Basics of visual interface design

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Goals

- Explore topics that pertain to communication design and visual interface design
- Become familiar with the language and terminology of design
- Understand how issues come together to form a larger design process

Agenda

What is design?

- Process

Communication design

- Form and function
- Typography
- Color
- Design language

Visual interface design

- Navigation

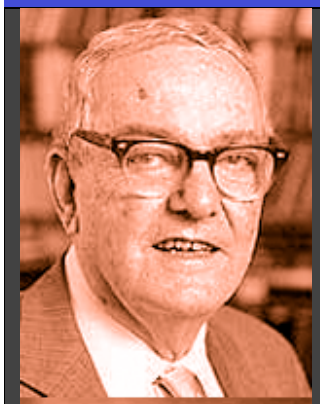
What is design?

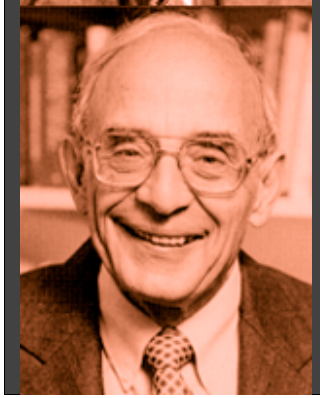
Design is the act of creating a **communicative artifact**, whether it is a printed piece, a web site, a piece of software, or an environment.

Designers not only design the artifact, but are aware of the **social and cultural systems** that surround the artifact.

Design follows a process of changing the world from the current state to a more preferred state.

What is design?





Simon: Design involves creating a course of action aimed at changing **existing situations into preferred ones.**

Rittel: design inquiry as a means to address **wicked problems** (problems that cannot be broken down) through reframing.

Schön: design inquiry as reframing through **reflection in and on action.**

pinklily.com.au

1 Child's Doctor / Emergency

However you come to Children's, know what kind of care you can expect, how to find us and who to talk to first.

2 Scheduling

Schedule your appointment in just one phone call, at a time that works for you.

3 Clinic visit

Expect that your visit goes smoothly and that you're in and out without waiting.

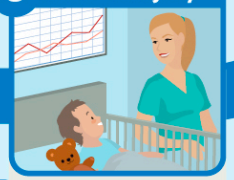
4 Before Surgery

Receive and understand all the information you need before your child's surgery.

5 Surgery

We'll start the surgery right on time.

6 After Surgery



Your child will move to a hospital room or go home as soon as they are ready.

7 Inpatient Care

Know when you can go home.

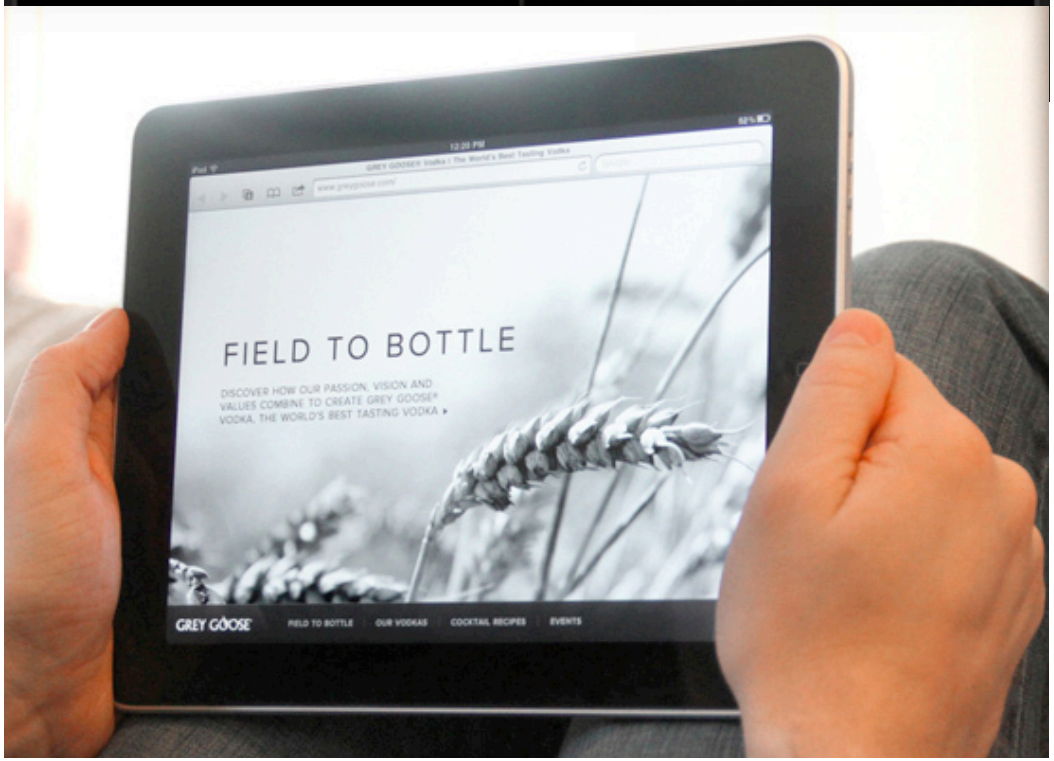
8 Going Home

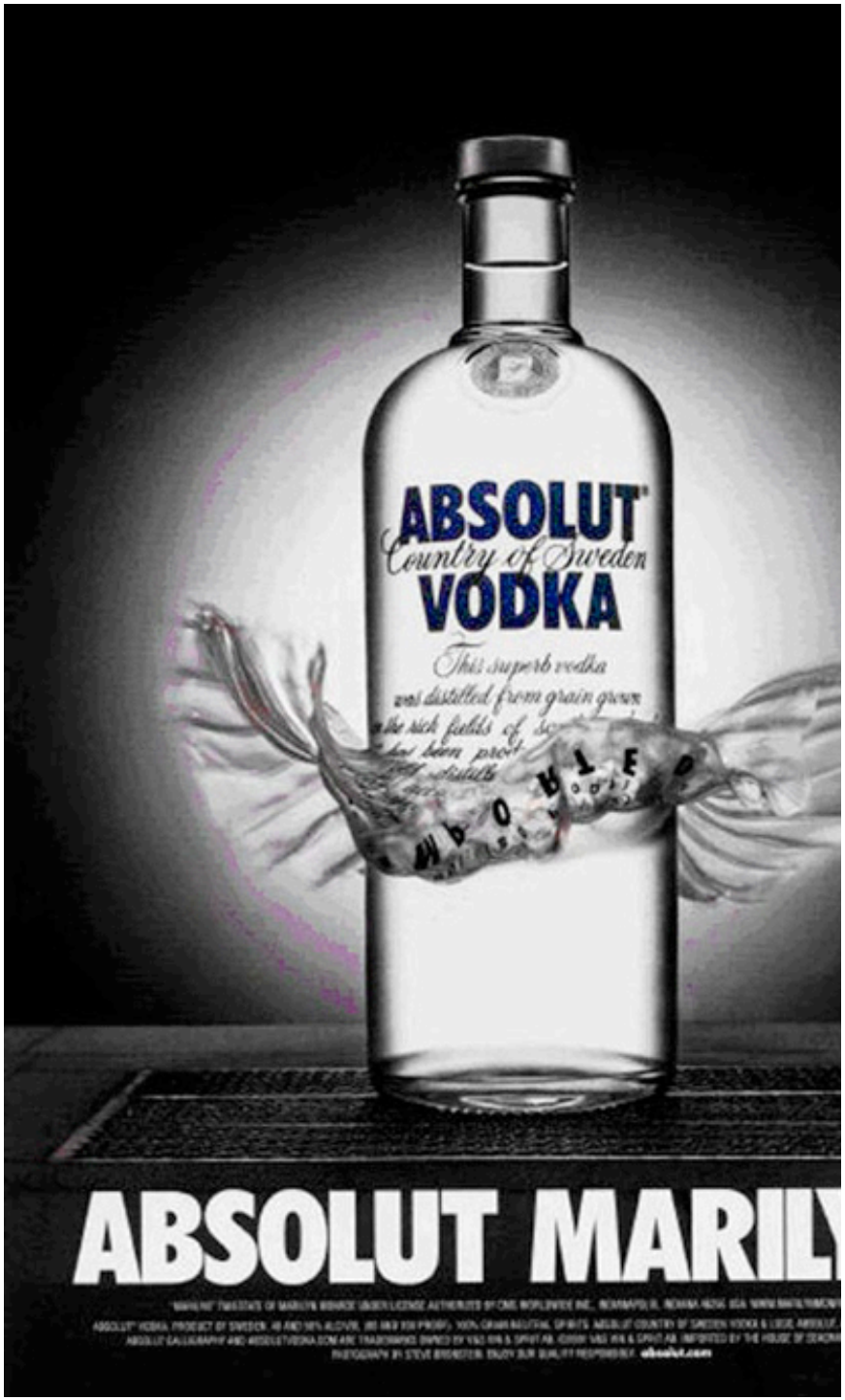
Have all your questions answered and get clear instructions on how to care for your child.

9 Follow-up visit

Your appointment will begin on time.

AUDIENCE AND AFFINITY
The Economist


FIELD TO BOTTLE
DISCOVER HOW OUR PASSION, VISION AND VALUES COMBINE TO CREATE GREY GOOSE® VODKA, THE WORLD'S BEST TASTING VODKA
GREY GOOSE
FIELD TO BOTTLE
OUR VODKAS
COCKTAIL RECIPES
EVENTS


ABSOLUT
Country of Sweden
VODKA
This superb vodka
was distilled from grain grown
ABSOLUT MARIL

What is the design process?

The design process is a series of events that begins when the designer receives an assignment. It continues until a solution is generated and implemented. The design process is not linear, but iterative.

Problem definition (framing)

Understand and define the problem, including audience, project goals and objectives, and constraint such as time, budget, production limitations.

Information gathering

Fact finding about

- end users
- clients / stakeholders
- landscape of competitive products
- conventions of form and style
- context in which the product will function

Idea finding

Each design problem has many solutions.

Designers ideate, generating many possible solutions, then iterate on a few promising ideas.

Generally work by sketching and then prototyping. They reflect *in* and *on* their actions.

Solution finding

The process of narrowing in and refining an idea to a finished form.

Designers use a critique, sharing ideas with other designers for feedback.

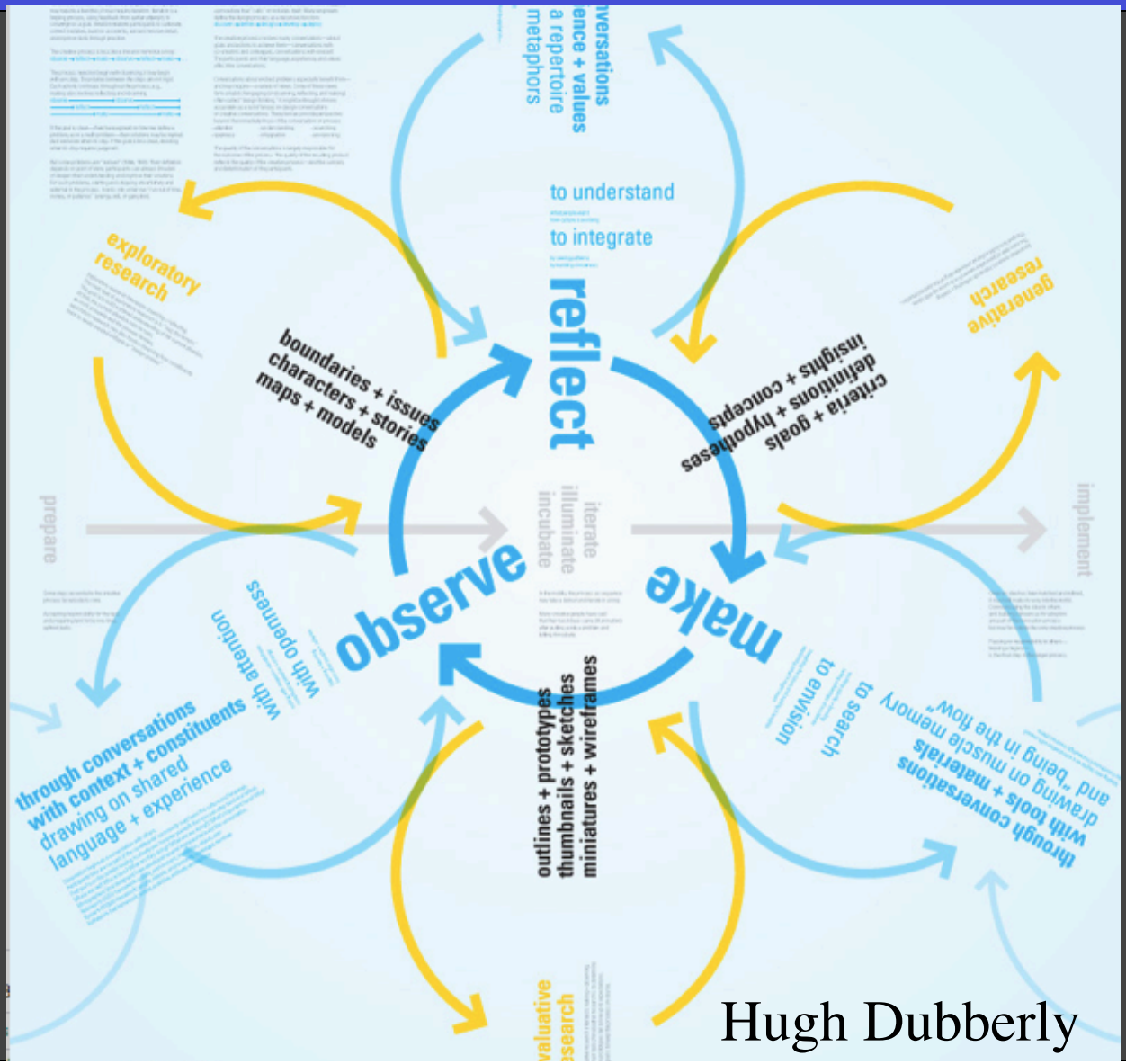
Users can be a source of feedback, although this is rare for most communication design problems due tight deadlines and strong conventions.

Implementation

Presenting the solution, gaining its acceptance, and executing the final product.

Models of the design process

Models of the design process



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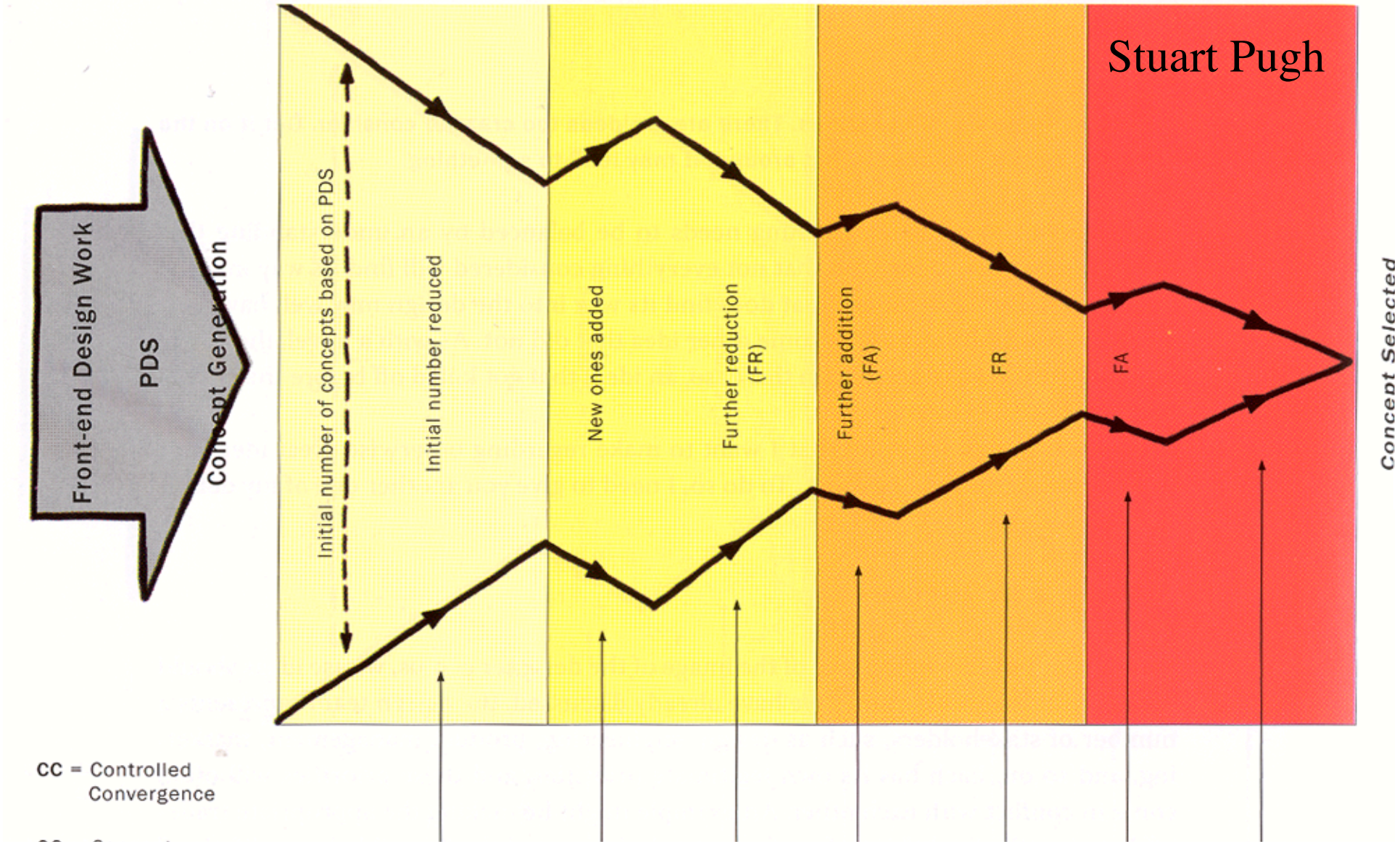
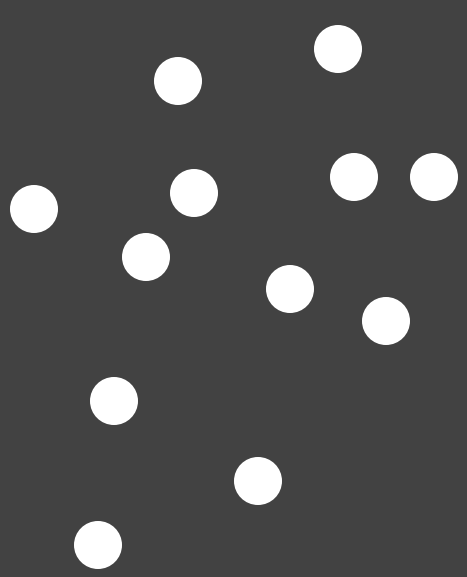
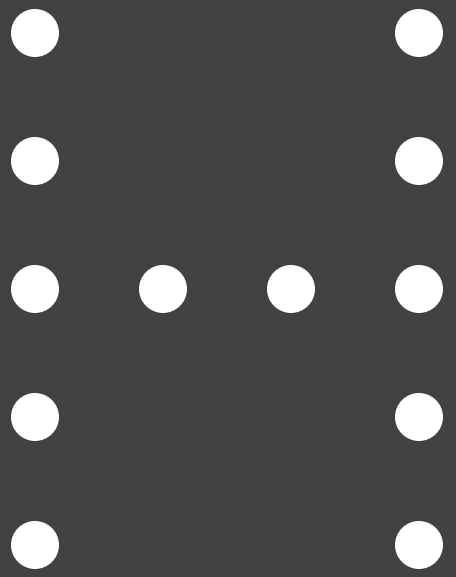


Communication design

What is communication design?

Designers work conceptually, combining words, pictures, and other graphic elements to form a communicative gestalt.





What is communication design?

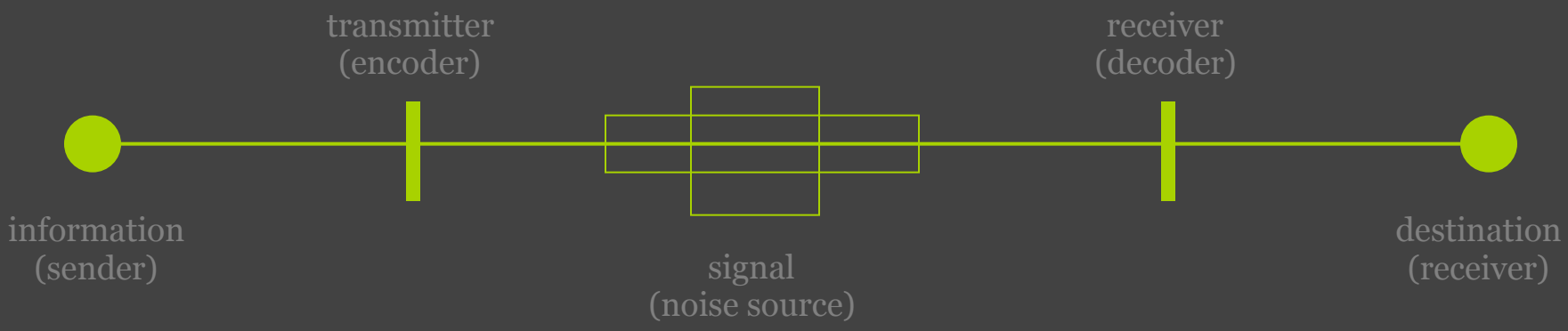
Designers work with a specific audience in mind, and create an artifact that best suits the needs of that audience.

Designs connect client/company to the user through their experience with the product.

Information/communication

Information is knowledge about facts and events

Communication is the transfer of knowledge between people.



Shannon and Weaver

What is communication design?

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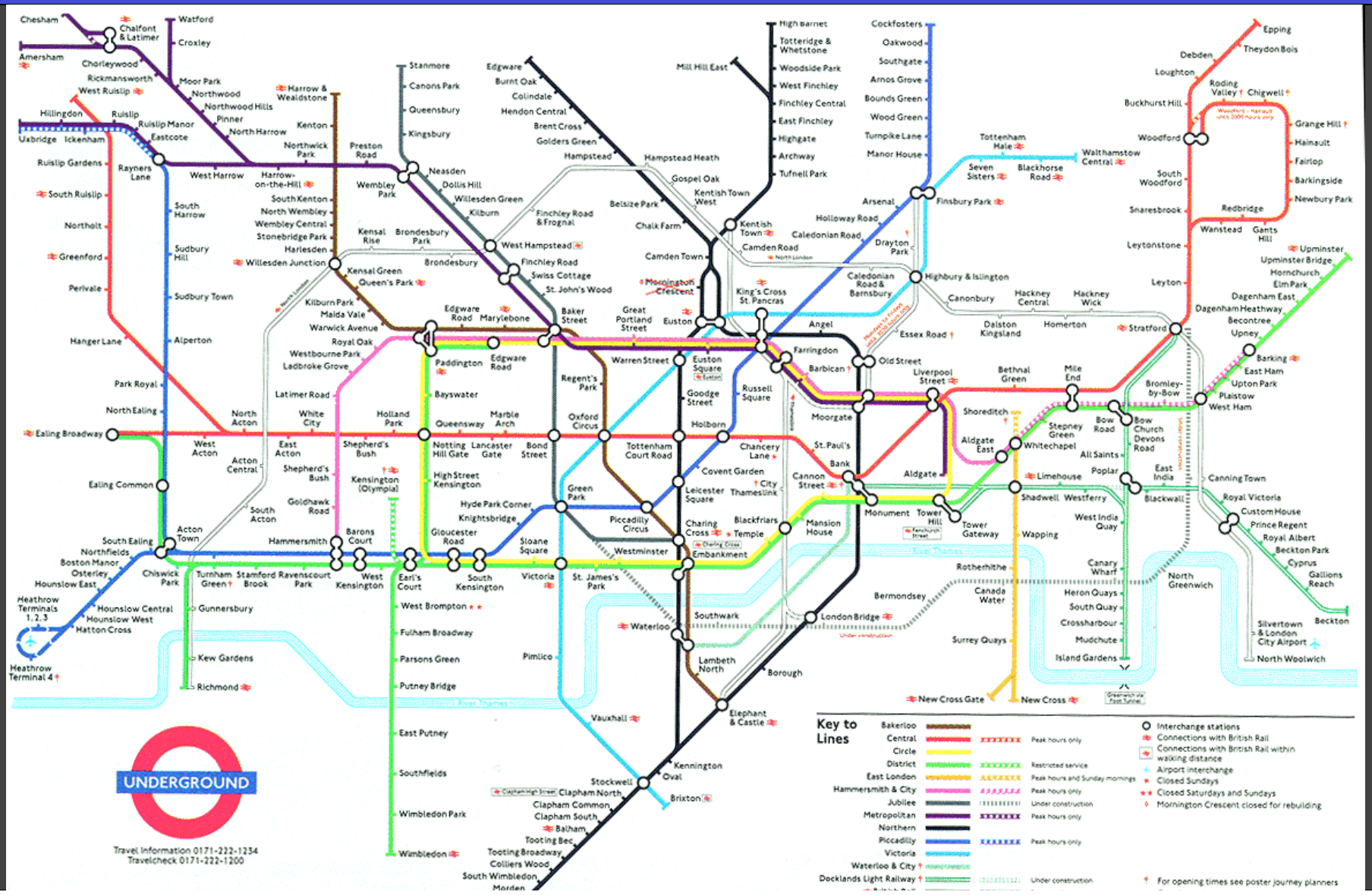


What is communication design?

Pierce Frank E 313 ScottLn Venta --- 724 941-1611
Pierce Frank E 326 StonebrookeDr McMury-- 724 941-7452
Pierce G J 2046 RedroseAv ---------- 884-3950
Pierce G T 1370 WashngtnRd MtLebnn --- 531-8654
Pierce Gary R 112 FredrckDr LwrBurl 724 335-8154
Pierce Geo A 621 ShadysideDr WMfln ---- 466-7634
Pierce Geo V 443 Library Brdk ---------- 351-8390
Pierce Gloria J HighlndAvExt Burgtstwn-- 724 947-4627
Pierce Greg 3312 Ward ---------- 682-2338
Pierce Gregory M 205 4Av Brdk -------- 271-3579
Pierce H M 1357 FoxwdDr Mnrovl ------- 372-8864
Pierce H N 241 OakLakeRd NwKnsngtn-- 724 339-1665
Pierce Harold E 1927 NoblstwnRd ------ 922-4731
Pierce Harold J 259 EvergladeDr PenHls - 795-4820
Pierce Harry 2604 High NtrnaHts --- 724 226-1420
Pierce Harry ins 206 E 6Av Trtm ---- 724 226-0659
Pierce Harry J III 1838 ParklineDr ------- 886-9749
Pierce Heather J 606 DellaDr NVersls --- 823-7156
Pierce Henry 362 OhiopyleDr PlumBoro -- 795-9898
Pierce Henry W 316 AkronAv MtLebnn --- 343-0529
Pierce Herbert Jr OakLakeRd NwKnsngtn-- 724 339-2561
Pierce Homer Sr 16 ShinHill Smith -- 724 947-5898
Pierce J 2818 B LibrtyBoro ---------- 678-8250
Pierce J 509 JonthnCt Okdl ---------- 809-0705
Pierce J Fred 494 NewTexasRd PlumBoro 795-6427
Pierce J G 1370 WashngtnRd MtLebnn --- 531-8654

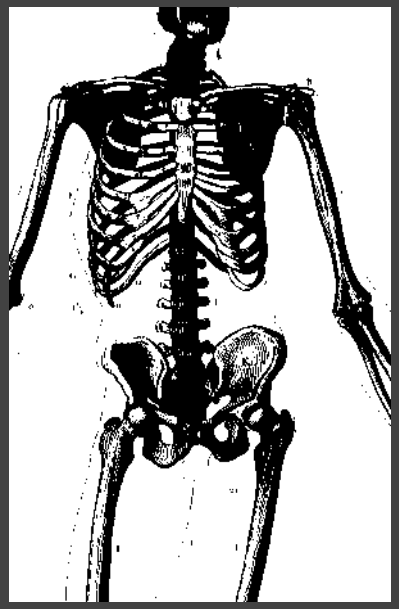
1193 PIECKA—PIERNO

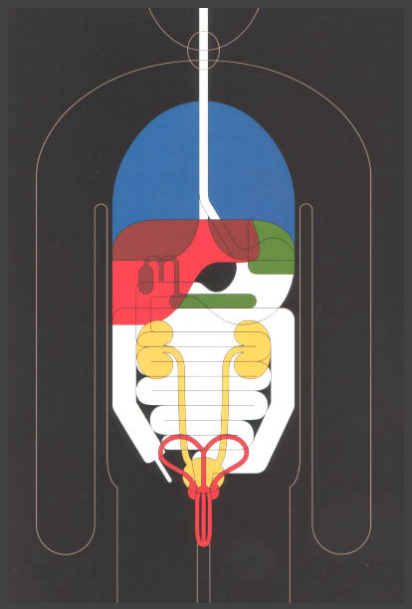
63966 © BELL ATLANTIC

Pierce R M 1714 PennAv ---------- 242-9022
Pierce Randy 3908 BarbaraAnnDr Mnrovl - 373-4068
Pierce Randy 955 RoupAv Brcknrdg - 724 224-1637
Pierce Randy W 526 MtVernonDr ------- 822-8121
Pierce Raymond L 397 VillageRd ------- 928-0883
Pierce Rex 555 RidgeAv EPgh ---------- 825-0197
Pierce Richd 23 Haldane Crftn ---------- 937-0173
Pierce Richd SunysdeHollow Monnghla -- 384-3273
Pierce Richd C 2305 MorrowRd ---------- 854-1090
Pierce Robt 106 Berry ---------- 928-0232
Pierce Robt 611 VermontAv Glasprt ----- 664-9197
Pierce Robt J 295 YosmteDr PenHls ----- 793-0705
Pierce Robt W 180 BrodlwnDr Elizbth ---- 751-6570
Pierce Ryan M 195 TemonaDr PlsntHls --- 650-9904
Pierce S 3404 BrownsvleRdExt Fnlyvl ---- 854-4106
Pierce S 118 CambriaHillDr EDeer --- 724 224-6116
Pierce S 105 CambridgeCt Hrwck --- 724 274-4901
Pierce S 121 EngerAv Pgh ---------- 761-8691
Pierce S 6514 SwanDr PenHls ---------- 798-0540
Pierce S L 1201 James Mnrovl ---------- 823-7578
Pierce Sally 302 OlivrDr WhiteOak ------- 678-0940
Pierce Sean P 468 FranklandAv Plum ---- 828-9477
Pierce Seon M 642 Mercer TurtlCrk ----- 829-9480
Pierce Service Co 216 Crst Clrtn ------- 233-8033
Pierce Shaun J 3132 Sorento ---------- 734-0522
Pierce Shirley M 610 FallsChurchRd Imp-- 724 695-0409

LEONARD R
G GRASSI

Form and function





Typography

Typography

Typography as we know it is an art of communication, measurement and proportion.

With type, the focus of communication moved from the spoken word to the written word.

Type samples

handgloves	handgloves	handgloves
handgloves	handgloves	HANDGLOVES
handgloves	handgloves	HANDGLOVES
handgloves	handgloves	handgloves
handgloves	handgloves	HANDGLOVES
handgloves	handgloves	handgloves

Anatomy of a typeface

A *typeface* is a set of type families of a unifying and distinctive design, and

A *font* is one instance of that family

Taz hair 21 italic , 48 pt

face, weight, style, size

Anatomy of a typeface

There are two kinds of type, serif and sans serif.

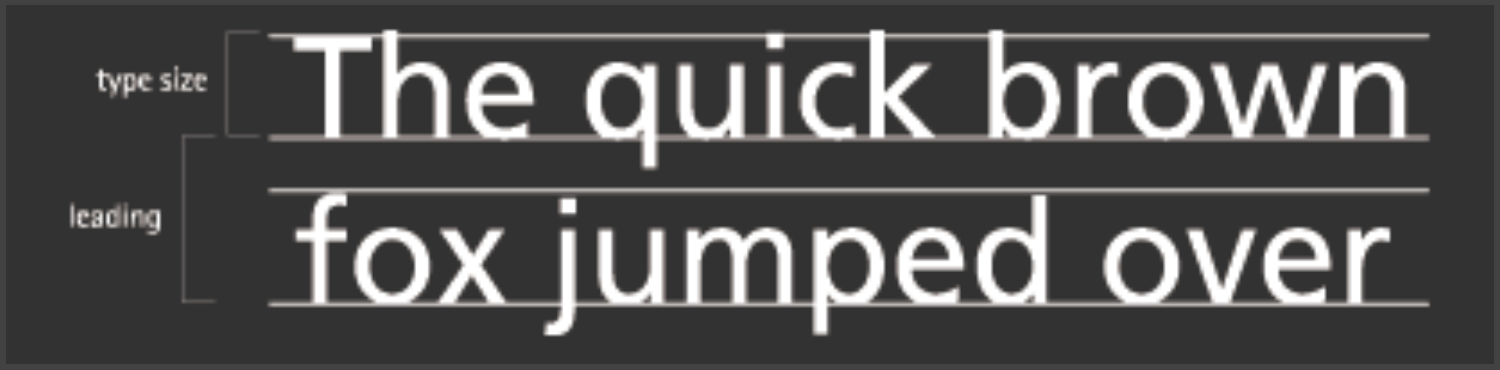
The standard measuring unit for type is the point, measured from top of ascender to bottom of descender.

Relationships between type and the space around it is what makes paragraphs look different. Two key features of legibility are **line length** and **leading**.

Type “etiquette”

Type/leading is expressed as two numbers: 10/12

General guidelines: 9 to 11 point type needs 1 to 3 points of leading; 12 point type, 2-4 points of leading; 14 point type, 3-6 points of leading



Type “etiquette”

Line length is the distance between the left and right margin of the type

“normal” line length is roughly 10 words < 70 characters

Challenges comes from moving the eye from the end on one line to the beginning of the next

Tight leading makes bodies of text hard to read

More open leading allows for longer lines

Making decisions about type

Take inventory of text elements you need.

Choose a type family or two to work with. Make sure that each typeface looks good together, and supports the intended tone of the content.

Find suitable sizes for each of the elements. Create guidelines and maintain them.

Test line length and leading if applicable. Look at short and long pieces of text.

Making decisions about type

Use of ALL CAPS or *all italic* slows reading.

Readers pay attention to contrast among typographic elements. Changes in weight (bold, etc.) may be noticed more than changes in typeface.

Reversed type is a strong visual element and should be used judiciously.

Blank space around paragraphs and between columns of type helps increase legibility.

A word about digital type

Reading text on computer screens is problematic. Many of the same rules of printed text apply, with new variables:

- Users have to scroll to read long texts
- Presenting text on the screen in a way that mimics reading structure (phrasing) may increase performance

Typographic goals

To remain invisible to the reader

To increase clarity and readability

To subtly indicate voice and tone of speaker

Integrating type and image

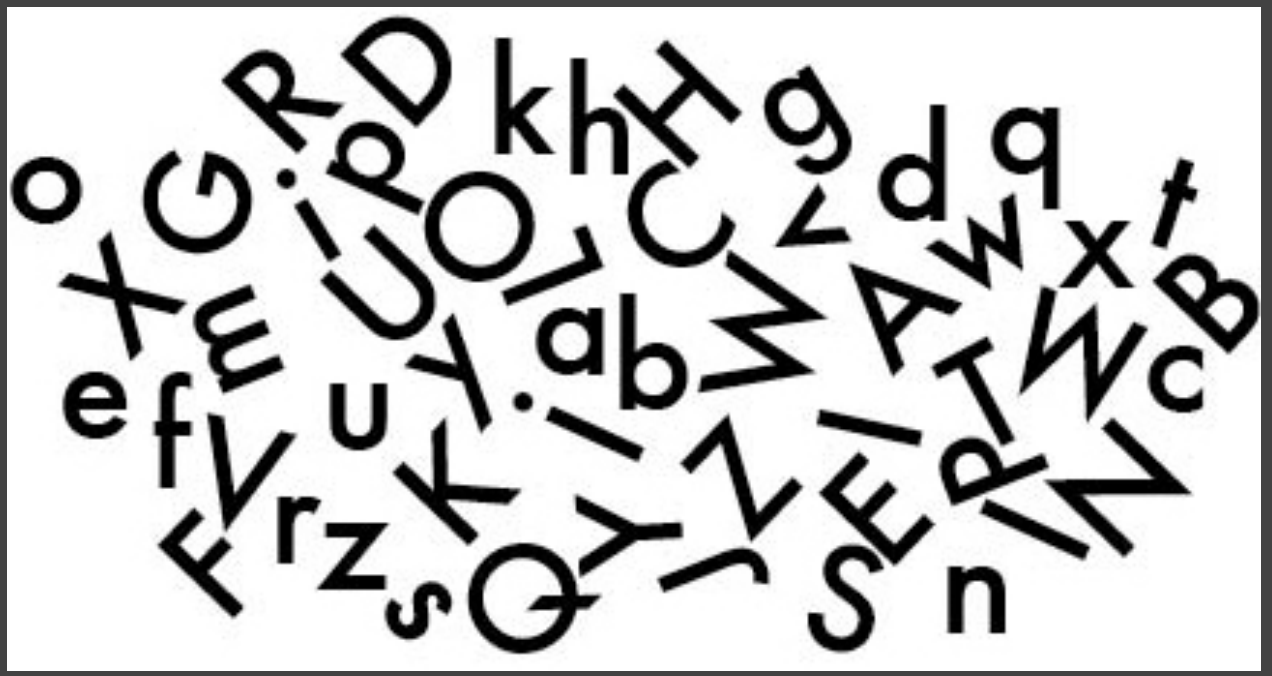
Structuring type

Type with image

Type as image

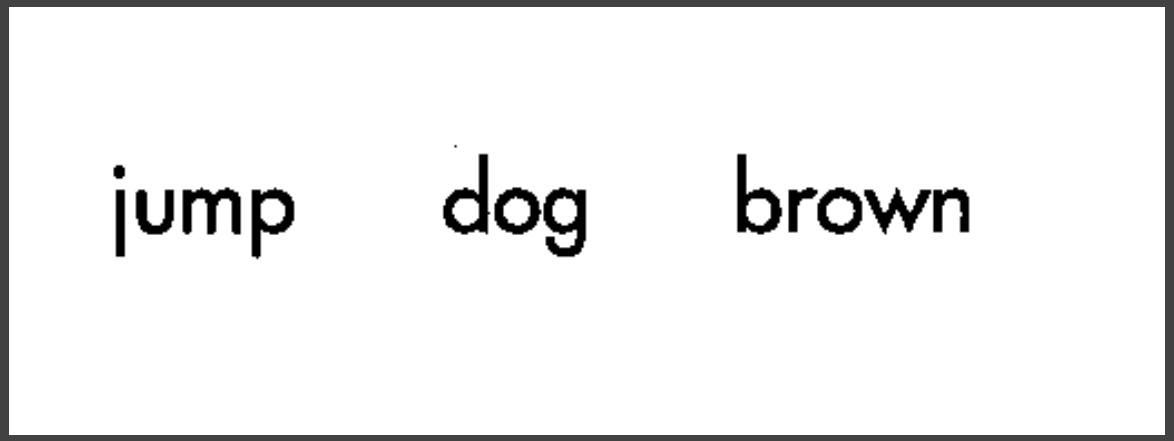
Type and image

Structuring type



Aa Bb Cc Dd Ee Ff Gg Hh Ii Jj Kk Ll Mm

Nn Oo Pp Qq Rr Ss Tt Uu Vv Ww Xx Yy Zz


jump
dog
brown

The brown dog jumps.

Words move, music moves, only in time.
But that which is only living can only die.

Typography, in the Newtonian view, is nothing very interesting or mysterious; it is simply mechanized writing. Now that the silicon chip has joined the wheel, the lever, and the inclined plane, typography is also computerized, digitized writing: more complex than it was, but no more profound, and perhaps increasingly subject to fashion.

Seen with fresher eyes, or from a warier perspective, typography still evokes the wonder and fear with which it startled the medieval world. It is a black art that borders on artificial insemination, and it can pose equally difficult moral questions. Type is writing that is edited, shaped, doctored, and made to reproduce itself through artificial means; and writing itself is a kind of gene-bank for ideas. Confined within the schools, typography is a means of implanting the fruits of chosen minds and lives into the minds and lives of others. Set loose in the world, it is an uncontrollable vector, like the malaria-bearing mosquito, able to spread ideas as indiscriminately as viruses or germs. the possibilities for its use and abuse are potent and legion.

Like other arts, from medicine to music, typography also demands both close proximity and distance. This is not what it sounds like - a schizophrenic sense of scale, but a kind of taut completeness. Typography is a process, after all, in which large object - epics, encyclopedias and bibles, for example - are built from minute components, such as the strokes and bowls of letters. It is work, therefore, in which macroscopic and macroscopic perspectives constantly converge. As if that were not enough, it's also an enterprise in which history is continuously present, and must therefore be kept continuously alive. These are among the things that make it unmechanical and nourishing.

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A Black Art

by Robert Bringhurst

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Seen with fresher eyes, or from a warier perspective, typography still evokes the wonder and fear with which it startled the medieval world. It is a black art that borders on artificial insemination, and it can pose equally difficult moral questions. Type is writing that is edited, shaped, doctored, and made to reproduce itself through artificial means; and writing itself is a kind of gene-bank for ideas. Confined within the schools, typography is a means of implanting the fruits of chosen minds and lives into the minds and lives of others. Set loose in the world, it is an uncontrollable vector, like the malaria-bearing mosquito, able to spread ideas as indiscriminately as viruses or germs. the possibilities for its use and abuse are potent and legion.

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A Black Art

by Robert Bringhurst

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Type with image

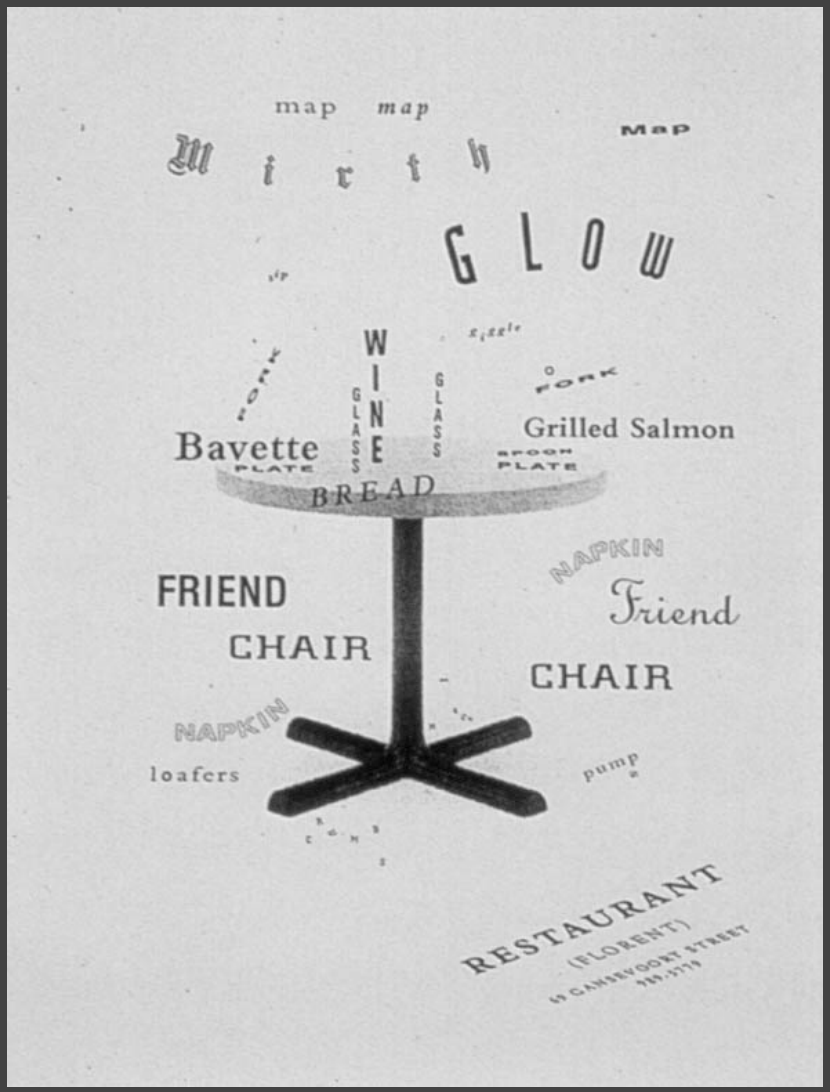
fear

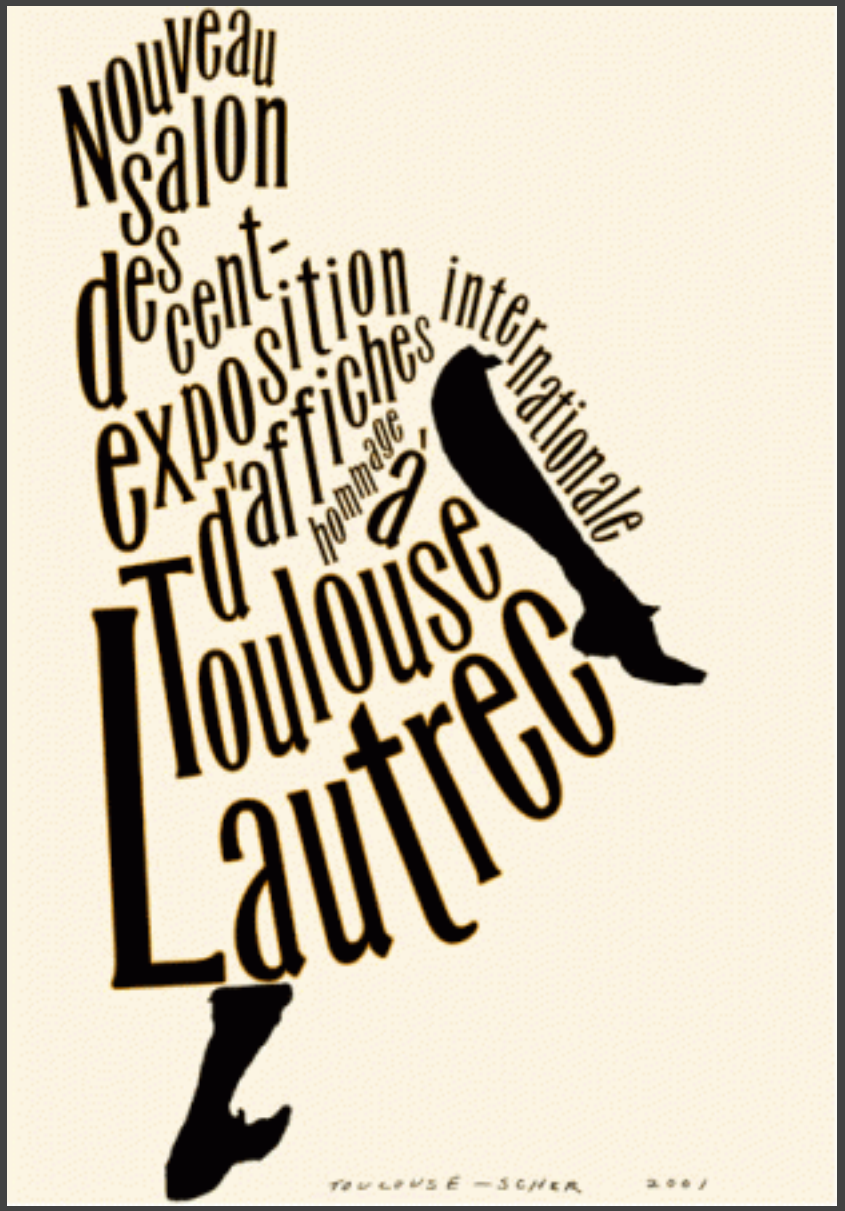
strength

fear

strength

Type as image

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Toulouse
Lautrec
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Type and image

iPhone

Touching is believing.

The revolutionary new iPhone is now available at Apple and AT&T® retail stores.

ALFRED HITCHCOCK'S
THE BIRDS

LIFESTYLE

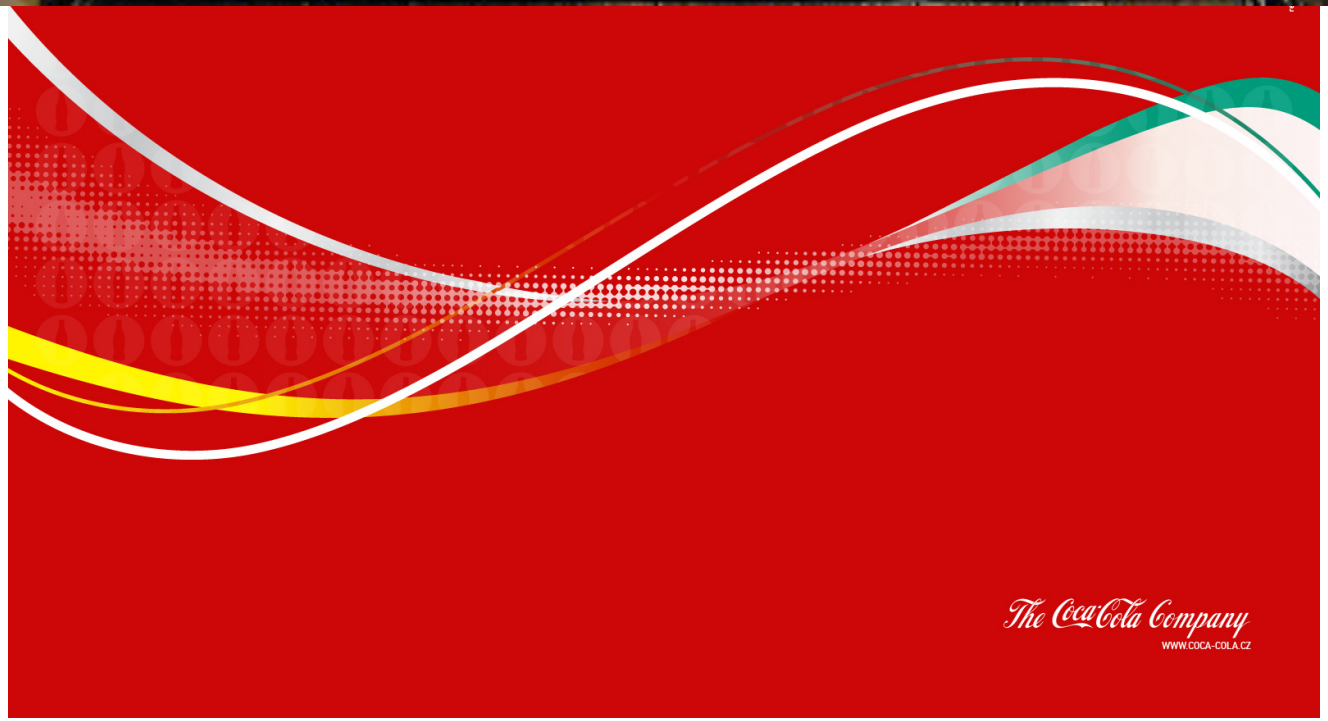
Customers slam things they don't need as they abandon once popular big-box stores

Bigger isn't better when it comes to consumers' shopping habits

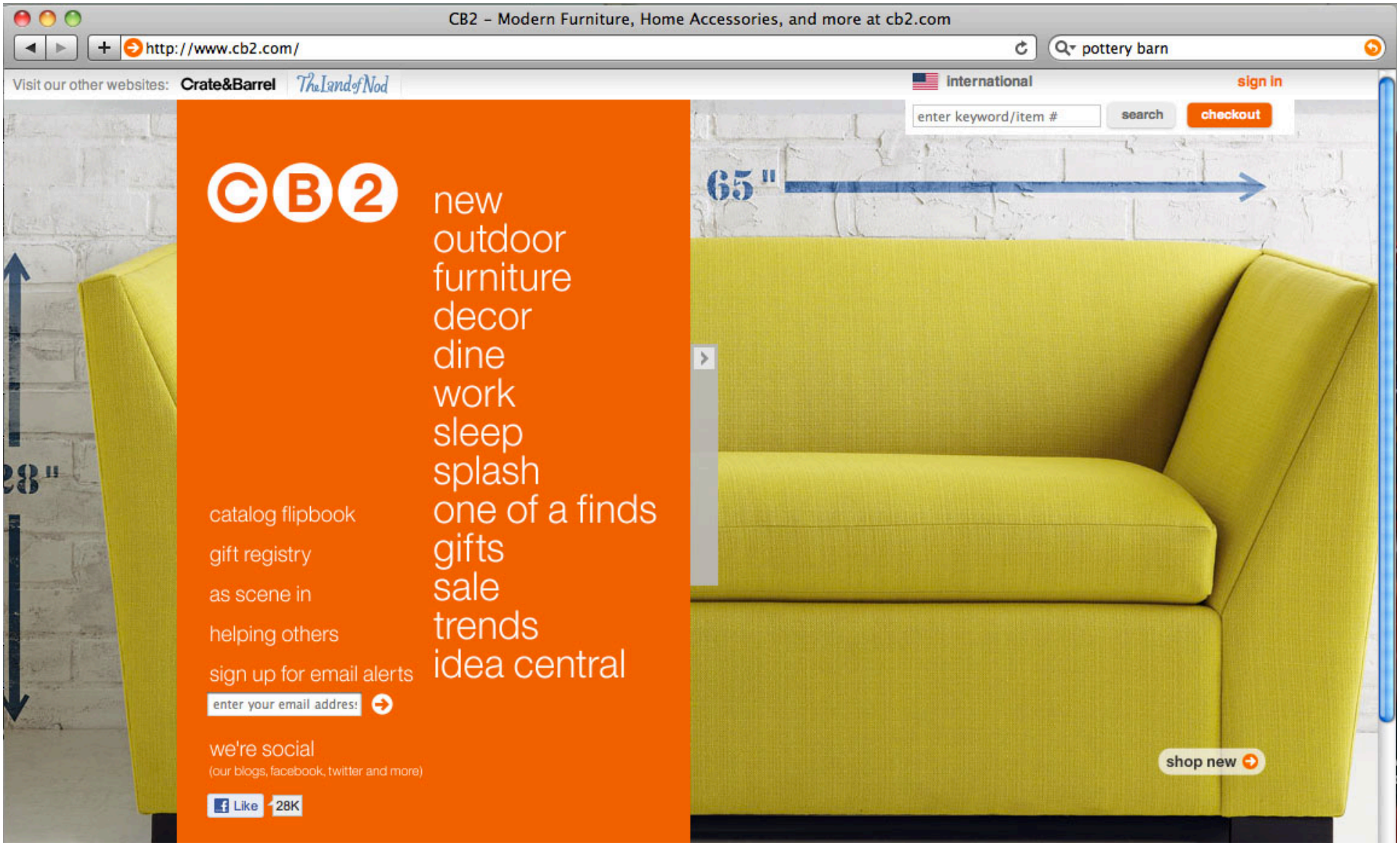
Color

Color is communication

Color is communication



Color matters!



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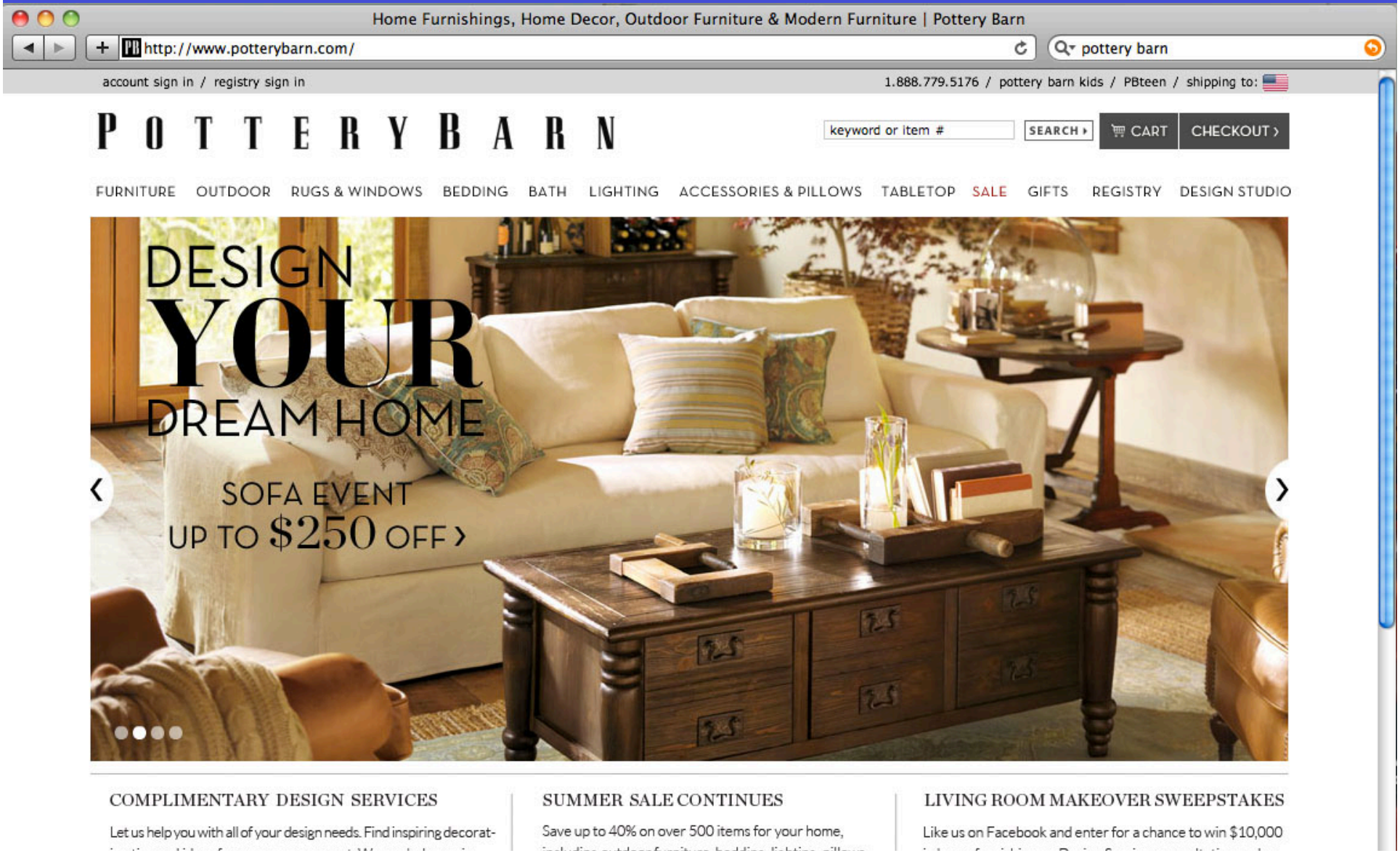


Color matters!

The colors we seen in nature are reflections of the visible light around us.

- Helps us to distinguish elements
- Creates an emotional response
- Can create semantic meaning and communicate information

Color is difficult

Cultural differences and associations – Kodak yellow, Coke red

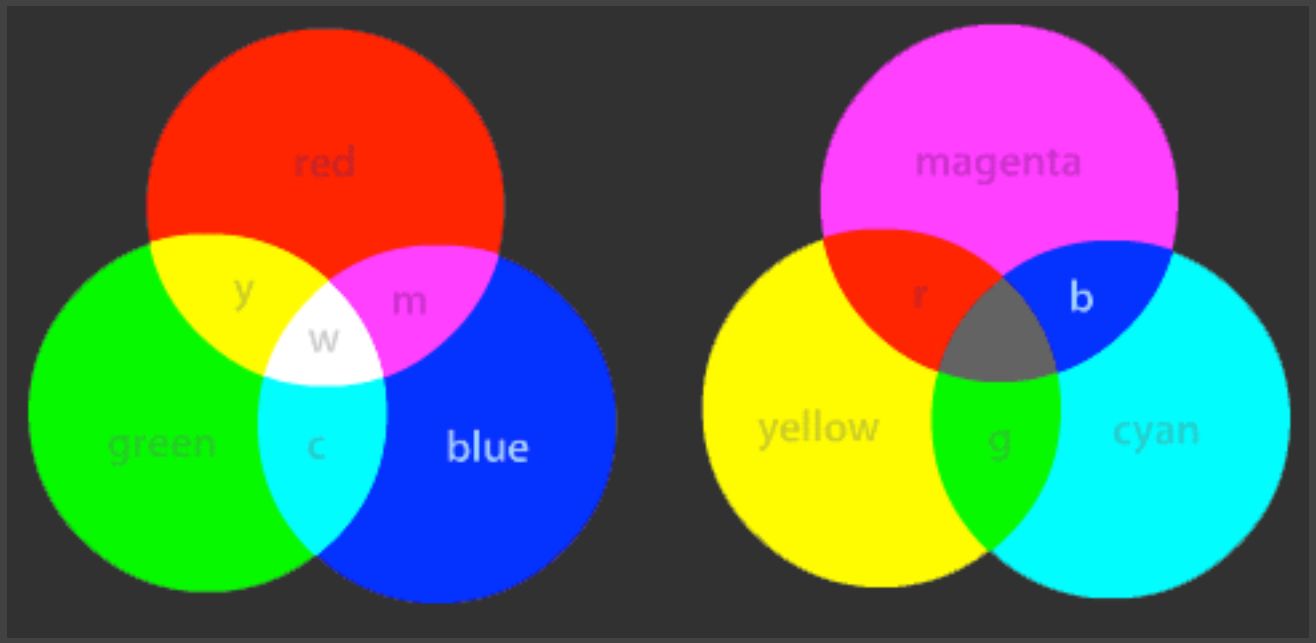
Different disciplines deal with color in differently: physics, psychology, engineering, fine arts and design

Highly subjective and relative – affected by light, context, environment

Simultaneous contrast – color is affected by what color is next to it

Color is difficult

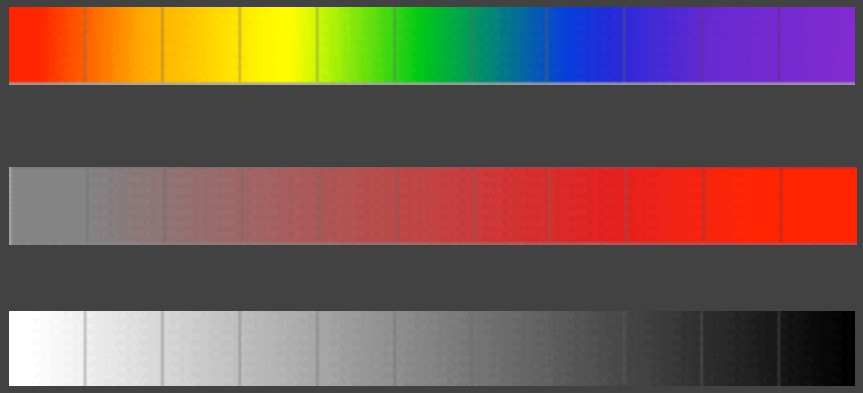
To make matters worse, print media and digital media use different color models.



The additive model used by screen displays mixes colors with light (white).

The subtractive model used by print media and pigment mixes colors with ink (black).

Color properties



- Hue
- Saturation
- Value

Hue

Hue refers to the name of the color. One hue can be varied to produce many colors: for example, pink, rose scarlet, maroon, and crimson are all colors, but the hue in each case is red.

ROYGBIV are the hue names.

Saturation

Saturation is sometimes called chroma, or intensity. These terms refer to the brightness of a color. A color is at full intensity when there is no other pigment present in the color. Mixing black or white into a color affects its purity and intensity.

A hue is at its full intensity when it is fully saturated. Adding black or white desaturates the hue.

Value

Value refers to the lightness or darkness of a hue or color. In pigment, value can be affected by adding white or black paint to the color.

Color strategies

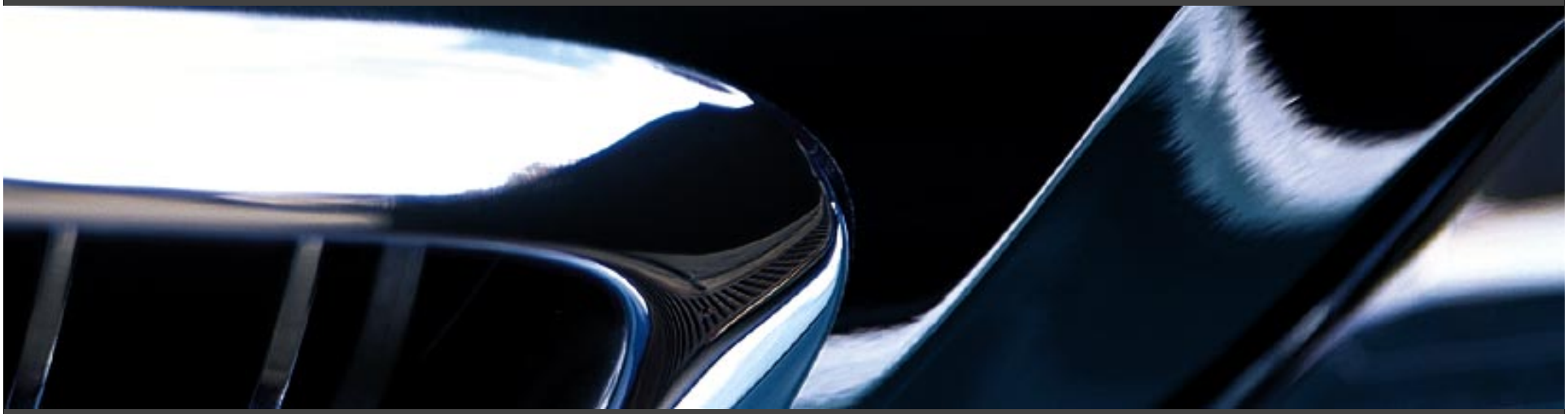
- Primary/secondary/tertiary
- Warm /cool
- Monochromatic
- Neutrals
- Complements/split complements
- Analogous/harmonious

Color contrasts

		Background								
		Red	Orange	Yellow	Green	Blue	Violet	Black	White	Gray
Foreground	Red		Poor	Good	Poor	Poor	Poor	Good	Good	Poor
	Orange	Poor		Poor	Poor	Poor	Poor	Good	Poor	Poor
	Yellow	Good	Good		Poor	Good	Poor	Good	Poor	Good
	Green	Poor	Poor	Poor		Good	Poor	Good	Poor	Good
	Blue	Poor	Poor	Good	Good		Poor	Poor	Good	Poor
	Violet	Poor	Poor	Good	Poor	Poor		Good	Good	Poor
	Black	Poor	Good	Good	Good	Poor	Good		Good	Poor
	White	Good	Good	Poor	Poor	Good	Good	Good		Good
	Gray	Poor	Poor	Good	Good	Poor	Poor	Poor	Good	

Design language

Do you know what this is?



Do you know what this is?

Do you know what this is?

What is a design language?

Systems of elements or resources that designers use to communicate and that users read.

These elements are building blocks that include shapes, colors, sounds, words, metaphors, and behaviors.

Rules and principles for using these elements complete the design language.

What is a design language?

A design language works in the same way that the rules of grammar works to construct phrases, sentences, and paragraphs.

This language forms a medium of communication between designers, clients, and users.

Designers write the design language; users read the design language.

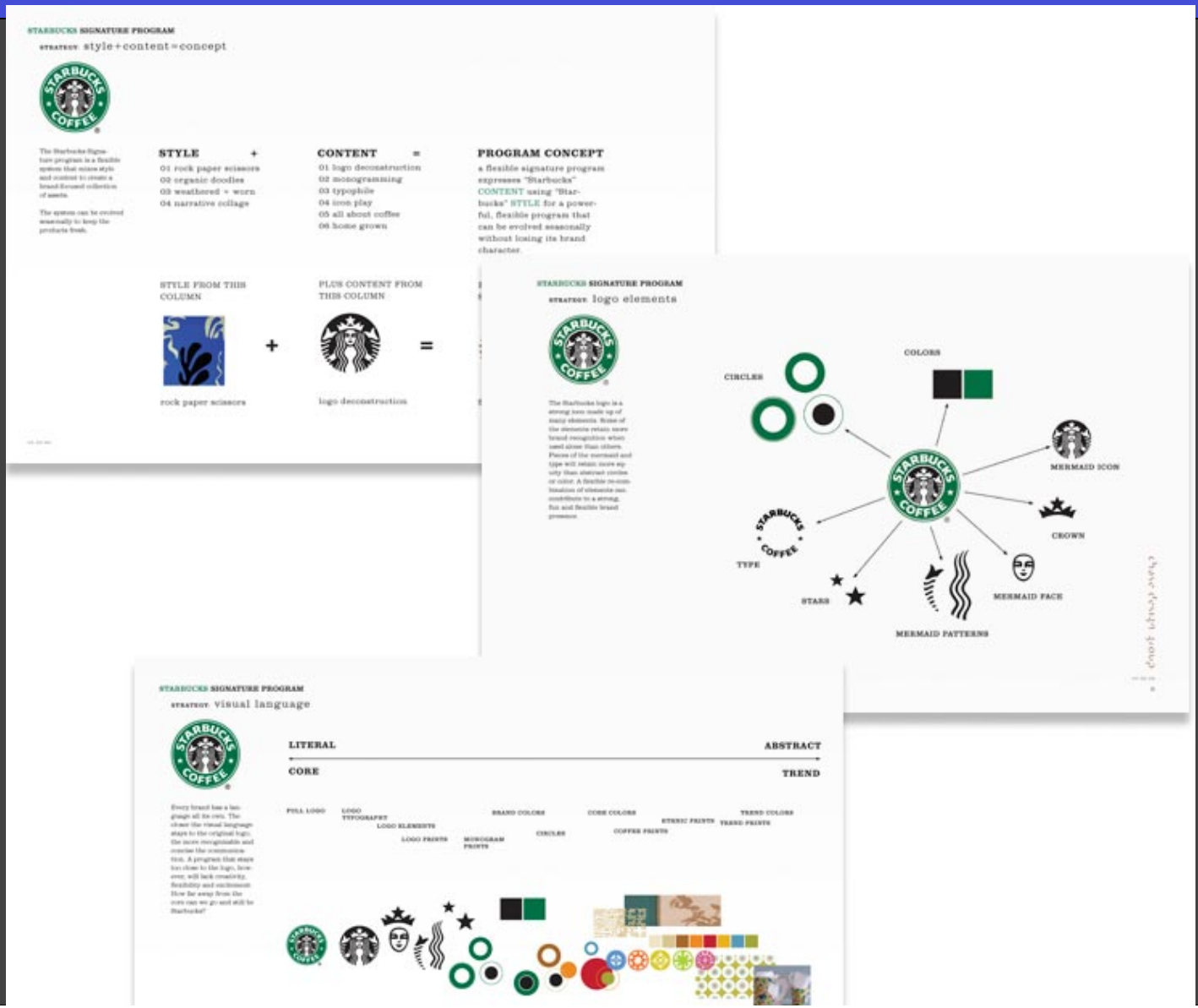
What is a design language?

When a design language is used, it is constantly evolving.

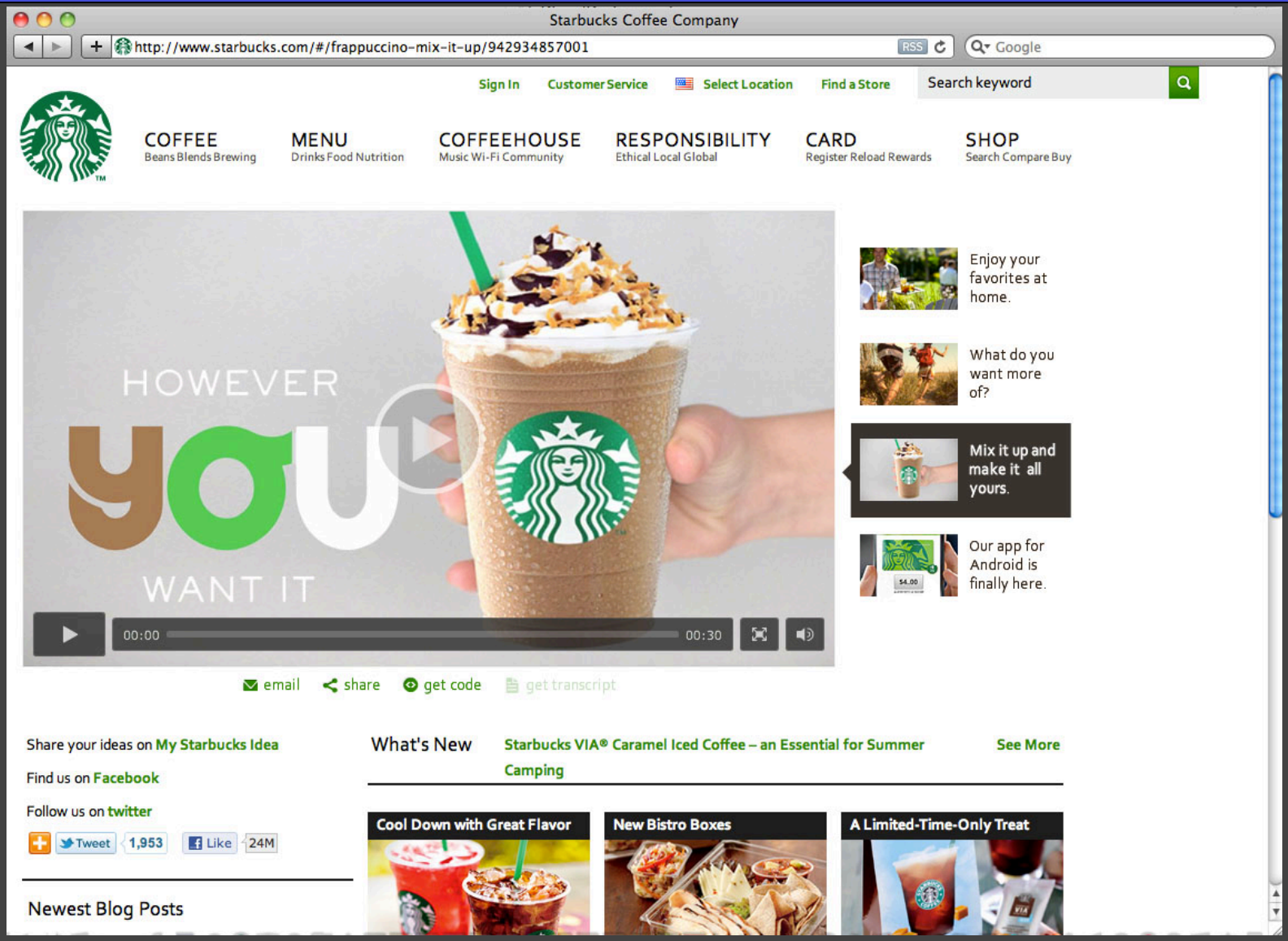
A design language can become a benchmark, a standard, or even a stereotype.

Case study: Starbucks

Case study: Starbucks



Case study: Starbucks



Case study: Starbucks

Interaction design

What is interaction design?

Interaction Design is the creation of a **dialogue between a person and a product, service or system**. This dialogue is usually found in the world of behavior, and deals with issues such as experience, time, complexity and emotion.

--Jon Kolko

Interaction design is the art of facilitating or instigating interactions between humans (or their agents), mediated by products.

--Dan Saffer

AT&T LTE
12:09 PM
88%
Messages
Calendar
Photos
Camera
Videos
Maps
Weather
Passbook
Notes
Reminders
Clock
Stocks
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Game Center
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Pages
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Navigation

Navigation is finding one's position in a place (an electronic information space). Navigation through software occurs at multiple levels:

- among multiple windows, views, or pages
- among panes or frames within a window, view or page
- among tools, commands, or menus
- within information in one pane (scrolling, panning, zooming, following links)

Reduce the number of places

Keep the numbers of windows and views to a minimum.

Keep the number of adjacent panes to ~3 (ex: two navigation areas and one content area).

Keep the numbers of controls to as few as users need for achieve their goals.

Scrolling should be minimized when possible.

Provide signposts

Provide points of reference so people can find their way around.

Rely on persistent objects (main navigation and controls, menu bars, toolbars, palettes).

Don’t forget use of white space and good typography.

Provide overviews

Overviews help to orient the user in content, just like signposts orient people in using functions and controls.

- Breadcrumbs
- Annotated scrollbars

Map controls to functions

Mapping describes the relationship between a control, the thing it affects, and the intended result.

Physical mapping (stove burners and controls)

Logical mapping (numerical, alphabetical, hierarchical, etc.)

Designing an interface system

Use a grid, and establish modular units

Use repeat elements to reinforce structure

Look at the set of information to discern commonalities from screen to screen

Look for elements that should be visually related

Think about how the user would navigate through and use the interface

Sketch, iterate, get user feedback, iterate, and refine

Basics of visual interface design

Steven Dow
HCI Institute
Carnegie Mellon University

November 2013

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Resources

General Design and Typography

• Carter, Rob, Meggs, Philip B., and Day, Ben. Typographic Design: Form and Communication.

• Meggs, Philip B. Type and Image: The Language of Graphic Design.

• Tufte, Edward. Envisioning Information.

• Tufte, Edward. The Visual Display of Quantitative Information.

Typography and Layout

• Schriver, Karen A. Dynamic Document Design: Creating Text for Readers

Resources

Color

- Albers, Josef. Interaction of Color.
- Itten, Johannes and Birren, Faber. The Elements of Color.

Visual Interface Design

- Mullet, Kevin and Sano, Darryl. Designing Visual Interfaces.
- Cooper, Reimann, and Cronin. About Face 3.

Resources

Web sites

General Design

Mundi Design
http://www.mundidesign.com/

Typography

Studiomotiv
http://www.studiomotiv.com/counterspace/

Color

Color research at Brown University:
http://www.cs.brown.edu/exploratory/

Web color

http://www.lynda.com/