Exercise: Complementary colours

In this exercise I have discovered more about complementary colours by producing my own colour wheel and the corresponding colour mixes. I have utilised Chevreul's *Cercle Chromatique* (The Open College of the Arts, 2014), as a point of reference; my version contains twelve of the main colours that he used. I have also experimented with the mixing of tertiary colours using complementary colours.

![Colour Wheel](image)

*Figure 1 Circle demonstrating colour differences and contrasts, from a book, ‘Expose d’un Moyen de definer et de nommer les couleurs’, by Eugene Chevreul, published in Paris by Firmin Didot in 1861. (The Open College of the Arts, 2014:p.50).*
What are complementary colours?

- Complementary colours are pairs of colours which are diametrically opposed to one another on the colour spectrum. For instance: orange and indigo, yellow and violet and red and green (Peintre-Analyse.com, 2006). These colours naturally complement one another; hence the terminology.

An artist’s paint or pigment colour wheel comprises three types of hues:

→ The three main primary colours: red, blue and yellow; (it’s impossible to mix these hues from any other colours).
→ the secondary colours: green, orange and PURPLE (two primary colours mixed together form these hues)
→ The tertiary colours: red-orange, red-violet, yellow-orange, yellow-green, BLUE-VIOLET and blue-green.

Tertiary colours can be mixed in a number of different ways. The most common method is to combine a primary and a secondary colour together (National Colourant Laboratories, 1958).
Making tertiary colours using complementary hues

My next task was to juxtapose each complementary pairing on a neutral grey ground. I matched the darker tone to the lighter version by adding white to the mixtures. This is an alternative method for the production of tertiary/broken colours (The Open College of the Arts, 2014).

\[ \text{Yellow-orange} + \text{blue-violet} = \text{Moss (yellow-green)} \]

A moss (yellow-green) pigment was produced by combining the complementary hues of yellow-orange and blue-violet. I matched the values of the two complementary hues by adding small amounts of white to the moss (yellow-green) mixture. As a result, the moss (yellow-green) tertiary hue seems to merge into the background as both the neutral grey ground and the tertiary hue are similar in intensity.

I utilised touches of white pigment for both the yellow-orange and the blue-violet paints to increase their opacity.

\[ \text{Yellow} + \text{VIOLET} = \text{Green-grey} \]

As before, in order to counteract the transparency of the yellow and violet pigments; I employed miniscule amounts of white pigment to increase their opacity. Once I had combined both pigments the result was a murky grey-green which was even darker than the previous tertiary hue that I’d produced. More Titanium White was added to this grey-green in order to match it to the complementary hues.

\[ \text{Yellow-green} + \text{Red-violet} = \text{Dark grey-green} \]

In order to produce the dark grey-green I combined Titanium White with the yellow-green and red-violet mixtures. The result is a darker green which is due to the more intense colour combination of red-violet and yellow-green.

Figure 5 Exercise: Complementary Colours, 2016, Lucy Dean.
Orange-red + blue-green = Light moss green

Due to the relative transparency of the orange-red mix, white was added to increase its opacity. The blue-green hue has a yellowish nuance due to the mix of Galeria Winsor Blue and a touch of cadmium yellow acrylic paints. This results in a much softer-toned light moss tertiary colour. The blue-green is darker in intensity than the orange-red and the light moss green; however the tertiary mix serves as a median value between the two complementary hues.

Orange + blue = Bottle Green

The orange mix was created using Galeria cadmium yellow and crimson pigments. The mix lacks intensity as little or no white pigment was used to counteract the transparency of the yellow and crimson red paints.

The blue was generated using Essentials ultramarine blue and Galeria winsor blue and cadmium yellow acrylic paints. The resulting tertiary hue is closer to the blue in intensity but sadly overpowers and distracts from the orange. The orange appears to disappear into the grey ground as the pigments needed to be more opaque.

Red + Green = Burgundy/Red-Violet

This mixture differed from the previous one as the pigments were robust enough to stand alone. Thus the red was sourced directly from the tube: Galeria crimson acrylic paint. The green was created using the Galeria winsor blue and cadmium yellow paints used in the preceding tasks. The burgundy/red-violet mixture is the mix which resulted from combining the red and green mixes. The burgundy/red-violet combination is closest to the green in tonal value, but it is undoubtedly a success in terms of matching the complementary pairing overall in tonal value. The two complementary colours serve to cancel each other out, although our brain tries to make them appear as dissimilar as possible. For example the red adopts an orange nuance while the green has a bluish tint.
What effect do complementary colours have on one another?

The overall effect of the complementary pairings is that they cancel each other out; and once combined; they produce subtle tints of hues (National Colourant Laboratories, 1958). These tertiary or broken colours comprise most of the colours that we visualise in everyday life. The tertiary colour palette that I’ve generated in this exercise is very subtle and the chroma appears far more naturalistic than those of the complementary colours. The complementary colours are also more intense and far bolder than those of the tertiary hues. This is because the complementary hues are mixed from the primary colours which are in fact pure forms of colour (National Colourant Laboratories, 1958). When one juxtaposes a complementary with its pairing they appear as dissimilar as possible as our brain processes the simultaneous contrast of the colours (Peintre-Analyse.com, 2006).

It is useful to understand how to create complementary hues and broken or tertiary colours as these form the majority of what we see every day. These types of colours can also be utilised to enhance our work in the visual arts as it is crucial to comprehend how our eyes and brain visualise and respond to different forms of chroma, intensity and tone (National Colourant Laboratories, 1958).

Bibliography


