Principles of design & ergonomics

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What's on the menu?

- The principles of **design** and the principles of **ergonomics** are closely **related**.
- We'll start with a few design principles, then move on to ergonomics.

Slide Purpose

Introduce the overall theme: the core principles of usability (sometimes called ergonomics) in digital product design.

- Good usability significantly impacts project success and user satisfaction.
- Well-designed products can reduce frustration, improve adoption, and enhance brand reputation.

Summary

Throughout this course, you **will explore** the essential principles that drive intuitive and effective user experiences. You **will learn** how design decisions impact usability, and how visual structure, consistency, and user feedback **will shape** the way people interact with digital products.

You **will understand** how to:

- Apply core design principles (alignment, hierarchy, contrast, proximity)
- Evaluate interfaces using usability heuristics
- Reduce cognitive load and improve navigation flow
- Design with accessibility and inclusivity in mind
- Create user-friendly, responsive layouts that enhance the user journey

These principles will be at the heart of successful UX design. As you progress, you **will apply** a user-centered mindset, **test** your ideas, and **iterate** based on feedback.

Principles of Design

- Let's start with… typography and color
- Then, we will explore a lot of Core Design Principles
- And… we will have a look at UX/UI Laws & Best Practices

« Simplicity, carried to the extreme, becomes elegance »

Jon Franklin

But first…

Let's test your attention to details!

→ https://cantunsee.space/

Typography

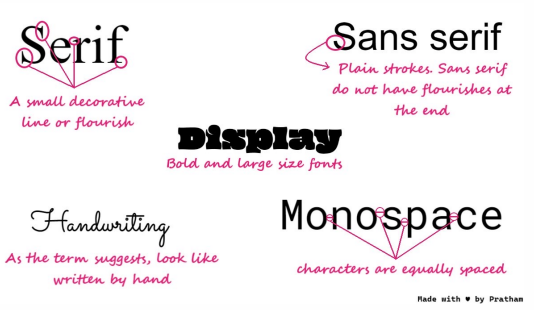
- Typography is a core component of user interface (UI) design. It's the art and technique of arranging text to be both visually appealing and easy to read.
- Good typography isn't just about choosing a fancy font — it's about creating a visual hierarchy, ensuring readability, and setting the tone for your brand.
- When done right, typography can enhance user experience and make your design stand out.

Typography helps to

- **Attract users** with typefaces and typographic elements that grab their attention even before they start reading.
- **Set visual hierarchy** with consistent type sizes, weights, serif and/or sans-serif fonts, font pairings, and typeface combinations to guide users and improve readability.
- **Build brand recognition.** When used consistently, good typography helps users identify your brand through the typeface and font styles used for your branded content.
- **Supports content goals**. Consistent letter spacing, line lengths, upper and lowercase letters, and other typographic elements boost legibility, while fonts used as graphic design elements amplify tone and meaning.

Font types - Typography

- **Serif**: Traditional and formal, with small strokes on letters. Used by brands like The New York Times and J.P. Morgan. Examples: Times New Roman, Garamond.
- **Sans-serif**: Modern and clean, often used by tech brands (Airbnb, Target). Examples: Helvetica, Arial, Calibri.
- **Script**: Flowing, cursive style for decorative use. Examples: Snell Roundhand, Pacifico, Scriptina.
- **Monospace**: Fixed-width letters, often used in coding. Examples: Courier, Source Code Pro.
- **Display**: Also known as **decorative**, great for logos and banners. Examples: Clearview, Johnston, Skywalker.



Source: https://discuss.boardinfinity.com/t/getting-good-with-css-part-2/4741

Font types - Typography

- **Font family**
- A font family is a group of related fonts.
- Clash Display Thin, Clash Display Light, Clash Display Regular, Clash Display Medium, Clash Display Semi-Bold, Clash Display Bold.
- All of these are a collection. All this into one is a **font family**.

Clash Display - Thin
Clash Display - Light
Clash Display - Regular
Clash Display - Medium
Clash Display - Semi Bold
Clash Display - Bold

Font
A font is a specific style within a typeface which varies in weight and size.

*For example, Clash Display is a **typeface** and Clash Display Medium is a **font**.*

Clash Display - Medium

Source: https://uxplanet.org/principles-of-typography-in-ui-design-bc28f1f9666d

Text Aligned - Typography

To achieve balance and help users easily move down a page, align design elements, such as your logo, an image, header, and body text. Equally space each design quote but employ margins and padding consistently. Left-, right-, full- or center-justify your text based on your project needs. For example, designers may center-justify a heading or short quote but left-justify long-form copy.

Left-aligned text is the most common setting for left- to-right languages such as English.

Centered text is best used to distinguishing short typographic elements within a layout (such as pull quotes), and is not recommended for long copy.

Right-aligned text is the most common setting for right-to-left languages, such as Arabic and Hebrew.

Line & Letter Spacing and Kerning - Typography

Line Spacing

- Also known as **Leading**, it is adjusting the space between all characters in a line, Vertically.
- Aim for about 140%-180% for optimal readability and accessibility.
- Limit line length to 70–80 characters.
- Font size should be minimum 16pt. The bigger the screen the bigger the text.
- Small fonts need more spacing.

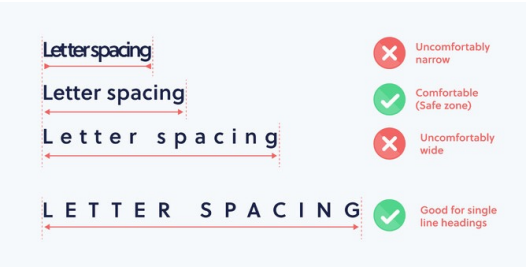
Line & Letter Spacing and Kerning - Typography

Letter Spacing

- Also known as **Tracking**, it is adjusting the space between lines of text
- Larger type sizes, such as headlines, use tighter letter-spacing to improve readability and reduce space between letters.

Kerning

- Kerning is adjusting the spacing between individual characters in a piece of text.
- Unlike letter-spacing (tracking), which affects the spacing across an entire block of text, kerning is applied to individual character pairs to correct visual inconsistencies.



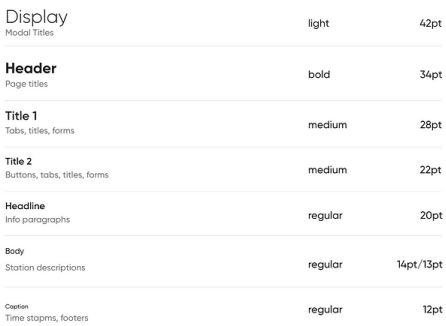
Source: https://www.rocketspark.com

EXERCISE

- Do you want to try ?

Hierarchy - Typography

- **Hierarchy** is arranging text based on the **importance** of information.
- This can be achieved through font size, weight, and style. Here's a simple definition:
  - **Headings**: Typically the largest and boldest text, used for titles and key sections.
  - **Subheadings**: Smaller than headings but larger than body text, used to separate content.
  - **Body Text**: The standard size for regular content.
  - **Captions/Labels**: Smaller than body text, used for annotations or additional information.
  - Also, use various title sizes (H1 to H6) to show their importance.



Source: https://medium.com/

Pairing Fonts - Typography

- **Contrast but Complement** – Pair fonts with distinct styles (e.g., serif + sans-serif) while ensuring they harmonize.
- **Limit to Two or Three Fonts** – Too many fonts create clutter; stick to a primary, secondary, and optional accent font.
- **Use Hierarchy** – Assign different fonts for headings, subheadings, and body text to create visual structure.
- **Match Mood & Purpose** – Choose fonts that align with your brand or message (e.g., modern for tech, elegant for luxury).
- **Check Readability** – Ensure legibility across different screen sizes and formats.
- **Pair Fonts from the Same Family** – Using font variations (bold, italic, light) creates consistency without clashing.
- **Test Before Finalizing** – Experiment with font combinations to see how they interact in real-world applications.

Tools - Typography

- Free Web licensed Fonts
- Font Inspector (find out the fonts used in a webpage)

- Pairing tools:
  - https://www.monotype.com/font-pairing
  - https://www.fontshare.com/

Colors

"Color is a power which directly influences the soul." Wassily Kandinsky

Colours Attract Emotion

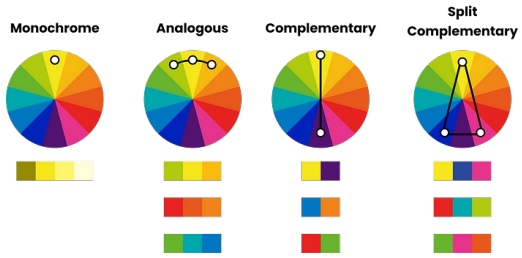
Source: https://blog.kleinpixelagency.com/design-guide-4ad204de2e8a

Yes it matters! Funny charts

Colour Pairing

There are several ways to pick a colour palette. Here you will find the most commonly used techniques:

- **Monochrome** pairing uses the different values of the same colour. Monochrome is used mostly with black and white designs, but that is not the only way to use it.
- **Analogous** pairing uses 3 adjacent colours on the colour wheel.
- **Complementary** pairing uses 2 colours on opposite sides of the colour wheel.
- **Split complementary** pairing uses one colour and opposite colour's two adjacents.



Source: https://blog.kleinpixelagency.com/design-guide-4ad204de2e8a

Colour Formats

- **HEX**: Short for hexadecimal, HEX colors use numbers (0-9) and letters (A-F). In #20B3E1, "20" is red, "B3" is green, and "E1" is blue.
- **RGB**: A widely used format with values from 0 to 255 for Red, Green, and Blue. Adding "A" (RGBA) adjusts opacity. Example: rgb(32,179,225), rgba(32,179,225,0.3).
- **HSL**: Stands for Hue (0-360°), Saturation (0-100%), and Lightness (0-100%). HSLA includes an alpha channel for opacity.
- **CMYK**: Used in printing, representing Cyan, Magenta, Yellow, and Black (Key) with values from 0% to 100%.

#20B3E1
rgb(32, 179, 225)
hsl(194, 76%, 50%)
cmyk(86%, 20%, 0%, 12%)

60/30/10 Rule

60 / 30 / 10 rule is one of the most helpful guidelines in design. It is used in UI design, branding, graphic design, photography and even in interior design.

- **60%** is typically a neutral color that forms the base of your design. It's often used for the background. Keep in mind high saturated colours can be hard to look at for long periods.
- **30%** is the secondary color. It adds visual interest. It can be used for text, borders, or other elements that support the design.
- **10%** is the accent colour. It's used mostly for highlights or elements that require the viewers attention, such as call-to-action buttons.

Source: https://blog.kleinpixelagency.com/design-guide-4ad204de2e8a

The Psychology of Colors

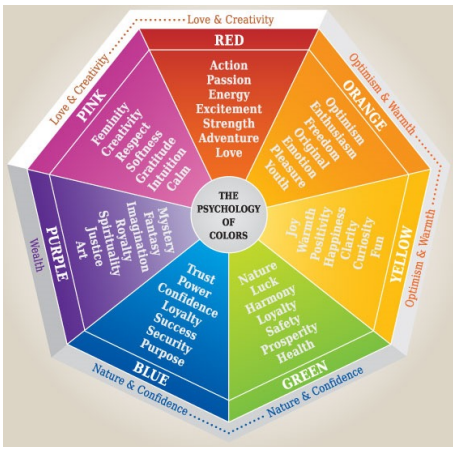
A brilliant infographic

And… many tools:

- https://coolors.co/
- https://flatuicolors.com/
- https://colorhunt.co/
- https://color.adobe.com/
- https://www.figma.com/color-palette-generator/

And from an image:

- https://coolors.co/image-picker
- https://palettegenerator.com/



Source: https://predictiveux.com/insights/color-theory-what-colors-mean

Understanding the psychology of color can better help you design for your goals:
Red is a strong color and can elicit reactions from people. It can represent passion or danger, but lightened to pink it can instead represent romanticism and femininity, and darkening it to maroon can impart a more traditional feel. Red can be a good color for call-to-actions
Orange is an energetic color that can call back to adventure, youth, and creativity. It's also tied to the 1970s and can be used to create a retro feel!
Yellow is considered to be happy, cheerful, and optimistic. Pastel hues of yellow can be used for soft backgrounds, whereas brighter yellows can be callout colors or to express creativity. Darker yellows can come across as gold, which suggests wealth or success—but be careful when darkening not to muddy the yellow!
Green is pretty universally connected to nature, and thus can represent renewal, growth, and sustainability. Dark green can represent money, prosperity, and stability. Like red, green can be a good color for call-to-actions, but it can also serve as a good main color for your site too.
Blue is a calm color that can be relaxing and can signal intelligence. Lighter blues tend to be viewed as more peaceful while darker blues are seen as more powerful. Blue is a common brand color for websites and companies, such as Facebook, LinkedIn, IBM, and Paypal.

Purple has historically been linked to royalty, wealth, and luxury as well as mysticism and spirituality. It can also evoke creativity. Like green, purple can act as a good callout or background color, depending on the shade you choose.
Black is another color that is associated with power and elegance. It can also be used to create a mysterious or cool look. Black can make things look more sleek and can impart both modernity and timelessness. It's also a neutral color that works well with other colors, in typography, and as a grounding element in design.
White can be seen as minimalist or innocent. As another neutral color, there's a lot you can do with white in your design, and pairing it with other colors can compound their effects to create the exact look you want.
Gray can have many different meanings, ranging from serious to sophisticated to conventional. For some, it represents formality and dependability. Like with the other neutral colors, it can provide a centering element in your design.
Brown is another color associated with nature. It can be seen as warm, friendly, and outdoorsy. You can use brown to play up the idea of warmth or wholesomeness, pair it with green for an ecofriendly feel, or use it to create a sense of heritage and tradition.

The Psychology of Colors

Examples

Source:
https://www.alexarzuman.com/2013/05/couleur-design-graphique-signification/

Don’t forget accessibility!

- While checking contrast between two colours, we should keep in mind that, everyone is different and might have different visual limitations. Some people don’t see well, some have colour blindnesses, and some have technological limitations. Just because you see everything clearly on your screen doesn’t mean everyone have the same standarts.
- https://webaim.org/resources/contrastchecker/
- **But you'll have a whole course on the subject**

Intuitive design Definition

The term “intuitive design” refers to designing digital experiences that your target users find easy to use — be it a website, a product, or an app.

This includes visual designs like iconography or functional designs like buttons. The measure of success for an intuitively designed website, for example, is if a user is able to approach the site and understand how to use it with little effort.

Intuitive design Basic principles

Attributes of intuitive design for user interfaces?

1. **Discoverability:** The user should be able to find information as they need it. The starting point and next steps should be clear and the layout should be straightforward.
2. **Affordance:** The user should get hints as to what elements will take them to a subsequent step. Examples of this are buttons and consistent clickable elements from page to page.
3. **Comprehensibility:** The user should be able to understand the textual and visual information at a glance. This means simple language should be used, avoiding jargon.
4. **Responsive feedback:** The user should be able to tell immediately the success or failure of their actions. The results should be visible.
5. **Predictability:** The user should be able to reliably predict what results will follow an action. The results should meet expectations and not cause confusion.
6. **Efficiency:** The user should be able to complete an action with one try, without repetition or unnecessary steps.
7. **Forgiveness:** The user should be prevented from making mistakes, but if they make one, it should be easy to recover.
8. **Explorability:** The user should feel confident exploring a site. They should never feel lost or afraid of making a mistake.

Intuitive design Basic principles

Rules of thumb to keep in mind

- Keep your logo in the upper left corner clickable on all pages of your site to allow user to return to homepage
- Maintain a way to navigate to "contact" your company on every page
- Consistent headers & footers on every page, in location on-page and options
- Accessibility must be a consideration to cater to all users and abilities
- Plain language trumps overly clever or branded language every time
- Consider experiences from device to device (depending on your own users' behaviors, of course)

Source: https://medium.muz.li/5-tips-for-designing-a-great-mobile-app-4567f04c9f2f

Intuitive design Basic principles

- **What is affordance in UX design?**
- Affordance refers to the way that the design of a product or interface communicates to the user the actions that are possible or appropriate to take. This can include both physical and perceptual affordances.
- For example, in a digital interface, buttons and links often have a specific visual appearance that indicates to the user that they can be clicked or tapped. This is a perceptual affordance, as it relies on the user's interpretation of the visual cues to understand the potential for interaction.
- Designers can use affordances to make products and interfaces more intuitive and easy to use by ensuring that the design communicates the potential for interaction clearly and consistently. This can help to reduce frustration and improve the overall user experience.

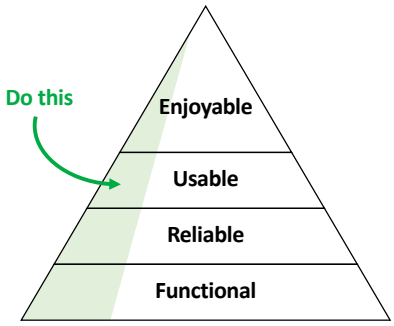
Benefits of applying UI design principles

1. Enhances usability
2. Increases efficiency
3. Improves decision-making
4. Decreases cognitive load

Source: https://www.freepik.com/

1.Enhances usability

- **A usable interface**: Usability is a measure of how well a specific user in a specific context can use a product/design to achieve a defined goal effectively, efficiently and satisfactorily.
- We will come back to usability further and… deeper!



Much like Maslow's hierarchy, ***Aarron Walter's hierarchy of user needs*** *defines basic user needs that interfaces must fulfill before more advanced needs can be addressed.*

Enhances usability. “Think of a user as someone asking you directions. If you just showed them a map and expected them to memorize it, they'll probably get lost,” Tom says. “But if you point them to a sign that says their destination is this way, they can follow the signs from there … That's a much better experience. UI design principles help you set up signs users can follow towards their goals—one click, scroll, or interaction at a time.”

2.Increases efficiency

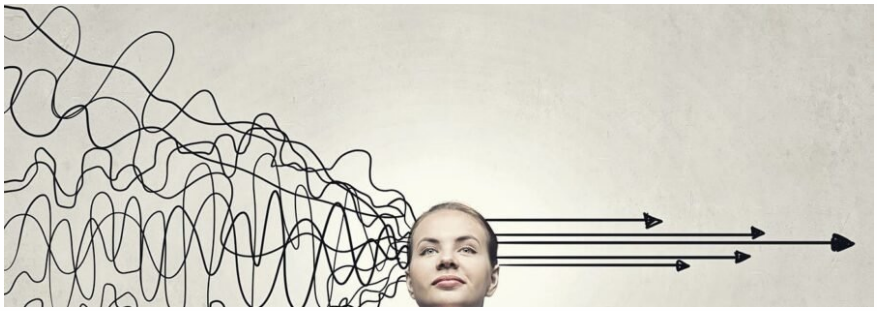
- By streamlining processes and reducing unnecessary steps, design principles help users complete tasks faster. A clear hierarchy, minimal distractions, and smart automation contribute to smooth workflows.

Source: https://www.revechat.com/blog/5-ways-increase-efficiency-support-team/

•Increases efficiency. Aligning UI design principles at the start of projects lifts the cognitive load for designers, streamlining workflows and making product teams more efficient. Figma data analysts found that participants with access to a design system completed their design objective 34% faster than those without one.

3.Improves decision-making

- Good design reduces decision fatigue by organizing information logically, minimizing choices, and emphasizing key actions. This allows users to make quicker and more confident decisions.



Source: https://www.cxtoday.com/contact-center/real-time-decision-making-empowering-your-team-for-immediate-customer-solutions/

Improves decision-making. Clear and consistent UI design principles give a structured framework for predicting user needs and making informed design choices.

4. Decreases cognitive load

- Definition: The amount of mental resources needed to understand and interact with an interface.
- Causes
  - Too many choices
  - Too much thought required
  - Lack of clarity

  Each of these factors will require processing and takes up mental resources that doesn't actually help users understand the content.

Source: https://www.healthysimulation.com/hearing-voices-psychiatry-simulation/

Reduces cognitive load. A well-designed interface can simplify tasks, reducing the mental effort required to complete user actions. Less cognitive load can help create a more intuitive and enjoyable experience.

4. Decreases cognitive load

Methods for Reducing Cognitive Load

- **Remove Unnecessary Elements**: Keep designs simple and avoid clutter that distracts users.
- **Use Familiar Design Patterns**: Leverage common UI patterns to reduce learning effort.
- **Eliminate Extra Tasks**: Reduce reading, memory load, and decision-making for users.
- **Minimize Choices**: Limit options to prevent decision paralysis.
- **Group Related Options**: Display choices together to ensure users see all available options.
- **Ensure Readability**: Use clear typography and an intuitive layout for better comprehension.
- **Use Icons Carefully**: Accompany icons with text to avoid confusion and reduce mental effort.

Before going on…

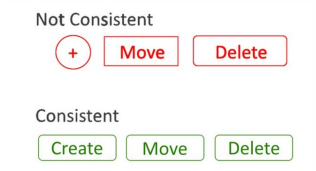
- **Calls to action** (CTA) are buttons that guide users towards a specific goal.
- Visual prominence. The colors.
- Negative spacing: pay attention to the space around buttons.
- Action-oriented text: write text for the button that will lead visitors to take an action. Ex: “Start”, “Get” or “Join ".

Color as visual prominence

The green of the CTA on Firefox's page jumps off the page and immediately gets the user's attention.
Source: https://www.mozilla.org/fr/

CTA

- Make sure clickable elements look just like them.
- Label buttons according to what they do.
- Design buttons consistently
- **Size: 5-second test (https://data36.com/five-second-testing/)**
- **Material Design: great button examples https://material.io/design/components/buttons.html**



Source: https://www.intlum.com/blog/web-design-guide/

A lot of principles (but not all)

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Design principles

- **Design principles serve as guidelines** to help designers create visually appealing and functional designs. Rather than being formally documented, these principles are often learned through observation and practice, as no single set of rules applies universally to all designs.
- **Every design problem needs its own solution.**
- By applying these principles, designers can **enhance both aesthetics and usability,** making their work more engaging and user-friendly. Ultimately, this leads to a better user experience and greater satisfaction with the product or service.

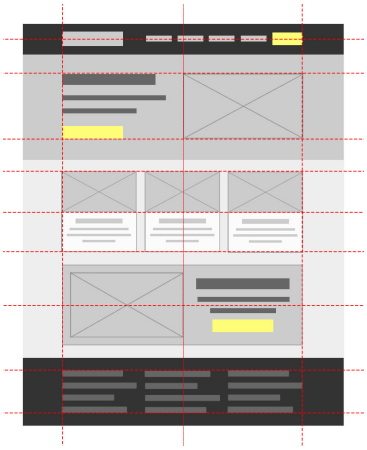
Alignment

- Alignment is one of the most important factors in creating a good design.
- When content is aligned, it creates a **sense of unity and order**, which makes it easier for people to scan through your designs and understand what they're looking at.

Alignment

Alignment In web design

- All kinds of alignments:
  - https://uxengineer.com/principles-of-design/alignment
  - https://happyaddons.com/alignment-in-web-design/



Source: https://uxengineer.com/principles-of-design/alignment

Alignment

How to apply this in UI/UX design:

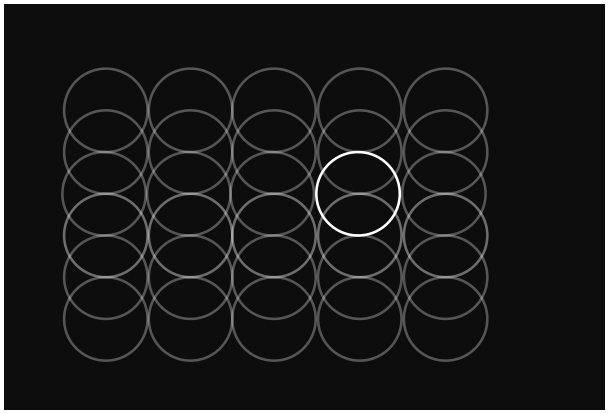
1. Ensure that groups of web elements are contained within containers to keep content confined within defined spaces.
2. Utilize principles of columns and rows to organize layouts containing various web elements such as text, images, and navigational elements. Use CSS grid frameworks like Bootstrap, Foundation, or Tailwind to streamline grid usage.
3. Apply proportional and consistent spacing between columns (gutters) in every web page layout. This practice facilitates the alignment of grouped elements, leveraging symmetric column and asymmetric grid structures to align your content proportionally.
4. For consistency, always use the same type of text alignment, especially for related text elements. Left alignment is a standard practice in languages that read from left to right.
5. Always align groups of web elements within the grid borders. Grid borders divide the page into vertical bars and serve as a guide for placing your content.

Emphasis

- Emphasis means highlighting certain design elements so that they stand out. When readers look at the design, they automatically see the highlighted feature.

Emphasis

Emphasis In web design



As you may have noticed right away, the white circle is greatly emphasized compared to the other grey circles, which are many shades darker.

Emphasis

How to apply this in UI/UX design:

1. Increase size / weight

Let's get the obvious out of the way. The larger, bolder something is, the more attention it attracts.

To add emphasis to text, you can increase either the text size or font weight.

2. Change color

In general, the brighter and bolder the color, the more it will stand out.

To easiest way is to use your brand colors to accent the most important parts of your app. If you're using mostly neutral colors, you can create emphasis by varying between darker and lighter shades.

Emphasis

How to apply this in UI/UX design:

3. Break continuity

We are conditioned to see patterns and continuity when using a product. So if you can break the pattern in any way, things will naturally stand out.

4. Add white space

Your eyes are naturally drawn to areas with more white space. Surrounding an important element with white space makes it stand out more.

5. Emphasize by de-emphasizing

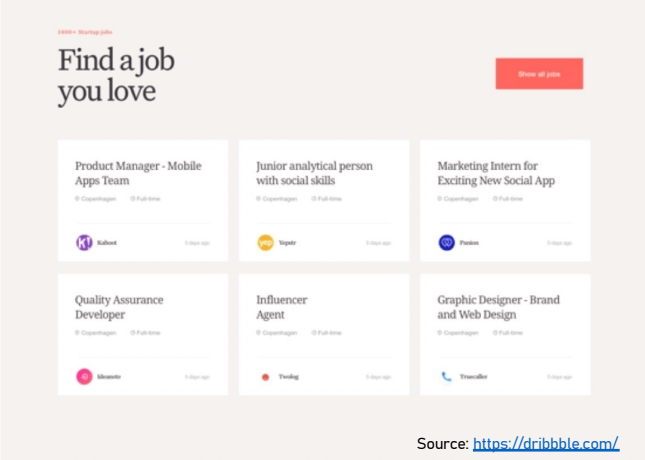
When everything is a priority, then nothing is. Similarily, emphasis is relative. If everything on the page is screaming for attention, nothing stands out. A more elegant approach is to de-emphasize less important elements. You can do so by reducing opacity, using lighter colors, or making them smaller.

Balance

- A satisfying arrangement or proportion of design elements.
- Balance occurs when there is an equally distributed (but not necessarily symmetrical) amount of visual signal on both sides of an imaginary axis going through the middle of the screen.
- This axis is often vertical but can also be horizontal.

Balance

Balance In web design



Source: https://dribbble.com/

The Hub Style Exploration: The composition feels stable, which is especially appropriate when you're looking for a job you love. The balance here is symmetrical. If you were to draw an imaginary vertical axis down the center of the website, elements are distributed equally on both sides of the axis.

Balance

How to apply this in UI/UX design:

- To create balance, you have to find a way to balance the elements in your design. The best way to do this is by using negative space (white space) and by making sure your elements are visually similar in size and weight.
- For example, if you have a large image that takes up much of the page, then make sure that there are at least two other elements on the page that are smaller than it.
- If all of your elements are large, then people won't know where to focus their attention because they'll be spread out across different sizes and weights of objects.

Contrast

- Contrast is another key principle of design that helps set apart important elements from the rest of the page.
- It allows users to focus on what matters most without being distracted by other things around it — which is especially important on mobile devices where screens are smaller than desktop monitors and less capable of generating lots of contrast on their own.
- Contrast also helps guide users through a page by providing visual cues about where they might want to go next (ex: call to action, hyperlinks, likewise).

Contrast

Contrast In web design

Source: https://elementor.com/blog/contrast-web-design/

Use sufficient color contrast !
https://webaim.org/resources/contrastchecker/

Contrast

How to apply this law in UI/UX design:

- **Color Contrast**: The difference in light between the foreground (text or elements) and background, ensuring readability and emphasis.
- **Size Contrast**: Using varying sizes to highlight key elements, create depth, and establish hierarchy.
- **Space Contrast**: Also known as negative space, it surrounds elements to enhance focus and clarity.
- **Foreground vs. Background Contrast**: Defines the visual relationship between an element and its background, which may change dynamically in web design.
- **Shape Contrast**: Making elements stand out by varying their physical shape to guide attention.
- **Elements Contrast**: Mixing different media (photos, illustrations, sketches) to impact the website's aesthetics and messaging.

Repetition

- Repetition is the practice of using the same or similar elements multiple times to reinforce ideas and organize content.
- Our brains are made to recognize patterns. Repeating elements within a design creates consistency and familiarity — key components of a pleasant user experience.

Repetition

Repetition In web design

Source: https://bootcamp.uxdesign.cc/

Repetition

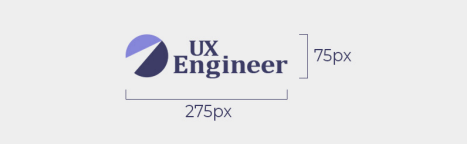
How to apply this law in UI/UX design:

- **Typography & Colors**: Use consistent fonts, sizes, and brand colors.
- **UI Components**: Standardize buttons, icons, and form fields.
- **Layout & Spacing:** Maintain uniform spacing and grid structures.
- **Animations & Feedback**: Apply consistent hover effects and interaction responses.

Proportion

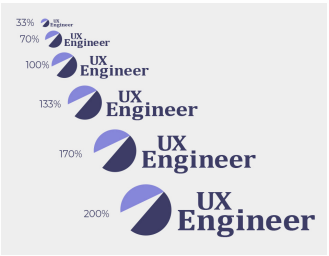
- Proportion is the harmonious relationship between two or more parts that make up a whole. Most typically, proportion is defined by the scale of elements, in relation to each other.
- **Size vs Scale vs Proportion**

Size is the actual dimensions of an element, often measured in px, pt, em, rem etc.



For example, the size of this logo is 75px tall and 275px wide.

Scale is the relative dimensions of an element, often measured by percentages or



For example, an element can be **scaled** to be bigger or smaller than it's original size.

Source: https://uxengineer.com/principles-of-design/proportion

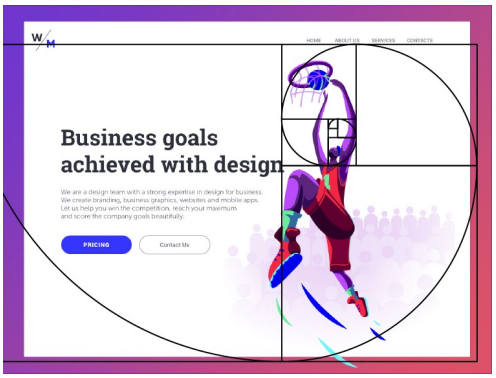
Proportion In web design

Golden ratio in design

Effective composition is a core part of a design. All the elements need to work together to maximize a pleasant experience.

Moreover, each separate element, even the small one like an icon, has to be created in a harmony within itself.

The golden ratio has a positive influence on visual perception, the reason why many graphic and UI designers apply it at their workflow.



Source: https://uxplanet.org/golden-ratio-bring-balance-in-ui-design-765c954f0ff9

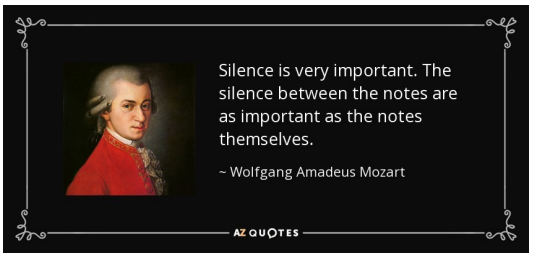
Proportion

How to apply this in UI/UX design:

- **Use a grid system:** By using a grid, you can ensure that your elements are proportionally spaced and aligned, which creates a more cohesive layout.
- **Use a consistent scale**: This means that related elements should be sized relative to each other, creating a sense of visual unity. For example, when establishing a typography hierarchy, you can make the headings 1.5 to 2 times larger than the body text.

White Space

- Whitespace (or “negative space”) is an empty space between and around elements of a page. Although many may consider it a waste of valuable screen estate, whitespace is an essential element in design.
- White space helps to
  - improve the legibility
  - design an organised layout
  - create sense of hierarchy
  - guide user’s attention
  - emphasize important information

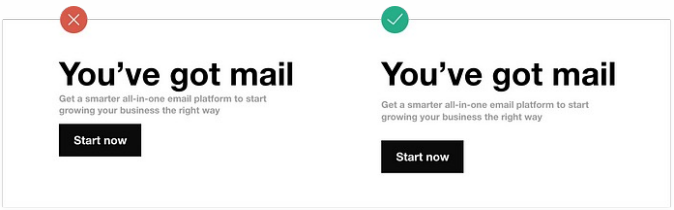


Source: https://www.azquotes.com /

+

White Space

White space in web design:



Source: https://medium.com/

White Space

How to apply this in UI/UX design:

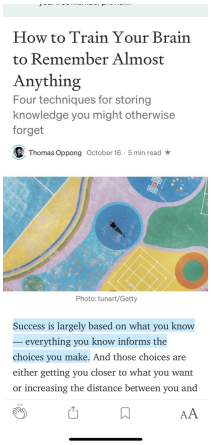
- Leave spaces empty
- Remove borders (if unnecessary on shapes, icons and other elements)
- Enlarge the background image
- Use a colored background
- Space the letters
- Use padding
- Add a border (around central elements like text and images)
- Make one aspect of your design prominent

Visual Hierarchy

- Visual hierarchy is the way your website or application uses contrast, size, color, and other factors to give some elements more important than others.

Visual Hierarchy

Visual Hierarchy in web design:



Medium mobile app: There is a clear visual hierarchy of title, subtitle, and body text.

Each component of the article is in a type size equal to its importance.

Source: https://www.nngroup.com/articles/principles-visual-design/

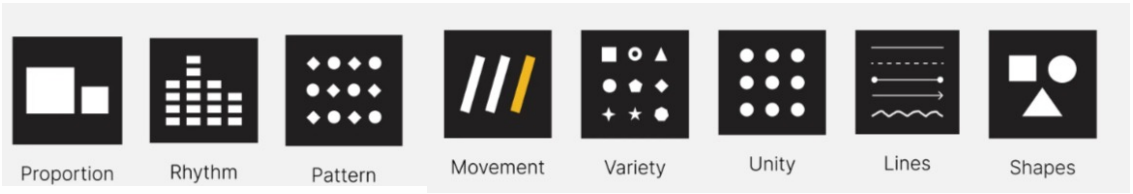
Visual Hierarchy

How to apply this in UI/UX design:

- **Define Interface Goals**: Clearly establish design objectives and highlight key elements to ensure a structured and user-friendly experience.
- **Use Size and Typography**: Different font sizes and styles help create a clear visual hierarchy, making navigation intuitive and emphasizing important content.
- **Leverage Color and Contrast**: Strategic use of colors and contrast directs attention to key elements, improving readability and user guidance.
- **Organize Information Effectively:** A logical layout, whether vertical (e.g., Netflix's featured content) or horizontal (e.g., navigation tabs), ensures users find what they need effortlessly.

And many more…

- Proportion, Rhythm, Pattern, Movement, Variety, Unity, Line, Shapes



Source: https://medium.com/

Proportion
Proportion refers to the relative size and scale of elements in a design, ensuring visual balance and a natural look.
Rhythm
Rhythm is the repeated use of elements in a pattern or sequence to create visual movement and harmony.
Pattern
Pattern is the repetition of visual elements like shapes, lines, or colors to add consistency and unity to a design.
Movement
Movement guides the viewer's eye through a design by using direction, flow, or implied motion between elements.
Variety
Variety introduces different elements, styles, or visual contrasts to maintain interest and prevent monotony in a design.
Unity
Unity ensures all design elements work together cohesively to create a consistent and

harmonious composition.

Line

A line defines space, outlines shapes, and creates structure or emphasis in a design, whether straight, curved, thick, or thin.

Shape

Shape refers to enclosed areas created by lines or curves that define objects and contribute to the visual structure of a design.

Above the fold

"Fold" is a term commonly used in ergonomics and web design. It refers to the virtual line that separates the content visible on a web user's screen from that visible only via the scroll bar.

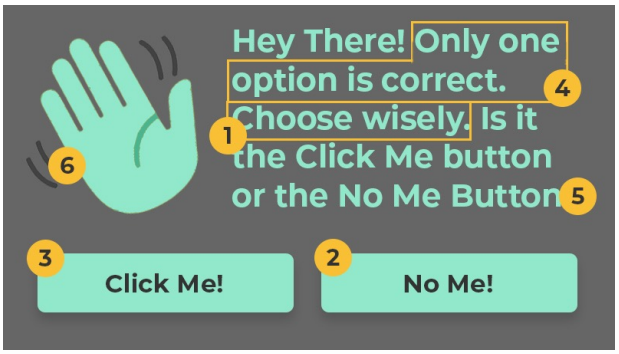
Above the fold (ATF) is the part of a webpage that you can see without scrolling down.

Make interactions visible.

Source: semrush.com

EXERCISE

Let's assess where emphasis could be applied or reduced to improve the design



Source: https://uxengineer.com

1.The call-to-action will be to **"Choose Wisely,"** making it immediately clear what the user should do.

2.The primary button will be the **"No Me" button**. We'll make this the second most emphasized element, so the user can can have confidence that it's the "right choice."

3.The secondary button will be the **"Click Me" button**. This button will have less emphasize to make it clear that it's not as important as the primary button.

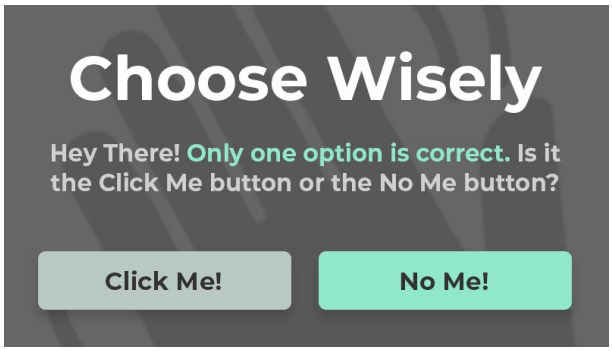
4.Next, we'll make sure the reader knows **"only one option is correct"** by giving it more emphasis than the remaining text.

5.The **remaining text** is merely provided for more context. Since it's not as important as the previous elements it will be toned down a bit.

6.Finally, the **waving hand icon** is the least important element. If anything, it only serves to help communicate the message subconsciously. Therefore, it will be muted to fade into the background.

EXERCISE

A proposal



Source: https://uxengineer.com

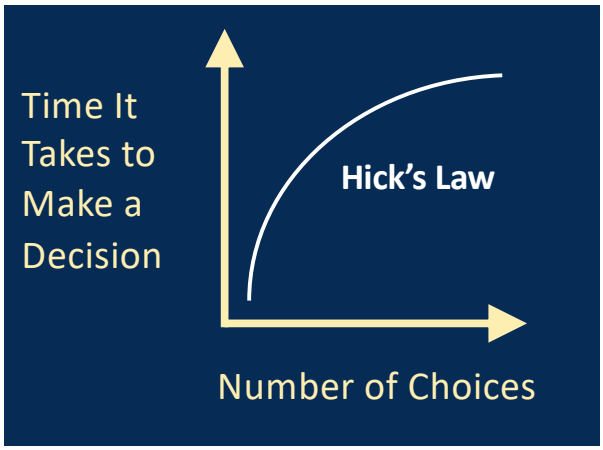
The Psychology Principles in UI/UX Design

- Psychology has an important role in designing the user experience.
- By understanding how different psychology principles influence human behaviour, you can design your products to elicit specific responses and actions from your users.

Hick's Law

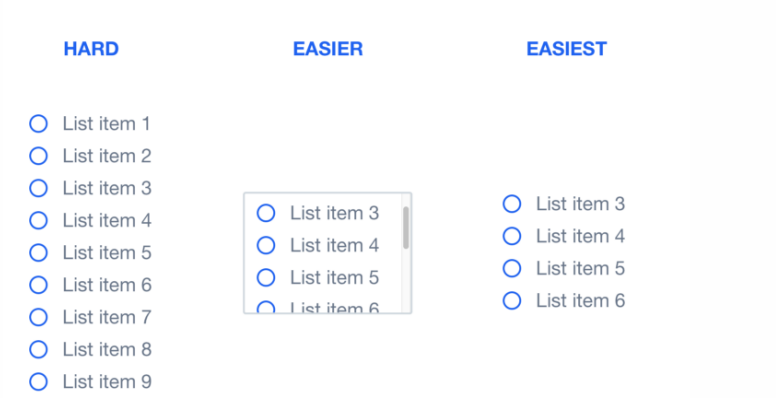
- Hick's Law (or the Hick-Hyman Law) states that the more stimuli (or choices) users face, the longer it will take them to make a decision.
- $RT = a + b \log_2 (n)$

RT is the Reaction Time, (n) is the number of stimuli, "a" and "b" are constants



Hick's Law

Hick's Law in web design:



Source: https://malikachatlapalli.medium.com/improve-your-interaction-design-with-6-principles-d5d2533911e8

In this visual above, on the left the user has many options to choose from and will take longer to decide. You can make this easier by limiting the number of options in view, but the best solution is to limit the total number of options.

Hick's Law

How to apply this law in UI/UX design:

1. Minimize choices when response times are critical to reduce decision time.
2. Break down complex tasks into smaller steps to reduce cognitive load.
3. Use filters for large numbers of products.
4. Take care not to simplify to the point of abstraction.

Gestalt Principles of Visual Perception

- There are various psychology laws in design. Gestalt psychology, founded in the early 20th century, revolves around the idea that "***the whole is greater than the sum of its parts***." Our brains naturally organize and interpret visual information in a way that allows us to perceive meaningful patterns.
- The **Gestalt Principles** are a set of psychological concepts that explain how humans perceive and organize visual elements.
- These principles help designers create more effective and intuitive designs by understanding how users naturally group and interpret information.

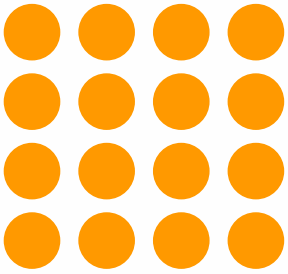
Why Are Gestalt Principles Important in Design?

- Improve **user experience (UX)** by making interfaces more intuitive.
- Enhance **visual hierarchy** and readability.
- Guide users' attention to important elements.
- Create **cohesive and aesthetically pleasing** layouts.
- Gestalt principles are widely used in **UI/UX design, branding, and graphic design** to ensure that information is presented clearly and effectively.

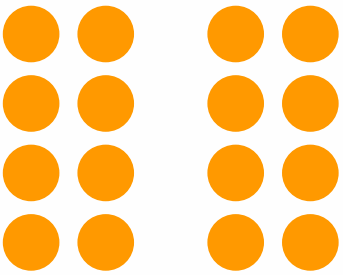
Law of Proximity – Key Gestalt Principles

- Elements that are close to each other are perceived as related or grouped together.

This is perceived to be one Group and the components Somehow related to each other

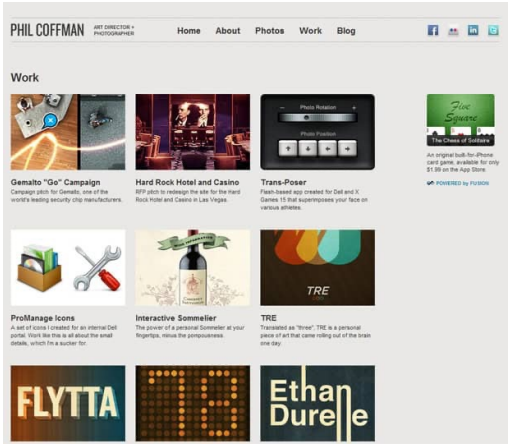


We perceive two groups here, and understand that there are differences between them



Law of Proximity - Key Gestalt Principles

Law of Proximity In web design



Source: https://webdesignerdepot.com/

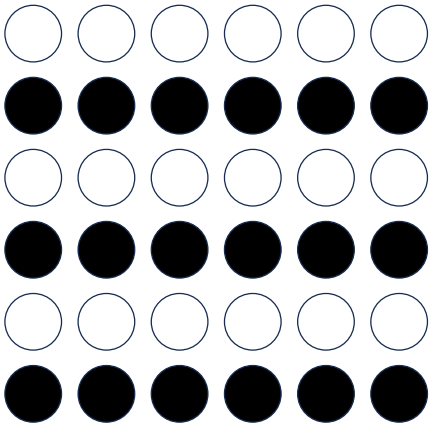
Law of Proximity - Key Gestalt Principles

How to apply this law in UI/UX design:

- **Group related elements closely**. Place buttons, icons, or text fields that belong together near each other to indicate their relationship.
- **Maintain consistent spacing** between related elements and increase space between unrelated groups to show separation.
- **Avoid clutter** and ensure there's enough space between different groups for clarity.
- In long forms, **group fields by related categories** (e.g., personal details, payment info) to make the form easier to follow.
- **Use proximity to create hierarchy** in navigation menus, product listings, or informational layouts.

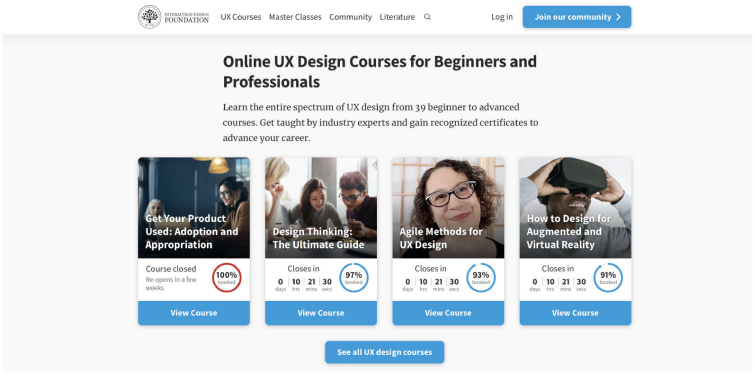
Law of similarity – Key Gestalt Principles

- Objects that share similar characteristics (color, shape, size) are seen as belonging together.



Law of similarity - Key Gestalt Principles

Law of similarity – In web design



Source: https://www.interaction-design.org/

When items, objects or elements share superficial characteristics, we perceive them as grouped. We can see the similarity principle in branding and design system guidelines.

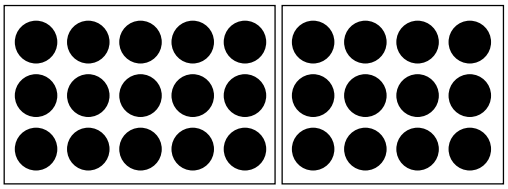
Law of similarity - Key Gestalt Principles

How to apply this law in UI/UX design:

- **Style all buttons or links that perform similar functions the same way** (e.g., same color, size, and shape).
- **Use the same typography** (font, size, and style) for related text elements (e.g., all headings, subheadings) to create a cohesive look.
- **Repeat visual styles**: apply similar colors, shapes, and patterns to related elements across different sections of the UI.
- **Highlight differences**: to make specific actions stand out, use contrasting styles (e.g., a unique color for a CTA button among similarly styled buttons).
- **Use visual cues**: in complex interfaces, use icons, colors, or shapes consistently to indicate similar actions or functions.

Law of Common Regions – Key Gestalt Principles

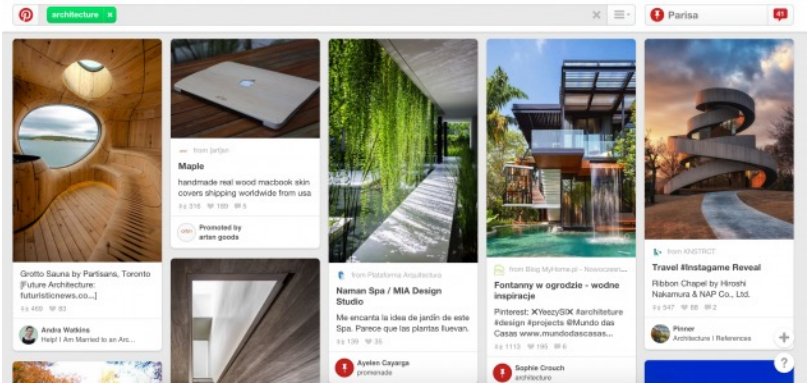
- Close to **Law of similarity**
- The Law of Common Regions refers to the tendency of our brains to group elements together when they are located within a shared boundary or enclosure.



Adding borders or other visible barriers is a great way to create a perceived separation between groups of objects—even if they have the same proximity, shape, color, etc.

Law of Common Regions - Key Gestalt Principles

Law of Common Regions– In web design



Source: https://www.pinterest.com/

In the example from Pinterest below, the common region principle is used to separate each pin—including its photo, title, description, contributor, and other details—from all the other pins around it.

Law of Common Regions - Key Gestalt Principles

How to apply this law in UI/UX design:

- **Use containers or boxes**: group related elements, such as form fields or products, in clearly defined containers or regions.
- **Leverage background colors** to visually group content and separate it from other sections.
- **Apply borders and shadows** to indicate that certain elements belong together.
- **Create distinct sections**: separate different categories of information with whitespace or visual dividers to improve scannability.
- **Organize information visually**: apply the principle when laying out dashboards, lists, or forms to help users process content more quickly.

Law of symmetry - Key Gestalt Principles

- Symmetrical elements are perceived as part of the same group.
- If the mind perceives 2 symmetrical elements that are not connected, it connects them to form a coherent shape.

When you look at these brackets, you tend to see 3 pairs of brackets rather than 6 individual elements.

Law of symmetry - Key Gestalt Principles

Law of symmetry – In web design

Source: https://guo-chen.medium.com/

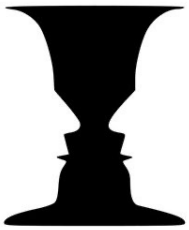
Law of symmetry - Key Gestalt Principles

How to apply this law in UI/UX design:

- **Align elements symmetrically**: place navigation bars, buttons, or form fields in symmetrical layouts to create balance and harmony.
- **Mirror design across screens**. Ensure consistency in layouts between different pages or app screens using symmetrical patterns.
- **Maintain visual balance**: avoid placing too much weight (large elements, bold colors) on one side of the screen; distribute them evenly.
- Use **symmetrical icons or buttons** to create a balanced and professional look.
- **Introduce asymmetry with caution**. If you want to introduce visual tension or dynamism, use asymmetry in small doses, keeping the overall design balanced.

Figure and Ground – Key Gestalt Principles

- The brain distinguishes between foreground and background elements.

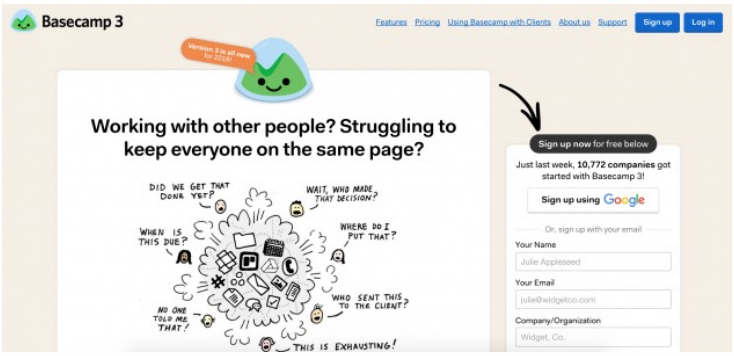


Source: https://www.interaction-design.org/

Source: https://www.toptal.com/designers/ui/gestalt-principles-of-design

Figure and Ground – Key Gestalt Principles

- Figure and Ground In web design



Source: https://www.usertesting.com/blog/gestalt-principles

The Basecamp homepage has a bunch of graphics, text, forms, and other information. And because of the figure-ground principle, you can immediately tell that you should focus on the content in the white foreground areas.

Figure and Ground – Key Gestalt Principles

How to apply this law in UI/UX design:

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Law of Closure - Key Gestalt Principles

- The mind fills in gaps to complete a visual pattern or shape

Without this principle, we would only perceive a set of discontinuous lines, without perceiving the form as a whole.

The Gestalt principle of Closure is especially useful in UI/UX design for creating clean, minimalist designs without sacrificing comprehension. Designers can imply elements rather than explicitly show every detail, allowing users to engage with the design on a more intuitive level

Law of closure is commonly applied in logo design, where incomplete shapes or outlines are perceived as whole objects due to the mind's tendency to fill in the gaps. For instance, the IBM logo is one of the famous Gestalt principles examples in action as it uses a series of horizontal lines that our brains interpret as letters despite the spaces in between.

Law of Closure - Key Gestalt Principles

- Law of Closure In web design

Source: https://icon-icons.com/

The Basecamp homepage has a bunch of graphics, text, forms, and other information. And because of the figure-ground principle, you can immediately tell that you should focus on the content in the white foreground areas.

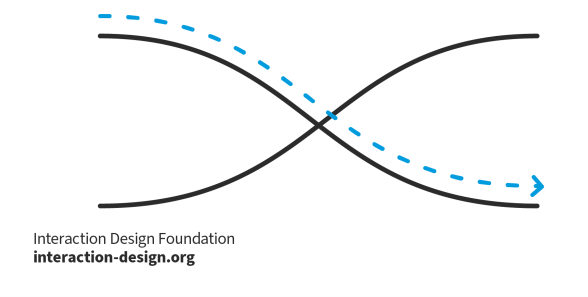
Law of Closure - Key Gestalt Principles

How to apply this law in UI/UX design:

- **Use implied shapes**. Suggest complete forms with partial outlines or borders, encouraging users to mentally fill in the gaps.
- **Create minimalist icons** that use negative space to imply completeness, reducing visual clutter while maintaining clarity.
- **Simplify complex forms** into simpler, suggestive forms that users can easily recognize and complete in their minds.
- **Use in loading animations**. Create loading indicators or progress bars where incomplete circles or bars can imply continuity and completion.
- **Engage users' imagination** and let them interpret and complete visual elements rather than explicitly showing everything.

Law of Continuity – Key Gestalt Principles

- The eye follows lines, curves, or patterns smoothly rather than seeing them as separate elements.



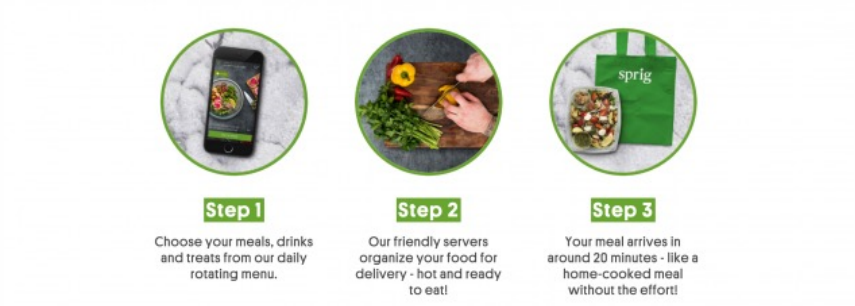
Interaction Design Foundation
interaction-design.org

The Gestalt principle of continuity suggests that our minds prefer to perceive continuous, unbroken lines or patterns, even when they are interrupted. When elements are arranged along a path or curve, the eye naturally follows that path, creating a sense of flow. This principle is widely used in design to guide users' attention through a layout in a smooth, uninterrupted manner. For example, in web or app design, elements like arrows, lines, or visual cues that align along a curve or trajectory can direct users' focus from one section to another, enhancing navigation and storytelling.

In the image above, for example, the red dots in the curved line seem to be more related to the black dots on the curved line than to the red dots on the straight horizontal line. That's because your eye naturally follows a line or a curve, making continuation a stronger signal of relatedness than the similarity of color.

Law of Continuity – Key Gestalt Principles

- Law of Continuity In web design



Source: https://www.usertesting.com/blog/gestalt-principles

Law of Continuity – Key Gestalt Principles

How to apply this law in UI/UX design:

1. **Use visual cues**: incorporate lines, arrows, or curves to direct users' attention and guide them through a specific flow or process in your interface.
2. **Align elements along a path**: arrange text, buttons, or images in a linear or curved sequence that encourages users to follow the path naturally.
3. **Create seamless navigation**: design menus or navigation bars that visually lead users from one section to another without abrupt changes or distractions.
4. **Use gradients or fading effects**: apply subtle visual transitions, such as gradients or fading, to create a smooth flow between different sections or states in the interface.
5. **Maintain visual hierarchy** to ensure that important elements, like CTAs or important content, are positioned along the natural flow of the design, guiding users' eyes to them effortlessly.

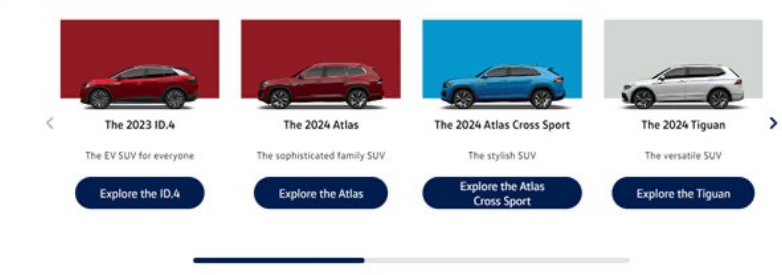
Common Fate – Key Gestalt Principles

- Objects moving in the same direction or at the same speed are perceived as related.

Source: Gizmodo via https://www.usertesting.com/blog/gestalt-principles

Common Fate - Key Gestalt Principles

- Common Fate In web design



Volkswagen utilizes carousels to showcase their new releases.
© Volkswagen, Fair Use

Source: https://www.interaction-design.org/

Common Fate – Key Gestalt Principles

How to apply this law in UI/UX design:

- **Animate Related Elements** : Sync animations for grouped items (e.g., dropdowns, tooltips).
- **Use Directional Cues** : Guide users with motion (e.g., progress indicators).
- **Group via Movement** : Elements moving together appear related (e.g., carousel cards).
- **Enhance Hover Effects :** Trigger animations for connected elements (e.g., buttons + icons).

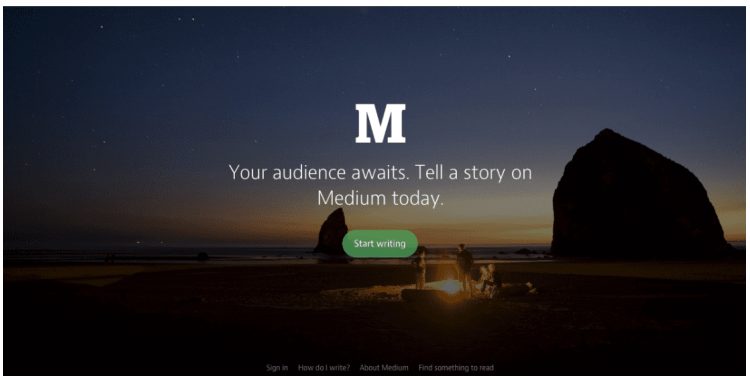
The Von Restorff Effect

- The Von Restorff effect (also known as the **isolation effect**) predicts that when multiple similar objects are present, the one that differs from the rest is most likely to be remembered!
- This is the main reason why all call-to-actions (CTAs) look different from the rest of the action buttons on a site or application!

Source: https://www.onepager.com/

The Von Restorff Effect

- **The Von Restorff Effect** In web design



Source: www.medium.com

Medium uses a green CTA button that contrasts with the background colors to draw attention to it.

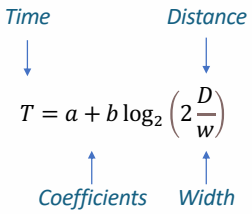
The Von Restorff Effect

How to apply this law in UI/UX design:

- **Use Contrast Wisely :** Make the target highlight unique by ensuring it uses different shapes or colours or sizes from other elements. But don't overdo it. Multiple prominent items within a design will confuse users.
- **The highlight should focus exclusively on one element:** Multiple attention-seeking elements will prevent the effect from being noticeable. The vital element should receive your primary attention.
- **Test and Optimize :** By employing A/B testing, companies can locate optimal design choices. To determine which elements work best, you should use various colour combinations, size variations, and placement arrangements directed at your audience.

Fitts' Law

- **Fitts' Law proposes that the time taken to move to a target area is a function of the size of the target and distance to the target.**
- The law suggests placing target buttons closer to expected mouse locations and making them larger to decrease interaction time. This concept is important in web design because the time required to take a desired action affects conversion rates and any additional time is a risk of losing a potential customer



Fitts' Law

- Fitts' Law In web design

For example, Spotify makes it easier to press "Play" than any other button.

Source: Spotify – Web Player: Music for everyone

Fitts' Law

How to apply this law in UI/UX design:

- Larger Targets: Make interactive elements big enough for easy clicks, especially for touchscreens.
- Reduced Distance: Keep frequently used controls close to main interaction areas, like the bottom of mobile screens.
- Edge & Corner Placement: Use screen edges and corners for key controls to enhance accessibility.
- Grouping: Place related elements together to streamline interactions and improve usability.
- Feedback: Provide immediate visual or interactive confirmation upon interaction.
- Accessibility: Ensure targets are large, high-contrast, and well-positioned for diverse users and devices.

What Eye-Tracking reveals

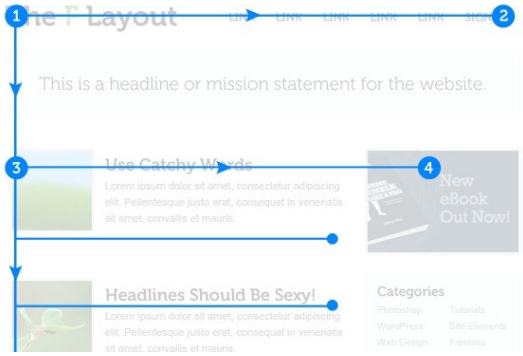
- Eye tracking is a technique to use specialized technology to track—and analyze—where users look on a digital interface and for how long.
- Designers use this data to understand user attention and behavior—and optimize how they place elements like buttons and menus to enhance the user experience.

The Nielsen Norman group F-pattern heat maps from eye tracking studies

Source: https://uxplanet.org/8-ways-to-reduce-cognitive-load-part-2-4b0f9d8ef5ad

F Pattern

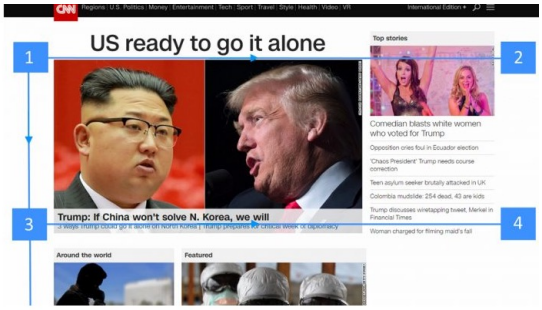
- F Pattern describes the most common scanning patterns of the user's eye when it comes to content blocks.
- F for fast. This is how users read your content. In a matter of seconds, their eyes move at incredible speed over the pages of your website.



Source: https://medium.com

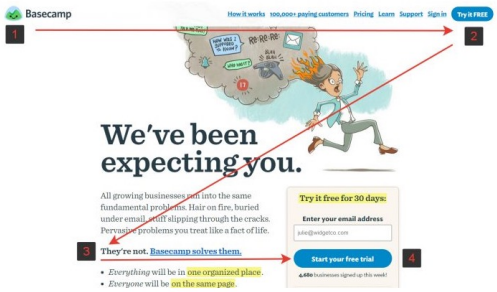
F vs Z patterns

F Pattern



An F-shaped pattern is used by CNN.

Z Pattern



A Z-scanning pattern is used by Basecamp.

Source: https://medium.com

Heatmap – Attention Insight

- Attention Insight is a predictive analytics tool that evaluates how users visually perceive a design before it even goes live. It uses advanced algorithms to simulate where users' attention is likely to be directed when viewing a page.

https://chromewebstore.google.com/detail/attention-insight/kckakcdglnklfekbjcghcogpohmdammg

EXERCISE

- User Inyerface is a hardcore and funny game where you have to fight your way through an incredibly dumb and complicated interface as quickly as possible. You will forever remember these mistakes in design. It`s an emotional design, but emotion is cringe.
- https://userinyerface.com/

Try to complete the tasks on this deliberately frustrating website.
Observe how confusing design, unclear guidance, and visual overload increase your cognitive workload.

Ask participants to visit the website and attempt to complete the form.

Then, debrief with them:

- What made the experience difficult?
- How did they feel during the task?
- Can they identify elements that increased their cognitive load? (bad hierarchy, misleading buttons, intrusive pop-ups)

This exercise is a great illustration of how **poor usability principles** can negatively impact the user experience, leading to frustration, errors and increased mental effort.

Usability Principles

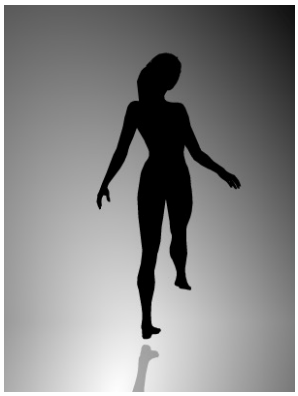
- As we said first, principles of **design** and principles of **ergonomics** are closely **related**.
- Let's take a look at the ergonomic approach, repeating certain principles with other examples

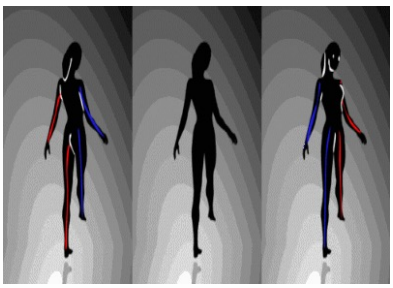
Slide Purpose

Introduce the overall theme: the core principles of usability (sometimes called ergonomics) in digital product design.

- Good usability significantly impacts project success and user satisfaction.
- Well-designed products can reduce frustration, improve adoption, and enhance brand reputation.

How we focus

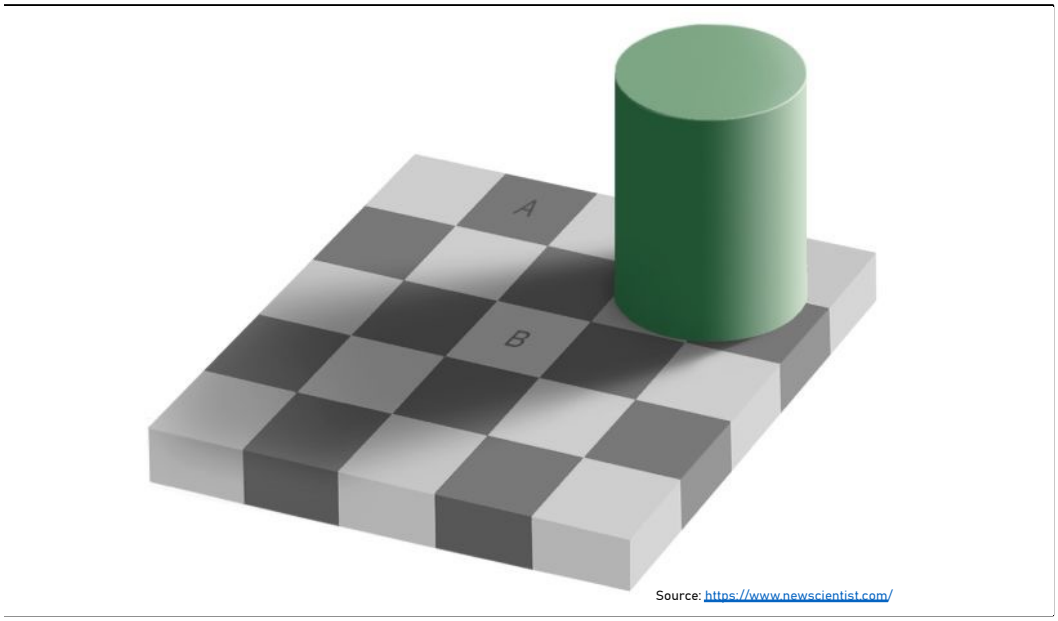




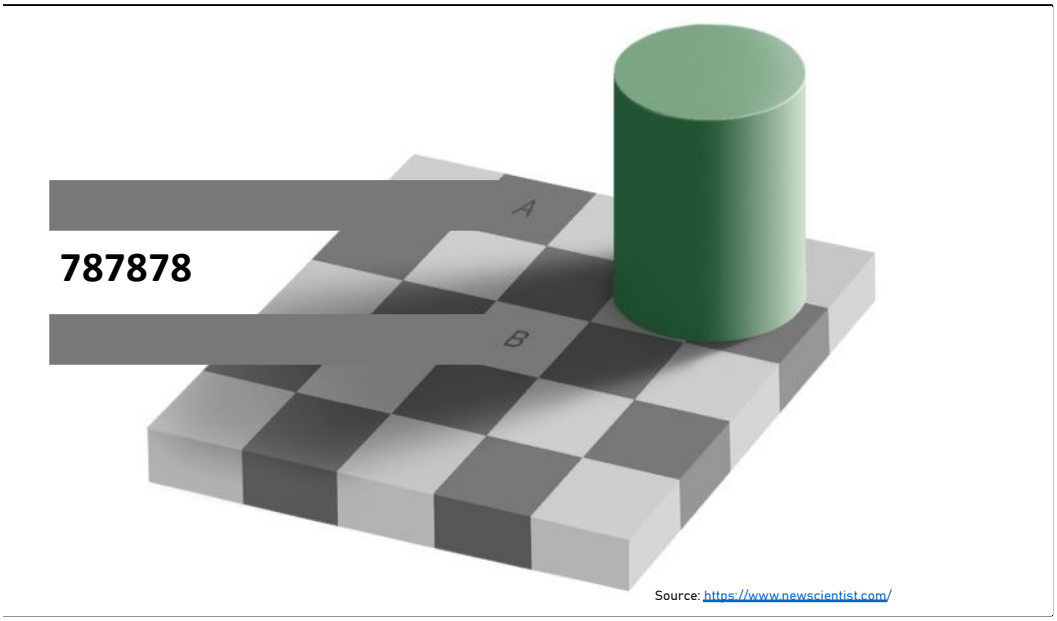
Source: https://www.braingymmer.com/en/blog/brain-illusion/

Slide Purpose

This is an optical illusion showing two human silhouettes in motion. Depending on how you focus, you may see them turning clockwise or counterclockwise. This is a great way to illustrate how our perception can vary depending on visual cues and how easily we can misinterpret information. In UX, this reminds us that users might not see or interpret an interface element the same way.



Slide Purpose
This image shows another famous visual illusion. Square A and square B appear to be different shades of grey, but they are actually the same color. The surrounding context, like the shadow and the pattern, tricks our brain. This demonstrates how visual context influences perception. In interface design, we need to be aware that contrast, shadows, and environment can mislead the user.



Slide Purpose

Here, we reveal the illusion by connecting the two squares with a solid grey strip. It shows that A and B are exactly the same color. This is a powerful example to remind designers to test their designs in real conditions and to not rely only on what they assume is visible or clear.

Ergonomic criteria contribute to the experience

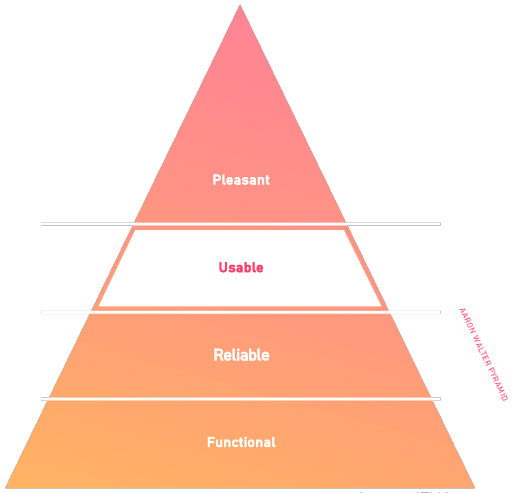
- Even if they are not sufficient to guarantee a perfect experience, ergonomic criteria contribute to making an experience unpleasant, complicated, satisfying, etc.

- **Slide Purpose**
- Explain how **ergonomic (usability) criteria** shape the user experience, whether positively or negatively.
- **Key Points**
- Even if ergonomics alone can't guarantee a "perfect" user experience, it can certainly make an interface **simpler or more complicated**.
- Criteria such as layout, clarity of instructions, and consistent navigation **directly affect how users perceive and interact** with the system.
- **Example**
- A website might have fantastic visuals but poor navigation structure. Users quickly become frustrated and leave, indicating a flaw in usability.

Usable?

A usable interface is a system:

- Effective : the user achieves his goals
- Efficient : the user uses the least resources
- Satisfactory : the user is not frustrated



Source: JEMS

Definition

A usable interface is one that is:

- **Effective**: Users can achieve their goals.
- **Efficient**: Users expend minimal time or effort.
- **Satisfying**: Users are not frustrated by the process.

Slide Purpose

Emphasize these three pillars (effectiveness, efficiency, satisfaction) in assessing any design.

- If any pillar fails, users sense friction.

eu-ri-sti-k'

- Heuristics is the art of finding .
- Composed of a set of rules,
- This reading grid allows you to evaluate an interface, to quickly identify problems , but also to find solutions .
- They result in recommendations or practical guidelines for design, but will never replace a user test .

Source: JEMS

Definition

Heuristics are rules of thumb or guidelines to quickly evaluate an interface.

- They do not replace real user tests, but they're an excellent starting point for expert reviews.

Slide Purpose

Introduce the concept of heuristic evaluation as a cost-effective approach.

- Helps identify potential problems early in the design cycle.

An easy approach to be implemented

- Rapid inspection via comparison with recognized criteria and principles
- Inexpensive method
- Can be used very early in the design process
- Combinable with other methods

Source: JEMS

Slide Purpose

Highlight the benefits of heuristic evaluation:

- **Rapid inspection**: Compare the interface against known principles.
- **Low cost**: No need for large testing budgets.
- **Early detection**: Works well in early design phases.

A limiting approach by subjectivity

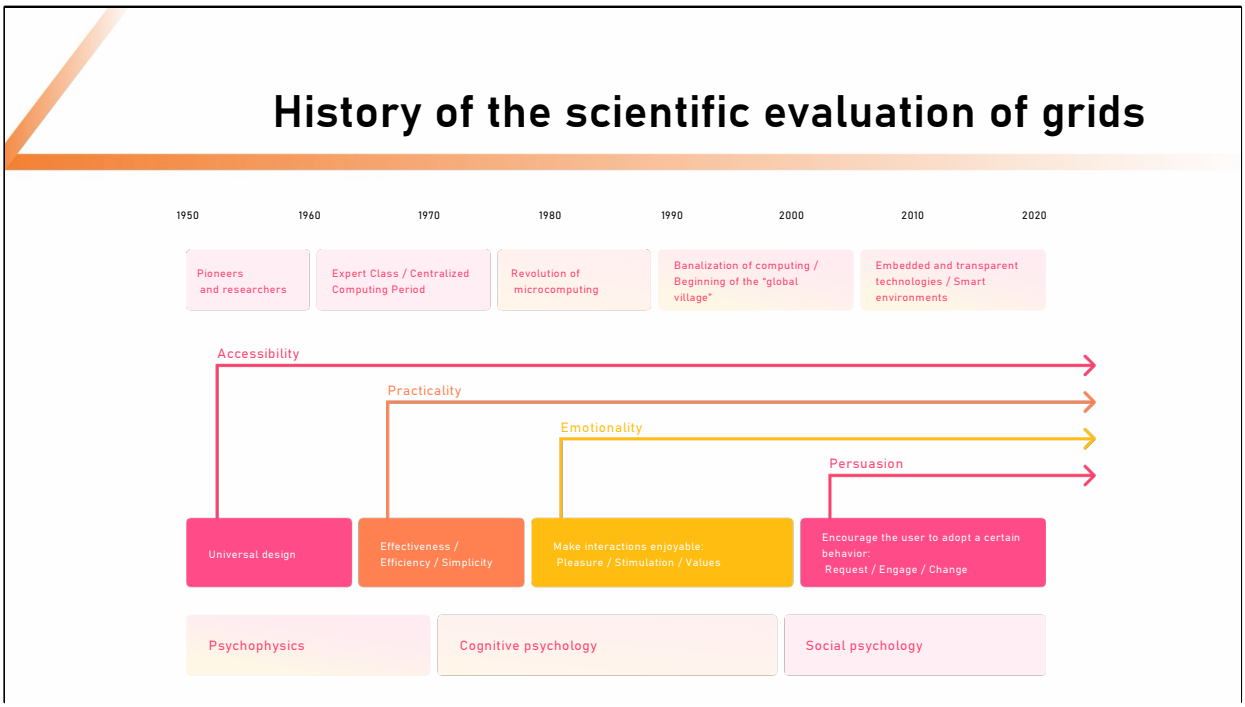
- Risk of missing problems
- Risk of seeing non-problems
- Need experience and knowledge
- Requires multiple reviewers for optimal results

Source: JEMS

Slide Purpose

Address the limitations of heuristic evaluations.

- Subjective: depends on the reviewer's expertise and perspective.
- Risk of missing true problems or inventing non-issues.
- Multiple evaluators help reduce individual biases.



Slide Purpose

Give a historical context of how usability principles evolved over time with changing technology.

- From centralized computing (1950s) to smart environments (present day).
- Focus shifted from pure functionality to accessibility, emotional design, persuasion.

Non-exhaustive list of different heuristics

Set	Kind	Focus
Bastien & Scapin (1993)	General	Usability
Nielsen (1994)	General	Usability
Paz et al. (2014)	General	Transaction
Nemery & Brangier (2014)	General	Persuasion
Colombo & Pasch (2012)	General	Global UX
From Vicente & Pain (2002)	General	Emotion/Motivation
Instone (1993)	General	Usability
Butcher (2013)	General	Global UX
Kuparinen et al. (2014)	Specific	Mobile Map Apps
Bertini & al. (2009)	Specific	Mobile

Slide Purpose

Show multiple sets of heuristics that exist for various scopes.

- **Nielsen (1994)**: General usability.
- **Bastien & Scapin (1993)**: Broad interface analysis.
- **WAI/W3C (2018)**: Accessibility guidelines.

Non-exhaustive list of different heuristics

Set	Kind	Focus
Inostroza et al. (2015) - SMASH	Specific	Smartphone
WAI / W3C 2.1 (2018)	General	Accessibility
Arhippainem (2013)	General	Global UX
Scheinderman (2005)	General	Usability
Park & Hwan Lim (1999)	General	Usability
Koeffel et al. (2010)	Specific	Video Games
Eidaroos et al. (2009)	Specific	Government website
Bonastre & Granollers (2014)	Specific	eCommerce

Slide Purpose

Explain that some heuristics are general, others are more specific (e.g., gaming, mobile map apps).

- General heuristics apply widely.
- Specialized heuristics address unique domain challenges.

Bastien & Scapin

Bastien and Scapin's grid dates from 1996, but it is still relevant!
It is composed of **8 criteria**:

1. Guidance
2. Workload
3. Explicit control
4. Adaptability
5. Error management
6. Coherence
7. Significance
8. Compatibility

Definition

Bastien & Scapin's grid (1996) remains relevant, featuring 8 criteria:

- Guidance
- Workload
- Explicit Control
- Adaptability
- Error Management
- Consistency
- Significance
- Compatibility

Slide Purpose

Emphasize that it's a thorough framework still used to evaluate usability beyond just aesthetics.

Summary – The 8 Bastien & Scapin Criteria

Criterion	Description	Examples
Guidance	Inform and guide the user through visual cues, messages, and feedback.	Clear menus, immediate feedback, readable labels.
Workload	Reduce perceptual and memory load to make interaction easier.	Short and concise texts, minimal actions, chunking.
Explicit Control	Allow the user to control the interaction and system responses.	Cancel button, ability to undo, no unsolicited actions.
Adaptability	Adapt to the user's needs, preferences, and context.	Interface customization, shortcuts for experts.
Error Management	Prevent errors and help users recover when they occur.	Error prevention, clear error messages, undo option.
Consistency	Maintain consistency in content, format, and interaction throughout the system.	Same icons for same actions, consistent navigation.
Significance of Codes	Use meaningful labels and codes aligned with users' expectations.	Explicit icons, clear terminology, avoid jargon.
Compatibility	Ensure the interface matches users' habits, skills, and context of use.	Responsive design, adapted vocabulary, intuitive flow.

Definition

An approach to prioritize issues based on severity:

- Cosmetic: Fix if resources allow.
- Minor: Solve secondarily.
- Major: High priority fix.
- Blocking: Must fix immediately.

Slide Purpose

Explain how to triage usability issues to tackle the most critical ones first.

- Factors like frequency and impact help guide which issues to fix earliest.

Short UX cooking class

- Identify your personas
- Combine a general grid + a specific grid
- Remember to mention the positive points
- Multiply the evaluators

5 evaluators = 75% of problems detected

This slide offers concise, actionable guidance on performing a heuristic evaluation. It's designed to help UX professionals systematically identify usability issues early in the design process.

Identify Personas to Understand User Profiles - Before starting the evaluation, define clear user personas. Understanding the target users' goals, behaviors, and pain points ensures that the evaluation focuses on real user needs and contexts.

Combine a General Grid + a Specific Grid if Needed - Utilize Jakob Nielsen’s 10 usability heuristics as a foundational framework. For specialized domains or applications, supplement with domain-specific heuristics to capture unique usability considerations .

Mention Positives as Well as Negatives - Document not only usability issues but also effective design elements. Highlighting what works well provides a balanced view and reinforces good design practices.

Use Multiple Evaluators (5 Can Detect ~75% of Issues) Engage multiple evaluators—ideally five—to independently assess the interface. Research indicates that five

evaluators can uncover approximately 75% of usability problems . After individual evaluations, consolidate findings to identify common issues and assess their severity.

Severity score

Severity	Factors	Description	Decision
Cosmetic	Rare / Easily Avoidable	No difficulty in achieving the objectives	Problem so minor that it should only be solved if there are resources left to allocate
Minor	Uncommon / avoidable	Low to medium difficulty in achieving objectives	Problem to be solved secondarily
Major	Common / Hard to avoid	Great difficulties in achieving the objectives	Problem that needs to be solved as a priority
Blocking	Frequent / Unavoidable	Unable to use the interface	Catastrophic problem that must be resolved before anything else

Definition

An approach to prioritize issues based on severity:

- Cosmetic: Fix if resources allow.
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Slide Purpose

Explain how to triage usability issues to tackle the most critical ones first.

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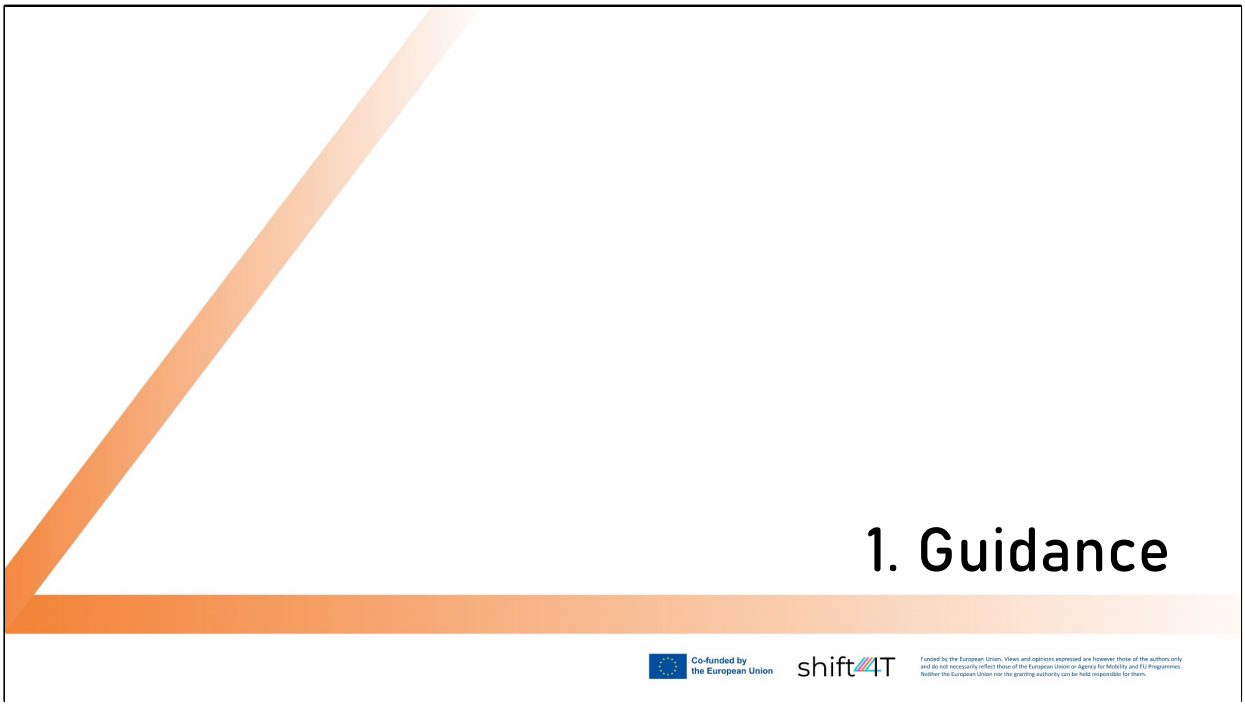


Slide Purpose

Focus on "Where am I? What can I do?" as the user viewpoint.

- Clear orientation and signposting.
- Navigation, labeling, and cues reduce confusion.

Guidance / Incentive

- Where am I?
- What can I do?

Slide Purpose
Highlight how visual design decisions (icons, headings, color) quickly orient the user before conscious thought.

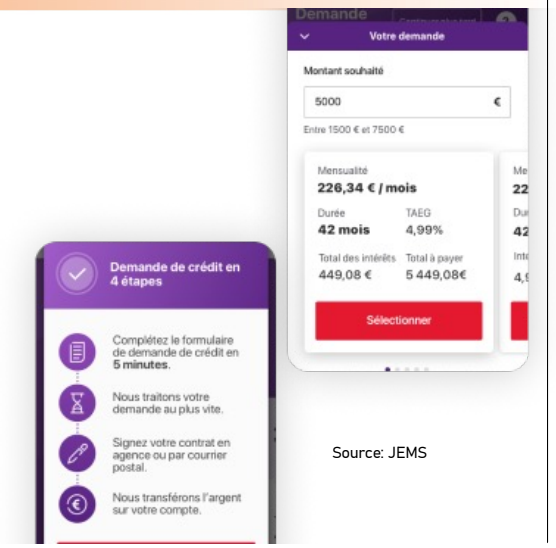
- Humans process visual cues rapidly.
- Smart visual design can subconsciously guide users.

As humans, our dominant sense is vision.

- It is our sense most quickly activated by the brain and it intervenes before active reflection .
- Visual choices therefore have a huge impact on the interface, even if this is largely unconscious.

Fold

- Refers to the virtual line below which the content is only visible by using scroll.
- The content above the fold is decisive in the behavior of the user who must a) understand that content is hidden b) make an effort to make it visible.



Source: JEMS

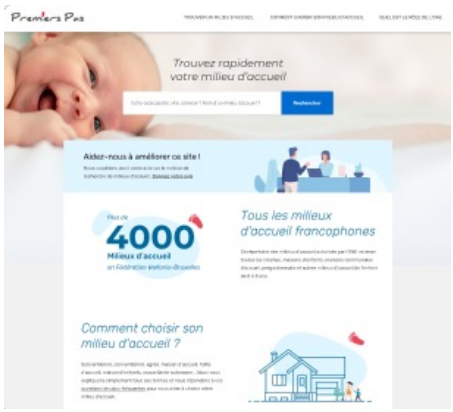
Slide Purpose

Explain the concept of the fold: the virtual line under which content is only visible by scrolling.

- Content above the fold is crucial for immediate user engagement.
- Ensure the user understands more content is available below.

White space

- It plays the same role in the composition as the whites in a score.
- Allows the eye to rest and then continue reading favorably (breathing zone)
- Highlights elements (clearance zone)
- Allows you to suggest reading paths



Source: JEMS

Slide Purpose

Show the role of white space as “breathing room” in design.

- Improves readability and highlights important elements.
- Encourages scanning and clarity.

Size

- Simulating the real experience, larger elements are perceived as being closer to the user than the little ones.
- It doesn't matter what the default display order or reading direction is: if one element is significantly larger than another, the eye will be drawn to it.

Slide Purpose

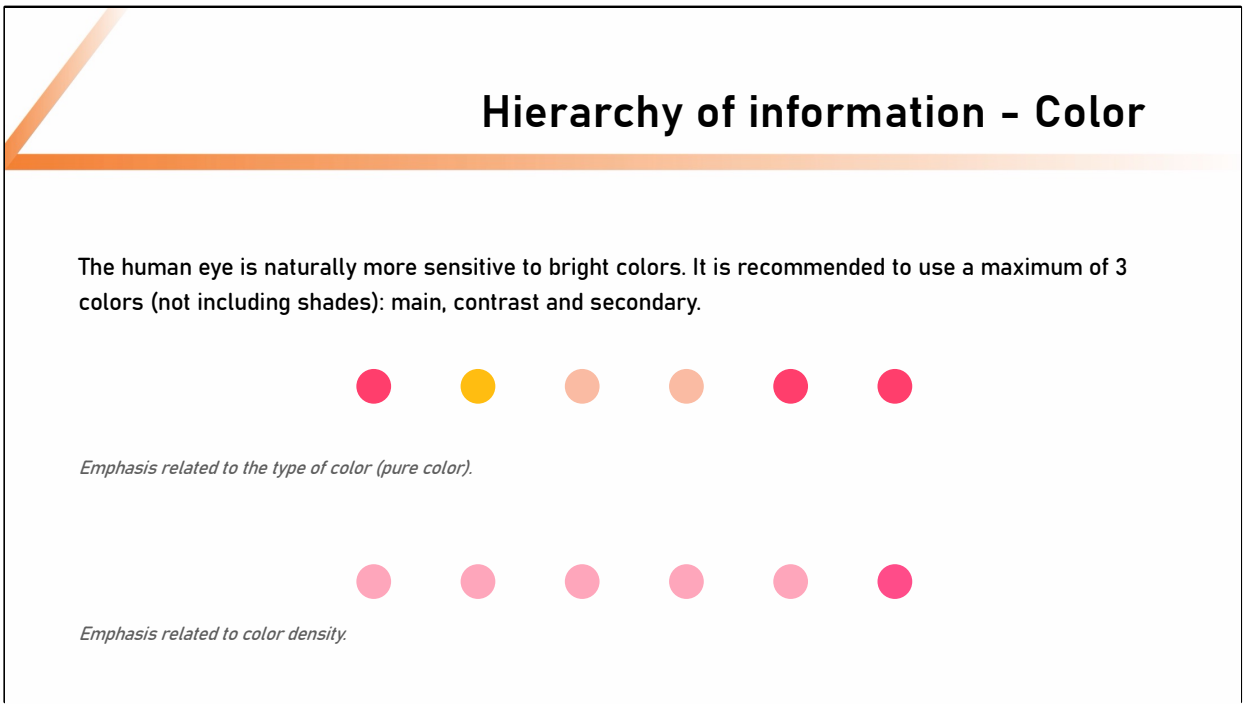
Larger elements are perceived as closer or more important.

- If something is critical (like a CTA), making it bigger draws the eye.

Hierarchy of information – Size

Simulating the real experience, larger elements are perceived as being closer to the user than the little ones.

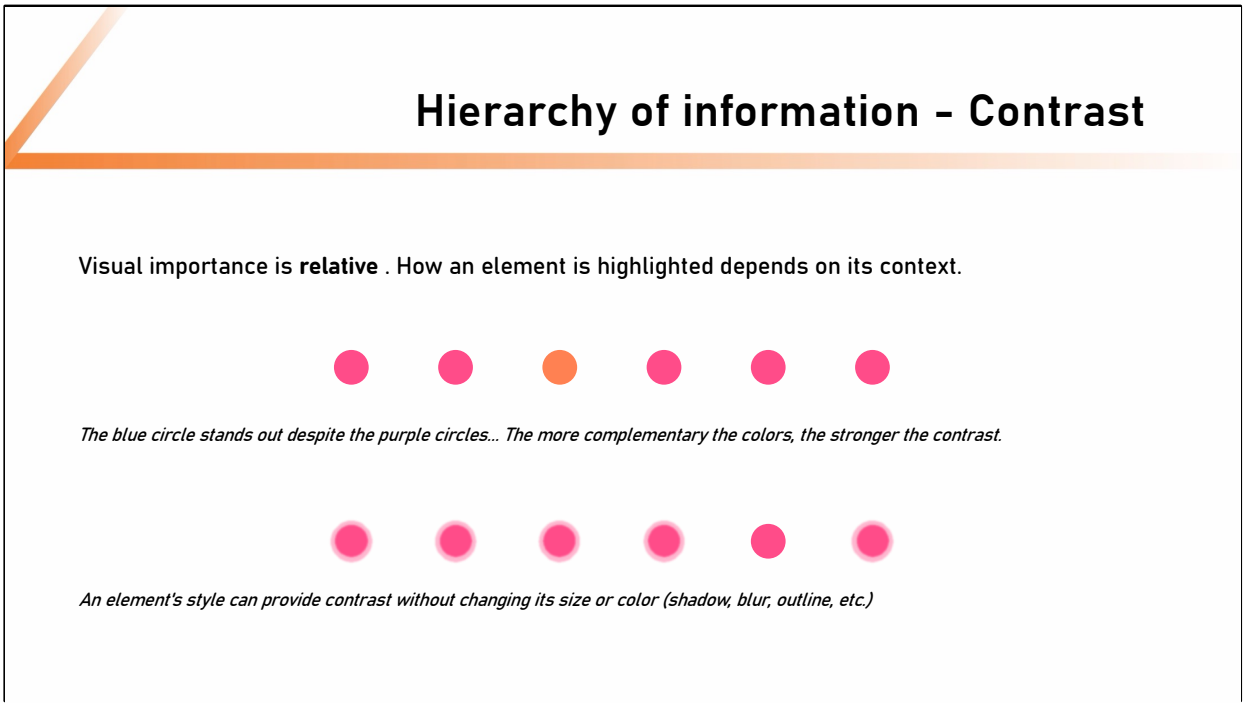
It doesn't matter what the default display order or reading direction is: if one element is significantly larger than another, the eye will be drawn to it.



Slide Purpose

Use color to create a visual hierarchy.

- The human eye is drawn to bright or contrasting hues.
- Aim for three main colors (excluding shades) to maintain consistency.



Slide Purpose

Stress that contrast is relative to context; an element stands out based on its surroundings.

- Outlines, shadows, blurs can separate key elements from the background.

Affordance

The call to action is strongly linked to the concept of affordance

Gives an element the **appearance** that suggests its **function** .

On the web, we refer to perceived affordance popularized by Don Norman.

Source: JEMS

Definition

Affordance is how an object's appearance suggests its function (clickable, draggable, etc.).

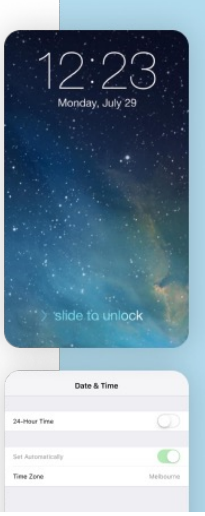
- Don Norman popularized the idea of "perceived affordance" for digital interfaces.

Slide Purpose

Link the concept of CTA design to affordance, so users immediately see how to proceed.

Affordance - Types of affordance

- Affordance **physical** , property making a physical action easier to perform
- Affordance **cognitive** , property allowing one to know what to do and how to do it
- **Sensory** affordance, property that helps the user
- to perceive something through one's different senses
- **Functional** affordance, property adding utility through a feature



Source: JEMS

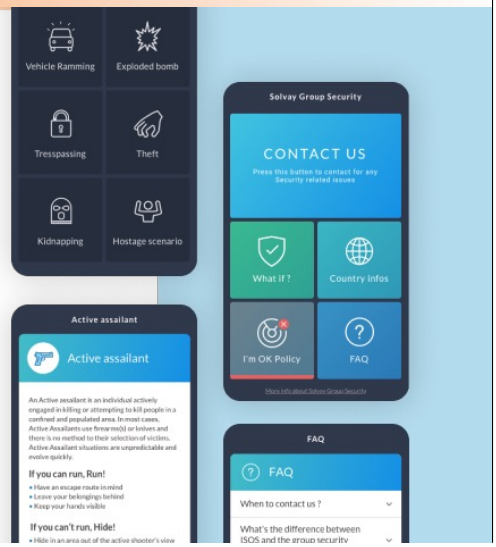
Slide Purpose
Show the different affordance categories:

- Physical (e.g., a door handle)
- Cognitive (mental clue: trash icon = delete)
- Sensory (feedback through haptics or sound)
- Functional (added utility, like auto-save)

Affordance – Flat Design vs Skeuomorphism

The current trend towards flat design is accompanied by a **more diffuse focus** due to less clear hierarchy and affordance.

Apple



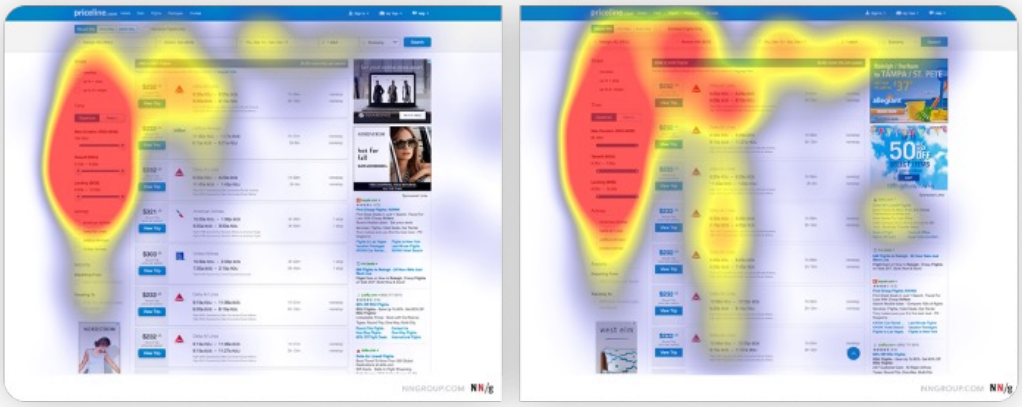
Source: JEMS

Slide Purpose

Compare minimalistic flat design to skeuomorphism, which mimics real-world textures.

- Flat design can sometimes weaken visual cues (affordances).
- Skeuomorphism can be more intuitive but may look outdated.

Affordance - Flat Design

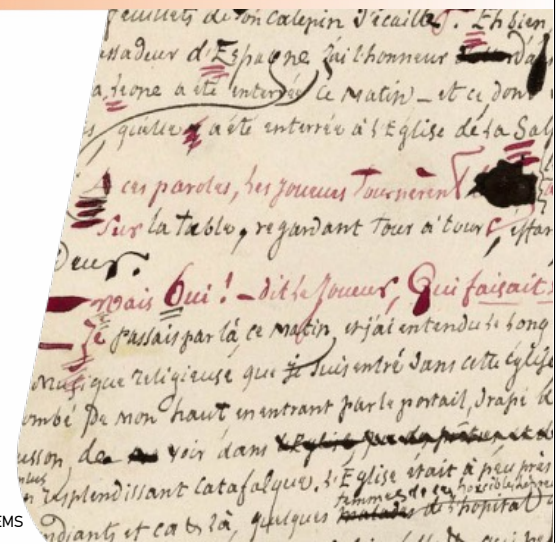


Source: https://www.nngroup.com/

Editorial

A guiding text must be formulated clearly and unambiguously.

- Announcement of objectives
- Literal and explicit style
- Use of specific verbs
- Use of active voice



Source: JEMS

Slide Purpose

Stress the clarity of any instructional text.

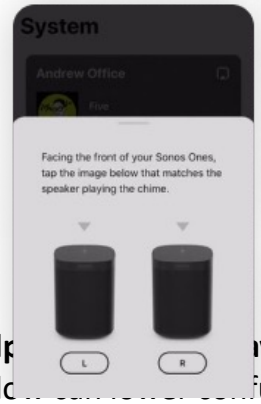
- State objectives explicitly.
- Use direct verbs and active voice.
- Avoid ambiguous phrasing.

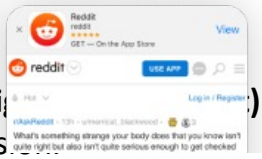
Initial Support

Manage the user's first steps by guiding them through their interactions

When users arrive on your site, you need to help them **take** action, guide them through their first steps, and encourage them to continue.

Source: https://www.nngroup.com/





Slide Purpose

Cover the importance of onboarding (help … navi…).

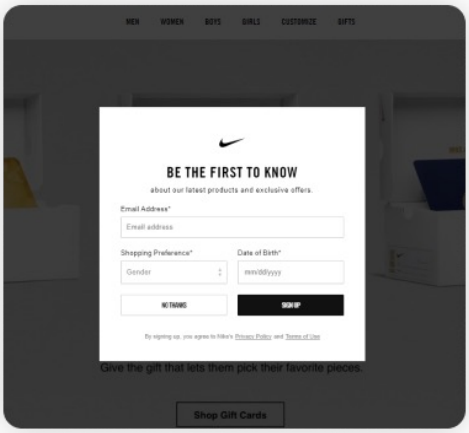
- Tutorials, pop-up hints, or a welcome flo… confusion.
- Encourage them to take key initial actions.

Solicitation

Capture the user's attention

The user's gaze must be drawn to certain chosen elements through the **use of colors** (contrast, bright color, etc.), **movement** and **disruption** .

His interest must be maintained by titillating his intelligence or appealing to his curiosity.



Source: https://medium.com

Slide Purpose

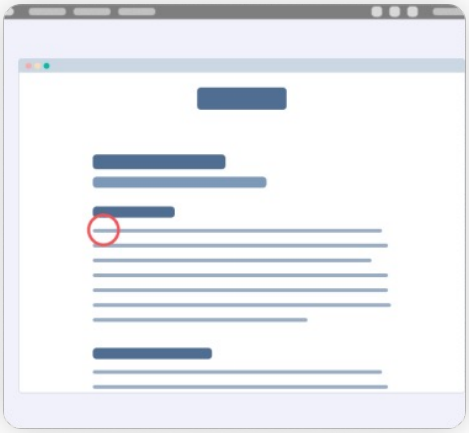
Show how elements like color, movement, or disruption can grab focus.

- In a crowded digital space, you have seconds to hook the user.
- Keep it tasteful—too much animation can distract.

Solicitation

Capture the user's attention

Use motion and animations to capture the user's attention.



Source: https://medium.com

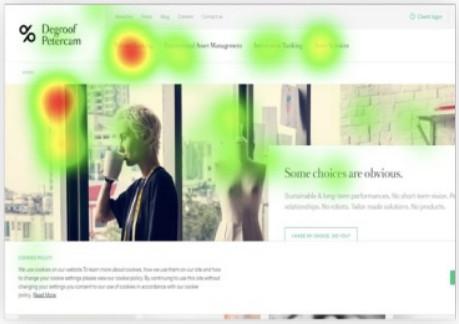
Slide Purpose

Highlight how subtle animations guide users through transitions.

- Ensure smooth, short animations.
- Excessive animation can slow performance or feel annoying.

Neurons mirrors

Using mirror neurons to attract user attention.

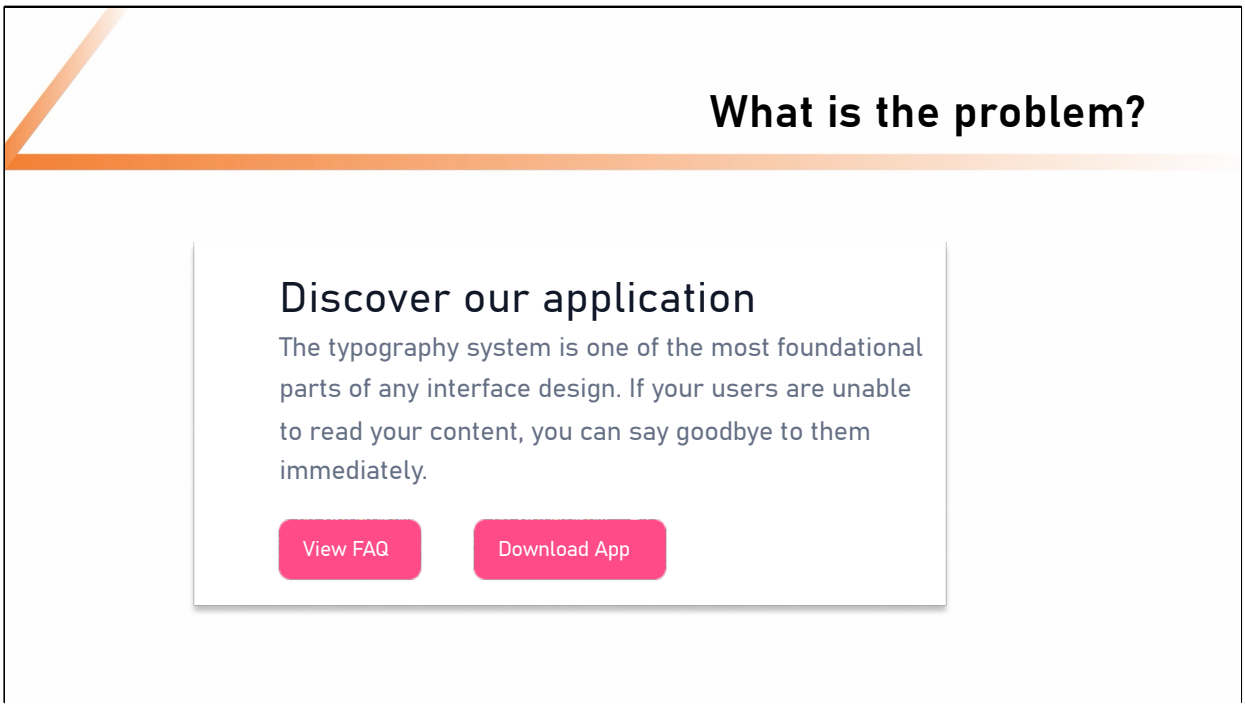


Source: JEMS

Slide Purpose

People are drawn to human faces or gestures.

- An image of a person pointing at a CTA can direct user focus.
- Use carefully, ensuring it aligns with your brand tone.



Slide Purpose
Illustrate how typography, layout, and CTAs (View FAQ, Download App) influence user flow.

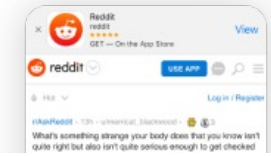
- Provide a short demonstration or screenshot if possible.

Better proposal

Discover our application

The typography system is one of the most foundational parts of any interface design. If your users are unable to read your content, you can say goodbye to them immediately.

Download App View FAQ



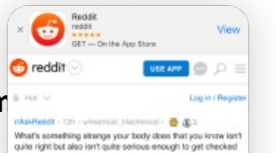
Tips

Weight

kg 12

Date

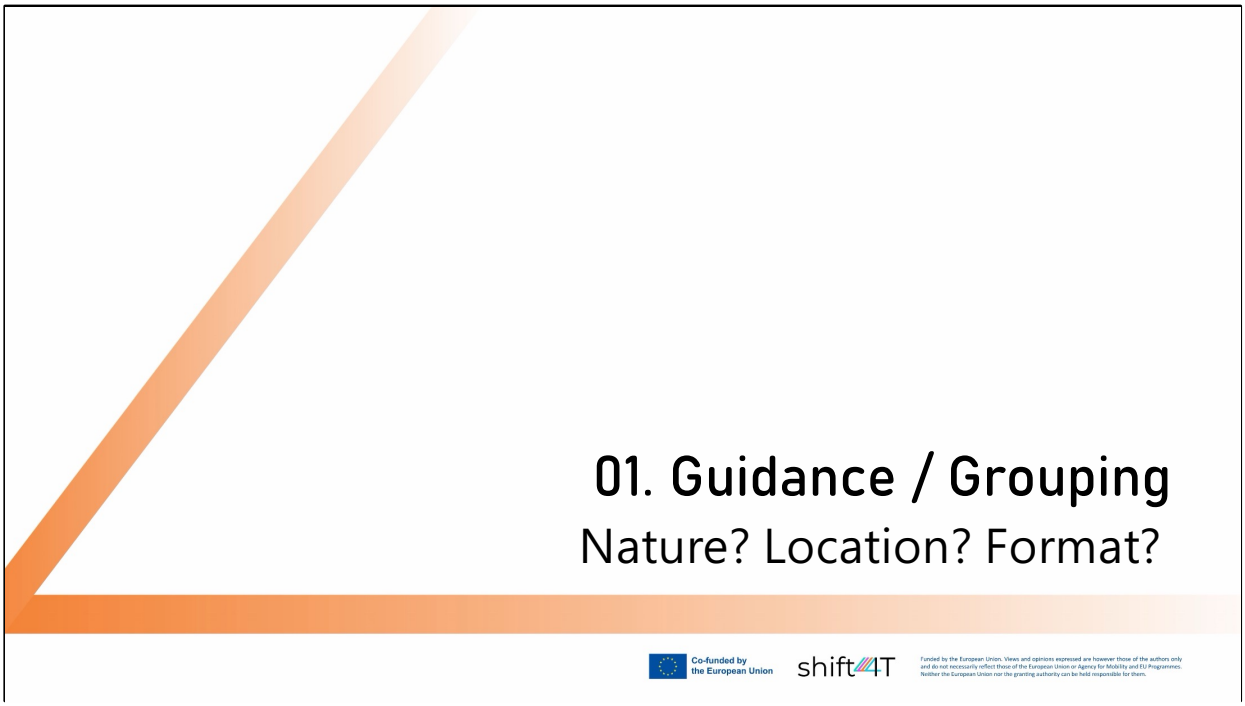
dd/mm/yyyy



Slide Purpose

Emphasize clarity in data labeling and formatting (kg, dd/mm

- Reduces confusion on what input is required.
- Combine a label with an example if necessary.



Slide Purpose

Explain that the brain groups elements by proximity or meaning.

- Ask “Nature? Location? Format?” to confirm items are grouped logically.
- Proper grouping eases scanning and comprehension.

Principles of Gestalt

What do you see?

Our brain gives different meaning depending on our point of view.

Source: https://fr.pickture.com/

Slide Purpose

Introduce Gestalt theory: how we perceive organized wholes, not just isolated parts.

- Helps designers structure layouts in ways the user's mind easily interprets.

Principles of Gestalt

The whole is more important than the parts that make up the whole.

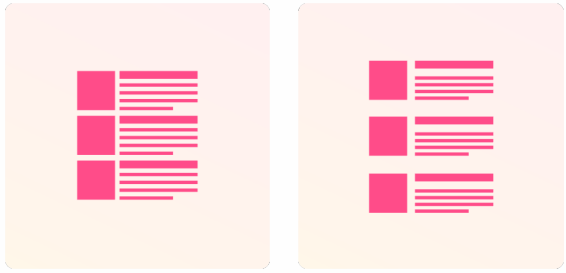
Gestalt principles detail how our mind assembles and interprets each of the visual elements.

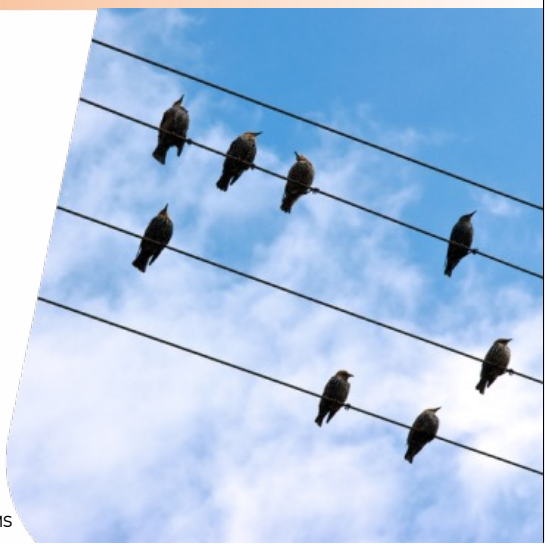
Source: JEMS

Principles of Gestalt

Proximity

When elements are close together, they are perceived as parts of a group.





Source: JEMS

Slide Purpose

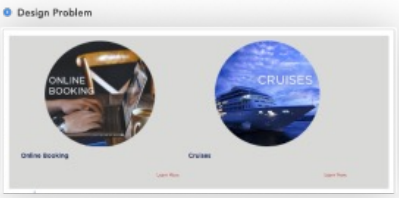
Elements close together are viewed as part of the same group.

- Placing a label near a field fosters immediate association.

Principles of Gestalt

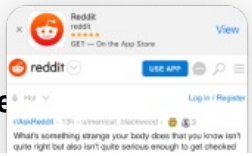
Proximity

When elements are close together, they are perceived as parts of a group.



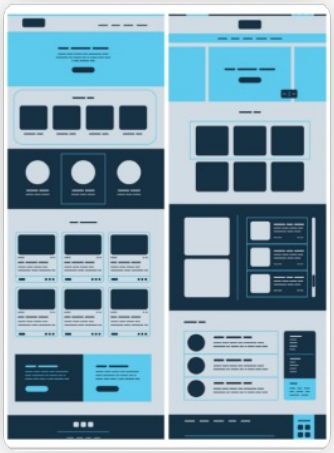
Source: http://medium.com

Slide Purpose
Reinforce how proximity strongly affects grouping, so keep re together.

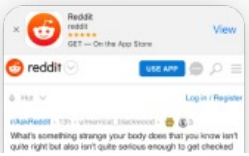


Proximity and grouping

The way elements are grouped affects our ability to extract information.

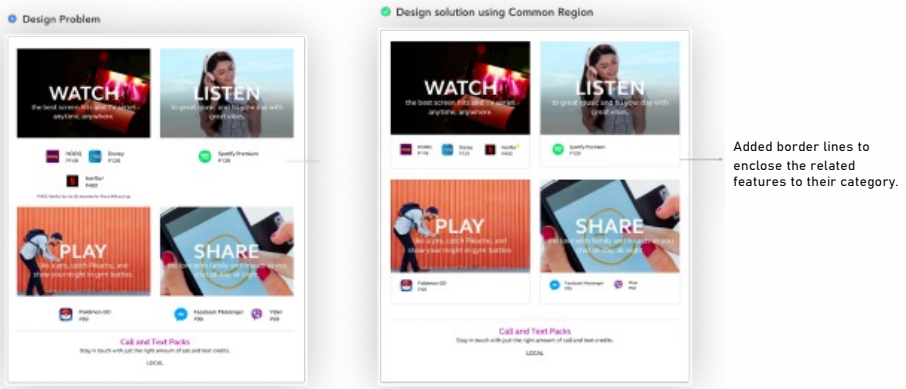


Source: http://medium.com



Principles of Gestalt

“It floats!”



Source: http://medium.com

Slide Purpose

Show that how items are grouped affects the user’s ability to extract information.

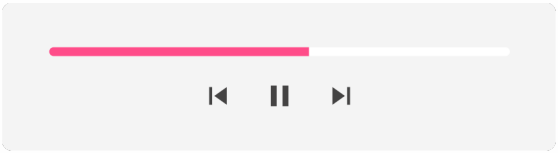
- Example: Group shipping details together rather than mixing them with billing.

Added border lines to enclose the related features to their category.

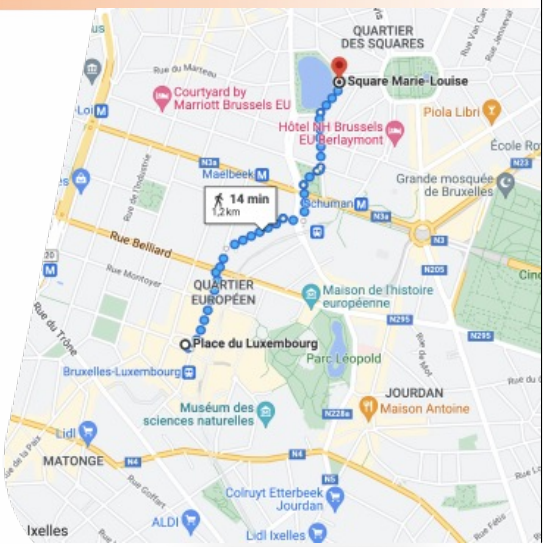
Principles of Gestalt

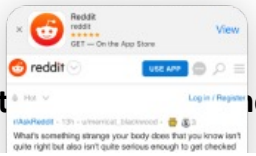
Continuity

When points are close together, they are perceived as continuity.



Source: http://medium.com



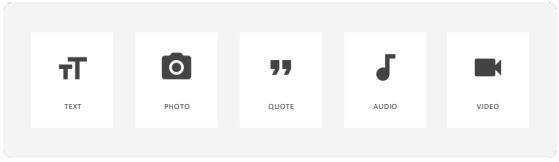


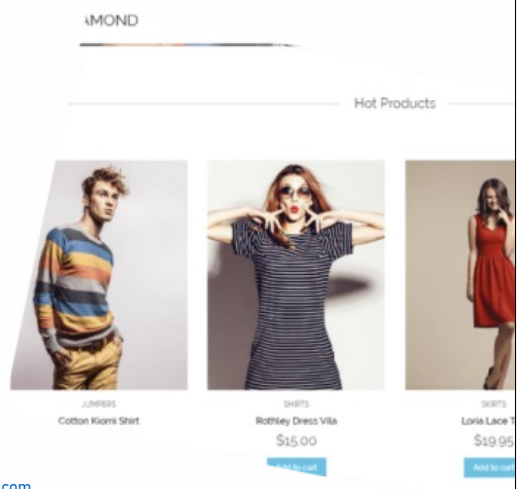
Slide Purpose
Give a visual example of an element appearing isolated if not cing user perception.

Principles of Gestalt

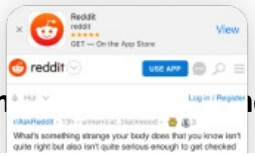
Similarity

If the distance does not allow a shape to be perceived, the most similar ones will be associated with each other.





Source: http://medium.com

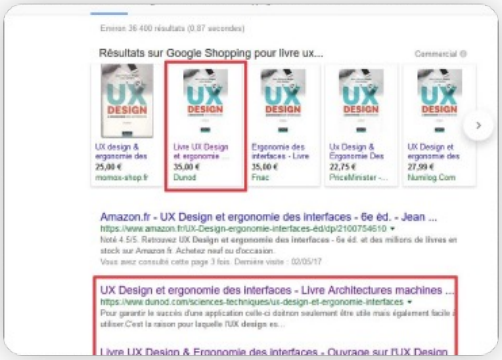


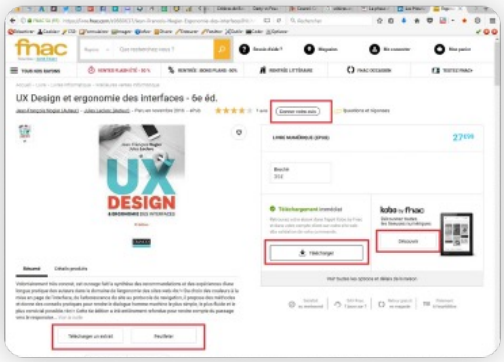
Slide Purpose

When distance is too large for a shape to be perceived, the m ost similar elements.

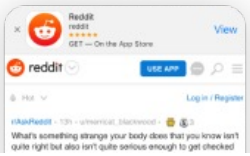
- Using consistent shapes or colors helps unify them visually.

Similarity / Distinction





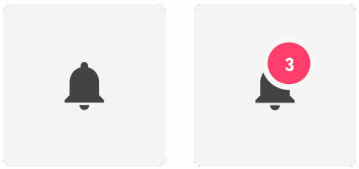
Source: JEMS



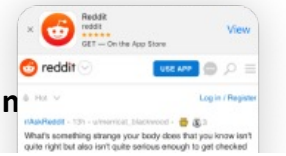
Principles of Gestalt

Closure

When an object is partially hidden, the mind perceives the object as a whole and the missing part is mentally replaced.



Source: JEMS



Slide Purpose

If part of an object is hidden, the mind often completes the n

- This is called “closure” in Gestalt.
- Used in logos or icons to create illusions of shapes.

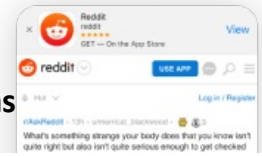
Principles of Gestalt

Symmetry

When the elements we are looking at have axes of symmetry, they are more easily perceived as an overall shape.

This principle takes precedence over the principle of proximity.

Source: JEMS



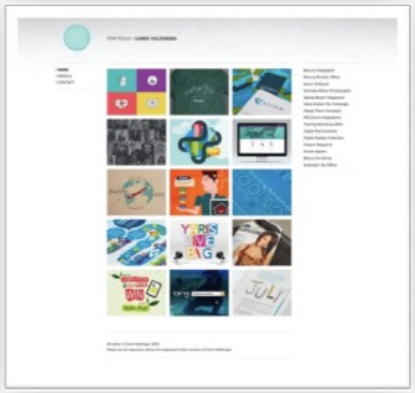
Slide Purpose

Elements with symmetrical axes are more easily perceived as

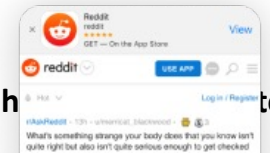
- Symmetry can override proximity if shapes align well.

Principles of Gestalt

Asymmetry



Source: http://medium.com

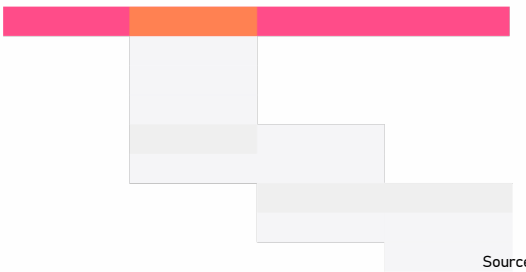


Slide Purpose
Asymmetric designs can be attention-grabbing but must be h to avoid confusion or imbalance.

Principles of Gestalt

Common destiny

When moving parts have the same trajectory, they are perceived as part of the same shape.

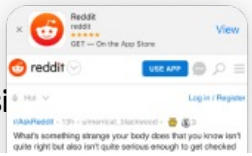


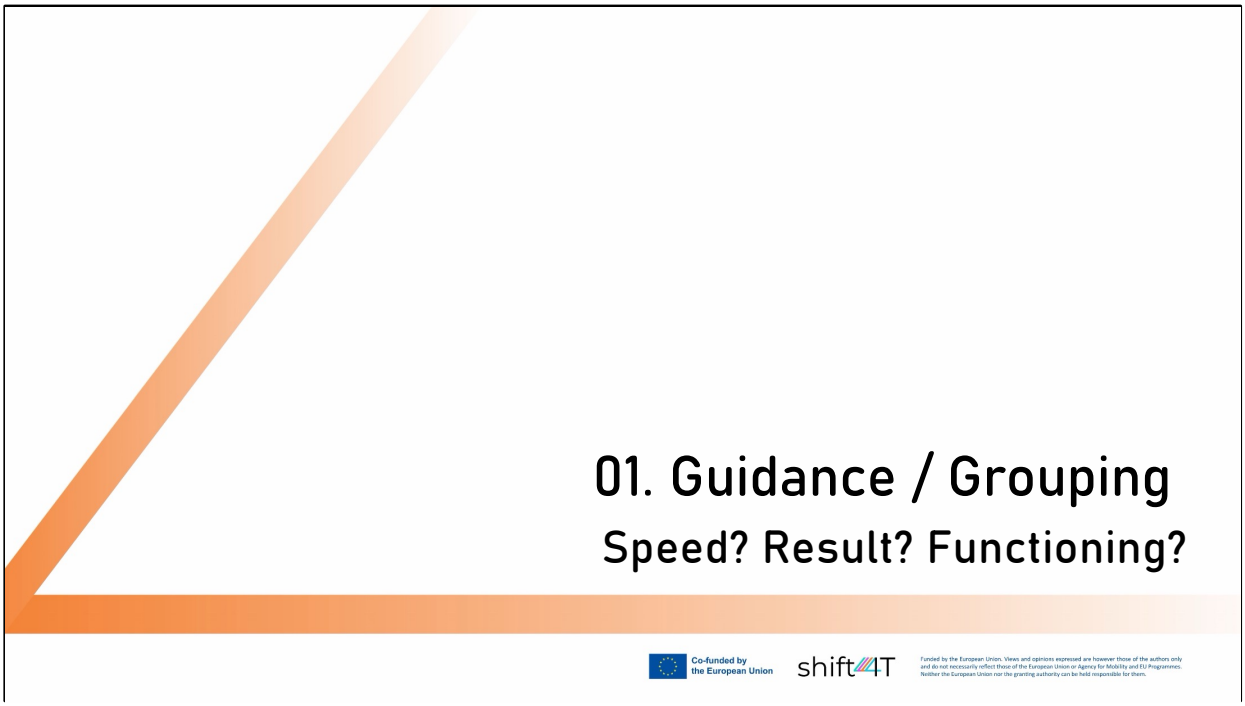
Source: JEMS

Slide Purpose

Moving parts sharing a trajectory are perceived as part of a si

- Useful in animated interfaces where items slide together.





Slide Purpose

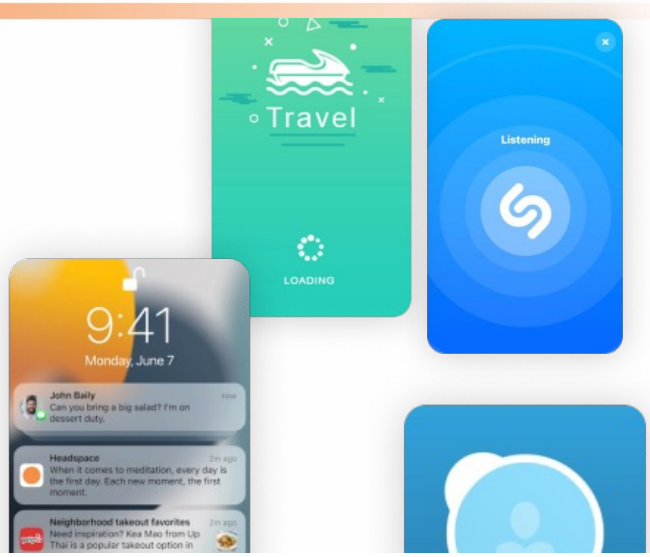
Users need feedback on speed, results, or system functioning to reduce uncertainty.

- “Where am I? Did the system register my action?”

Feedback

Types of feedback

- Feedback **visual**
- Feedback **sound**
- Feedback **haptic**



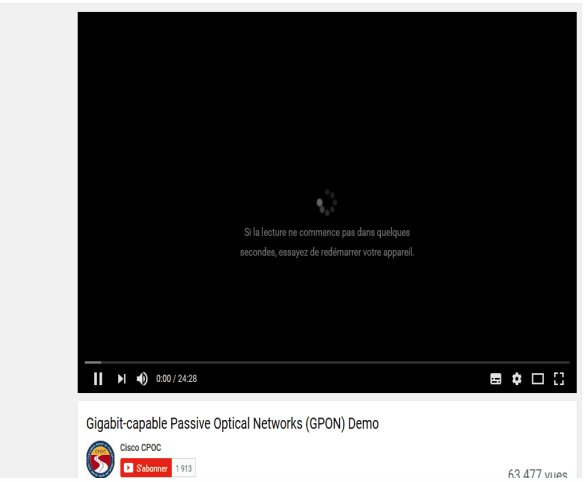
Source: JEMS

Examples

- Visual: color changes, pop-ups, progress bars.
- Sound: beeps, alerts.
- Haptic: vibration on mobile devices.

Immediate feedback

Loader



Source: http://medium.com

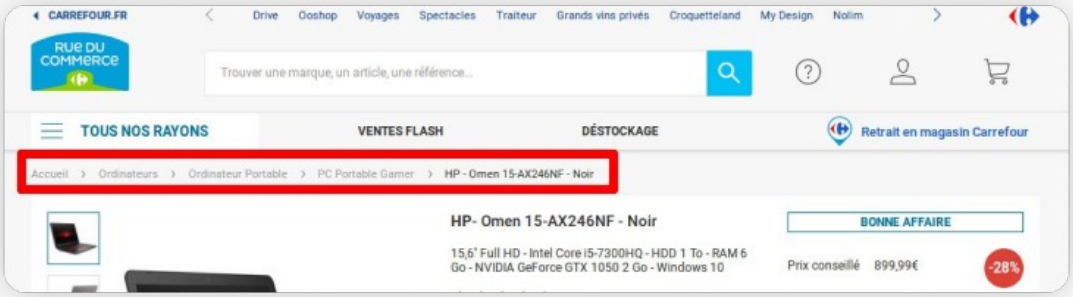
Slide Purpose

Indicate ongoing processes (e.g., a spinning icon or progress bar).

- Ensures users know the system isn't frozen.

Immediate feedback

Breadcrumbs



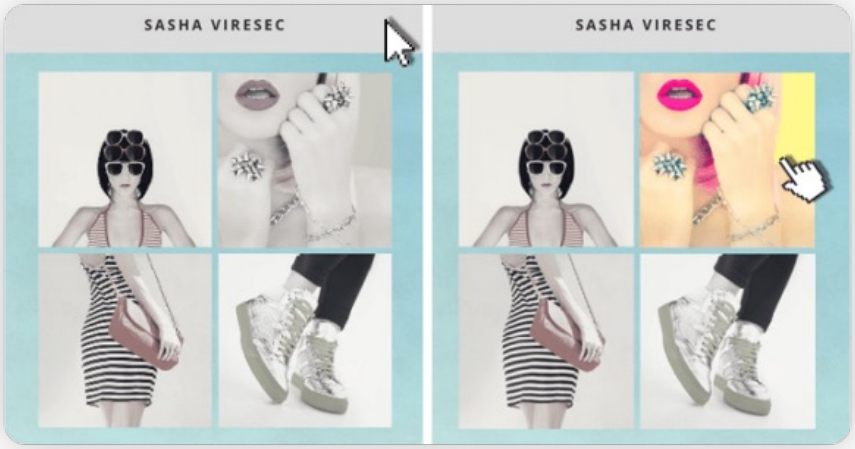
Source: JEMS

Slide Purpose
Show the user's location in a site or app hierarchy (Home > Category > Subcategory).

- Encourages backtracking and orientation.

Immediate feedback

Hover



Source: http://medium.com

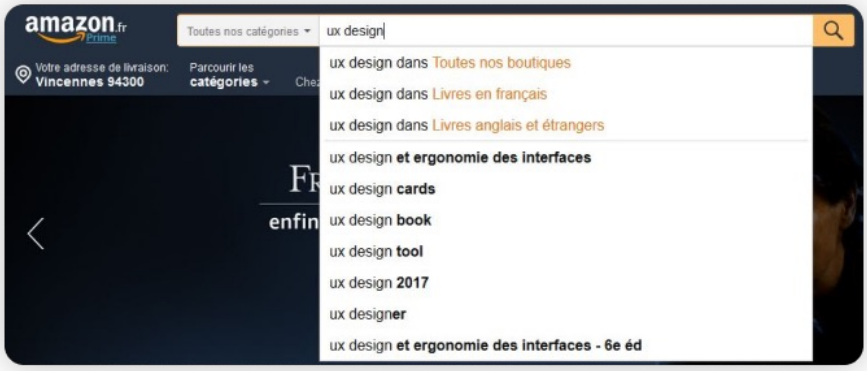
Slide Purpose

Hover states can reveal tooltips or highlight clickable elements.

- Note that touchscreens don't support hover, so offer an alternative.

Immediate feedback

Autocomplete



Source: http://amazon.com

Slide Purpose
Reduce manual effort or errors by suggesting completions for search or form fields.

Slide Purpose

Emphasize that an interface should be simple to read and parse.

- Clear typography, spacing, and language help reduce cognitive load.

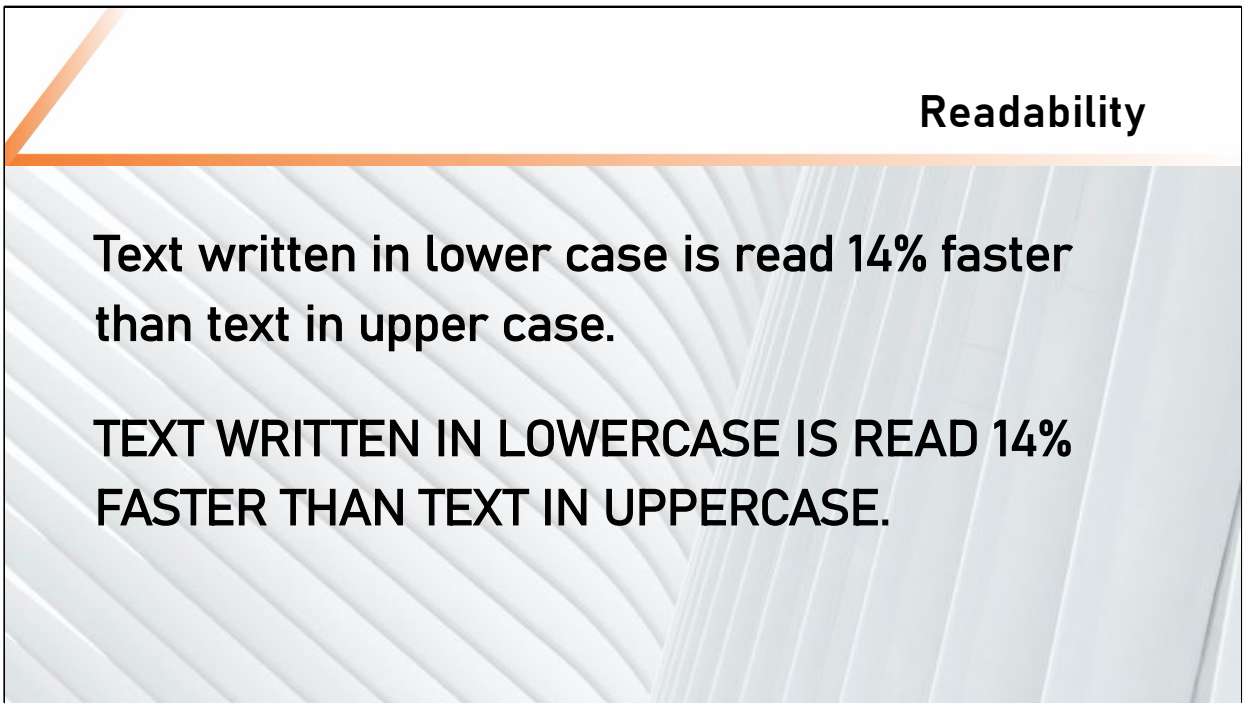
Readability

The order of the letters...

According to a university of the University of Cambridge, the order of the ltteers in a word has no meaning, the sole reason is that the first and last follow the bnnoe pclae. The problem can be caused by a total problem and can be seen in some cases. This is because the human brain does not read each letter itself, but the word as a whole.
The peruvian...

Slide Purpose
Highlight that the brain often reads the overall shape of words, not letter by letter.

- Slight letter scrambling usually doesn't hinder reading, but consistent spelling matters for clarity.



Slide Purpose
Show that uppercase is slower to read in sentences.

- Use uppercase for short labels or acronyms only.

Readability

Contrast

Poor color contrast affects visibility and readability.

It should be checked according to the size of the text, its boldness, its position in the interface...

https://webaim.org/resources/contrastchecker/

Source: JEMS

Slide Purpose

Explain how poor color contrast hinders visibility.

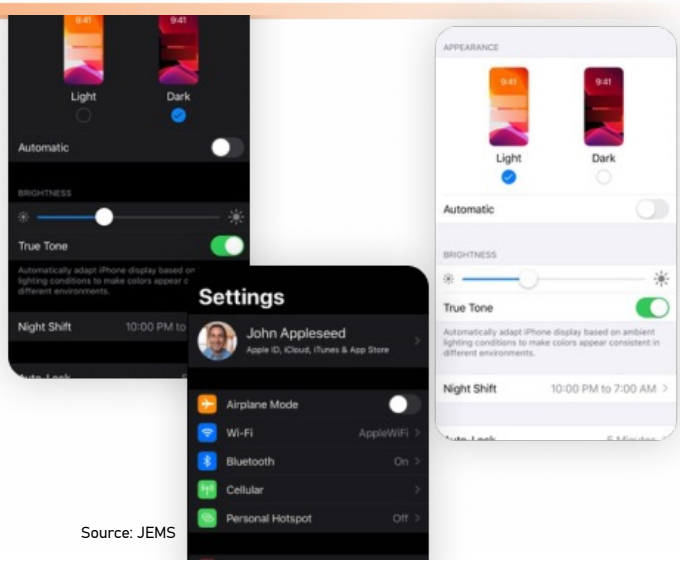
- Check contrast ratios (e.g., WebAIM) for text, backgrounds, and elements.

Dark Mode

For users with normal vision, light mode provides better performance most of the time. There is more overall light and so the pupil contracts more.

However, it may have long-term effects on fatigue.

Best practice is to allow users to switch between the two modes.



Source: JEMS

Slide Purpose

Compare light vs. dark modes:

- Light mode is often more readable, but dark mode can reduce eye strain for some.
- Offering both is ideal for user preference.

Exercise

Choose a web interface and assess it.
You can use capian.co as audit tool.

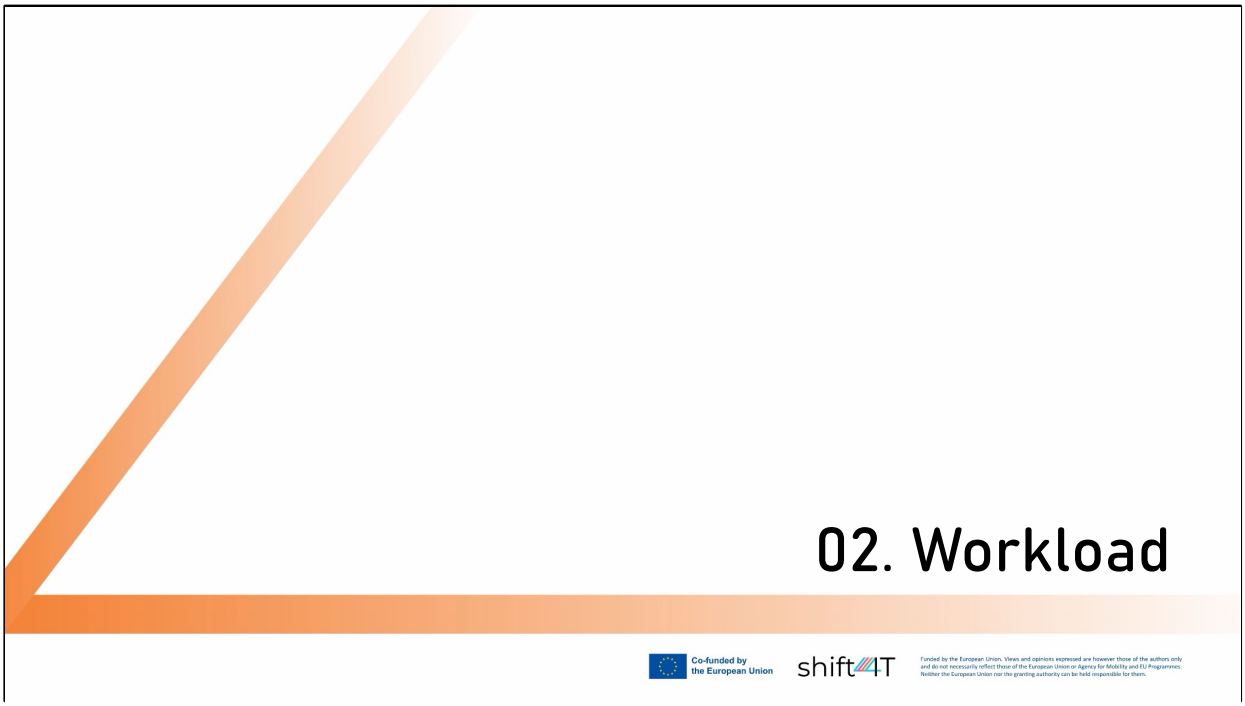
- Is the user assisted in how to use the interface?
- Is information of the same nature grouped together?
- Does the interface provide regular feedback to users?
- Are the affordances clear and visible?
- Are the available actions clearly visible?
- If needed, does the user have access to help?

Source: http://pixabay.com

Slide Purpose
Encourage self-audit:

- Is the user guided?
- Are elements of the same nature grouped?
- Is regular feedback provided?

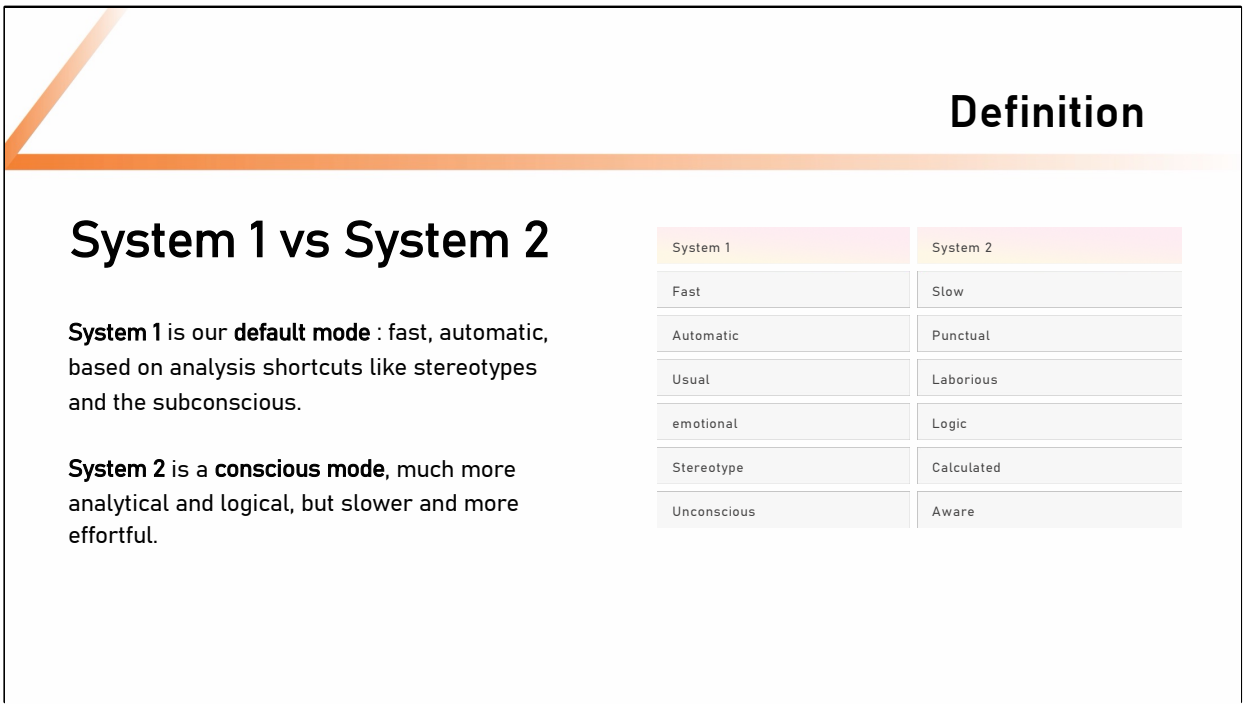
Slide Purpose
Prompt participants to apply guidance and readability principles to a real or example interface.



Slide Purpose

Introduce cognitive load and how it must be minimized.

- Too many steps = user fatigue.
- Goal is to simplify tasks and reduce mental strain.



Definition

- **System 1**: Fast, automatic, intuitive.
- **System 2**: Slow, analytical, effortful.

Slide Purpose

Design should mostly align with System 1 to keep tasks simple for users.

Definition

The higher the workload, the greater the risks…

… of errors , delays , fatigue , dissatisfaction or inefficiency.

It is important to reduce the perceptual, mnemonic or kinetic load on users by optimizing the number of actions requested from the user.

Source: JEMS

Slide Purpose
Demonstrate how a heavier load can lead to more errors, delays, and dissatisfaction.

- Streamlining processes mitigates these risks.

02. Workload

Brevity and conciseness

Co-funded by the European Union

shift4T

Funded by the European Union. Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union or Agency for Mobility and EU Programmes. Neither the European Union nor the granting authority can be held responsible for them.

Information density

Chunking

This method promotes rapid processing of information.

0 8 0 0 2 6 8 4 7 1

0 800 268 471

Source: JEMS

Slide Purpose
Explain how breaking data into small “chunks” makes it easier to understand or memorize (e.g., phone numbers).

Hick's Law

Each additional choice increases the time needed to make a decision: this is the **paradox of choice** . Generally speaking, the more choices you give people, the less they choose, which has the collateral damage of generating **frustration** .

To limit the paradox, it is possible to:

- Limit the number of alternatives
- Suggest a pre-selection

Source: JEMS

Slide Purpose

More choices = more decision time (the “paradox of choice”).

- Limiting options or suggesting defaults can reduce user indecision.

Slide Purpose

Fewer steps or clicks often lead to a better experience.

- E.g., auto-focus on the first field, one-click checkout.

Minimal actions

Fitts' Law T = k log2(D/S + 0.5)

Predictive calculation used to highlight the time needed to reach a target object

In its simplest form: cognitive effort depends on the distance (D) and size (S) of the target element.

HAS. The size of a button should be proportional to its frequency of use.

B. Group semantically similar elements in one place

Source: JEMS

Definition

T = k × log2(D/S + 0.5), relating target distance (D) and size (S) to selection time.

- Larger, closer targets are faster to click.

Slide Purpose

Justify the size and placement of important buttons or controls.

Minimal actions

Fitts' Law T = k log2(D/S + 0.5)

Within a flow, the transition from one screen to another determines the positioning of the mouse.

This position, called the **first pixel,** must be taken into account when assessing the distance.

Source: JEMS

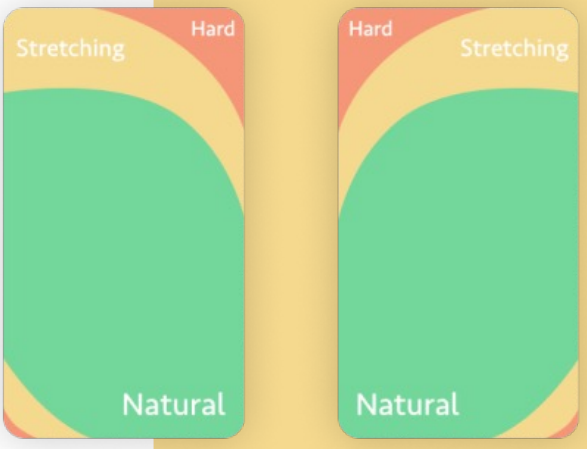
Slide Purpose

Explain why navigation bars at the bottom are popular on mobile (easier thumb reach).

- Increases efficiency, especially on larger screens.

Navigation bar position

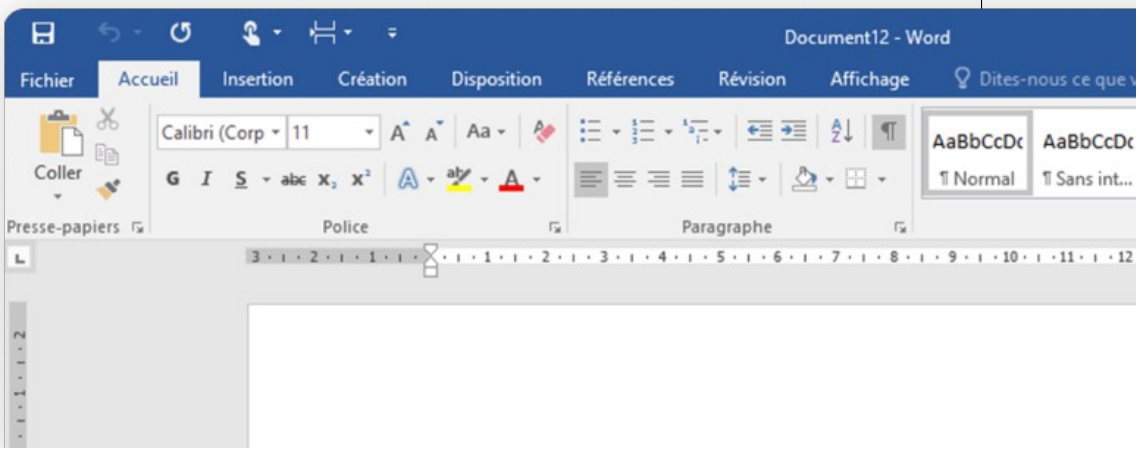
The trend is towards the navigation bar at the bottom of the screen, because it is easier to access for the **thumb**.



Source: http://medium.com

Minimal actions

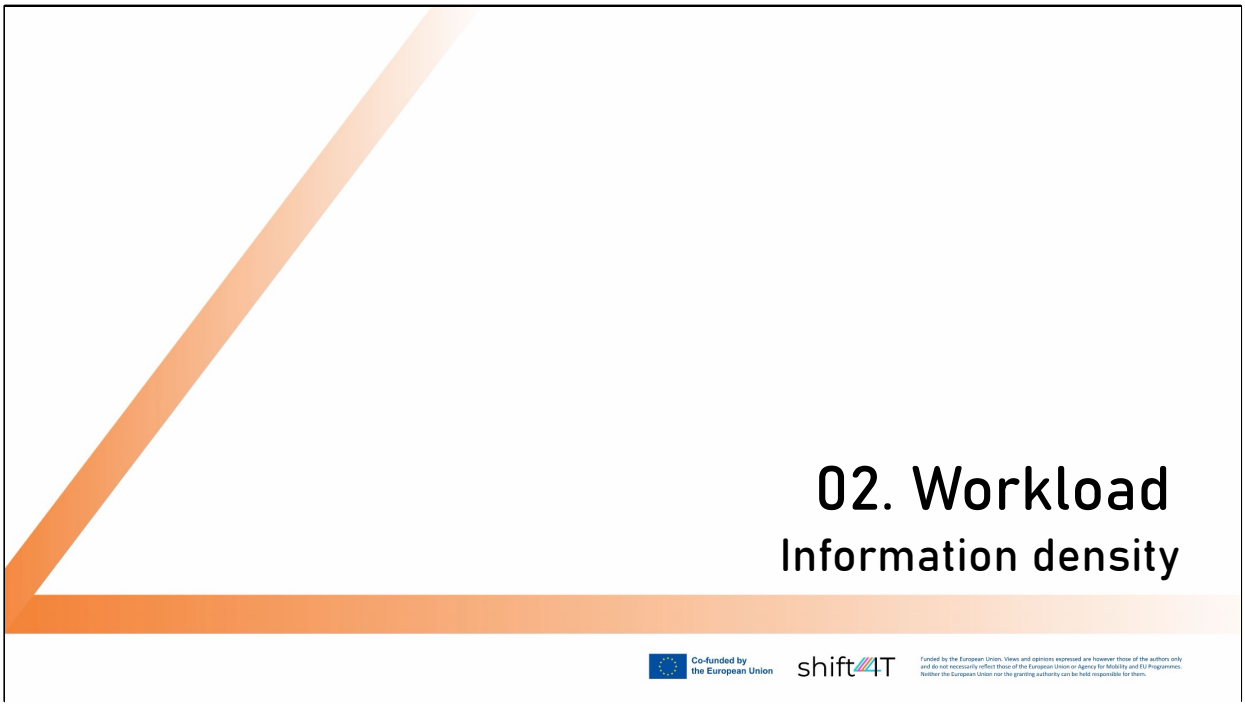
Autosave



Source: http://microsoft.com

Slide Purpose
Reduce risk of losing data.

- Eliminates the need to manually save repeatedly.



Slide Purpose

Balance the amount of information; too little confuses, too much overwhelms.

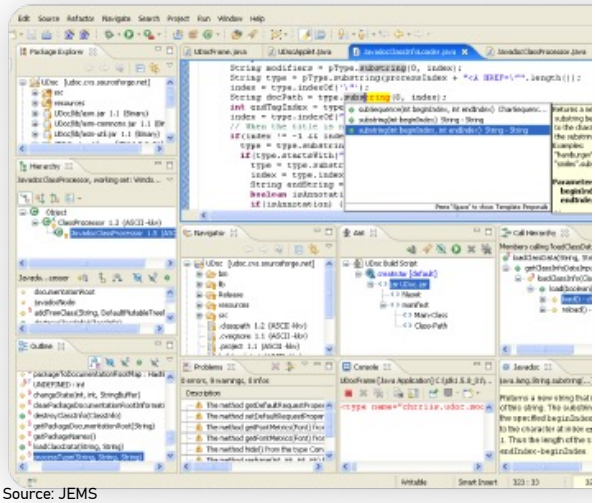
- Provide just enough detail to guide users effectively.

Information density

A quantity balanced information

Concerns the workload from a perceptive and memory point of view.

User performance is negatively impacted when the information load is too low or too high.



Source: JEMS

Information density

To schematize rather than explaining

It is about amplifying cognitive processes, giving meaning to the data collected, thanks to clear and intelligible visual representations for everyone.

The aim is to facilitate understanding, even decision-making.

Source: JEMS

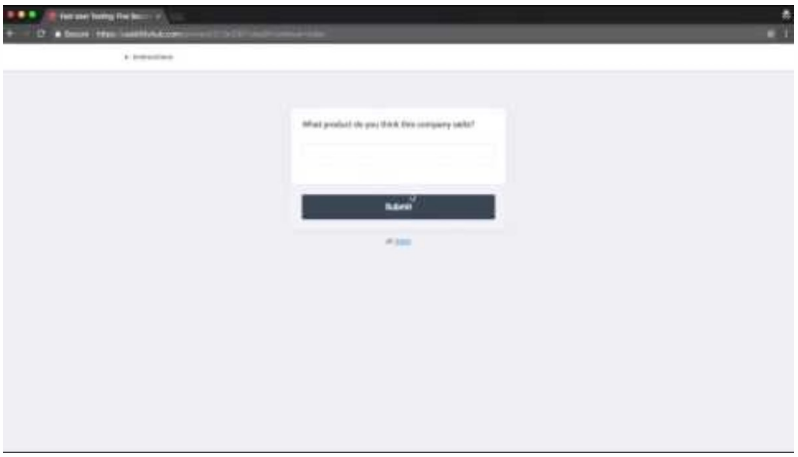
Slide Purpose
Visuals (maps, diagrams, infographics) can be more effective than lengthy text.

- Users grasp concepts faster when shown, not told.

Information density

5 second test

Measuring **first impressions** by collecting what users remember about an interface.



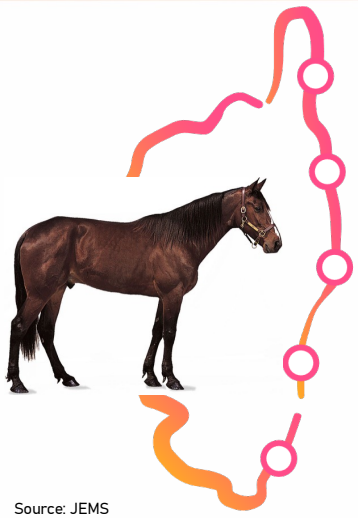
Slide Purpose
A quick test: show an interface for five seconds and see what participants remember.

- Evaluates first impressions and main takeaways.

Information density

Horse method

Content management technique aimed at optimizing the display of information, taking into account the importance of said information.



Source: JEMS

Slide Purpose
Hide, Organize, Reduce, Standardize, Eliminate.

- Helps declutter and optimize displayed content.

In UI design, **simplicity** is essential to improving the user experience. The **HORSE method** offers a step-by-step approach to make interfaces more intuitive, efficient, and user-centered by focusing on five key actions:
H – Hide: Remove unnecessary elements at each stage of the user journey to reduce cognitive load and avoid overwhelming users.
Tip: Use micro-interactions or track usage before deciding what to hide.
O – Organize: Create clear **visual and informational hierarchy** by grouping related content and prioritizing based on user needs.
Tip: Use consistent structures like dashboards or categorized services.
R – Reduce: Simplify visual clutter by adjusting the **size and prominence** of elements according to importance.
Tip: Limit form fields and scale down secondary content.
S – Standardize: Ensure **visual consistency** (colors, fonts, icons) to build user confidence and readability.
Tip: Use a design system with a restricted palette and reusable components.

E – Eliminate: Remove any content that doesn’t add real value or distracts from the main goal.
Tip: Use analytics to identify and cut low-impact elements.
🔑 **Why it matters**:
In today’s info-heavy digital world, users expect fast, intuitive interactions. Applying the HORSE method:
Reduces cognitive overload
Increases accessibility
Boosts engagement and conversions
Accept complexity as a starting point—but always design for clarity and focus.

Information density

Memory span = 7 (±2)

It is the number of elements (usually numbers) that a person can store in his **short-term memory** and recall immediately.

To be taken into account for exercises requiring memory, such as the restitution of values, but also the comparison or the choice from a list of which not all the elements are visible.

Source: JEMS

Slide Purpose

Remind that short-term memory typically holds 7 ± 2 items.

- Avoid forcing users to remember extensive lists or multi-step sequences all at once.

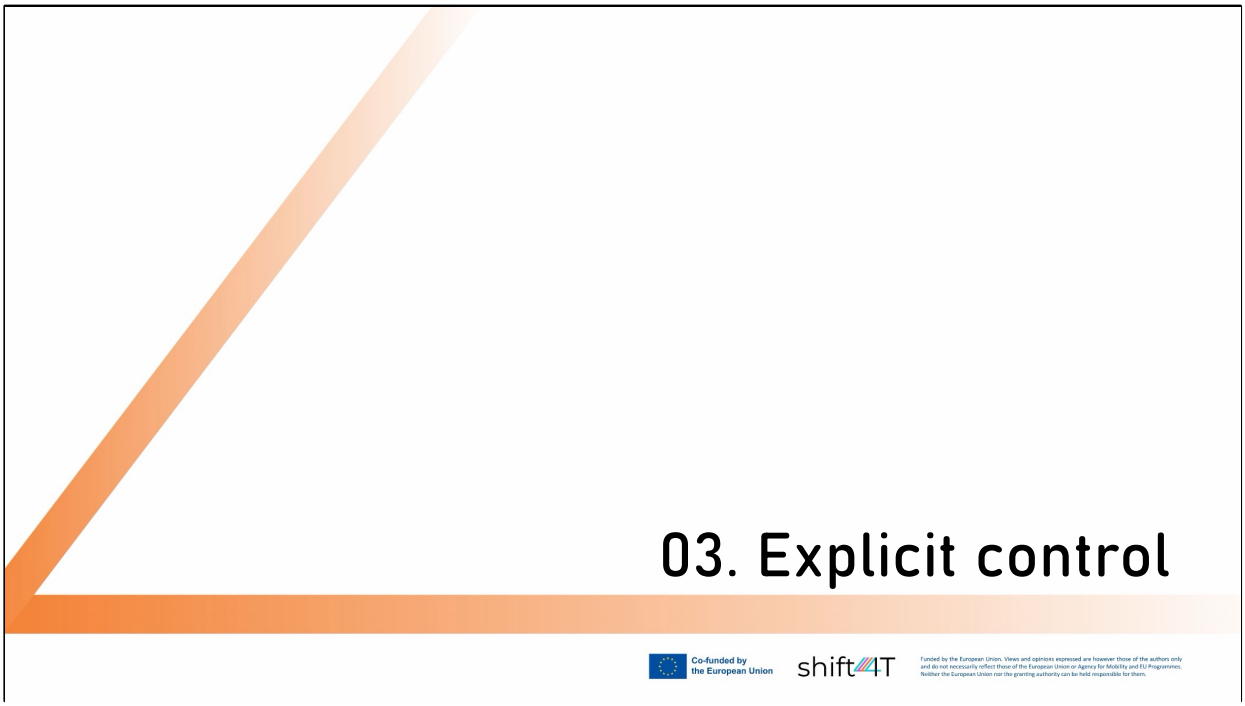
Exercise

Continue to assess the same web interface with capian.co

- How much concentration effort is required?
- What are the obstacles to finding relevant information?
- What are the steps to take to carry out an action
- What is the density of information presented?
- Does the user need to remember information? from one screen to another?

Source: http://pixabay.com

Slide Purpose
Prompt participants to analyze a design's workload (number of steps, memory demands) and propose improvements.



Slide Purpose

Users must feel they control the interface—can cancel, pause, or go back at will.

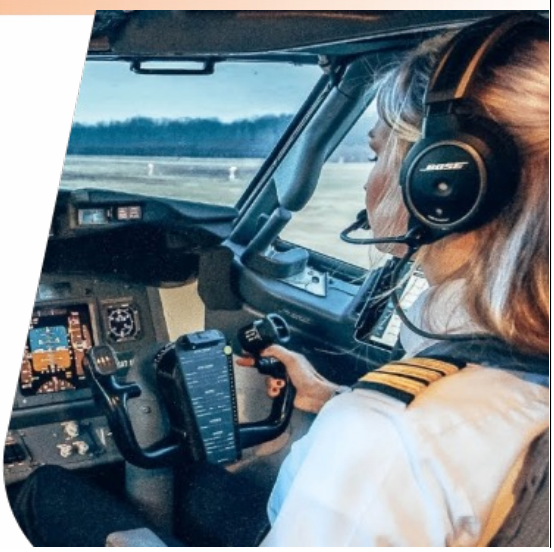
- Boosts confidence and reduces anxiety.

Definition

The need for control is a basic need

Control generates **security**, a positive feeling.

It is associated with the notions of **transparency** , of **predictability** and **habits**.



Source: JEMS

Slide Purpose

When users can revert an action or exit a process, they feel secure.

- Provides transparency, predictability, and fosters trust.

Slide Purpose

Users must feel they control the interface—can cancel, pause, or go back at will.

- Boosts confidence and reduces anxiety.

A transparent and non-intrusive relationship

The relationship between user action and system response must be **visible** and **requested** (or at least consented to) by the user.

Pop-in — triggered on scroll, exit, time spent on page, etc. — is a **solicitation** mechanism intended to **capture attention** , effective, but poorly received by users.

Banner blindness

Phenomenon by which some Internet users no longer see or avoid looking at banners or anything that generally resembles an advertising banner.

Definition

Many users ignore or skip anything that resembles a banner or ad.

- Important info shouldn't look like an ad or risk being overlooked.

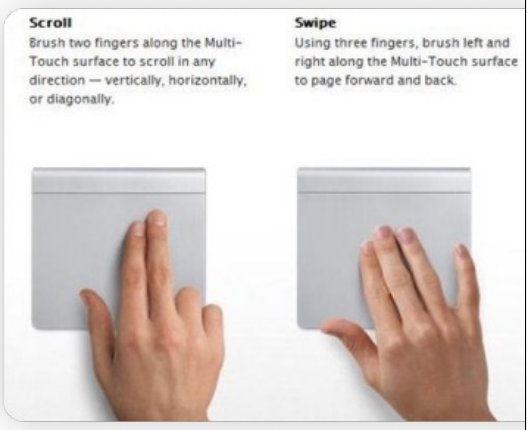
Explicit actions

Gestures and sensors

Are the gestures easy to discover? Are they conventional?

Compensate by doubling a shortcut gesture with a menu visible on the screen by making the gesture guess by the affordance by explaining the gesture

Avoid gestures just for the sake of it, choose gestures that are easy to perform for the most important actions.



Source: http://apple.com

Slide Purpose
Question whether gestures are easy to discover (swipe, pinch) and if conventional alternatives (buttons) are provided.

- Some gestures may not be intuitive for all users.

03. Explicit control

User Control

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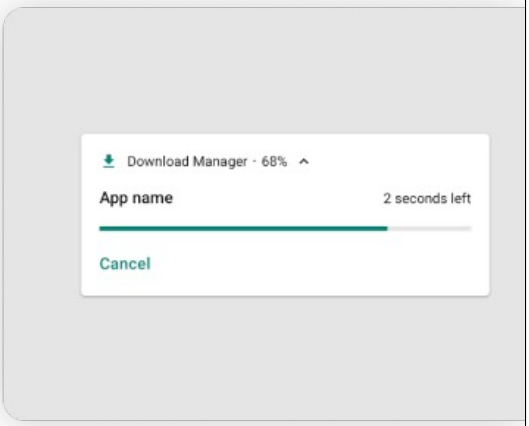
User Control

Make navigation easier and offer a door output

The user must have the ability to go back, cancel, abandon, pause...

This **reduces errors** and **makes learning the system easier** .



Source: JEMS

Slide Purpose
Users need the ability to navigate freely, backtrack, or leave.

- Lowers error rates and frustration.

Exercise

Continue to assess the same web interface with capian.co

- Are actions always explicitly performed by the user himself?
- Can the user quit, abort or interrupt a process?
- Can the user go back?

Source: http://pixabay.com

Slide Purpose

Encourage reflection on how the interface handles control.

- Are actions always user-triggered?
- Can the user easily abort or interrupt a process?

04. Adaptability

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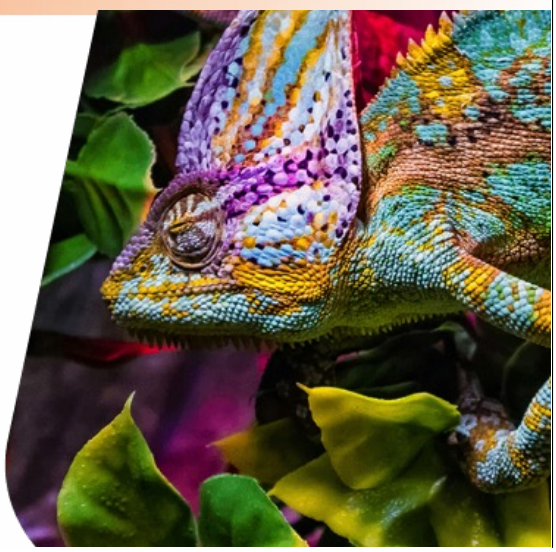
Definition

Different users have different needs

Adaptability is the ability of the system to adapt to the user's **context**, **needs**, **experience** and **preferences**.

This involves providing the user with different procedures, options, and commands, allowing them to achieve the same goal in the manner of their choice.



Source: JEMS

Definition

The system should adapt to user context, needs, experience, and preferences.

- Different usage scenarios call for different interface flexibilities.

Slide Purpose

Explain how adaptability increases satisfaction by catering to novices and experts alike.

04. Adaptability
Flexibility

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Flexibility

Stay flexible leaving the choice

A user with choice is a user in a position of **comfort** and **control**.

The flexibility given to a system significantly improves customer loyalty and helps create higher engagement.

Source: JEMS

Slide Purpose

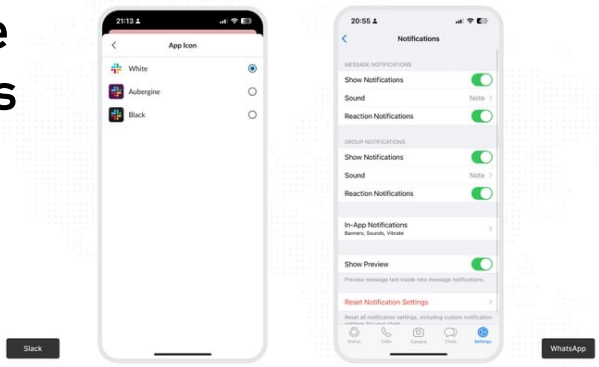
Users with choices often feel more comfortable and in control.

- Let them pick interface language, theme, or set notifications.

Flexibility

Customize the interface according to your habits or strategies

The display, values, language, filter and sorting of elements, management of personal data, notifications, etc. can be configured.



Source: https://www.netguru.com/blog/how-to-improve-app-settings-ux

Slide Purpose

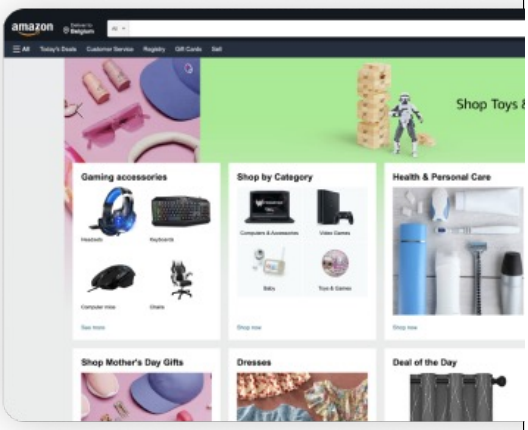
Highlight the value in letting users choose how things are displayed.

- E.g., sorting options, personal data management, language settings.

Flexibility

The more means there are, the better the chances of success.

The more diverse the ways of performing the same task, the greater the chances that the user will be able to choose and master one of them during their learning.



Source: http://amazon.com

Slide Purpose

Multiple ways to perform the same task can help different user levels.

- But avoid over-complication. Balance is key.

04. Adaptability

User Experience

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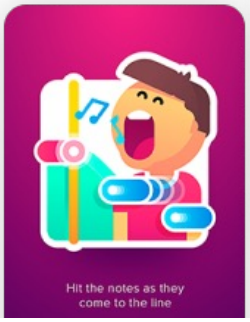
Considering user experience

Experienced users do not have the same needs that novices

Tutorials, tooltips or educational diagrams will be more intended for novices.

Shortcuts, interface settings or the use of jargon will be more for experts.



Source: JEMS

Slide Purpose
Novices need guidance or tooltips; experts might want shortcuts and advanced options.

- Provide each group what they need without clutter.

Flexibility

The learning curve

Experienced users do not have the same needs as novices. Shortcuts can then be useful, as can expert interfaces, etc.

Source: JEMS

Slide Purpose
Users progress from novice to expert.

- Gradual learning support can smooth out the initial experience.

Exercise

Continue to assess the same web interface with capian.co

- Are different means and modes of action made available to the user?
- Is the interface usable via keyboard, voice command, gestures, etc.?
- Can the user configure the software according to his preferences?

Source: http://pixabay.com

Slide Purpose
Prompt participants to analyze a design's workload (number of steps, memory demands) and propose improvements.

05. Error Handling

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Interruptions caused by errors have negative consequences

There are various ways to protect users from errors.

Slide Purpose
Interruptions from errors can be jarring. Proactively protect users or help them recover quickly.

05. Error Handling

Error protection

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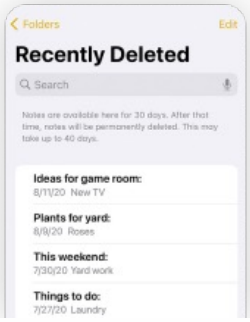
Error Protection

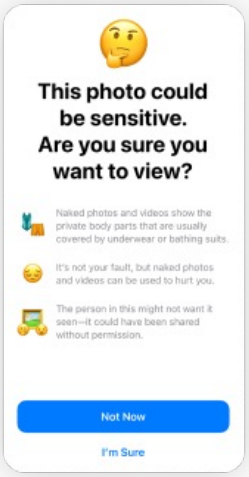
Prevention is better than cure what to cure

Errors that may occur can be anticipated.

The user must then be warned in advance of an action.

In the event of an action being taken, it is possible to provide safeguards.





Source: http://medium.com

Slide Purpose

Prevention is better than cure (disable a button if a required field is blank).

- Gently warn users before irreversible actions.

05. Error Handling

Quality of error messages

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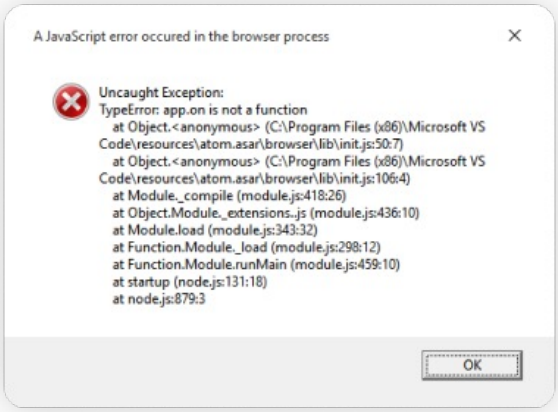
Error message quality

Stay intelligible as for any text

The text should be specific, useful, composed of simple vocabulary and allow the user to pursue his objective.

Also pay attention to the tone used.



Source: https://www.nngroup.com

Slide Purpose

Error messages should be specific, useful, and in clear language.

- Focus on solutions, not blame.

05. Error Handling

Bug fixes

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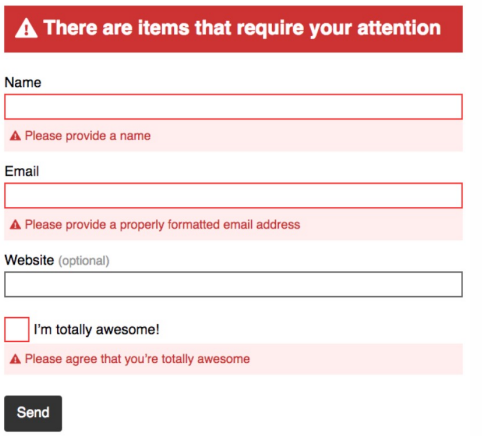
Bug fixes

Easy mistakes to correct disrupt the flow less

So-called contextual errors should allow the user to determine where the problem lies and how to fix it.



Source: https://blog.hubspot.com/marketing/error-message

Slide Purpose

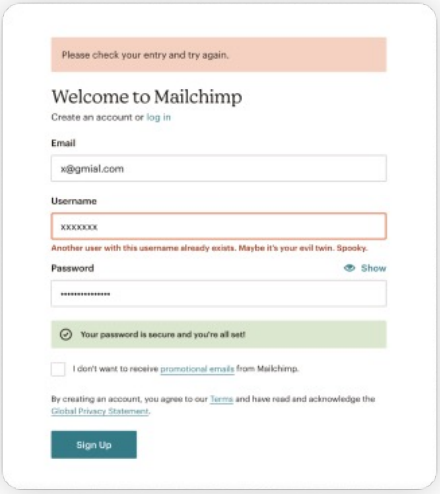
Contextual errors should let the user see exactly where the problem is.

- Colored highlights, inline hints, or an explanation near the field.

Writing tips related to contextual errors

For a better understanding of the situation:

- Use the positive form
- Specify the nature of the error
- Offer a solution / alternative



Source: https://www.nngroup.com

Slide Purpose
Provide best practices:

- Use positive phrasing.
- Specify what went wrong.
- Offer a solution or link to help.

Exercise

Continue to assess the same web interface with capian.co

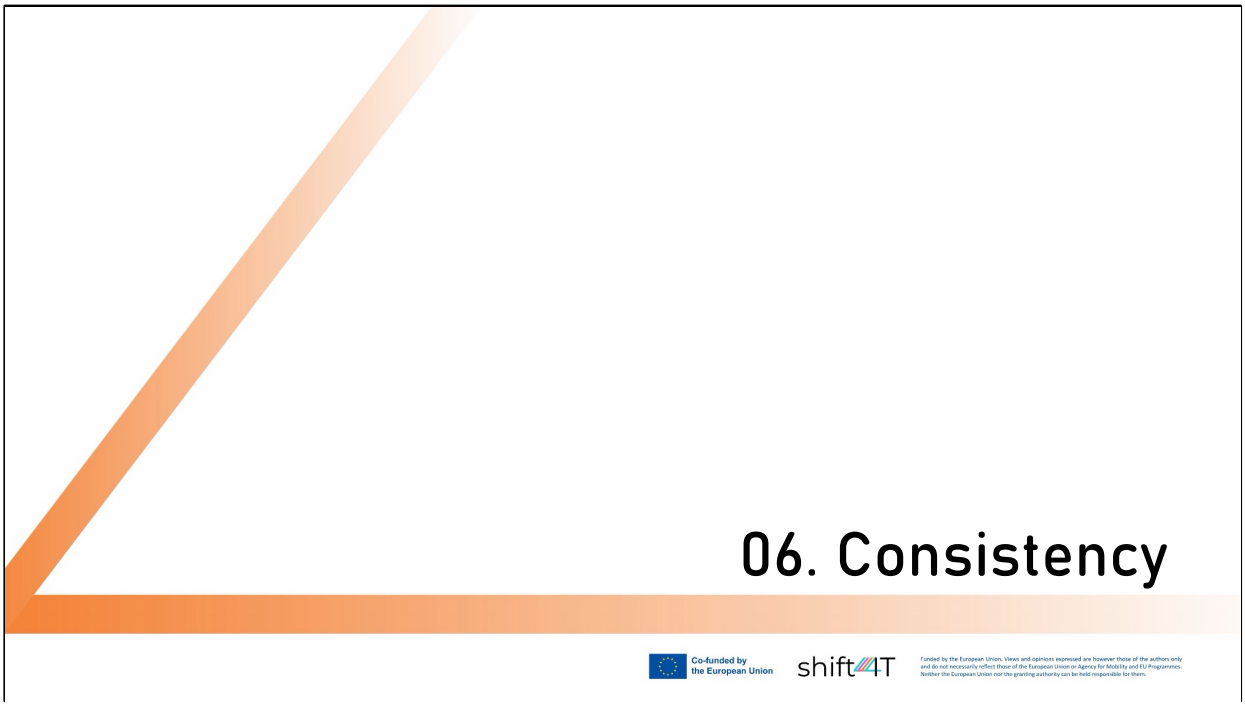
- Can the user explore the interface without risk of irreversibility?
- Does the interface prevent mistakes from being made (inactive buttons, input masks, etc.)?
- Does the interface warn the user if an error occurs?
- Can the user revert to the initial state?
- Does the interface help the user correct mistakes?

Source: http://pixabay.com

Slide Purpose

Ask about how the interface prevents, warns, and corrects errors.

- Can users revert to the initial state?



Slide Purpose

A consistent design across the product fosters easier learning.

- Uniform layouts, vocabulary, and iconography.

Quick test

(DIY) tool

+

Color

https://jaced.com/wp/2008/01/18/test-your-mind-with-this/

Definition

Only 2% of the adult population does not think of a red hammer

This is because we share a system of thought.

Source: JEMS

which asks you to solve some math questions, then think of a tool and a color. After scrolling down, it will tell you a tool and a color... which just happened to be the exact ones I had thought of. They claim that 98% of people choose the same combo.

Consistency criterion

Jacob's Law

Users spend most of their time on other sites.

This means that users prefer your site to work the same way as all the other sites they already know.

Source: JEMS

Slide Purpose

Users spend most of their time on other sites and expect yours to behave similarly.

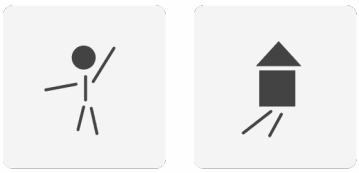
- Align with common UI patterns for familiarity.

Principles of Gestalt

Good shape

When a formless set of parts tends to be perceived first (automatically) as a form.

This form is intended to be simple, symmetrical, stable, all in all a good shape.



Source: http://medium.com

Slide Purpose

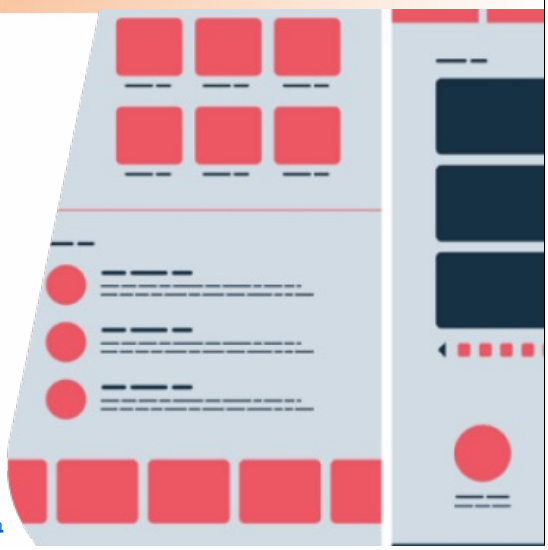
The mind naturally looks for simple, stable, and symmetrical forms first.

- Overly complex shapes or layouts confuse the user.

Principles of Gestalt

Consistency

Closely spaced points tend to represent shapes when perceived; we first perceive them in a continuity, as extensions of each other.



Source: http://medium.com

Slide Purpose

Mention reading patterns in Western cultures (Z-pattern, F-pattern).

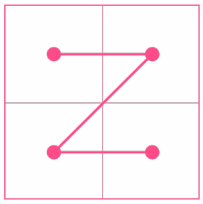
- Where you place key elements can influence user attention.

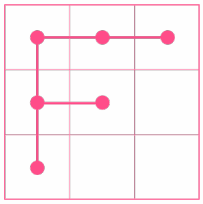
Reading direction

When it is not constrained, the path of the gaze is actually predictable.

Two common models in the West:

- **The Z-pattern for fast and sporadic reading**
- **The** F-pattern that appears in long, unformatted text content… with a lack of hook





Source: https://www.nngroup.com

Slide Purpose

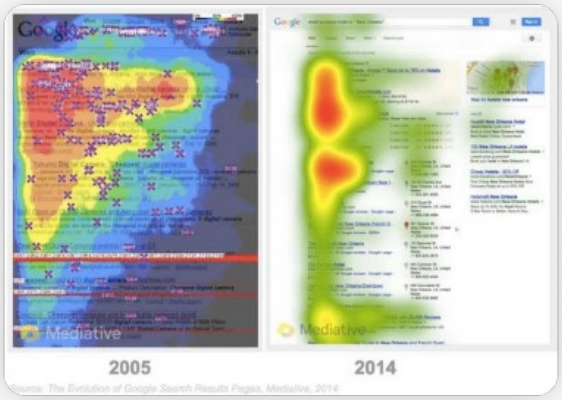
Z-model is for quick scanning, F-pattern often appears in text-heavy pages.

- Position crucial info in hotspots.

Reading direction

Patterns?

- The Z-model: Quick reading of the screen
- The title and subtitle model: the user only looks at these elements
- The selective model: the user only searches for links
- The fixative model: the user only looks at the area of the mouse or finger on the touchscreen
- The avoidance pattern: the user deliberately avoids reading the first few sentences or first few words when paragraphs or a list always start with the same words.
- The engagement model: the user focuses intently on all elements of the page because he is highly motivated and interested in the content.



Source: https://www.nngroup.com

Slide Purpose
Highlight additional reading behaviors (selective, fixative, avoidance).

- Users read differently depending on motivation or layout.

Reading direction

Analysis techniques: the blur

Source: https://www.nngroup.com

Slide Purpose

Blurring the interface reveals if main elements still stand out.

- A test for visual hierarchy.

Reading direction

Analysis techniques: wireframing

https://www.wirify.com/

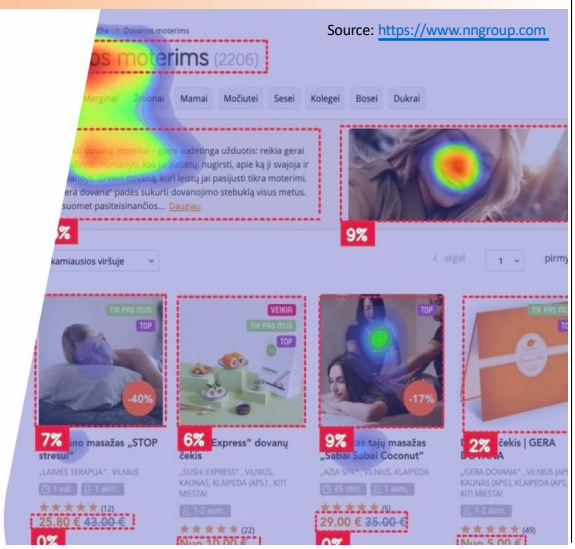
Slide Purpose
Removing color/images helps focus on the structure.

- Evaluate the arrangement of text blocks and interactive elements.

Analyzing an interface screen with AI

Attention Insights

- Artificial intelligence
- Predictive models
- Heat maps
- Computer Vision
- Cognitive psychology
- https://attentioninsight.com/



Slide Purpose
AI-based predictive heatmaps can show where the user's gaze might go.

- Useful to confirm or adjust design decisions.

Artificial Intelligence (AI)
AI refers to computer systems that mimic human intelligence. It includes tasks like learning, problem-solving, and decision-making, enabling machines to act "smart."
Predictive Models
These are mathematical models used to forecast future outcomes based on past data. They're often used in UX to anticipate user behavior and improve design decisions.
Heat Maps
Heat maps visually represent where users click, scroll, or move their cursor on a webpage. Warmer areas (red/yellow) show high activity, helping designers identify which parts of the interface attract the most attention.
Computer Vision
This is a field of AI that enables computers to interpret and understand visual information, like images or videos. It can be used to track eye movement or analyze facial expressions in usability testing.

Cognitive Psychology
Cognitive psychology studies how people think, learn, and remember. It helps UX designers understand user behavior, mental models, and decision-making processes to create more intuitive interfaces.

Application of the principle of consistency

Consistency applies to content…

- The tone, wording and vocabulary should give the user the impression of having only one and the same interlocutor.
- Hence the need for an editorial charter.

Slide Purpose

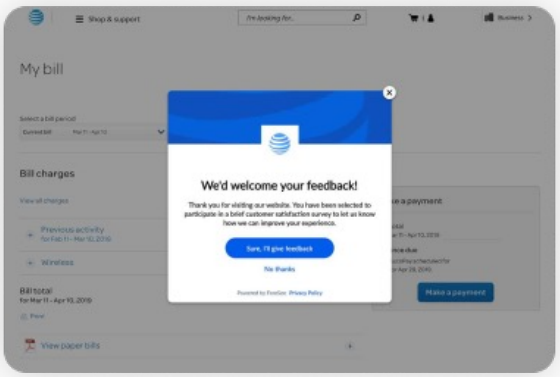
Maintain a uniform editorial tone and vocabulary.

- Users should feel they’re conversing with one entity, not multiple disjointed voices.

Application of the principle of consistency

...as in style!

- The visual aspect, positioning and setting of an element must be perceived as systematic and adapted.
- Hence the need for a graphic charter.



Source: JEMS

Slide Purpose

Visual aspects (colors, position, sizing) should appear systematic.

- A cohesive style builds brand identity.

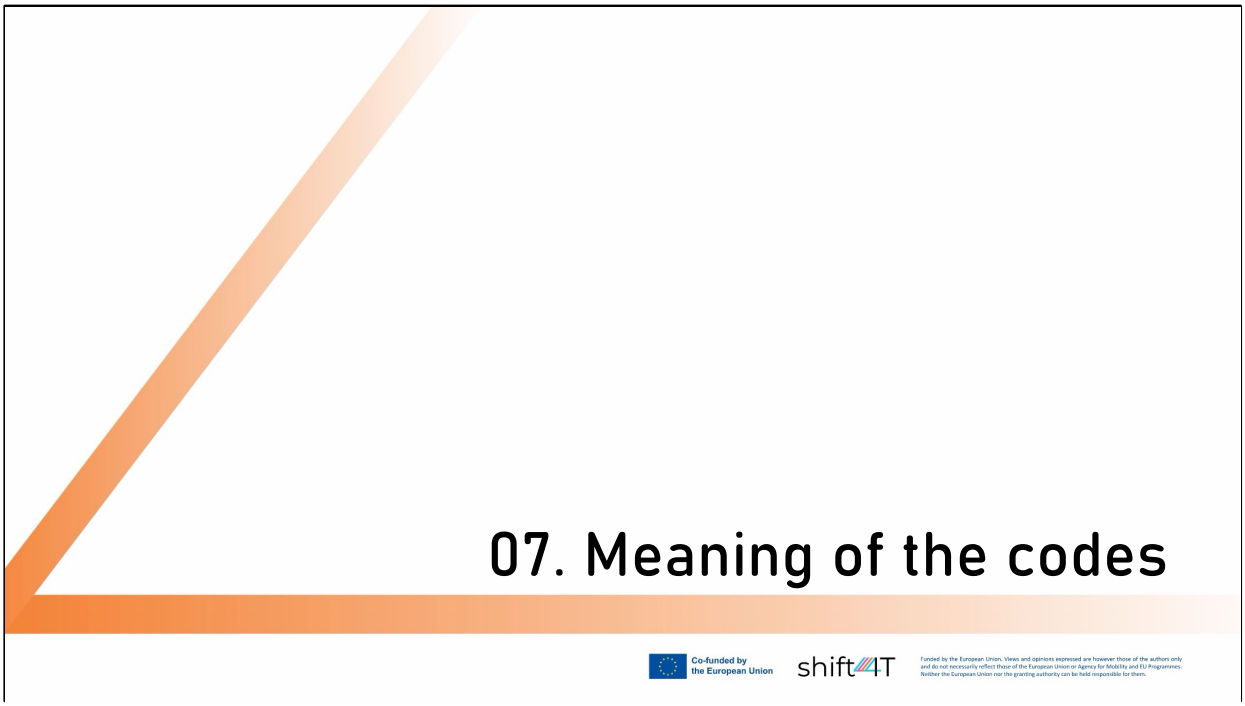
Exercise

Continue to assess the same web interface with capian.co

- Are the layouts similar throughout the interface? Do they meet current standards?
- Are the colors, icons and typography consistent? Do they meet current standards?
- Is the vocabulary used uniform?
- Does the interface function the same throughout the experience?

Source: http://pixabay.com

Slide Purpose
Confirm your design uses consistent layouts, colors, icons, and vocabulary from start to finish.

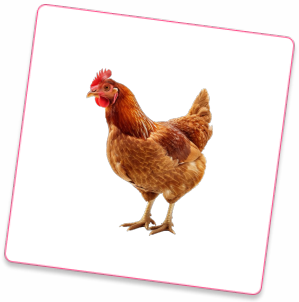


Slide Purpose

Ensure a semantic link between items, codes, labels, and actions.

- Avoid cryptic abbreviations that lead to errors.

Meaning of codes and names



Source: JEMS

Meaning of codes and names

Ensure a semantic relationship between forms, codes, names, items, actions, etc.

Codes and names that are not meaningful to users may suggest inappropriate operations to them and thus lead to errors.

Source: JEMS

Slide Purpose

The shape of an object should reflect its function.

- Linked to the principle of affordance.

Form Follow Functions

Idea that the shape of the object should reflect its function, its purpose, with the aim of reducing the need for learning.

This principle is related to that of affordance.

Source: https://medium.com

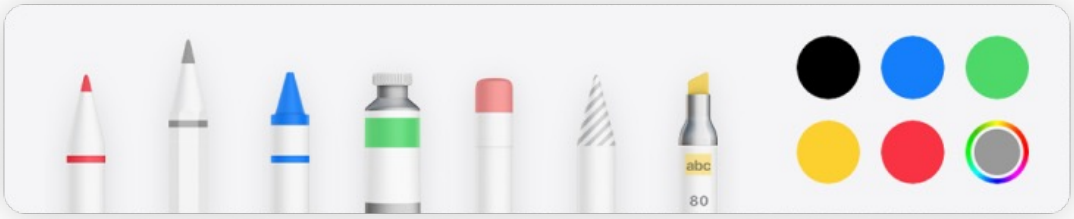
Slide Purpose

The shape of an object should reflect its function.

- Linked to the principle of affordance.

Flat vs Skeuomorphism

These two styles, which vary in their level of representation of physical objects, are the most representative of recent years. In fact, their affordance differs.



Source: https://medium.com

Slide Purpose

Revisit two major design styles.

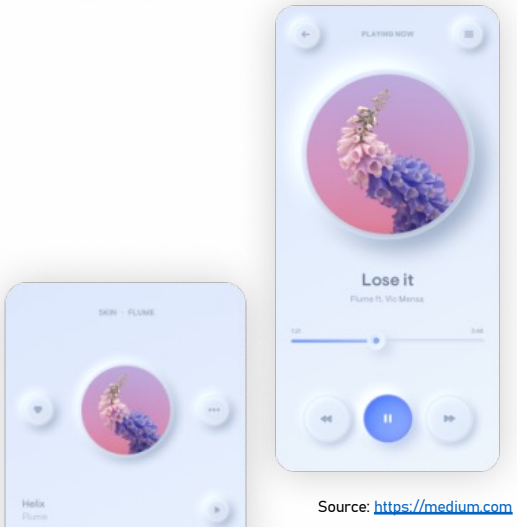
- Flat design can be sleek but less obvious in conveying affordances.
- Skeuomorphism can be immediately understood but risk outdated looks.

Style

Neuomorphism

A style that tends to correct, through depth effects and subtle shadow effects, the weaknesses of flat design which, through abstraction, has ended up producing interface elements lacking affordance.

The graphic effect, generally based on tones on tones, is aesthetic and soft, but their lack of contrast poses problems of accessibility and readability .



Source: https://medium.com

Slide Purpose

A design trend with soft shadows and subtle depth, often lacking strong contrast.

- May look modern but can pose accessibility challenges.

Conventions

Colors have connotations and functions

- Information, neutrality…
- Positive, validation, agreement…
- Be careful, be careful…
- Negative, ban, error, deletion…

Source: JEMS

Slide Purpose

Green is often positive, red negative, orange caution, etc.

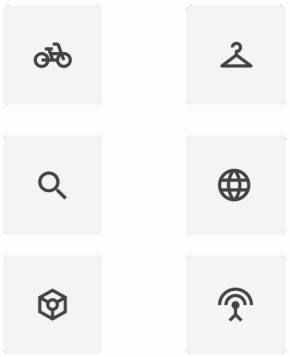
- Stick to common color associations for clarity.

Conventions

The ambivalence of pictograms

They have the advantage of being easy to scan , having a vast associative universe , and saving space within the interface. They also represent an aesthetic contribution and do not require any translation.

However, they are a source of ambiguity (approximate meaning) and are poorly memorized by the brain.



Source: JEMS

Slide Purpose

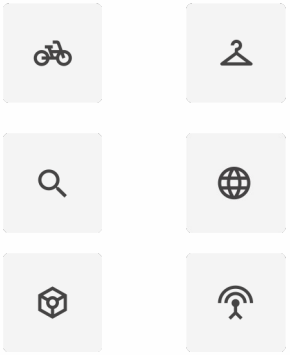
Icons are quick to scan, but can be ambiguous if not universally recognized.

- If in doubt, pair with a label.

Conventions

The ambivalence of pictograms

Exceptions:
- Accompanied by a label except…
  - A standard object (camera, printers)
  - A graphic goal (align, center, bold, etc.)
  - A popular concept (cross to close, wifi, house for reception, …)



Source: JEMS

Slide Purpose
Standard objects (camera, home icon) might not need labels.
- Non-standard icons may confuse users.

Conventions

Beware of the gaps between signifier and signified

To communicate is to send signs that produce meaning. (cF Saussure).

These signs can be of different types (cF Pierce):

- The index (material sign) designates
- The icon (analog sign) represents
- The symbol (intellectual sign) evokes

Source: JEMS

Definition

Semiotics: Icons (analog sign), index (physical link), symbol (intellectual link).

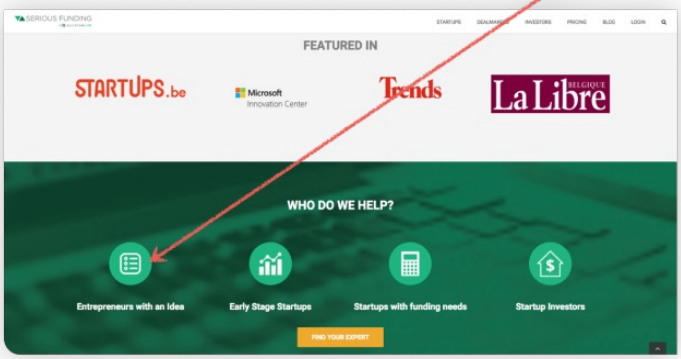
- Choose the right type to avoid misinterpretation.

Slide Purpose

Remind that communication is about sending signs that produce meaning.

Conventions

What is the signifier/signified relationship?



Source: JEMS

The importance of the words In a world of images

We write to make ourselves understood.

Acronyms , vaporous metaphors * , unusual vocabulary * or the use of jargon should therefore be avoided.

Source: http://apple.com

Slide Purpose
Words should be direct, easy to understand, and consistent with your brand tone.

Exercise

Continue to assess the same web interface with capian.co

- Do the icons match the associated labels?
- Do the buttons correspond to the associated actions?
- Does the interface use jargon?

Source: http://pixabay.com

Slide Purpose
Check if icons match labels, if button text describes the action, and if jargon is minimal.

08. Compatibility

Co-funded by the European Union

shift4T

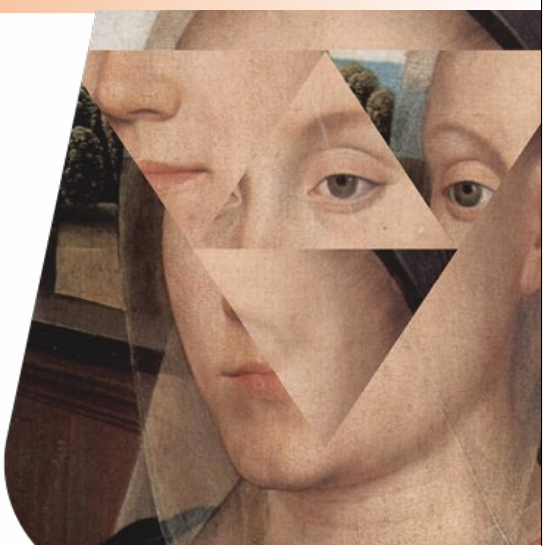
Funded by the European Union. Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union or Agency for Mobility and EU Programmes. Neither the European Union nor the granting authority can be held responsible for them.

Definition

Integrating into real life users

The logic of using the system must match the logic of the user.

This saves him from unnecessary interpretation, research or documentation to understand the system.



Source: GImages

Definition

The interface logic must match user logic, saving them from unnecessary interpretation.

- Reflect user mental models in your design.

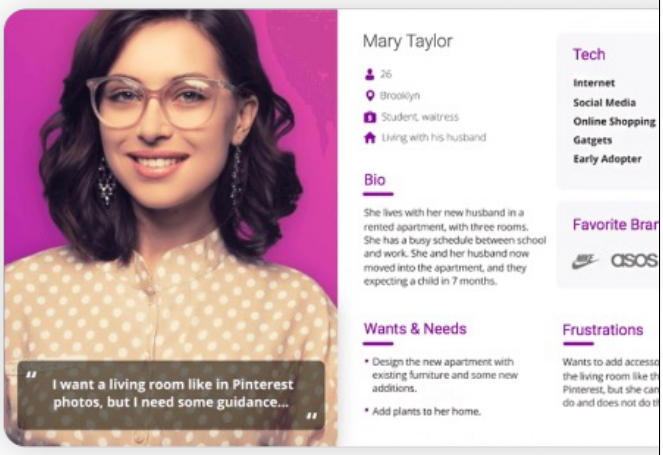
Slide Purpose

Reinforce that a mismatch causes confusion and user frustration.

Definition

Identification of characteristics

Contextual, physical or psychological, the characteristics of users (memory, perceptions, anatomy, habits, skills, age, expectations, etc.) must be reflected in the personas.



Source: JEMS

Slide Purpose

Personas should reflect user memory, perception, anatomy, skills, age, and expectations.

- Helps ensure the design meets diverse needs.

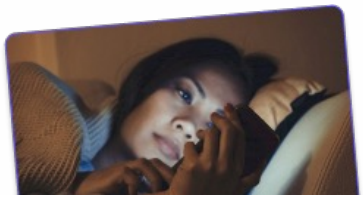
In UX Design, a persona is a fictional but realistic representation of a typical user of a product or service. It is based on real user research and data, and is used to better understand their needs, behaviors, motivations and goals, in order to guide design decisions. In short: A UX persona is a user modeling tool that helps design teams create more relevant and effective user experiences.

Context of use

Environment

There is interoperability between a medium and the environment.

The user's attention is fragmented because the stimuli from the outside world are numerous and variable.



Source: JEMS

Slide Purpose
Show how external conditions (lighting, usage on the go) can affect the experience.

Context of use

Support

The interface should not be presented the same way for a 4-inch phone screen or a 10-inch tablet.

The interface should not offer the same services on a television as on a computer.

Source: JEMS

Slide Purpose

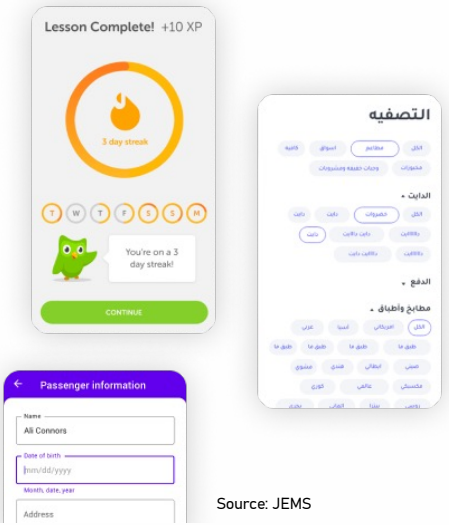
Explain how UIs differ for a phone, tablet, TV, or desktop.

- One layout doesn't fit all screen sizes or input methods.

Context of use

Locality

Conventions, meanings and habits are not the same from one point of the globe to another.



Source: JEMS

Slide Purpose

Conventions differ by region: date formats, currency, reading direction.

- Plan for localization and internationalization if needed.

Accessibility

Why does it matter?

- More than 20% of the population is affected by a permanent hearing , visual , cognitive or motor disability.
- Accessibility improves the user experience for all (captions for videos in noisy environments, better text readability on mobile, keyboard navigation for efficiency).
- Many regulations enforce accessibility standards (WCAG 2.2, the EU Web Accessibility Directive)

Source: JEMS

Slide Purpose

20%+ of the population has a permanent disability.

- Digital accessibility is a human right (WCAG guidelines).

Key Principles of Accessibility

Perceivable – Information must be visible and understandable for all (e.g., proper color contrast, alt text for images).
Operable – Interfaces must be easily navigable (e.g., keyboard and screen reader compatibility).
Understandable – Content and interactions must be clear (e.g., avoid jargon, provide clear error messages).
Robust – Compatible with various devices and assistive technologies

Source: JEMS

Practical Example

A website with low-contrast buttons or inaccessible forms can prevent certain users from effectively interacting with the interface.

By applying best practices, **we not only improve accessibility but also improve overall usability**.

Source: JEMS

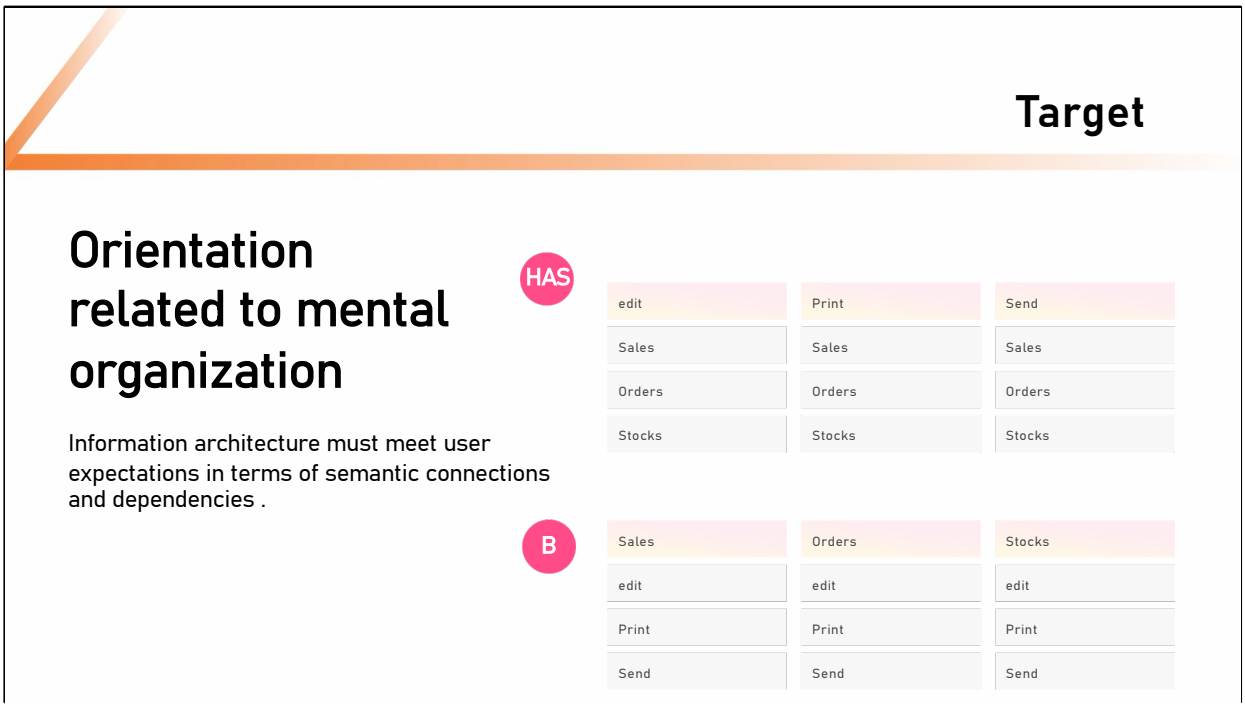
Level of knowledge

An unsuitable lexical field, vocabulary or references are all obstacles to understanding.

Slide Purpose

Users have varying skill levels; adapt your vocabulary and references.

- Overly technical terms can alienate novices.



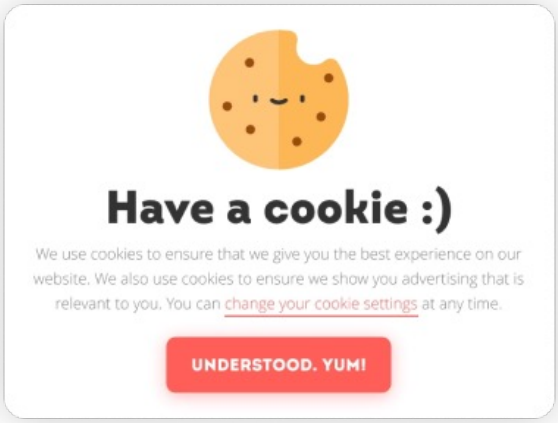
Slide Purpose
Information architecture must meet user expectations.

- Group modules logically so people find them intuitively.

Target

Emotional state

Information architecture must meet user expectations in terms of semantic connections and dependencies.



https://medium.com

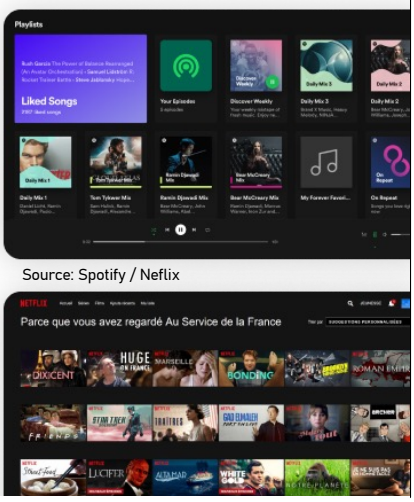
Slide Purpose
Tone and visuals should align with the user's emotions or context (e.g., serious for a medical site, playful for a game).

Personalization

An experience custom made

Analytics and predictive algorithms allow content to be carefully tailored to the user's specific needs without any effort on their part.

Data is the beginning and end of a good personalization strategy.



Source: Spotify / Neflix

Slide Purpose

Tailored experiences powered by data or algorithms.

- Increases efficiency but respect user privacy and data protection.

Exercise

Continue to assess the same web interface with capian.co

- Does the interface match the context of use?
- Does the interface match the personas and their needs?
- Is the interface compatible with other user activities?
- Is the information usable in the business?

Source: http://pixabay.com

Slide Purpose

Check if the interface suits the user's context and needs.

- Is it accessible? Does it match personas? Does it work in the relevant environment?

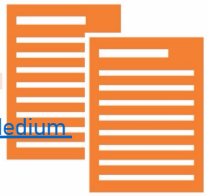
Question?

RESOURCES

- **Checklist Design:** A collection of the best design practices

→ https://www.checklist.design/

RESOURCES



- "Left alignment: The silent hero of web design" | by Akansha Tandon | Bootcamp | Medium
- 10 principles of UX every designer should know
- 12 Funny Charts That Highlight The Importance Of Color
- 13 Design Principles and Best Practices to Apply Them Skillfully
- 13 Psychology Principles You Should Use When Designing UX
- 7 Principles Of Design & How To Use Them in 2025
- Affordance | Uxcel
- Andy Rutledge :: Gestalt Principles - 4: Common Fate
- Color Theory, Typography and Design Principles Guide | Klein Pixel
- Color Theory: What Colors Mean
- Daily UI Design Challenge, Inspiration, and Resources

RESOURCES

- Design Principles for Reducing Cognitive Load | Laws of UX
- Design Principles: Visual Perception And The Principles Of Gestalt — Smashing Magazine
- Exploring the Gestalt Principles of Design | Toptal®
- Fitts' Law & How It Can Improve Your Usability | WebFX
- Gestalt Principles in Design: Key Laws for Effective Interfaces
- Gestalt Principles in Design: Key Laws for Effective Interfaces
- Guiding the User Experience: Essential Design Principles for UX Design | by Eduardo Feo | Bootcamp | Medium
- Home | Laws of UX
- How to design with white space
- Law of Common Region Lesson | Uxcel

RESOURCES

- L'importance d'un design intuitif dans les interfaces utilisateur- Jean Desauw
- Principles of Alignment in Web Design: Types and Examples
- Principles of Design: Alignment – UX Engineer
- Principles of Design: Emphasis – UX Engineer
- Principles of Design: Proportion – UX Engineer
- Repetition in Design Composition Lesson | Uxcel
- Simplicity, symmetry and more: Gestalt theory and the design principles it gave birth to
- The 12 principles of design: how to use them & visual guide | Kittl
- The Complete Guide to 17 Key Principles of Design and How They Can Help You Create a Compelling Design Today | by Sowmiya V | Medium
- The Fold Manifesto: Why the Page Fold Still Matters

RESOURCES

- The Psychology Principles Every UI/UX Designer Needs to Know | by Thanasis Rigopoulos | UX Planet
- Top 10 UI Trends Every Designer Should Know | IxDF
- UX Design Principles Lesson | Uxcel
- UX Engineer → Your Future Job is Here
- UX/UI Design: How to create an intuitive and usable interface?
- What Are the 7 Principles of Design? A UXer's Guide
- What is Eye Tracking in UX Design? | IxDF
- What is intuitive design: Creating an easy-to-use website
- What is Usability - The Ultimate Guide | IxDF

ADDITIONAL READINGS

Books

- **"Don't Make Me Think"** by *Steve Krug*
  – A classic, practical guide to usability and intuitive navigation.
- **"The Design of Everyday Things"** by *Don Norman*
  – Foundational for understanding human-centered design and usability psychology.
- **"100 Things Every Designer Needs to Know About People"** by *Susan Weinschenk*
  – Combines cognitive psychology and UX to explain why users behave the way they do.
- **"Laws of UX"** by *Jon Yablonski*
  – A visual and practical overview of the psychological principles that guide good design.
- **"About Face: The Essentials of Interaction Design"** by *Alan Cooper*
  – A comprehensive resource on interface and interaction design best practices.
- **"Lean UX"** by *Jeff Gothelf*
  – Focuses on collaborative design and agile UX processes.

ADDITIONAL READINGS

Articles & Online Guides

- **NNGroup Articles on Usability & UX Principles**
  https://www.nngroup.com/articles/
  – Expert insights on usability heuristics, interface patterns, and UX research.
- **Google's Material Design Guidelines**
  https://material.io/design
  – A complete guide to UI design systems and responsive design patterns.
- **Apple Human Interface Guidelines**
  https://developer.apple.com/design/human-interface-guidelines/
  – Best practices for designing intuitive Apple platform interfaces.
- **Smashing Magazine: UX Design Category**
  https://www.smashingmagazine.com/category/uxdesign
  – Articles and tutorials from industry experts on UX/UI, usability, and design systems.
- **Laws of UX (website)**
  https://lawsofux.com/
  – A free resource that visually explains key psychological principles behind UX design.

ADDITIONAL READINGS

Free Online Courses & Tools

- **UX Design Fundamentals – Coursera (Google UX Certificate)**
  https://www.coursera.org/professional-certificates/google-ux-design
  – A beginner-friendly structured course covering design thinking, research, and prototyping.
- **UXPin: UI Design Patterns & Usability Guide**
  https://www.uxpin.com/studio/ebooks/
  – Free ebooks and guides focused on UI patterns, usability, and interaction design.
- **Figma's Learn Center**
  https://help.figma.com/hc/en-us/categories/360002051733-Learn-Figma
  – Tutorials and design principles directly related to using Figma in UX/UI workflows.