

What you need to know about design – a short primer

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Goals of this session

- Explore issues 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?
- What is communication design?
- Typography and communication design
- Color and communication design
- Design composition, layout and systems
- Eye exercise
- What is interface design?
- Graphic systems
- Icon exercise
- Wrap-up

What is design, anyways?

Design matters!



Design matters!



What is design?

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

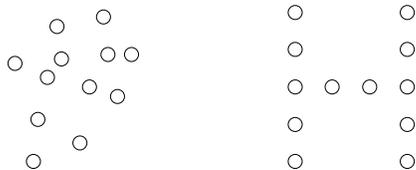
Design is a social and collaborative activity. Designers not only design the artifact, but are aware of the social and cultural systems within which the artifact is used.

All design is communication – messages transmitted from sender to receiver.

Communication design

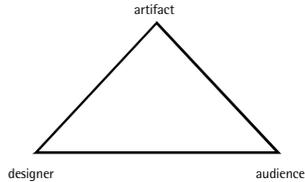
What is communication design?

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. When possible, we involve actual users in our design process.



What is communication design?

Phone Book

1193		PIECKA—PIERNO	
Pierce Frank E 313 ScottLn Vanta	724 941-1611	Pierce R M 1714 Penna	242-9022
Pierce Frank E 326 StonebrookDr	724 941-7452	Pierce Randy 3908 BarbaraDr Merrill	373-4068
Pierce G J 2046 Rindrooku	894-3950	Pierce Randy 955 Royalv Enclendy	724 224-1637
Pierce G T 1370 WashoutRd Mt abas	831-6854	Pierce Randy W 526 RivemondR	822-8121
Pierce Gary B 112 FredericLn LarkRf	724 335-8154	Pierce Raymond S 397 Vialapd	928-6823
Pierce Geo A 621 ChadysDr WWin	466-7636	Pierce Rex 515 Kistake Pgh	825-8197
Pierce Geo F 443 Lynay Brk	351-8390	Pierce Richd 23 Holbarn Crm	937-6173
Pierce Gloria J HighlndRst		Pierce Richd SoprdHlth Mononghla	394-3273
Pierce Greg 3312 Ward	682-2330	Pierce Richd C 2365 MorrowRd	854-1090
Pierce Gregory M 205 4th Brk	271-2579	Pierce Robt 106 Berry	928-6322
Pierce H M 1357 FouadDr Merrill	372-8864	Pierce Robt 413 VermontA Gasprt	644-9197
Pierce H N 241 OakLakeRd		Pierce Robt J 295 Yamoda Pnwrla	753-6265
Pierce Harold E 1927 NchltanRd	724 339-1665	Pierce Robt W 160 BrooklndR Ellctb	751-6570
Pierce Harold J 259 EvergladeDr Pnwrla	795-4820	Pierce Ryan M 195 Fernside Plnwrla	650-9964
Pierce Harry 3064 High Nymalts	724 226-1420	Pierce S 3004 SomersdRiv Fdjal	854-4166
Pierce Harry on 206 Ede Trm	724 226-0659	Pierce S 118 CambriandR Eder	724 224-6116
Pierce Harry J III 1838 ParksideR	886-9749	Pierce S 105 CambridgeR Hwks	724 274-0601
Pierce Heather J 606 Delair Nivard	823-7156	Pierce S 121 EgerAv Pgh	761-8691
Pierce Henry 161 Chesapeake Plnwrla	795-8988	Pierce S 6514 Swndr Apsilly	286-6548
Pierce Henry W 316 AronAv Mt abas	343-6529	Pierce S L 1301 James Mvrd	825-7578
Pierce Herbert Dr OaklndRd		Pierce Sally 302 Givtr Whtsdal	638-6948
Pierce Homer Sr 16 ShvHill Smith	724 339-2541	Pierce Sean P 408 FranklndR Plm	828-9477
Pierce J 2918 B LarkRv	678-8523	Pierce Sean M 642 Mercer TurfCA	829-9480
Pierce J 359 JunitaCl Chld	809-6785	Pierce Service Co 216 Crd Crm	233-8513
Pierce J Fred 494 New FossilRd Plnwrla	795-6427	Pierce Shaun J 1133 Soneta	734-0522
Pierce J G 1370 WashoutRd Mt abas	831-8654	Pierce Shirley M 610 FallsChasRd	794 606-1600

What is communication design?

London Underground



What is communication design?

UPS Logo



What is communication design?

Coca-Cola



What is communication design?

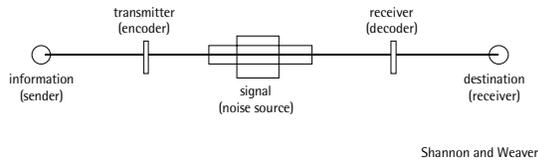
OXO Goodgrips



Information and communication

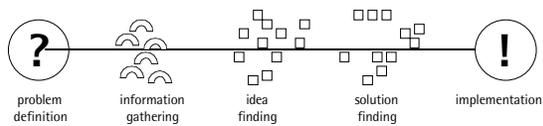
Information is knowledge about facts and events, and communication is the transfer of knowledge between people.

Basic theory of communication:



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 correct solution is generated and implemented. The design process is not linear, but iterative.



Problem definition

Understand and define the problem, including audience, project goals and objectives, and constraints (time, budget, production limitations).

Information gathering

Fact finding about the end user, the client, the landscape of competitive products, how other designers have solved similar problems, and surveying the context in which the product will function.

Idea finding

Each design problem has many solutions. Designers brainstorm a wide search, then iterate by vertical and lateral thinking, representing and communicating this process by making sketches and notes.

Solution finding

The process of narrowing in on one of the many ideas to execute in a finished form. It is possible to involve users again at this point, to gain reactions to what might be.

Implementation

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

Typography and communication design

Typography

Our civilization is based on the alphabet and numerals. These are learned systems, which have enabled advances in science and literature.

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

The designer structures typographic information by giving the units assigned roles, and creating spatial relationships which communicate the message and enhance legibility and readability.

Anatomy of a typeface

A typeface is a set of type families of a unifying and distinctive design (for instance, Times Roman), and a font is one instance of that family (Times Roman light italic).

All typefaces share a basic anatomy.

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

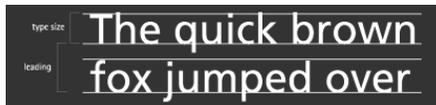
Anatomy of a typeface

There are two kinds of type, serif and sans serif. A type family consists of a group of typefaces unified by a similar set of characteristics.



Anatomy of a typeface

Relationships between type and the space around it is what makes paragraphs look different: size of x-height, type size, leading, and line length. Two key features of legibility are line length and leading.



Text has different alignments: flush left, flush right, centered, and justified.

Type "etiquette"

- leading is expressed as two numbers: 10/12
- tight leading makes long bodies of text hard to read
- 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
- line length is the distance between the left and right margin of the type
- long lines of type (>70 characters) are hard to read
- very short lines break up text into non-syntactic groups of 2-3 words

Type "etiquette"

experiences.

The quality of experiences has been explained through the consumer lifestyles that help to make sense of what people do, and what doing it means to them and others. These responses and choices are concerned with ethical and aesthetic significance - ways of living that are fundamental to a sense of identity. On a deeper level consumers' life worlds and life goals explain their "emotional experiences, practical knowledge, and their intuitive understanding of cultural and aesthetic way of life" (Thompson 1998).

Type "etiquette"

- Sense breaks
- Widows and orphans
- Multiple hyphens
- Curly quotes
- Tracking and word spacing

Making decisions about type

- Begin the design process by taking inventory of text elements you need (ex: head, subhead, footnotes).
- 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 (white letters on a black or colored background) 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 still problematic. Many of the same rules of printed text apply, with new variables :

- The "jaggies" (anti-aliased text) is hard to read on screen
- Users have to scroll to read long texts
- "Times square scrolling" drastically slows reading rates
- RSVP presentation is not detrimental to reading speed
- Presenting text on the screen in a way that mimics reading structure (phrasing) may increase performance

Color and communication design

Color matters!



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
- 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

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.

Intensity

Intensity is sometimes called chroma, or saturation. 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
- High key/low key
- Warm /cool
- Triads
- Monochromatic
- Neutrals
- Complements/split complements
- Analogous

Color examples

- black and neutral values
<http://www.refuge.amnesty.org.htm/home.htm>
powerful combination of color and image for emotional effect
- cool colors
<http://www.bodymedia.com>
mostly cool colors, accentuated by brief uses of warm color for contrast
- triads
<http://www.sixsides.com>
use of triad palette is color strategy
- color as navigation
<http://www.lacountyarts.org/default.htm>
color is used as navigational aid
- color as information
<http://www.smartmoney.com/marketmap>
color is used to represent information at a glance
- color as product
<http://www.apple.com>
iMacs have changed the face of computing based on color

A word about digital color

Digital color and physical color are not the same.

- Print color uses CMYK or Pantone representations of color, and occasionally RGB.
- Digital color is usually represented as RGB values. A color image may be stored as three separate images, one for each of red, green, and blue, or each pixel may encode the color using separate fields for each color component.

A word about digital color

A color look-up table (CLUT) is a tool which converts the color numbers stored in each pixel to physical RGB colors for display on the screen. The output is split into red, blue and green light generated by the computer display (CRT).

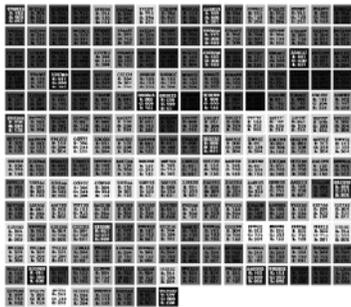
Web safe color

The web safe palette is the Netscape and Internet Explorer browser palette.

The palette contains 216 out of 256 colors. That is because the remaining 40 colors vary on Macs and PCs. The palette is optimized for cross-platform use.

The palette is useful for flat-color illustrations. It should not be used to remap color photographs. Use an adaptive palette (with no dithering, if possible).

Web safe color



Design composition, layout, and systems

Simplicity in composition

People seek order and clarity in communication and spaces.

They appreciate solutions that solve problems in a clear, economical fashion.

Good communication design is simple.

Simplicity in composition

The functional and aesthetic benefits of a simple design are

- Approachable – use immediately
- Recognizable – easy to assimilate and remember
- Immediate – have a greater impact on the viewer
- Usable – prominent, easy to engage with

How to do it?

Creating a simple and usable design is about assessing component parts of a design and the relationship between those parts. Train your eye to look for these relationships:

- Reduction
- Regularization
- Scale, contrast and proportion
- Harmony
- Alignment
- Proximity and correspondence
- Symmetry and asymmetry

Reduction

Reinforce the message by removing non-essential elements from the design. Ask yourself, is this (rule line, bolding, etc.) needed? Then try to remove it anyways. Does the design stand up?

Regularization



Establishing regular relationships (i.e., a pattern) allows the viewer to become comfortable with the design and move to a higher level of abstraction.

Scale, contrast, and proportion



The scale of elements determines where the viewer looks first, and what is most important. Large, powerful visual elements must be used judiciously, particularly in interface design.

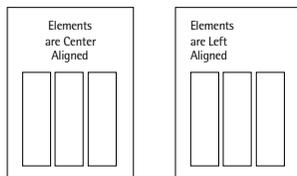
Harmony



Harmony describes the effect, seen at the level of the whole, of the pleasing interaction of the parts.

Alignment

When forms, their edges, or their central axes align with one another, relationships and connections between them are established.



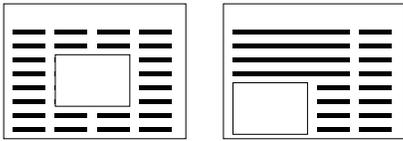
Proximity and correspondence

When forms are near to each other, the eye makes visual groupings of the information. Similar size, shape, color or texture can also cause groupings.

13 1 3 21 37 21 37

Symmetry and asymmetry

Symmetry is similarity of form or arrangement on either side of a dividing line or plane. A symmetric organization symbolizes a restive state, while asymmetry suggests energy. Content drives designers' choices about symmetry.



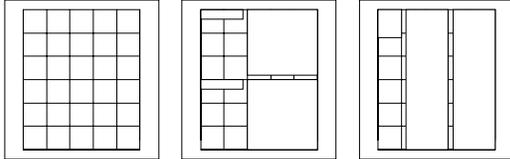
Design programs

A design program is a comprehensive system of organization, utilizing repeated sizes, proportions, and design elements to maintain consistent functional and aesthetic qualities over a series of pages, screens, or artifacts.

Elements such as type sizes, styles, placement of elements, and colors are used consistently to unify a series of designs.

Design programs

Design programs are based on grid systems.



Design programs

Grid systems allow the layout to be codified across a series of pages, displays, etc.

Grid systems are based on columns and rows.

The more columns and rows, the more flexible the design.

Design programs

When a grid system is put to good use, it will create a regular and rhythmic design.

Consistent use of a grid, paired with visual elements, will create a consistent "look and feel" in a manual, web site, or GUI.

Design programs

Why is it good to have a design program?

- Structured: the foundation on which the design is built
- Predictable: simplifies the task of communicating information to the user
- Efficient: the basic design work is complete, and the design can be repeated easily

Grid exercise

Creating a design program

- Assess your communication goals. Where will the information be displayed? Who is the audience? What is the purpose of the communication?
- Group each item of information into a small number (5-7) of categories according to origin or intended use.
- Determine the rank or importance of each group. Organize into a smaller number (3-5) of echelons based on this ranking.

Creating a design program

- Use appropriate variables to establish hierarchy. Large, bold type might be used for the most important information. A systemic location on the grid might be reserved for pictures.
- Use a grid to base your designs on.
- Use the squint test to make sure echelons are hanging together as a unit, but with enough difference to be visually separated from each other.

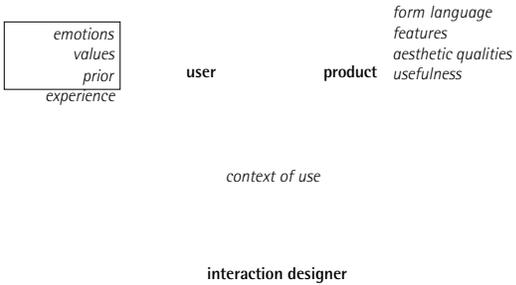
What is interface design?

What is interface design?

An interface is the link between a product and its user. It communicates how a product is used, and creates an experience for the people who use it.

An interface is an aggregate of characteristics that a user initially engages with in order to make use of a product.

What is interface design?



What is interface design?

An interface offers the user a story of use. If it matches how the user thinks, it is easy to use.

If the product is complex, inaccessible, unlearnable, or unfamiliar, the user will not be able to use it.

What is interface design?

Interface design is the act of conceiving of, planning, and executing a set of product characteristics. For example:

- A car's interface is its dashboard, door handles, etc.
- The Starbuck's interface is the music, furniture, cups, space, and coffee products that are sold there.
- A software interface is the buttons, widgets, and modes of interaction.

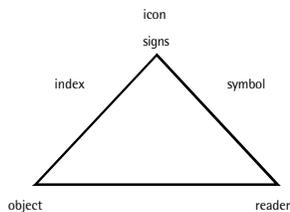
Designing an interface system

- 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

Graphic signals

Graphic symbols

Semiotics is the general theory of signs and sign-using behavior. It helps designers to understand how graphic symbols communicate to an audience.



Graphic symbols



There are four basic types of graphic signals:

- Signs
- Indexes
- Symbols
- Icons

Signs

A +

A sign is a mark or language unit that stands for or denotes another thing.

It forms a direct, one-to-one relationship between the mark and the actual thing.

Index

An index has a factual or causal connection that points toward the object.

Wet streets are a sign that it has rained recently; smoke is an index pointing towards fire.

Symbol



A symbol has an arbitrary relationship between the signifier and the thing signified.

An olive branch is used as a symbol for peace.

So is the peace sign.

Icon

An icon resembles the thing it represents. A picture, a photograph, or a diagram are all icons, because they imitate or copy aspects of the thing they represent.



Icons have been used in graphical user interfaces since the Xerox Star system.

Icons

On the computer, icons were originally designed to represent physical objects – files, printers, file folders. In current OSs, they also represent tools and functions.

Nouns are easier to represent with icons than verbs.

Research shows that the most effective interpretations of icons happen when image is combined with text.

Icons

A good icon must do two things: effect quick initial recognition of the image and fast recall of the image.

The best icon is simple and uncluttered: a common representation of the object.

Test those icons!

Icon exercise

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.
- Howlett, Virginia. Visual Interface Design for Windows.

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/>
