
Universal Principles of Design

PART 1

READING SUMMARY

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How Can I Influence The Way a Design is Perceived

Affordance

Guides how the physical characteristics of an object can change its function. Choosing good physical elements for your object can allow it to better afford the task you want the user to accomplish. A circle affords rolling better than a square. A handle affords pulling, a flat plate affords pushing on doors. Creating objects in user interfaces that people see in the real world allow them to understand what that object can afford

Alignment

Items in a design should be aligned in a way that everything line up and looks consistent. It should also help the user follow the page as they follow the line with their eyes. Angles between alignments need to be greater than 30 degrees or humans cannot detect the difference very well

Anthromorphic Form

Elements that have human like characteristics are liked by humans. If it looks like a face, a body, or a human body part, it will attract more attention than something that isnt anthromorphic

Closure

Is an effect that occurs when an element is a pattern that is easily recognizable by the user. Instead of decomposing the element into its individual smaller elements the user sees the pattern as one whole single element. This is good for reducing complexity because if people recognize something, you can put less detail into designing its appearance.

Color

Can be used in every element of design to enhance it's effects. Can also harm the design if applied improperly. Remember to limit the number of colors you use, make sure you are using good color combinations, determine how the saturation effects peoples perception, and check for symbolism of colors for you target audience.

Common Fate

When elements move in a similar direction users think they are grouped. Overpowers other grouping that is already taking place.

Consistency

Give elements consistent styling.

Constancy

An effect where we understand the object's qualities even when we see them under different circumstances. We see someone from a distance, and then we see them when they are closer, but we understand that they are still the same size even though they appear bigger

Contour Bias

People are subconsciously scared of sharp edges, use round edges to make people happy

Face-ism Ratio

Changing how much of an image the person's face takes up can have different effects on the viewer. If low faceism then focus on the physical qualities, if high faceism ratio then focus on mental qualities.

Figure-Ground Relationship

Figures are things in focus, ground is everything else in an image. Make sure you clearly differentiate between the two when creating a design so the viewer doesn't get lost

Five Hat Racks

Five ways to organize information

Category: A CATEGORY

Time: When something happened

Location: Where it happened

Alphabet: What the thing starts with

Continuum: Highest to lowest, best to worst

Good Continuation

When elements are placed in a straight or curved line they are considered to be in a group by the viewer. Example: Speedometer

Gutenberg Diagram

Cuts the screen into 4 quads. People read better when stuff is in the primary area.

At Top: Primary optical area, strong fallow area

At bottom: Weak fallow area, terminal area

Highlighting

Highlight something by blinking, coloring, bold/italics/underlining, or inverting to show something important and bring it to attention. Don't highlight more than 10 percent of the page

Horror Vacui

Fear of empty spaces, opposite of minimalism. Poorer, less educated audiences prefer to have a packed page. Educated people prefer minimalism.

Iconic Representation

Use an image to represent some data. There are 4 type.

Similar icons: images that directly show an action or event (road sign, upcoming turn)

Example icons: an image that indirectly points to an action or event (airplane for a airport)

Symbolic icons: Very high level concepts. (using padlock to show a locking button)

Arbitrary icons: No association to action or event, connection has to be learned. (radiation sign)

Inattentional Blindness

Not seeing something on the page when you are more focused on something else. Consider this when attention is very important in your design

Interference Effects

When the user is thinking about more than one thing at a time, it causes them to be slower. 4 types.

Stroop Interference: Irrelevant element conflicts with a relevant element. (harder to name colors if the word is in a different color)

Garner Interference: Irrelevant VARIATION of element conflicts with relevant element. If an element is placed near changing elements, processing will be slower

Proactive Interference: Past memories conflict with current learning.

Retroactive Interference: Learning new things messes with memory of old things. (new phone number messing up old one)

Law of Pragnanz

When people are shown something ambiguous, they will choose the simplest way to process it. They will think it has way less elements than it actually does. This means you should try to minimize the number of elements in a design

Layering

Involves presenting one group of information at a time. Three dimensional layering allows the user to view more than one layer at a time. If you have a high level of complexity, you layering to present it in chunks the user can manage

Legibility

Using text size, typeface, contrast, blocking and spacing to make sure it is easily readable and providing value to the viewer

Mapping

Refers to how a control causes an action. Good mapping is when what you expect to happen, happens, Bad mapping is when something happens that you didn't expect when you triggered a control. Always try to have good mapping so the user isn't confused and can use your application easier

Orientation Sensitivity

Lines that are closer to horizontal or vertical are easier to accurately perceive. Elements can pop out if the line is greater than 30 degrees separated from other lines.

Priming

Priming the brain for another activity. Prepares it for something different. ex. Showing a picture of a drink before the movie. It will make people thirsty

Proximity

Same as grouping, elements that are close to each other physically are considered to be related

Red Effect

The color red is sexual and attracts people. Causation is not fully understood. Use it to attract attention.

Signal-to-Noise ratio

A ratio between how much useful information is on a page compared to how much useless information is on the page. You always want the highest signal to noise ratio

Threat Detection

You can detect things better if they are a threat to you. Consider dangerous looking shapes or images to attract the viewers attention quickly

Three-Dimensional Projection

An effect where the viewer sees things in 3D when presented the right way. This can be achieved by:

- Overlapping two objects to show one further away
- Showing one object larger than the other
- Showing two objects at different vertical height
- Converging lines show depth
- High density texture looks further away then low density
- Shaded areas look further away
- Blue and blurry objects appear to be further away

Top-Down Lighting Bias

Shading or dark areas near elements indicate a light source above the element. Make sure you have consistent shading based on a light source or you could confuse the viewer

Uniform Connectedness

You can group elements together by giving them one common quality between each element. For example make them all one color.

Visibility

An interface becomes easier to use if its controls, and statuses are easy to view at all times

Visuospatial Resonance

The concept of achieving the best possible image quality for the observers distance. Always consider the distance the user will be viewing your design at.