://www.boecker-buerogestaltung.de/images/designer/marcel_breuer.01.jpg

source: [8]
Chair B3 “Wassily”
Design and Simplicity

• Bauhaus: History and Directors
• Bauhaus: Structure and Products
• From Bauhaus to Braun
Requirements:
Type (variations of the original design)
Basic shape - few simple parts (industrial manufacturing)
Functionality (design for human needs)
Charles and Ray Eames

Ray & Charles Eames

http://3.bp.blogspot.com/-E_aiFu9Pakg/TdXT6TkZI/AAAAAAAASiI/dhm3kTe9VF4/s1600/Eames-Rocker-Chair-White.jpg

Braun SK6
Braun Radio

iPod

iPhone Calculator

Braun Calculator

Braun Speaker

Braun Radio

iMac

Powermac G5
Part Two
Graphical User Interface Design

- Principles
  - Layout, Typography, Color & Contrast
  - Controls and Widgets
  - Simplicity
INTERACTION DESIGN

KNOW?

FEEL?

...DO?
Interaction Design

- User-experience design
- Industrial design
- Communication design
- User Interface engineering
- Information architecture
- Human factors
- Usability engineering
- Human-computer interaction

source: [4]
Like all forms of design, visual design is about problem solving, not about personal preference or unsupported opinion.

Bob Baxley
Interface design is only the experienced **representation** of the interaction, not the interaction design itself.

source: [4]
User Interface

Visible

Behind the Scenes

Capturing

Transferring

Connecting

Coordinating

Combining

Storing

Contextualizing

source: [4]
• Desktop applications
• Websites
• Web applications or “rich internet applications” (RIAs)
  Professional products or embedded devices
• Software for mobile devices or other consumer electronics
• Turnkey systems like kiosks
• Operating systems
UI design communicates attributes such as reliability, excitement, playfulness, energy, calmness, strength, tension, and joy.
The Road to Enlightenment

Littering a dark and dreary road lay the past relics of browser-specific tags, incompatible DOMs, and broken CSS support.

Today, we must clear the mind of past practices. Web enlightenment has been achieved thanks to the tireless efforts of folk like the W3C, WaSP and the major browser creators.

The css Zen Garden invites you to relax and meditate on the important lessons of the masters. Begin to see with clarity. Learn to use the (yet to be) time-honored techniques in new and invigorating fashion. Become one with the web.
The Beauty of CSS Design

A demonstration of what can be accomplished through CSS-based design. Select any style sheet from the list to send it into the page.

Download the example html file and css file

The Road to Enlightenment

Littering a dark and dreary road lay the post relics of browser-specific tags, incompatible DOMs, broken CSS support, and abandoned browsers.

We must clear the mind of the past. Web-enlightenment has been achieved thanks to the tireless efforts of folk like the W3C, WdG, and the major browser creators.

The CSS Zen Garden invites you to relax and meditate on the important essence of the mature web as we use the time-honored techniques in new and seductive fashions, become one with the web.

http://csszengarden.com/
Graphical User Interface Design

- Principles
- Layout, Typography, Color & Contrast
- Controls and Widgets
- Simplicity
Layout
Visual Clutter
Clutter creates visual noise and makes an application hard to use

source: [4]
Gestalt Psychology

• The Gestalt laws prescribe for us what we are to recognise as one thing’ (Köhler, 1920)

• How smaller objects are grouped to form larger ones

• Rules of the organisation of perceptual scenes (Heuristics)
Gestalt Laws

• Proximity
• Collinearity
• Co[circularity
• Continuity
• Parallelism
• Symmetry
• Closure
• Convexity
…
Proximity & Grouping
Alignment
By grouping similar elements together, the designer helps the user deal with a complex information display by reducing it to a manageable number of units.

source: [2]
Primary Action / Secondary Action

source: [2]
All form actions are not equal, and therefore the visual presentation of actions should match their importance to make it easier to complete a form. Visual distinction helps users make “good” choices.

source: [2]
Example: “Web Design, Filling the Blanks”

Yammer
Constraint
Constraints are closely related to real affordances: For example, it is not possible to move the cursor outside the screen: this is a physical constraint.

Locking the mouse button when clicking is not desired would be a physical constraint. Restricting the cursor to exist only in screen locations where its position is meaningful is a physical constraint.
Flip Horizontally
Flip Vertically

Lock
Unlock

Group
Ungroup

Visual Constraint

source: [2]
Scalability of Interfaces / Flexibility
80/20 rule

source: [1]
A principle for setting priorities: users will use 20% of the features of your product 80% of the time. Focus the majority of your design and development effort (80%) on the most important 20% of the product.

source: [1]
Overcrowded Widget

Users are overwhelmed by options, limitless flexibility

Only show me what I need to see

Implement one easy to discover and easy to learn core pattern for common actions across the platform.
Adjust to users’ preferences.
Make less common actions harder to reach.

source: [5]
Aesthetic-Usability Effect

source: [1]
Aesthetic-Usability Effect
Aesthetic designs are perceived as easier to use than less-aesthetic designs. Aesthetic designs look easier to use and have a higher probability of being used, whether or not they actually are easier to use.

source: [1]
The flexibility-usability tradeoff is exemplified in the well-known maxim “jack of all trades, master of none”.

Flexible designs can perform more functions than specialised designs, but they perform the functions less efficiently.

source: [1]
Fonts
Rule of thumb

- two general groups: serif & sans serif
- sans serif can be scanned quickly
- avoid very heavy or light typefaces for UIs
- avoid combining too similar typefaces
- stick with standards first
• On computer displays, sans-serif fonts often work better at very small point sizes, unlike print, in which the serifed fonts tend to be more readable as body text.
• Avoid italicized, cursive, or otherwise ornamental fonts;
• Highly geometric fonts tend to be difficult to read at small point sizes, as the circular letters (e, c, d, o, etc.).
• All-caps is too hard to read for body text, though it works fine for headlines and short texts. Capital letters tend to look similar, and are hard for a reader to differentiate.
• Set large amounts of text in a medium-width column when possible—say, around 10 to 12 English words on average. Don’t right-justify narrower columns of text; let it be “ragged right.”
Roboto

SUNGLASSES
Self-driving robot ice cream truck
Fudgesicles only 25¢

ICE CREAM
Marshmallows & almonds
#9876543210

Music around the block
Summer heat rising up from the sidewalk

source: [5]
Color
HSV Color Space
- three main properties: hue, saturation (or intensity) and value (or brightness)
- hue refers to the color itself (the particular color within the optical (visible) spectrum of light), saturation refers to the brightness, value refers to the amount of black in a color

- color can provide cues for use
- color can establish a relationship
- color can indicate importance
- consider human factors such as color blindness and cultural differences

source: [4]
Warm versus cool
Dark versus light background
High versus low contrast
Saturated versus unsaturated
Combinations of hues
Colors

source: [5]
Contrast

source: [2]
Effective design crates no more contrast than necessary.

This allows the viewer to easily identify the elements in question as a strongly defined subset of the available information.

source: [2]
Effective design creates more contrast than necessary. This allows the viewer to easily identify the elements in question as a strongly defined subset of the available information.

Contrast

**Source:** [2]
Symmetry
Symmetry ensures balance and clear organisation, if sometimes at the expense of visual interest. While this may be a drawback for a poster or retail packaging, it is perfectly appropriate for a user interface.
UI Kits
Developing Apps for iPhone
Graphical User Interface Design

- Principles
- Layout, Typography, Color & Contrast
- Controls and Widgets
- Simplicity
Switch

Button

Dial

Slider


Drop-down menu | Multiple Selection List | Text Box | Spin Box
Controls
Controls

source: [4]
Mapping of Representation and Control
Graphical User Interface Design

- Principles
- Layout, Typography, Color & Contrast
- Controls and Widgets
- Simplicity
Simplicity
**Approachability**
Simple designs can be rapidly apprehended and understood well enough to support immediate use or invite further exploration.
Recognisability
Simple designs can be recognised more easily than their more elaborate counterparts. Because they present less visual information to the viewer, they are more easily assimilated, understood and remembered.

source: [2]

**Immediacy**

Simple designs have a greater impact than complex designs, precisely because they can be immediately recognised and understood with a minimum of conscious effort.

(source: [2])
Usability
Improving the approachability and memorability of a product necessarily enhances usability as well. Simple designs that eliminate unnecessary variation or detail make the variation that remains more prominent and informative.

source: [2]
Reduction through successive refinement is the only path to simplicity
Reduction means that you eliminate whatever isn’t necessary. This technique has three steps: (1) decide what essentially needs to be conveyed by the design; (2) critically examine every element (feature, label, UI widget, etc.) to decide whether it serves an essential purpose; (3) remove it if it isn’t essential.
References (Books):