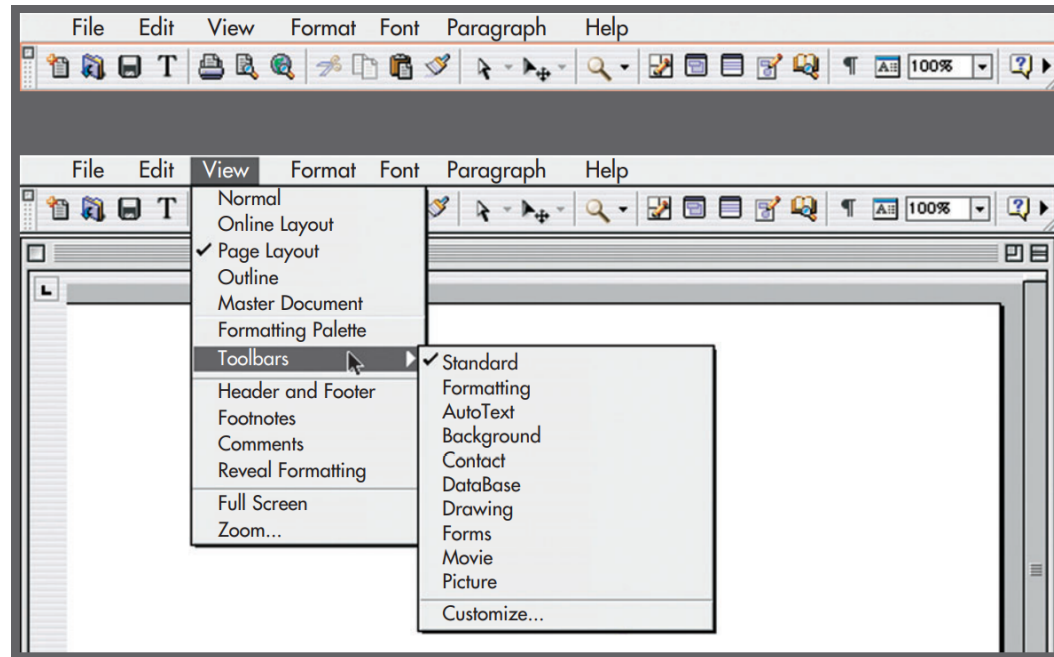


User interface design

I. User Interface Design Principles

80/20 Rule

The Pareto Principle, or **the 80/20** rule as its also known, is a productivity hack of sorts. The idea behind it is: 80% of the effects of any given process come from 20% of the effort put into it.



Graphical user interfaces conceal most of their functions in drop-down menus (bottom image). This reduces the complexity of the display, but also makes frequently used functions more difficult to access. Identifying the critical 20 percent of the functions and making them readily available in toolbars solves the problem (top image).

A high percentage of effects in any large system are caused by a low percentage of variables

Accessibility

The principle of accessibility asserts that designs should be usable by people of diverse abilities, without special adaptation or modification. Historically, accessibility in design focused on accommodating people with disabilities. As knowledge and experience of accessible design increased, it became increasingly clear that many required “accommodations” could be designed to benefit everyone. There are four characteristics of accessible designs: **perceptibility, operability, simplicity, and forgiveness.**

Designing for users with anxiety

Do...	Don't...
give users enough time to complete an action	rush users or set impractical time limits
explain what will happen after completing a service	leave users confused about next steps or timeframes
make important information clear	leave users uncertain about the consequences of their actions
give users the support they need to complete a service	make support or help hard to access
let users check their answers before they submit them	leave users questioning what answers they gave

Home Office

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ukhomeoffice.github.io/accessibility-posters/posters/accessibility-posters.pdf

Objects and environments should be designed to be usable, without modification, by as many people as possible.

Advance Organizer

Advance organizers are brief chunks of information—spoken, written, or illustrated—presented prior to new material to help facilitate learning and understanding.

They are distinct from overviews and summaries in that they are presented on a more abstract level than the rest of the information—they present the “big picture” prior to the details. Since the technique depends on a defined entry point, it is generally applied to linear presentations (e.g., traditional classroom instruction), and does not work as well in nonlinear, exploratory learning contexts (e.g., freeplay simulation).

There are two kinds of advance organizers: **expository and comparative**

Subject:

Classify the items derived from the main topic:

Category 1 & Examples

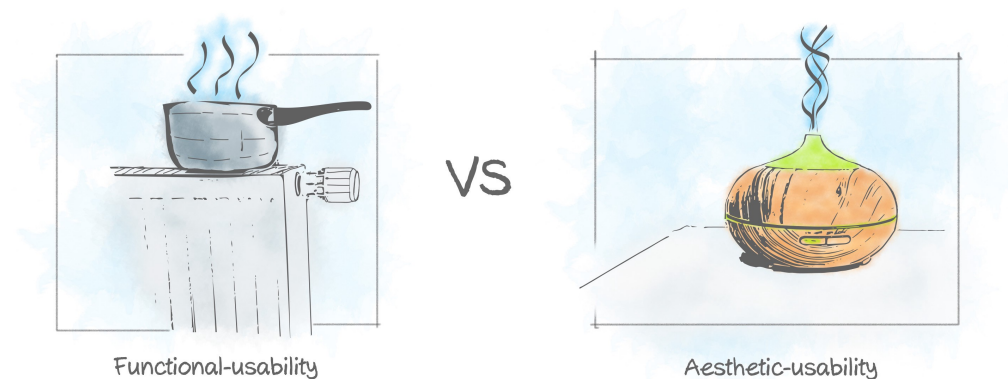
Category 2 & Examples

Category 3 & Examples

Aesthetic-Usability Effect

The aesthetic-usability effect describes a phenomenon in which people perceive more-aesthetic designs as easier to use than less-aesthetic designs.

Aesthetic designs, in general, look easier to use and have a higher probability of being used, whether or not they actually are easier to use. Whereas, more usable but less-aesthetic designs may suffer a lack of acceptance that renders issues of usability debates.

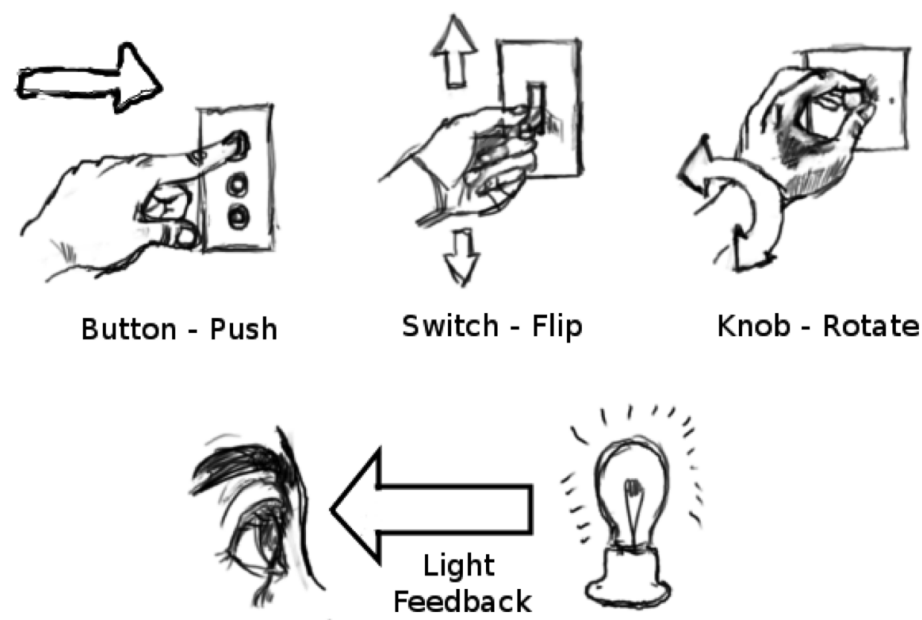


Affordance

Affordance is the relationship between what something looks like and how it's used. For designers, it means that as soon as someone sees something, they have to know how to use it.

For example, a mug has high affordance: it's easy to figure out intuitively how to use it.

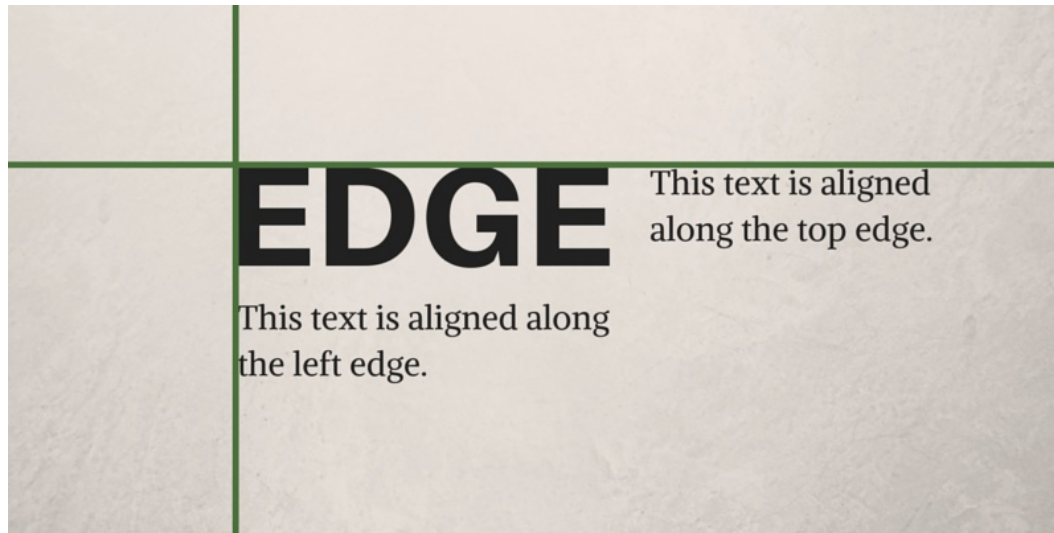
- Objects and environments are better suited for some functions than others.
- Round wheels are better suited than square wheels for rolling; therefore, round wheels are said to better afford rolling.
- Stairs are better suited than fences for climbing; therefore, stairs are said to better afford climbing.



Alignment

Alignment is an important principle of design. It helps create a sharp, ordered appearance for ultimately better designs by ensuring your various elements have a pleasing connection with each other.

- Elements in a design should be aligned with one or more other elements.
- This creates a sense of unity and cohesion, which contributes to the design's overall aesthetic and perceived stability.



Closure

The principle of closure states that when we look at a complex arrangement of visual elements, we tend to look for a single, recognizable pattern.

- Whenever possible, people tend to perceive a set of individual elements as a single, recognizable pattern, rather than multiple, individual elements.
- The tendency to perceive a single pattern is so strong that people will close gaps and fill in missing information to complete the pattern if necessary.
- The principle of closure enables designers to reduce complexity by reducing the number of elements needed to organize and communicate information.

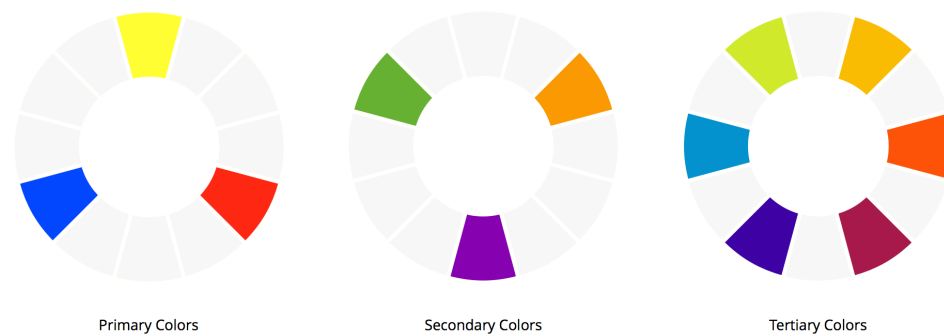


▼ Elements in text and graphics can be minimized to allow viewers to participate in the completion of the pattern.

Color

The basic principle of the color wheel starts with three primary colors – red, yellow and blue.

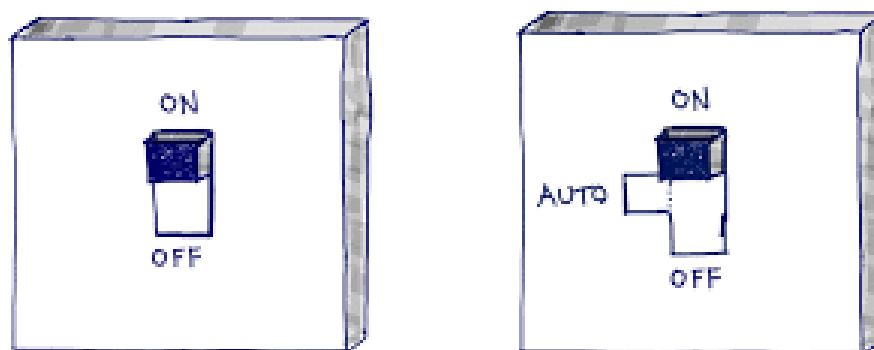
- Limit the palette to what the eye can process at one glance (about five colors depending on the complexity of the design).
- Achieve aesthetic color combinations by using adjacent colors on the color wheel (analogous), opposing colors on the color wheel (complementary), colors at the corners of a symmetrical polygon circumscribed in the color wheel (triadic and quadratic), or color combinations found in nature.



Consistency

Consistent design is intuitive design. It is highly useful and makes the world a better place. In short, usability and learnability improve when similar elements have consistent look and function in similar way.

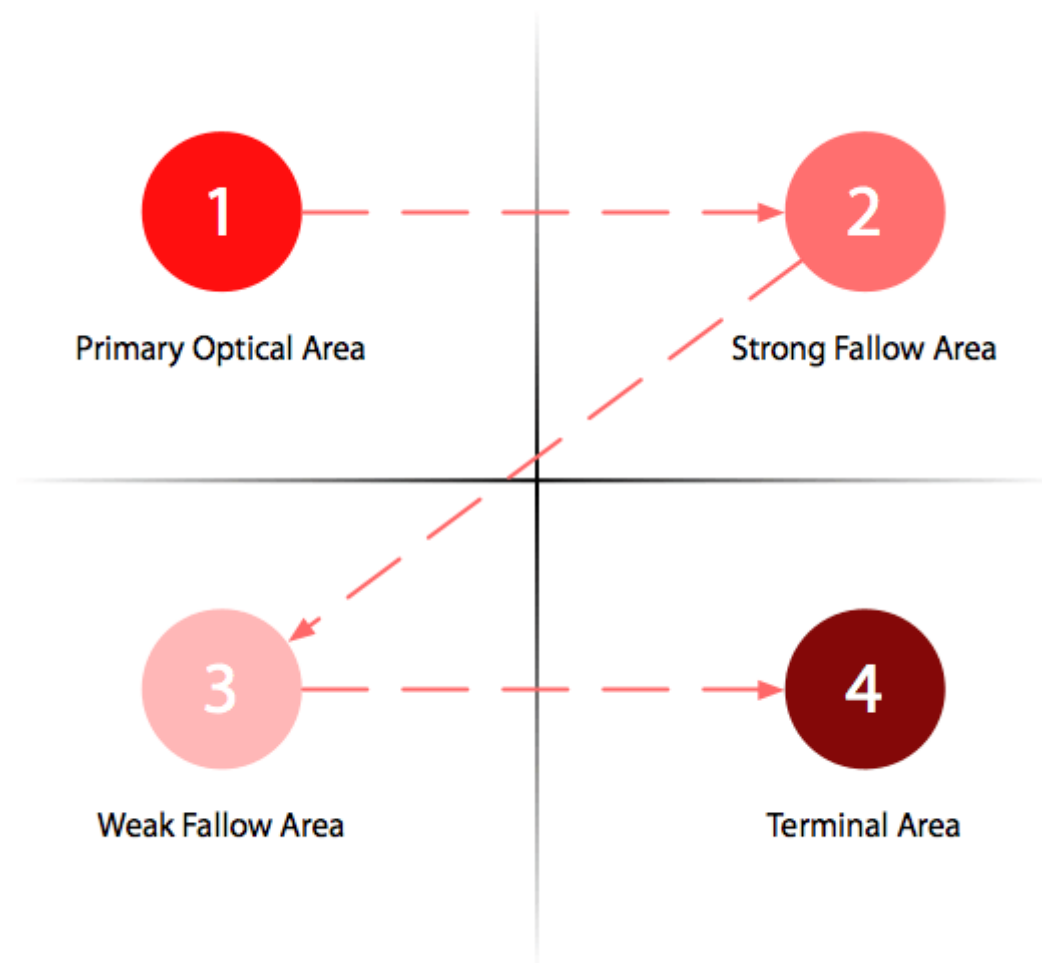
- According to the principle of consistency, systems are more usable and learnable when similar parts are expressed in similar ways.
- Consistency enables people to efficiently transfer knowledge to new contexts, learn new things quickly, and focus attention on the relevant aspects of a task.
- Use consistent approaches when possible, but do not compromise clarity or usability for consistency.



Gutenberg Diagram

The Gutenberg Principle is a lesser-known design principle that describes the general movement of the eyes when looking at a design in which elements are evenly distributed. It's also known as the Gutenberg Rule or the Z pattern of processing.

- A layout following the Gutenberg diagram would place key elements at the top left (e.g., headline), middle (e.g., image), and bottom right (e.g., contact information).



Rule of Thirds

The Rule of Thirds is another way to look at the layout of a design (be it a web page, a painting or a photograph). The idea is straightforward; you place a simple grid overlay (divided equally into thirds, both horizontally and vertically) on the space to be used for the design.

- It is applied by dividing a medium into thirds both vertically and horizontally, creating an invisible grid of nine rectangles and four intersections.
- The primary element within a design is then positioned on an intersection of the grid.

This is how your eye scans according to the Rule of Thirds. 41%		20%
25%		14%

Legibility

- The visual clarity of text, generally based on the size, typeface, contrast, text block, and spacing of the characters used.
- For printed text, standard 9- to 12-point type is considered optimal.
- Sentence case text should be used for text blocks.
- Use dark text on a light background or vice versa.

POOR COPY. GREAT LEGIBILITY

**when youre creating
copy... it needs to be good
and easy to understand
with good gramar and
'punctuation'!**

GREAT COPY. POOR LEGIBILITY

*When you're creating meaningful
and interesting copy, it should
flow well and be easy to under-
stand. It's also important to
proofread your work to ensure
correct grammar and punctuation.*

II. Web Accessibility

Tool

- Online testing tools
 - <https://wave.webaim.org/>
 - <https://www.deque.com/>
- Testing tool for WordPress
 - <https://wordpress.org/plugins/tool-for-ada-section-508-and-seo/>
- Testing tool for Chrome
 - <https://chrome.google.com/webstore/detail/wave-evaluation-tool/jbbplnpkjmmeebjpijfedlgcdilofoh>
- Testing tool for Firefox
 - <https://addons.mozilla.org/en-US/firefox/addon/wave-accessibility-tool/>

Background and Text Contrast

- <https://webaim.org/resources/contrastchecker/>
- Increase the contrast between the foreground (text) color and the background color.

Color Contrast Checker

[Home](#) > [Resources](#) > Color Contrast Checker

Foreground Color

#6666FF

Lightness

Background Color

#FFFFFF

Lightness

Contrast Ratio

4.28:1

[permalink](#)

Normal Text

WCAG AA: **Fail**
WCAG AAA: **Fail**

The five boxing wizards jump quickly.

Large Text

WCAG AA: **Pass**
WCAG AAA: **Fail**

The five boxing wizards jump quickly.

Graphical Objects and User Interface Components

WCAG AA: **Pass**

Text Input

Link Contrast

links should be underlined by default. Otherwise, link text must have at least 3:1 contrast with surrounding body text, and must present a non-color indicator (typically underline) on mouse hover and keyboard focus.

In addition, both links and body text must have at least 4.5:1 contrast with the background (3:1 for large text) to meet WCAG 2 Level AA.

- <https://webaim.org/blog/wcag-2-0-and-link-colors/>

Empty Link

An Empty Link error means that one of the links present on the web page is empty or contains no text describing where the link will go if clicked or triggered.

- **Problem:** An Empty Link error means that one of the links present on the web page is empty or contains no text describing where the link will go if clicked or triggered.
- **Solution:** The aria-label attribute is used to define a string that labels the current element. Use it in cases where a text label is not visible on the screen.

```
<button aria-label="Close" onclick="myDialog.close()">
X
</button>
```

▼ To fix an empty link error, you will need to find the link that is being flagged and add descriptive text to it. You will need to either: add text content within an empty <a> element or, if your link contains an SVG or Webfont icon, hide that element with aria-hidden="true" and add an aria-label attribute to the <a> tag or screen reader text. The text or label you add should be descriptive of wherever the link points and not ambiguous.

References

1. **William Lidwell, Kritina Holden and Jill Butler (2010). *Universal Principles of Design*. Rockport Publishers.**
2. **Ben Shneiderman et al. (2018). *Designing the User Interface - Strategies for Effective Human*. Pearson.**
3. **Jason Beaird and James George (2014). *The Principles of Beautiful Web Design*. SitePoint.**
4. **Don Norman (2013). *The Design of Everyday Things*. Basic Books.**