

## **THE PSYCHOLOGY OF COLOR**

- Color psychology is a field of study that's devoted to analyzing the emotional and behavioral effects produced by colors and color combinations.
- Color psychology is the study of how colors affect perceptions and behaviors.
- In marketing and branding, color psychology is focused on how colors impact consumers' impressions of a brand and whether or not they persuade consumers to consider specific brands or make a purchase.
- Color affects how we perceive everything around us, on a deep, subconscious level.
- Prudent use of colors can contribute not only to differentiating products from competitors, but also to influencing moods and feelings — positively or negatively — and therefore, to attitude towards certain products.“
- In a world saturated with choice, color makes a difference

### **Red**

- The color red has a reputation for stimulating adrenaline and blood pressure and is also known to increase human metabolism.
- It's an exciting, dramatic, and rich color.
- Red is also a color of passion, love, desire and danger

### **Orange**

- Like red, Orange is an active and energetic color, although it doesn't evoke passion the way that red can.
- Orange is thought to promote happiness, and represents sunshine, enthusiasm, and creativity.
- Confidence, cheerful, friendly
- Orange is friendly, vibrant and cheerful. It elicits feelings of excitement, confidence and enthusiasm.
- Seen as attention-grabbing, orange is a particularly good choice for website buttons and calls to action.

### **Yellow**

- Like orange, yellow is an active color, and being highly visible, it's often used for taxicabs and caution signs.
- Yellow communicates youth and happiness.
- Closely associated with the sun, it just seems to have a way to make us feel good.
- Like orange, yellow attracts the eye, making it a good color to use for accents and areas that need emphasis.

## **Green**

- Green is most commonly associated with nature.
- It's a soothing color that symbolizes growth, freshness, and hope.
- When bright green is set against a black background, it really pops— lending the design a technological feel.
- Green makes us feel safe and grounded. Because it reminds us of trees and plants, it is often used by brands with an environmental mission.
- Associated with loyalty, wealth and money, green has often been used by financial institutions and companies who want to convey a sense of trust and quiet confidence.

## **Blue**

- blue is often cited as a universally loved color.
- On the touchy-feely level, blue symbolizes openness, intelligence, and faith, and has been found to have calming effects.
- blue has also been found to reduce appetite.
- □Blue is perhaps the most common branding color, used in the logos of 35% of companies on Forbes' list of the world's most valuable brands.
- Associated with elements like the sky and sea, blue communicates safety, trustworthiness, responsibility and stability.
- Blue is generally perceived as a safe choice, which might explain why it is so widely used in the corporate world.

## **Purple**

- The color purple has been associated with royalty and power.
- Purple is most often connected with flowers, gemstones, and wine.
- It balances the stimulation of red and the calming effects of blue.
- Purple represents luxury and creativity. It is, however, not a very common brand color.
- Only 1% of brands of Forbes' most valuable list use purple as their signature hue.
- Because of its connection to spirituality, purple is often used by yoga and health food brands.
- Royalty, creativity, spirituality

## **White**

- In Western cultures, white is considered to be the color of perfection, light, and purity.
- In Chinese culture, white is a color traditionally associated with death and mourning.
- In design, white is often overlooked because it's the default background color.

## **Black**

- black often suffers from negative connotations such as death and evil, it can also be a color of power, elegance, and strength, depending on how it's used.

## COLOR TEMPERATURES

- Which color faucet gives you hot water?
- What color do you associate with ice?

### Warm Colors

- The colors from red to yellow, including orange, pink, brown, and burgundy.
- Due to their association with the sun and fire, warm colors represent both heat and motion.
- When placed near a cool color, a warm color will tend to pop out, dominate, and produce the visual emphasis

### Cool Colors

- Colors from green to blue, and can include some shades of violet.
- Violet is the intermediary between red and blue, so a cooler violet is, as you'd imagine, one that's closer to blue, while a reddish violet can feel warm.
- Cool colors are calming, and can reduce tension.

## CHROMATIC VALUE

- On a basic level, color is on a spectrum of cool to warm.
- Cool colors communicate calmness and generally feel more reserved while warm hues are more energetic and cheerful.

### Chromatic Value

- The measure of the lightness or darkness of a color.
- Adding white to a color creates a **tint** of that color.
- A **shade** is produced by adding black to a given color.
- If you were designing a website that's all about nightlife or concerts, for instance, you'd probably want to go with dark shades and limit your use of light tints.
- Tints tend to be associated with daylight, springtime, and childhood.

### Saturation

- The saturation or intensity of a color is described as the strength or purity of that color.

### Evaluate intensity

- Color intensity also matters. A bright green feels very different from a subtle pastel shade of green.
- More subdued colors feel soothing and communicate a quiet elegance and warmth. Bright hues feel young, happy, and modern.

## **COLOR THEORY**

### **Primary Colors**

- The primary colors of the traditional color wheel are red, yellow, and blue.
- These hues form an equilateral triangle on the color wheel, and commencing from a primary color, every fourth color represents another primary color.

### **Secondary Colors**

- By mixing two primary colors, we create secondary colors, indicated here by the small gray triangles.
- The secondary colors are orange, green, and purple.

### **Tertiary Colors**

- There's a total of six tertiary colors: vermilion (red-orange), marigold (yellow-orange), chartreuse (yellowgreen), aquamarine (blue-green), violet (blue-purple), and magenta (red-purple).
- Mixing a primary color with an adjacent secondary color forms a tertiary color.

### **A Monochromatic Color Scheme**

- Monochromatic schemes are the simplest color schemes to create, as each color is taken from the same base color.
- Monochromatic colors go well together, producing a soothing effect.

### **Analogous Color Scheme**

- Analogous color schemes are created from related colors that don't stand out from one another;
- One color is used as a dominant color while others are used to enrich the scheme.

### **Complementary Color Scheme**

- Colors aren't always at odds with each other; complementary colors are opposite colors.
- They contrast strongly, and they can be used to attract the viewer's attention.
- When using a complementary scheme, it is important to choose a dominant color and use its complementary color for accents.
- For example, when the human eye sees an object full of different hues of greens, a bit of red is going to stand out very well.

### **Common Complementary Pitfalls**

Since complementary colors are so different from each other in many ways, they can cause an effect known as simultaneous contrast when placed together: this is when each color makes the other appear more vibrant and dominant.

Choosing colors that aren't directly opposite one another on the color wheel yet aren't close enough to be analogous colors. These combinations are known as discordant because the colors will often clash with one another, causing viewer discord.

### **Split-complementary**

- color scheme, use the two colors adjacent to your base color's complement

### **Triadic**

- all the colors are equally spaced on the color wheel

### **Tetradic**

- double-complementary Model
- combine any complementary color scheme with another complementary color scheme

## **MULTIMEDIA – WEB DESIGN PRINCIPLES**

### **5 Basic Principles of Graphic Design**

#### **1. Proximity**

- grouping of elements together
- guides the viewer/reader's eye to different parts of the message

#### **2. Alignment**

- aligning elements in a visual and readable arrangement

#### **3. Repetition**

- Like the use of repetitious hooks in a song, repeating elements in a graphic design can be visually appealing.

#### **4. Contrast**

- Makes a presentation stand out and get noticed.

#### **5. White space/Negative space**

- useful when you want to make a direct message to stand out above the clutter found in many graphic designs.

## **4 EFFECTIVE WEB DESIGN PRINCIPLES**

#### **1. Visual Hierarchy**

- Visual hierarchy is the order in which the human eye perceives what it sees.

#### **2. Divine Proportions**

- 1.618 - **Golden ratio** - makes all things proportioned to it aesthetically pleasing.

### 3. **Rule of Thirds**

- An image should be imagined as divided into nine equal parts by two equally-spaced horizontal lines and two equally-spaced vertical lines, and that important compositional elements should be placed along these lines or their intersections.

### 4. **Gestalt design Laws**

- the human eye sees objects in their entirety before perceiving their individual parts.

## 6 GESTALT DESIGN LAWS

1. **Law of Proximity** - People group things together that are close together in space.
2. **Law of Similarity** - People group similar things together. This similarity can occur in the form of shape, colour, shading or other qualities.
3. **Law of Closure** - People seek completeness. With shapes that aren't closed, when parts of a whole picture are missing, our perception fills in the visual gap. Using the law of closure can make logos or design elements more interesting.
4. **Law of Symmetry** - It is perceptually pleasing to be able to divide objects into an even number of symmetrical parts.
5. **Law of Common Fate** - We group together objects that have the same trend of motion.
6. **Law of Continuity** - People have a tendency to perceive a line as continuing its established direction. The law of continuity posits that the human eye will follow the smoothest path when viewing lines, regardless of how the lines were actually drawn.

### The Law of Continuity Creates Hierarchy

- When you're done experimenting with your design features, evaluate if the information you presented is easy to comprehend.
- Make sure you don't use too many different design instruments at once, as distract the user. Visual cues should only be added when they're needed.
- According to the law of continuity, items arranged in a certain row or direction are considered a group.
- As you can see in the following examples, the main menu items and vertical submenus are also in columns.
- Law of continuity strengthens the perception of grouped items. Just move the submenu items a few pixels to the right and place them closer together and they'll look like a group.
- Our eyes are invited to follow something that guides you – this principle is applied in all medias especially in advertising.
- Without any arguing we usually let ourselves be guided by previous objects or recognitions.
- If elements are arranged along a continuous line, the eyes can easily follow them, so they are perceived as one. As well as logically following elements, visually following elements are also seen as units.

- When our designers create templates, they place elements in the layout so that users can easily guess that these elements are part of a group. Each of these elements shares a common direction line and is easy to trace.

## MOBILE APP DESIGN PRINCIPLES

1. **Improve Usability - Learnability:** This metric assesses how easily users can grasp basic tasks upon first encountering the app. Intuitive design minimizes the users' learning curve and fosters rapid app adoption.

**Efficiency:** This factor measures the speed with which users complete desired actions within the app. Optimized workflows, user journeys, and interaction patterns ensure that users achieve their goals swiftly.

**Memorability:** This assesses how well users recall the app's interaction patterns after some time away. • Consistent use of UI elements and a logical information architecture promotes easy recall for users returning to the app.

**Error Recovery:** This evaluates how frequently errors occur, their severity, and how effectively users can recover from mistakes within the app.

**Satisfaction:** This appraises the overall user experience regarding task completion, enjoyment, user perception, and their desire for ongoing engagement.

2. **Minimize Cognitive Load** - The term 'Cognitive Load' refers to the amount of mental effort required to use an app. The human brain has a limited capacity for processing information. When mobile apps bombard users with excessive info or complex tasks, it can lead to cognitive overload. This results in user frustration and app abandonment.

**Declutter the Interface:** Visual clutter is a major enemy of our cognitive capabilities. Every element you add to the app's interface – CTA buttons, images, text, etc., contributes to its visual complexity.

A cluttered interface overwhelms users and disrupts their attention. User attention is a precious resource. To allocate it strategically, declutter effectively:

- Present users with only the info they need to complete the tasks at hand
- Keep the number of interactive elements to a minimum
- Prioritize a clean and minimalistic interactive design to put users at ease
- Avoid information overload upfront; reveal additional info or options gradually

as users interact with the app

**Break Tasks into Bite-Sized Chunks:** Complex tasks with numerous steps can feel daunting for users. Breaking down complex tasks with numerous steps into smaller, more manageable subtasks is vital for keeping users engaged. This principle is especially crucial in mobile app design, where a limited screen demands a focus on simplicity.

**Minimize User Input:** Typing on small mobile screens is an error-prone process that can lead to user frustration.

To minimize user input, take the following steps:

- Leverage features like address autocomplete
- Implement real-time field validation to identify input errors immediately
- Format and correct user input automatically to reduce errors and keep users focused
- Keep entry/sign-up forms as short as possible, requesting only the essential info from users
- Display customized keyboards based on the data being shared (e.g., numeric keyboards for phone numbers)

### 3. Intuitive Navigation

- Mobile navigation should feel intuitive and immediately understandable to users.
- As soon as they open your app, users should recognize the navigation patterns, icons, menus, layouts, and other key elements that will eventually help them reach their expected destinations.

**Recognizability:** Familiar design patterns, such as a “home icon” or a “chat bubble” for texting, reinforce intuitive navigation. Every navigation element within the app, be it an icon or menu, should be instantly recognizable by users.

**Consistency:** Navigation controls should always be located in the same place within the app. Users should always know where to find core navigation elements, regardless of their current location within the app. For example, tab bars prominently display core navigation options and provide access to several key app sections at once. Placing an ever-present tab bar at the bottom of your app screen will flatten the information hierarchy (IA), reducing the number of navigational steps users need to take to reach desired destinations.

**Visibility:** Users should always be aware of their present position within the app’s navigational structure. This can be achieved through clear visual cues (like breadcrumbs) or clear signs of the user’s current location within the navigation hierarchy.

- ### 4. Seamless Experiences Across Devices
- Modern users access apps via various devices (desktop, mobile, tablet). How well they think of your brand will depend on the quality of their experiences across these devices. Imagine a user first using your mobile app and then transitioning to your website or desktop application. This transition should feel effortless and intuitive.

#### How to achieve this?

By applying the principle of design consistency.



The consistent use of design elements and styles across your mobile app, website, and desktop application will help you establish a recognizable design language throughout your product ecosystem.

- By maintaining consistent visual elements (buttons, labels, color combos) and functional interactions across your app, you will ensure that your users do not need to re-learn how to navigate each time they switch devices.
- It decreases cognitive load and forms a sense of familiarity in users' minds.

### **3 types of design consistency you should maintain:**

**1. Visual Consistency:** This refers to using the same fonts, typefaces, color combos, buttons, labels, etc., across all screens. • Maintaining a consistent visual language fosters user familiarity and creates a sense of belonging within the app.

**2. Functional Consistency:** Users should expect all buttons, menus, links, and other interactive elements to function predictably. • Functional consistency reduces the learning curve.

**3. External Consistency:** Maintain consistent design language across your website, web app, and other digital products.

When designing for a specific platform (Android or iOS), make sure all icons, typefaces, functional elements (input fields, checkboxes, switches), and UI elements have a native feel. Adhere to Apple's Human Interface Guidelines or Google's Material Design Guidelines when designing for either platform to give your app a native look and feel. Users expect your app to have this look and feel or else, they will feel they are using something sub-standard.

### **5. Finger-Friendly Interface**

- Apps are designed for fingers, and fingers are far less precise than mouse cursors.
- Research conducted by the MIT Touch Lab has concluded that the average fingertip size falls between 10-14mm.
- Based on the data, all interactive elements (buttons, icons) in your design should be a minimum size of 10mm x 10mm.
- Beyond size, tap-target placement also plays a big role in user experience.
- We must consider how users hold their devices – often onehanded with their thumbs controlling interactions while placing the tap targets.
- This is the thumb zone i.e., the area of the screen that is comfortably reached by the thumb. Prioritize tap target placement within this zone.

### **6. Notification Design**

## 7. Speed

- Speed is critical on mobile devices; even a millisecond delay can negatively impact conversions.
- Slow mobile experiences not only frustrate users but also drive them towards your competitors.

### **Here's what you can do to make your app fast-loading:**

Use tools to compress images without sacrificing their quality

Streamline your app's code by removing unnecessary characters and comments

Implement caching strategies to store frequently accessed data locally on the user's device

Enable basic offline functionality for essential app features

This allows users to interact with the app even when internet connectivity is limited

Embrace Progressive Web App (PWA) technology; PWAs offer offline functionality, allowing users to access app features and content even without Internet connections

## 8. Optimize Content

All content on your app should be meticulously optimized for mobile consumption.

**Maintain Legibility:** This ensures users can effortlessly distinguish individual characters within the text.

Avoid using fonts smaller than 16px (or 11 points)

If you cannot settle on a font, opt for default typefaces and fonts: Roboto for Google Android and San Francisco for Apple iOS

Ensure adequate contrast between your text and the background color

Follow the W3C's web content accessibility guidelines for text and image contrast ratio suggestions

**Maintain Readability:** Make your content comprehensible and effortless to navigate through.

Use all caps only for cases like acronyms, list section header labels, etc.

Create easily digestible text blocks; aim for 30-50 characters per line on mobile screens

Provide visual breathing room by maintaining adequate spaces between lines and margins

### **Optimizing Images and Video Content for Mobile:**

- Ensure your app's images are optimized for mobile resolution. Images should be displayed in their correct aspect ratio to prevent distortion.

- For optimal presentation on modern-day screens, consider creating images sized at 375 x 812 pixels, the most popular smartphone screen resolution.

- Mobile users overwhelmingly consume video content in portrait mode (vertical orientation).
- Optimize your app's video content to deliver a seamless viewing experience in this mode.

**9. Focus on Fulfilling User Goals** - Mobile users typically have specific, short-term goals in mind when interacting with an app. They expect to complete their tasks quickly and with minimal interaction, be it setting an alarm, checking email, or replying to a message. That is why it is vital to streamline user workflows, minimize unnecessary steps, and focus on helping users achieve their main goals efficiently. Identify the essential tasks users come to your app for and ensure they are easily accessible and prominently displayed. Do not bury app functionalities within complex menus. Do not request unnecessary logins for basic actions

#### **10. Biometric Design**

- Mobile devices are equipped with various sensors that can enhance UX. Cameras simplify data entry (e.g., credit card number scanning).
- Biometric authentication systems minimize login steps with fingerprint or facial recognition.
- Built-in location services provide context-aware experiences (e.g., auto-filling delivery address).
- By integrating these biometric sensor functionalities into your app's design, you can deliver more intuitive and user-centric mobile experiences.

#### **11. Research, Test, Revise**

By meticulously gathering user data through surveys, A/B testing, app store comments, competitor analysis, etc., you will gain invaluable insights into your user base's needs and pain points.

- Then, use the data points, feedback, and market research data to refine the app's design, ensuring it is user-friendly, technically sound, and on par with the latest mobile app UI/UX trends.
- This iterative process of research, testing, and revision will empower you to create an app design that consistently resonates with users and their evolving needs.