Visual Design Principles

Lecture 10

Outline

- Building Blocks of Visual Design
- Principles of Visual Interface Design
- Principles of Visual Information Design
- Presentation Perception
- Values of Standards

Building Blocks (1)

- Shape
- Size
  - How big or small
- Value
  - How light or dark
- Hue (color)
  - Best used judiciously

Building Blocks (2)

- Orientation
  - Can convey directional information
  - Up, down, forward, backward
- Texture
  - Rough, smooth
  - Ridges, bumps, edges
- Position
  - Relative to other items

Principles of Visual Interface Design

- Avoid visual noise and clutter
- Use contrast, similarity, and layering
- Provide visual structure and flow
- Use cohesive, consistent, and contextually appropriate imagery
- Integrate style and function comprehensively and purposefully

Avoid Visual Noise & Clutter

- Clutter is often a result of excess functionality in constrained space.
  - Cram too many controls in a single dialog
- The result raises the cognitive load on the user (to figure out what needs to happen)

Use Contrast,Similarity, and Layering

- Dimension, tone & spatial contrast
  - Controls should visually stand out
  - Shade, hue, saturation can be used to highlight control regions
- Layering
  - Shading can produce the visual effect of layers
- Figure/Ground
  - We tend to perceive brighter objects as figure, darker areas as ground

Provide Visual Structure and Flow

- Alignment Grids and Logical Path
  - Align labels - left justified
  - Align within controls - related groups (check boxes, radio buttons, text fields) should be aligned on a grid.
  - Align across controls - control groups should be aligned similarly
  - Use regular grid for larger elements.

Use Cohesive, Consistent, and Contextually Appropriate Imagery

- Function oriented icons
  - Represent both the action and the object (verb and the noun)
  - Beware of unintended meanings
  - Keep icons simple, avoid unnecessary visual detail
  - Group related functions

Use Cohesive, Consistent, and Contextually Appropriate Imagery

- Associating visual symbols to objects
  - Reuse icons/symbols so a user only learns them once
  - Visually distinguish elements that behave differently
- Visualize behavior
  - Instead of description, show the user the action - provide direct feedback for controls

Principles of Visual Information Design (1)

- Enforce visual comparisons
  - Provide context, trends, before and after
- Show causality
  - Implications based on data
- Show multiple variables
  - Allow users to select which variables to show
- Integrate text, graphics and data
  - Figures, graphs, charts should show labels

Principles of Visual Information Design (2)

- Ensure the quality, relevance and integrity
  - Make sure that information is relevant to task
- Show adjacency space, not stacked time
  - Timelines, sequences
- Do not de-quantify quantifiable data
  - Display the numbers when relevant

Fundamental Concepts

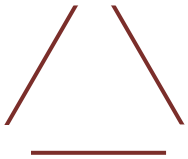
- Perception of Information
  - The way the cognitive system groups, clusters, organizes what is seen, heard, smelt, felt …
- Interpretation of Information
  - How users come to understand the relevant groupings by their perceptual system
- Making Sense of Information
  - How users relate the information they see to their current tasks

Perception of Information

- Gestalt Perception
- Organization in User Interface

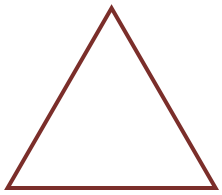
Perception of Information

- Gestalt Perception



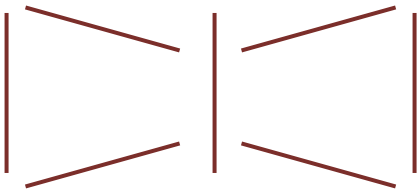
Perception of Information

- Gestalt Perception



Perception of Information

- Gestalt Perception



Perception of Information

- Gestalt Perception
  - Proximity
  - Similarity
  - Closure
  - Area
  - Symmetry
  - Continuity

Perception of Information

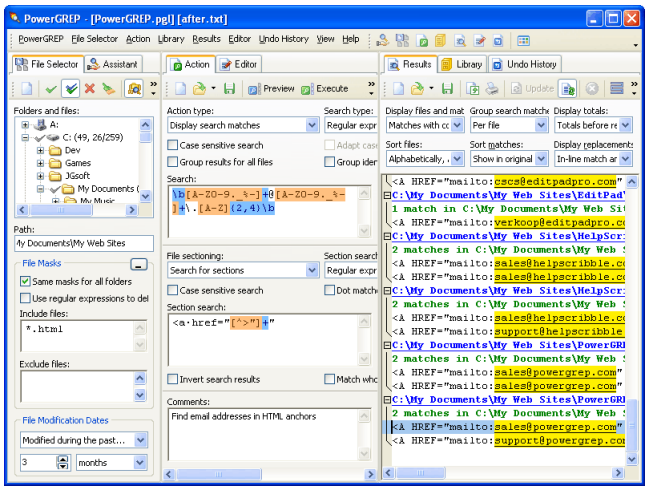
- Organization in User Interface
  - Gestalt goes a long way
  - Perceptual groupings
    - Boxes and line separation
    - Tabbed panes
    - Effective use of white space
    - Grid based design
  - Common problems
    - Overcrowding
    - Applying too many cues - highlighting, color, font

Perception of Information

How many cues can you use an once?

Overcrowding at its best?

Or is this at its worst?

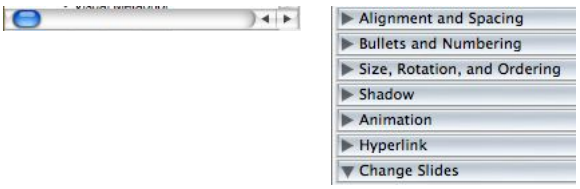


Interpretation of Information

- Familiarity
- Realism & Refinement
- Affordances

Familiarity

- Users come to understand a common use for a visual element.

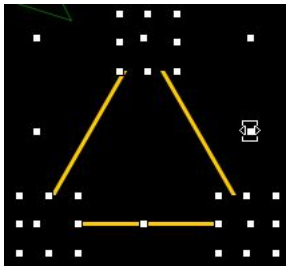


Realism & Refinement

- People are very accurate at recognizing real imagery - but it is expensive (time, storage)
- Refined visual elements, like signage, is economical, but sometimes too abstract

Affordances

- An affordance is some aspect of an object (digital or physical) that makes it obvious how it is to be used.



Information Sensemaking

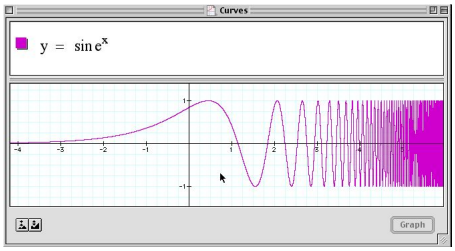
- Consistency
- Visual Metaphor
- Dynamic Display

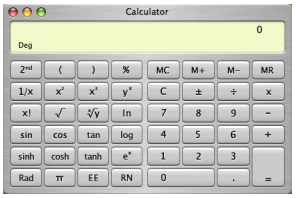
Consistency

- Similar graphic elements are used in the same (or similar) way across different displays (and applications)
  - Users are better able to understand and interpret the elements

Visual Metaphor

- Part of providing consistency
  - Use something similar to motivate the digital design

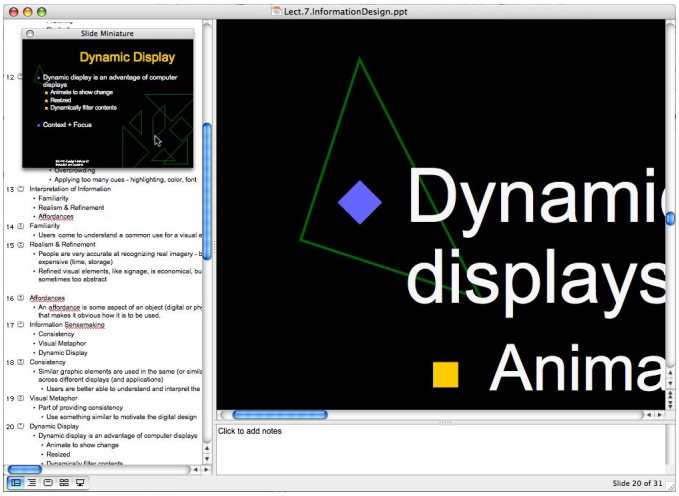




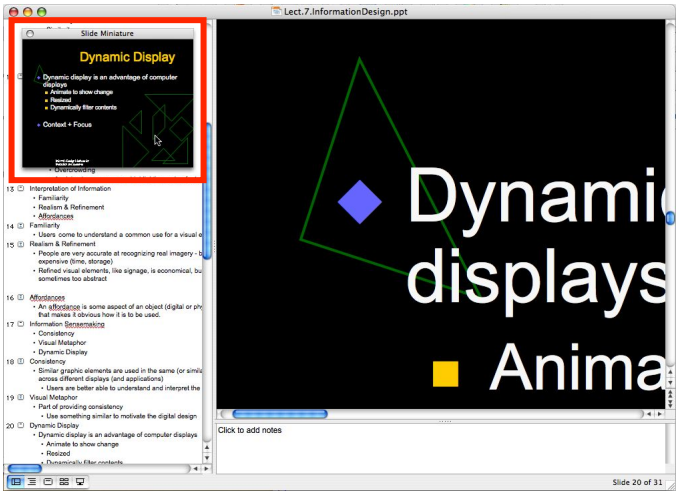
Dynamic Display

- Dynamic display is an advantage of computer displays
  - Animate to show change
  - Resized
  - Dynamically filter contents
- Fisheye Views
- Multiple Coordinated Views
- Focus + Context (radar view)

Dynamic Display



Dynamic Display



Consistency and Standards (1)

- Benefits of interface standards
  - Allows users to learn interface more quickly
- Risks of interface standards
  - Standards may not fit new applications/domains
- Standards, guidelines and rules of thumb
  - More like guidelines, that should be adapted

Consistency and Standards (2)

- When to violate guidelines
  - Follow, except when there is a better alternative
- Cross applications
  - Helps branding, learnability