Visual Literacy and Information Design

Domenic Screnci, Ed.D.
Executive Director
Educational Technology, Training and Outreach
Information Services and Technology
Boston University
Black and White Exercise

- When you think about the color “White” what comes to mind?
- When you think about the color “Black” what comes to mind?
White

White, an inherently positive color, is associated with purity, virginity, innocence, light, goodness, heaven, safety, brilliance, illumination, understanding, cleanliness, faith, beginnings, sterility, spirituality, possibility, humility, sincerity, protection, softness, and perfection.

The color white can represent a successful beginning. In heraldry, white depicts faith and purity. As the opposite of black, movies, books, print media, and television typically depict the good guy in white and the bad guy in black.

The color of snow, white is often used to represent coolness and simplicity. White’s association with cleanliness and sterility is often seen in hospitals, medical centers, and laboratories to communicate safety. The color white is also associated with low-fat foods and dairy products.

To the human eye, white is a bright and brilliant color that can cause headaches. In cases of extremely bright light, the color white can even be blinding.

Throughout the western countries white is the traditional color worn by brides, to signify purity, innocence, and virginity. In eastern countries, the color white is the color of mourning and funerals. In certain cultures, white is the color of royalty or of religious figures, as angels are typically depicted as wearing white or having a white glow. A white picket fence surrounds a safe and happy home.

The color white affects the mind and body by aiding in mental clarity, promoting feelings of fresh beginnings and renewal, assisting in cleansing, clearing obstacles and clutter, and encouraging the purification of thoughts and actions.
Black

Black is associated with power, fear, mystery, strength, authority, elegance, formality, death, evil, and aggression, authority, rebellion, and sophistication. Black is required for all other colors to have depth and variation of hue.

The black color is the absence of color. Black is a mysterious color that is typically associated with the unknown or the negative. The color black represents strength, seriousness, power, and authority. Black is a formal, elegant, and prestigious color. Authoritative and powerful, the color black can evoke strong emotions and too much black can be overwhelming.

In heraldry, black is the symbol of grief. The color black can be serious, professional, and conventional, but black can also represent the mysterious, sexy, and sophisticated. Black is a visually slimming color for clothing and like other dark colors, in interior design, black can make a room appear to shrink in size.

The color black affects the mind and body by helping to create an inconspicuous feeling, boosting confidence in appearance, increasing the sense of potential and possibility, or producing feelings of emptiness, gloom, or sadness.

In western countries black is the color of mourning, death, and sadness. Black often represents the emotions and actions of rebellion in teenagers and youth. The color black can represent both the positive and the negative. As the opposite of white, movies, books, print media, and television typically depict the good guy in white and the bad guy in black. In more recent times, the good guy is shown in black to create mystery around the character’s identity.
Other meanings associated with the color black:

- The phrase “black tie” refers to a formal event or dress code.
- The saying “pitch black” references no light or no visibility.
- The term “black-hearted” describes an evil person.
- A “black belt” is an expert level in martial arts.
- The expression “blackwash” is to bring things out in the open.
- The phrase “in the black” refers to having money or profiting and doing well in business.
- A “black box” is a piece of equipment or apparatus usually used in airplanes.
- A “black eye” is damage to an eye, including bruising and discoloration, or damage to one’s reputation.
- A “black sheep” is an outcast from a family or from society.
- The expression “men in black” refer to government agents.
- A “blacklist” is a list of people or organizations to boycott, avoid, or punish.
- The term “blackguard” is used to reference a bad guy or a scoundrel.
- The word “blackmail” refers to obtaining something by threat.
- The word “blackout” means a loss of electricity, loss of visibility, turning out the lights, loss of consciousness, or the act of erasing or deleting something.
- The phrase “black market” refers to the illegal trade of goods or money.
Cultural Perspectives
Cultural Perspectives
Why learn about Visual Literacy?
- Our students predisposition

Information Density and Efficiency
- Information is increasingly being represented and perceived in visual terms
  - Media
  - Technology
  - Globalization
  - Etc.

Better Understand and Use Visual Disciplines to Achieve Our Objectives (Learning, Communication, Business etc.)
- Graphic Design, Illustration, Photography, Information Design, etc.
Visuals Produced Yearly

- Information Graphics
  - Tufte - 900 billion to 2 trillion are published annually worldwide.
  - TV and Computers = 1.4 to 3 Trillion

- Visual Age

  "Show me Don’t Tell Me"

  Tim Harrower

  The Newspaper Designer’s Handbook
Visual Literacy - The ability to understand, create and use visual images; to think and learn in terms of images

Visual Literacy: A Spectrum of Visual Learning
Moor & Dwyer, 1994
Visual Literacy & Information Design

**Visual Rhetoric:**

Refers to conveying information through the visual aspect of a document presentation rather than through its verbal aspect.

- Document design
- Use of graphics
- Visual depiction of data

**“The Perfectly Designed Document”**

- Is Rare
- Rarely a result of a single brilliant moment
- Result of User-Testing
- Series of Drafts and Revisions
Verbal - Visual Continuum

- Pure verbal
- Emphasized verbal
- Verbal with visual cues
- Verbal/visual balance
- Visual with verbal cues
- Emphasized visual
- Pure Visual

Wileman's Typology
Visual Literacy & Information Design

Amount of Learning

High

Low

Unrealistic  Moderate  Highly Realistic

Francis M. Dwyer, Strategies for Improving Visual Learning, State College, PA: Learning Services, 1978, p. 33
Visual Literacy & Information Design

Amount of Learning

Unrealistic  Moderate  Highly Realistic

Francis M. Dwyer, Strategies for Improving Visual Learning, State College, PA: Learning Services, 1978, p. 33
Visual Literacy & Information Design

Pre-attentive Processing

- **Form**
  - Line Orientation
  - Line Length
  - Line Width
  - Collinearity
  - Size
  - Curvature
  - Spatial Grouping
  - Added Marks
  - Numerosity

- **Color**
  - Hue
  - Intensity

- **Motion**
  - Flicker
  - Direction of Motion

- **Spatial Position**
  - 2D Position
  - Stereoscopic Depth
  - Convex/Concave Shape from Shading
Visual Literacy & Information Design

Visual Attention

Orientation  Curved/Straight  Shape
 Shape  Size  Number
 Gray/Value  Enclosure  Convexity/Concavity
 Addition  Juncture  Parallelism

Information Visualization: Perception for Design, Colin Ware, 2000
Balance

- Most important psychological as well as physical influence on human perception

- **Equilibrium** - is the strongest and firmest visual reference

- **Horizontal - Vertical** construct is the basic relationship that man has to his environment.
Gestalt Psychology

- Balance
- Stress
Balance
Balance of Elements

Symmetry

Asymmetry

Asymmetry
Visual Literacy & Information Design

**Gestalt Psychology**

- The whole is greater than the sum of its parts

- Research and experimentation in the areas of “Perception”

- Investigating and searching the significance of:
  - Visual Patterns
  - How the human organism sees
  - Organizes visual fields
  - Articulates visual output

“The eye is blind if the mind is absent.”

-Italian proverb
Figure - Ground

- Figure - Ground is a Selective Process
- Part of the Perception Process
Gestalt Psychology

Scanning a Visual Field

Preference for the Lower Left
Scanning and Preference
Gestalt Principles

- Proximity
- Similarity
- Continuity
- Closure
Proximity

The closer two or more visual elements are, the greater the probability that they will be seen as a group or pattern.
Proximity

Visual elements that are similar in shape, size, color, etc. tend to be seen as related.

Similarity

Visual elements that are similar in shape, size, color, etc. tend to be seen as related.
Proximity
Gestalt Grouping

- Grouping & Similarity

Shapes

Patterns

Positive/Neg.
Similarity
Similarity
Closure

- Nearly complete familiar lines and shapes are more readily seen as complete (closed) than incomplete lines and shapes.

Closure Facilitates Grouping

Symmetry Facilitates Grouping
Closure

Creation of Adam
Michelangelo
Continuity

Visual elements that require the fewest number of interruptions will be grouped to form continuous straight or curved lines.
Continuity
Continuity
Continuity
Positive = Dominant Field  Negative = Passive Field
Object Relationship

Dark Element/Light Background Contract
Use of Graphic Design

- Control Eye Movement
- Define
- Focus
- Direct
- Compare
- Map
- Depth
- Dimension

- Size
- Group
- Organize
- Correlate
- Detail
- Evoke Emotions
- Etc.
Color

- Color Creates Instant Impact
- It is a vital part of the image or impression created
- Captures attention before the composition or form is completely distinct
- Colors used to
  - Identify
  - Find
  - Simplify
  - Organize
What is your color preference?
Use of Color

- Color Preference Research
  - Blue
  - Red
  - Green
  - Violet
  - Orange & Yellow – Yellow & Orange
    - Higher Grades vs. Lower Grades
Color

Le Courrier du Livre research on legibility at a distance

- **Most Legible**
  - Black on Yellow
  - Green on White
  - Red on White
  - Blue on White
  - White on Blue
  - Black on White
  - Yellow on Black
  - White on Red
  - White on Green
  - White on Black
  - Red on Yellow
  - Green on Red
  - Red on Green
**Cultural/Historical Significance of Color**

- **White**  
  - Light, Triumph, Joy, Innocence

- **Black**  
  - Darkness, Mourning,

- **Yellow**  
  - Light, Divine, Enlightenment, Understanding

- **Red**  
  - Love, Valor, Energy, Fire

- **Blue**  
  - Truth, Wisdom, Divine Eternity, Human Immortality

- **Purple**  
  - Royalty, Dignity

- **Green**  
  - Nature, Fertility, Adaptability, Prosperity, Hope
Color

Color and Human Response

- Emotional
  - Warm Colors – Cold Colors
  - Color and Space
  - Color - IQ, Alertness and Creativity:
    - Light Blue, Yellow, Yellow-Green, and Orange = Greatest
    - Black and Brown = Dullness

- Physical
  - Attention
    - Hotter – Brighter = More
    - Cooler – Darker = Less
Color Impact
What can the Wall Street Journal teach us about information graphics?

http://www.perceptualedge.com/blog/?p=707
A PERIODIC TABLE OF VISUALIZATION METHODS

<table>
<thead>
<tr>
<th>Cy</th>
<th>Process Visualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hy</td>
<td>Structure Visualization</td>
</tr>
<tr>
<td></td>
<td>Overview Detail</td>
</tr>
<tr>
<td></td>
<td>Detail AND Overview</td>
</tr>
<tr>
<td></td>
<td>Divergent thinking</td>
</tr>
<tr>
<td></td>
<td>Convergent thinking</td>
</tr>
</tbody>
</table>

Note: Depending on your location and connection speed it can take some time to load a pop-up picture.

© Ralph Langley & Martin J. Spiliot. www.visual-literacy.org

http://www.visual-literacy.org/periodic_table/periodic_table.html
Visual Literacy Bibliography
