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CSC 406

What is colour harmony?

Colour harmony refers to the property that certain aesthetically pleasing colour combinations have. These combinations create pleasing contrasts and consonances that are said to be harmonious. Colour harmony is as much of a science as an art and follows very specific rules about hue, brightness and contrast. Harmony can be described as a pleasing arrangement of parts, whether it is poetry, colour or music. In visual experience, Harmony itself is simply a pleasing arrangement of different things. It engages the viewer and creates a sense of order and a balance in the visual experience. These combinations can be of [complementary colours](https://en.wikipedia.org/wiki/Complementary_colors), split-complementary colours, colour triads, or [analogous colours](https://en.wikipedia.org/wiki/Analogous_colors). Colour harmony delivers visual interest and a sense of order.

Why is colour harmony important in HCI?

Our visual experiences need to have a logical structure in order for us to understand them. Colour harmony provides that structure. Thus, colour harmony is easily defined as the combining of colours in order to produce a pleasing effect. However, if an image is chaotic, the viewer may not be able to understand it, and it too will be dismissed.

Colour schemes have a large impact on human-computer interaction, colour can greatly improve user interfaces if used correctly, but can also reduce the functionality of the interface if used inappropriately. Important factors of designing colour interfaces include simplicity, consistency, and clarity. Colour and accessibility are indelibly linked to one another, bad colour combinations create bad user environments. The right colours can show users that they are doing the right thing or the wrong thing. Colour can be used as a grouping method or to draw attention to certain aspects of the system. There are several traditional colour schemes known to enhance usability. All these could be put in place using the colour theory. Thus, Colour theory is a term used to describe the collection of rules and guidelines regarding the use of colour in art and design, as developed since their early days. Colour theory informs the design of colour schemes, aiming at aesthetic appeal and the effective communication of a design message on both the visual level and the psychological level. Designers who just pick colours that work do not do so by chance. These people have a deep understanding of colour, it nuances , its hues and shades, even how it is reflected off varying surfaces. Nothing beats experience.

Explain the following using examples;

1. COMPONENTS OF COLOURS;
2. Hue: the dominant wavelength. Hue is also a term which describes a dimension of colour we readily experience when we look at colour, or its purest form; it essentially refers to a colour having full saturation, as follows: When discussing “pigment primaries” (CMY), no white, black, or grey is added when 100% pure.   Hue is what most people think of when using the term ‘colour.’ It corresponds to its position in the spectrum. Examples of hues are: red, orange, yellow, green, blue, violet. In scientific terms, hue is the spectral wavelength composition of a colour that produces the perception of being red, yellow, blue, and so on. the redness of red, greenness of green, etc.
3. Saturation: the purity of the colour, or how much white is contained in the color. The saturation of a colour is its degree of richness, intensity, purity, or grayness. Another commonly used term for saturation is Chroma. It defines the brilliance and intensity of a colour. When a pigment hue is “toned,” both white and black (grey) are added to the colour to reduce the colour’s saturation. In terms of the “additive” light colour model, though, saturation works on a scale based on how much or how little other hues are represented in the colour. For example, red and royal blue are more saturated than pink and sky blue, respectively.
4. Luminance (intensity, value): the intensity of the light. Value is the relative lightness or darkness of a colour. It refers to the lightness or darkness of a color. It indicates the quantity of light reflected. When referring to pigments, dark values with black added are called “shades” of the given hue name. Light values with white pigment added are called “tints” of the hue name. This is what you see when you take a black and white photograph.

Brightness: for measuring self-luminous objects that emits light (CRT, etc.)

Lightness: for measuring reflected light.

The hue, saturation and luminance can be obtained given the tristimulus values of a colour under any colour system.

1. PRIMARY COLOURS

First and foremost, the Primary Colors, Yellow, Red and Blue, are at the top of any color structure. That's because you can think of the three Primaries as the original parents of all the future generations of colors. These are the traditional pigment of colours that cannot be mixed or formed from anyother combination of colours. PRIMARY COLOURS ARE THE ROOT OF EVERY OTHER COLOUR.

1. SECONDARY COLOURS;

Next come the three Secondary colors, Orange, Purple and Green. Think of the Secondary colors as the children of the three Primaries. The are colours formed by MIXING THE PRIMARY COLOURS.

In color theory we are shown that the Secondary colors are mixed like this:

Yellow  +  Red  =  ORANGE

Red  +  Blue  =  PURPLE

Blue  +  Yellow  =  GREEN

1. TETIARY COLOURS

Finally the remaining colors are referred to as the Tertiary Colors. Think of these colours as grandchildren of the Primary Colors.

Again, Color Theory teaches us that each Tertiary color is the result of one Primary Color mixed with one of its nearest Secondary colors. Therefore we end up with a new color somewhere in between.

Yellow  +  Orange  =  YELLOW/ORANGE

Red  +  Orange  =  RED/ORANGE

Red  +  Purple  =  RED/PURPLE

Blue  +  Purple  =  BLUE/PURPLE

Blue  +  Green  =  BLUE/GREEN

Yellow  +  Green  =  YELLOW/GREEN

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