Visual Information Design

Prof. James A. Landay
Computer Science Department
Stanford University
Autumn 2017
October 29, 2017

* Based on slides by Luke Vink, Scott Klemmer, and James Landay

Hall of Fame or Shame?

Palm Beach, Florida
Ballot 2000

Eye drawn to the wrong holes
If only 1% error rate, can still change a close election

Hall of Shame!

William Lidwell, Kimino Holden, and Jill Butler
Universal Principles of Design

One Possible Redesign

iFitness
iOS App

Non-conventional design is a waste of resources—iOS has better defaults

Know your users! 99% of users will want to enter today’s weight
‘Record’ button almost invisible

Hall of Shame!
Possible Re-design

¼ of the controls
Saved space can be used for statistics
Date and time can be recorded automatically


Hall of Shame!

Virgin America Website
Courtesy Andrea S.
https://www.virginamerica.com/book

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Hall of Fame!

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Minimalist design w/ large & simple instructions
Automatic location setting
Large calendar for easy/fast date selection (Why?)

2017 CS147 Film Festival Awards

- Best Acting
- Best Music/Soundtrack
- Funniest/Most Humorous
- Best Production Values
- Best Editing
- Best Special Effects
- Best Project Concept
- Best Overall Video

October 30, 2017

Bettr

Activated

Epa

Solas
**Visual Information Design**

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**Outline**

- Typography, layout, color
- Good Form
  - layout, proximity, small multiples, space, grids & icons
- Team Break
- Color
- Interesting Design
Information is Beautiful

A collection of intriguing visualizations that strike a balance between art and data representation

David McCandless

Partly Cloudy iOS App

How well does it work?
How well does it communicate?

The Art of Balance
Promotion & demotion of important objects

First Question for any design

What are the most important things?

Information should be prioritized based on its importance to the user

Your poll will show here

1
Install the app from pollicy.com/app

2
Make sure you are in Slide Show mode

Still not working? Get help at pollicy.com/app/help or Open poll in your web browser
Visual Design that has **Good Form**

(Purpose)

Using Context to Determine Layouts

Know Thy Users!
(Design Discovery)

Context is extremely important to how much “Stuff” should be visible

Using Context to Determine Layouts

- Screen Space
- Time for tasks
- UI Elements
- Mobility
- Importance of Information Hierarchy

Responsive Layout Design for Web

Responsive Layout Design for Web
Using Proximity to Indicate Relationships

“The whole is greater than the sum of the parts.”
– David Hothersall

Gestalt Psychology in information design
Information blocks should be grouped together if related, but unrelated elements should be located at some distance from each other.

Using Proximity to Indicate Relationships

Small Multiples

- Economy of line
- Similarities enable us to notice differences

IMAGE REMOVED
Using Blank / White Space as an Object

- White space can be used to suggest importance or prestige
- The more space around a group, the more valuable it should be for the user
- Think of whitespace as an "element" so as to consider its positioning
Jan Tschichold’s Revolution
Champion of Modernist Typography

Jan Tschichold
Revolution
Champion of Modernist Typography

Die Neue Typographie
Berlin, 1928

Bauhaus school
Dessau, 1925-26

Type Classifications

**Typeface (Arial) vs Font (Arial Bold)**

Serifs: Structural details in letters that (may) help the reader connect them

<table>
<thead>
<tr>
<th>Sans Serif</th>
<th>Serif</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optima</td>
<td><strong>answ</strong></td>
</tr>
<tr>
<td>Oblique</td>
<td><strong>answ</strong></td>
</tr>
<tr>
<td>True italic</td>
<td><strong>answ</strong></td>
</tr>
</tbody>
</table>

Asymmetric Typography

JAN TSCICHOLD

**How blocks used to be arranged in magazines.** Schematic, thoughtless centering of blocks (= ugly).

**The same blocks, correctly arranged in the same type area.** Constructive, meaningful, and economical (= beautiful).

Grid Systems

- A key pattern for implementing rationality, modernism, asymmetry
- Note that no elements are “centered”

**Iconography:**

Differences that Make a Difference

[www.jensondesign.com/1+1=3.pdf](http://www.jensondesign.com/1+1=3.pdf)
The Noun Project
A "Language" of icons

TEAM BREAK
(TALK ABOUT MED-FI PROTOTYPE PLANS)

Color Definitions (digital)

- **Hue** is gradation of color (i.e., name: "yellow")
- **Saturation** is purity of the hue (vividness)
  - how much gray
- **Luminance** is the brightness in an image

Color: Edward Tufte – by hue
The Basics of the Color Wheel

Warm Colors: Triggering / Sensual

Cool Colors: Conserved / Relaxing
Color Harmonies

“A pleasing arrangement of parts, whether it be music, poetry, color, or an ice cream sundae.”

Using Appropriate Color “Harmonies”

Complimentary

- Complimentary
- Christmas, maybe.
- Everyday use...
- Not so much
- Not so good for text
- Hard on the eyes
- This color scheme must be managed well so it is not jarring. Bad with Text!!

Complimentary (e.g., Children’s Bedroom)

Analogous

- Analogous
- Always easy on the eyes,
- this type of color scheme always looks “natural”

Analogous (e.g., Beyond Oil)
Often a good choice for beginners, because it is difficult to mess up.

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Start with Greyscale

… then **accent** or **enhance** with color
Action + Passive Colors

Poor Use of Color

Redesigned to Use 3 Actionable Colors

Tools that help with color selection

- [http://colorschemedesigner.com/](http://colorschemedesigner.com/)
- [http://www.colourlovers.com](http://www.colourlovers.com)
Visual Design that is **Interesting**

[the wow factor]

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**Why Make Information Interesting?**

- Differentiation from similar work
- Creates “willful” interaction as opposed to “forced”
- With an interesting interface that is simple to learn, the user will teach themselves

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**Non Conventional Layouts**

- Hard to get right & easy to overdo!
- Try new shapes:
  - Circular charts
  - Hexagonal Objects
- Like all techniques (color, etc) – restrict unconventional layouts to the most important information

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**Dynamic Movement**

- Hard to get right & easy to overdo!
- Animation is best used to connect information & create “flow”
- Like size, color & unusual shapes, animation draws attention to the eye & suggests importance
Metaphors (using the real world to describe information)

- Hard to get right & easy to overdo!
- Very useful to provide meaning and connect information to logic
- As you have seen before, the more direct or specific a metaphor, the more contextually relevant it is to a generation.

The best designs balance the techniques you have seen and the less techniques used, the easier it is to balance them.

In other words, **Keep it Focused**
**Summary**

- Start with Context, what is the nature of the information? What is the most important?
- Design first in gray scale to focus on hierarchy
- Small changes help us see key differences (e.g., small multiples)
- Avoid clutter, focus on the essence of your tasks
- Use color properly – not for ordering!
- Only use one or two colors at a time, unless absolutely necessary

### Further Reading

- Kevin Mullet and Darrell Sano, *Designing Visual Interfaces*
- Edward Tufte’s books and course
- Anne Spalter, *The Computer in the Visual Arts*
- Robin Williams, *The Non-Designer’s Design Book*
- Typography
  - Jan Tschichold, *The New Typography*
  - Robert Bringhurst, *The Elements of Typographic Style*
  - http://www.adobe.com/type/
- Typography on the web
  - http://www.microsoft.com/typography/

### Next Time

- Heuristic Evaluation
- Reading
  - How to Conduct a Heuristic Evaluation by Jakob Nielsen
- Next assignment
  - Heuristic Evaluation