

ACUADS CONFERENCE 2017

Colour. Destroys. Everything.

David Costello

In 2009 my painting teacher gave me a 30 minute critique of a painting I was working on. Of that 30 minutes I remember 13 words.

Sometimes a student gets the colour so wrong that it destroys everything else.

Ten of those 13 words are just a recollection, but three, three refused to remain idle. They transformed into something far more influential that caused me to question the validity of my artistic training. They changed how I look at at paintings. And they derailed and redirected my studio based research. That studio based research, under the influence of those three words, forms the foundation of this paper and demonstrates the value of an art school as a place to develop not only an individual studio practice, but also as place to engage in critical, cross disciplinary thinking that encourages creative research and innovative solutions.

Colour. Destroys. Everything.

The academic tradition¹ of the representational painter advocates a three step procedural hierarchy designed to simplify and structure the process of achieving mimesis in painting. Historically the number of steps have varied,² but drawing - often referred to as line or design - has always been up at the top.

‘Drawing is the probity of art...drawing does not consist merely of line: drawing is also expression, the inner form, the plane, the modelling. See what remains after that.’
(Jean-Auguste-Dominique-Ingres)

In other words get your drawing right and there's not much left to do to convince the viewer.

¹ The first state sponsored art academy in western Europe in was the Accademia del Disegno in Florence in 1563. Other notable Academies included the Accademia di San Luca in Rome, 1593, Académie Royale de Peinture et de Sculpture/ Ecole des Beaux-Arts in 1648, and Royal Academy School, 1769, London. The academies dominated the art world, dictating taste and patronage through to the late 19th century.

² I.e., during the Italian Renaissance a seven part system was used. The Venetian system of the 16th century used four parts and the French Academy in the late 17th century under Charles LeBrun initially used a five part system - composition, drawing, emotions, light, colour - later combining colour and light into one step. (Barasch, 2000, p. 253-356)

Tone, or value, was next. And for this we can point our fingers at Leonardo da Vinci.³ As noted by John Shearman (1962, p. 17), Leonardo's innovation was to model form independently of colour, which allowed him to create a tonal unity across all forms throughout the composition. He saw colour as, 'a function of light; it appears and disappears according to the lighting conditions, and its specific qualities at a given point are governed by the fall of the light upon it, and not by the properties of the pigment.' (Shearman, 1962, p. 18). Forms should be modelled according to how much light they receive rather than what colour they were.⁴

While he did not advocate for a strict separation of chroma and tone, the value Leonardo placed on value is evident in his preparatory drawings, such as *The Virgin and Child with Saint Anne and the Infant Saint John the Baptist* ('The Burlington House Cartoon') (da Vinci, c.1499-1500), and this set the tone for generations of subsequent artists.

Colour was last on the hierarchy. It had faced an uphill battle since the Hellenistic period when Aristotle wrote, '... a random distribution of the most attractive colours would never yield as much pleasure as a definite image without colour.' (Aristotle, cited in Lichtenstein, 1993, p. 59). Jacqueline Lichtenstein summarises, 'Plato condemned painting because of its colours and Aristotle reprieves it for its drawing.' (Lichtenstein, 1993, p. 62).

This favouring of line over colour was echoed by Jean-Jacques Rousseau two centuries later, 'colours, nicely modulated, give the eye pleasure, but that pleasure is purely sensory... Interest and sentiment do not depend on colours; the lines of a touching painting touch us in etching as well: remove them from the painting, and the colours will cease to have any effect. (Rousseau, 1986, p. 293-294, 279).

Despite several upheavals, this view was prevalent well into the 20th century where influential teachers such as the New York based Frank Reilly told his students that the success of a picture was due 80% to correct tones, and 20% on correct chroma. Hue really didn't matter much at all.⁵ (American Art Archives).

³ Although he would not be pleased to hear that. Barasch (2000, p. 322) notes that '[Leonardo] explicitly warns the young artist not to follow masters but to learn directly from nature.' He would have disagreed with a rigid Academy system.

⁴ Importantly, however, Leonardo did not advocate a separation of light and colour. 'There is in Leonardo's paintings and theoretical writings, as in those of his contemporaries, no opposition between colour on the one hand and light and shade on the other; it is inexact to separate colour - in the customary sense of the chromatic element of *colore* - from *chiaroscuro*, and to say that he [Leonardo] found the former of secondary importance compared with the latter... To him they were not separate departments of his art, but were in most respects inseparable.' (Shearman, 1962, p. 13)

For many the separation of colour from tone and tone from drawing was a practical approach that made it easier for a student to learn.

‘Divide the force of an art which you are not able to understand entirely, and which, besides, would crush you if taken all at once. Study each of the parts separately. You will soon be able to unite them, and to master that which if attempted would have overwhelmed you at starting. This is nothing more than Method.’ (Couture, 1879).

However the origins of the Academic hierarchy lie in the philosophical view that colour was immoral. In *Chromaphobia*, David Bachelor explains that ‘Colour, then, is not only low down the hierarchy of a painter’s skills and resources, as it had been in Academic training from the start; it is down there because that position corresponds to colour’s lowly place in the moral hierarchy of the universe.’ (2000, p.25). Moshe Barasch (2000, p. 355) sums up the academic stance on drawing and colour observing that, ‘drawing embodies reason, and colour appeals to the senses; drawing, therefore, is as superior to colour as reason is to the senses.’

So this is the purview under which I developed my painting skills. ‘Colour is dangerous, or it is trivial, or it is both.’ (Bachelor, 2000, p. 28). Don’t ignore it completely but you have more pressing concerns to worry about.

Yet...

Colour. Destroys. Everything.

These three words presented me with a conundrum. If colour destroys everything then colour **IS** as important as line and tone **AND**, to push this further, colour is capable of expressing form and depth in ways that line and tone cannot. This ran contrary to my training and painting practice. It was a moment of clarity, excitement, and heartbreak. Discovering what colour could do when unfettered from the tyranny of line and tone became the foundation of my practice based research project.

*

As early as the 17th century Roger de Piles (1635-1709)⁶ was urging for a change in how we read paintings. As explained by Jacqueline Lichtenstein, de Piles argued that, ‘Truth is no longer to be defined as an equation between representation and reality, but on the contrary, as representation’s capacity to inspire in the viewer’s belief in the reality of that which is represented before them.’ (Lichtenstein, 1993, p.179). In *Dialogue sur le colorise* (1673, Paris) De Piles argued that colour, as the only element not shared by other arts and sciences, is the sole thing that makes

⁶ A member of the French Royal Academy, and former French ambassador to Venice, hence, perhaps, his love of colour.

painting unique. 'Roger's statement implied not only that colour is 'specific' to painting; it also indicated that colour is the most valuable feature of the art.... he openly challenged the supremacy of line, that absolute dogma of the Academy.' (Barasch 2000, p. 356).

In the 18th and 19th century our understanding of colour moved from two dimensions to three dimensions. Colour theorists used all manner of forms including pyramids, cylinders, spheres, hemispheres, and double ended cones in their attempts to chart every conceivable colour. (Kuehni & Schwarz, 2007, p. 69-90). While largely of a perceptual nature, their work enabled artists to think about colour as something that existed in a navigable space. Albert Munsell's colour system (Munsell, 1905), is perhaps the most practical and easily grasped. Munsell organised his colour along three axis. The vertical axis represented value and ranged from 0 (black) -10 (white). Hue was circular centred on the value axis. Chroma, a term Munsell introduced, (Kuehni, 2012, p. 62, 97) radiated outwards from the central achromatic axis gradually increasing in chroma in a series of equally weighted steps. It had no outward limit and because of this, the resulting colour solid resembled an irregular tree shape. (Kuehni, 2012, p.99). Each colour was assigned coordinates. Critically this system allowed artists to think about colour in absolute, three dimensional measures. Colour wheels, grids and charts - slaves to two dimensions - were usurped by this new understanding.

*



Figure 1: Vincent van Gogh, *Sunflowers (fourth version)*, 1888. Oil on Canvas, 92.1 cm x 73 cm, The National Gallery, London.

Vincent Van Gogh's *Sunflowers* (fourth version). This oil painting is dominated by a flat expanse of luminescent yellow behind the flowers. Standing in front of the painting you can't help but feel that the yellow is radiating out of the picture, pushing the sunflowers forward towards you. Presentation not representation. In a letter to his brother Theo in late August 1888 van Gogh describes this painting as, 'light on light.' He writes again a couple of days later noting, 'this one creates quite an unusual (singular) effect.' The painting's refusal to sit peacefully within pictorial space is particularly evident when you compare it with his other sunflower paintings from this period,⁷ all of which feature relatively subdued backgrounds. They seem more content to follow convention and stay behind the picture plane.

⁷ van Gogh painted four versions of sunflowers in 1889, and three repetitions in 1889. The first version is on a turquoise background, the second a dark blue, and the third a light blue green. While the overall composition is the same for all versions there are differences in the colour of the table and vase itself, and number and arrangement of the flowers.

Norman Bryson reports experiencing a similar 'reversal of the Albertian gaze,' (Bryson, 1990, 81) when looking at Caravaggio's *Basket of Fruit* (c1595-1600). He attributes the projection to a number of factors including the lack of perspective⁸ in the painting, the unknown quality of the yellow background, the sharp silhouetting of the basket and fruit and the positioning of the object at our eye level. But not all of these apply to *Sunflowers*. The curve on the base of the vase and our view of the table top clearly indicates that we are standing looking down at the flowers. Its edges are quite sharp but they have some variety. To me the projection has everything to do with the yellow background. Working out why would help me understand how colour can articulate form and space - the key question that now guided my studio based research.

So what's going on?

In thinking about this I looked at how we perceive colour, particularly in relation to painting. The flowers, vase and table fall under our normal understanding of the perception of colour. We are associating it with a thing or area and judging it in comparison to other colours. We know this as related colour. (Fairchild, 2013, p. 91). We broadly categorise the hue based on our understanding of what is red, yellow, green etc. We judge the value/lightness by relating it to how light a white object would look in the same situation (Kuehni, 2012, p. 56) and the chroma by how far removed it is from something achromatic. If we had a Munsell colour manual we could hold up a series of tiles, find a match for all the colours and identify them according to their hue, value and chroma.

The background yellow, however, presents us with a conundrum. Convert an image of *Sunflowers* to a greyscale and the yellow background presents as being almost white, the lightest colour against which we relate all other values. However with the addition of its hue and chroma it reads as brighter than white even though it has the same lightness. It is as if we are interpreting it as a light source rather than an object under illumination. This is important because when we talk about attributes of light we use brightness instead of lightness. Brightness has no upper limit. We all know that lights are brighter than white - the sun, lasers, light bulbs etc. Stare at a piece of white paper - no problem, stare at the sun however...

⁸ I am using Willliam Dunning's definition of renaissance perspective which recognises and includes four types of perspective - linear perspective, atmospheric perspective, classic colour theory and separation of planes. (Dunning, 1991, p. 35-54).



Figure 2: Eugène Delacroix, *Apollo Slays Python*, 1850-51. Oil on roof mounted canvas, 800 cm x 750 cm, Musée du Louvre, Paris.⁹

Eugène Delacroix's *Apollo Slays Python* (1850-51) helped clarify my thinking on this matter. Ask somebody what the brightest thing is in this painting and they will say the sun behind Apollo. This is despite the fact that there is a spear wielding figure to Apollo's left whose sleeve is a very close to pure white. And a white juxtaposed against some reasonably dark colours. Convert this image to greyscale and you'll see that the sleeve has the highest value. Yet in colour the sun is undeniably brighter. As with *Sunflowers*, the chroma and hue of the yellow is affecting its perceived brightness.

⁹ Image by MOSSOT (Own work) [CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0>)], via Wikimedia Commons. https://commons.wikimedia.org/wiki/File:Palais_du_Louvre_-_Galerie_d%27Apollon_-_Delacroix_-_Apollon_terrassant_le_serpent_Python.JPG. Accessed 4 August 2016. Edited by the author on the same date.

According to Fairchild, 'related colours exhibit all of the perceptual attributes of hue, brightness, lightness, colourfulness, chroma, and saturation.' (2013, p.92) Of these terms colourfulness is probably unfamiliar to most of us. Fairchild defines colourfulness as, 'an attribute of a visual perception according to which the perceived colour of an area appears to be more or less chromatic.' (2013, p. 91) David Briggs provides a more easily understood interpretation. 'Colourfulness - the **absolute colour intensity** of a light stimulus - is a function of brightness and saturation.' (n.d.). This means that a bright saturated light is more colourful than an equally bright but desaturated light. Coloured lights read as being brighter than white lights of the same luminance value.

How does this contribute to the pushing out of the picture plane feeling that I observed in *Sunflowers*? The answer to that lies in one of the tenants of classic colour theory that formed part of the Renaissance understanding of perspective. Saturate, intense or bright colours are salient. (Dunning, 1991, p. 49)

Therefore the greater a colours' colourfulness, the closer it feels to the observer in space.

This is useful knowledge for painters. Delacroix, for example, demonstrated an awareness of these principles.¹⁰ In *Apollo Slays Python* the sun is physically the farthest point away from the viewer, high in the domed ceiling, yet the use of a colour with a high level of colourfulness brings it forward towards us. John Gage notes that, 'the colours, which outraged another critic in 1853, were originally brighter than they have become.' (1993, p. 173). Delacroix's judicious use of highly saturated colours throughout the painting help bridge the distance between the observer and ceiling. Additionally, in the areas receiving little natural light, he has used highly chromatic reds and greens that punch through dimness. (Gage, 1993, p. 165).



Figure 1: Demonstration of the Helmholtz-Kohlrausch effect, part 1.

¹⁰ John Gage notes Delacroix's interest in colour theory and in the work of the French chemist Michel Eugène Chevreul, a proponent of the use of high contrast in large public works. (Gage, 1993, p. 173).



Figure 2: Demonstration of the Helmholtz-Kohlraush effect, part 2.

I first came across a pair of images like this on David Briggs' excellent website *The Dimensions of Colour*. In Figure 1 each coloured square radiates a different level of brightness. In this case the red appears the brightest and the green yellow the duller. However, when I convert the image to greyscale (figure 2), each coloured square has the same lightness/value. They differ only in hue and in chroma.

It has a name. The Helmholtz–Kohlrausch effect. It is particularly relevant and well known to operators of lightning equipment and colour researchers, but I've not heard it mentioned in painterly circles. Fairchild explains, 'As a stimulus becomes more chromatic, at constant luminance, it appears brighter. (2013, p. 125) He also notes, 'that the effect depends on hue. (2013, p. 124). As you can in the examples above, reds and pinks appear brighter than the other colours, with the yellow green being particularly subdued. While there is plenty of maths behind it, (Nayatani, 2006, p. 374-378) what is most relevant to me as a painter is that a colour's chroma and hue affects its perceived brightness.

*

Back in my own studio I decided to explore the boundaries of using colour as way to articulate form and space. To do this objectively I developed a procedural framework that reduced the number of variables that could impact my work. Value was number one on the list. Each painting had to exist within one tonal band.

Figure 3 shows an example of this - a saturation series¹¹ - for Kings Blue, Brilliant Pink and Yellow Ochre. All of these colour swatches shares the same value, but exhibit differing levels of colourfulness. Note that the fully saturated tube colours also differ in their colourfulness. Brilliant Pink projects further than Kings Blue. Yellow Ochre sits further back.

¹¹ A series of equally spaced gradations going from the fully saturated tube colour to its achromatic base. Hue and value remain constant. Similar to a single horizontal line from a Munsell chart.



Figure 3: Saturation series for Kings Blue (top), Yellow Ochre Light (middle) Brilliant Pink (bottom).

I took these three saturation series to map three dimensions on canvas. Figure 4 shows my initial result.

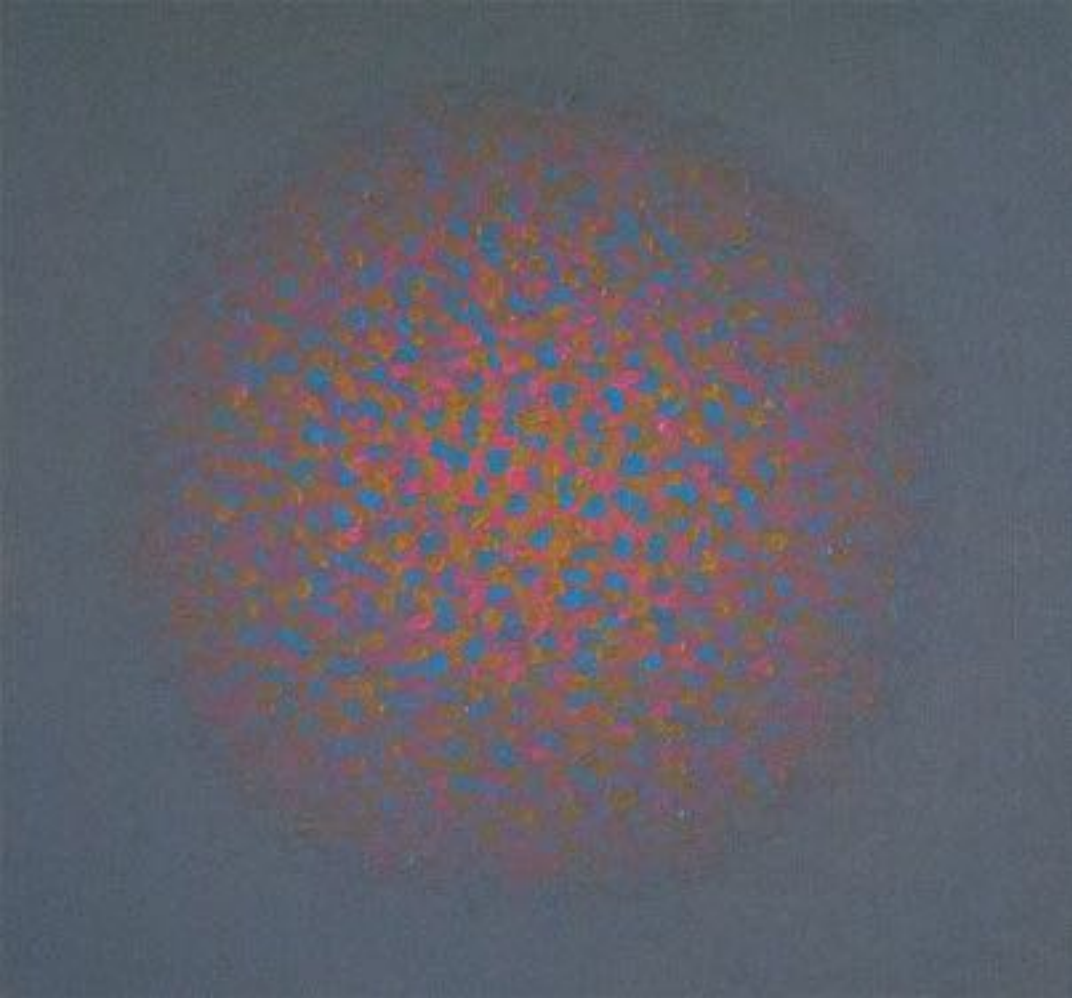


Figure 4: Sphere modelled in Brilliant Pink, Yellow Ochre Light and Kings Blue, 2017

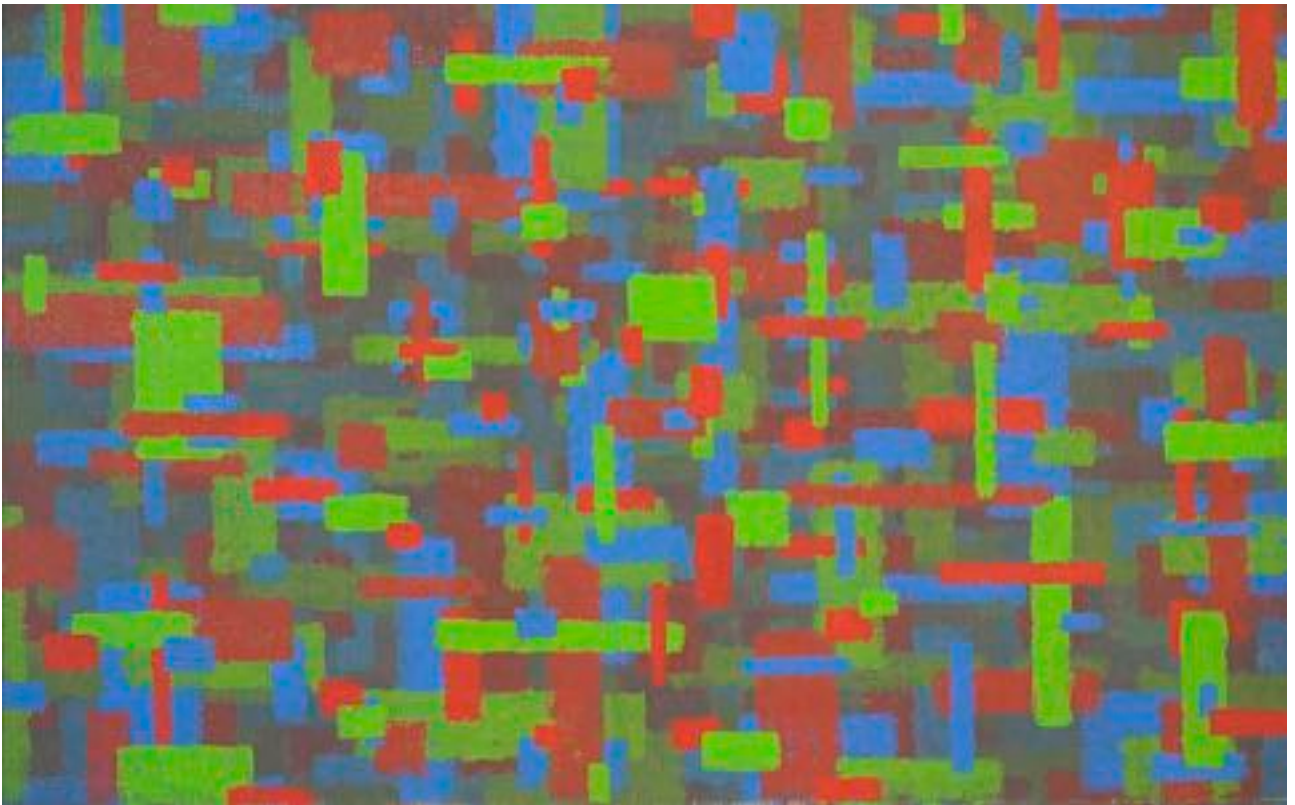


Figure 5: Study for Dimensions of Colour, 2017

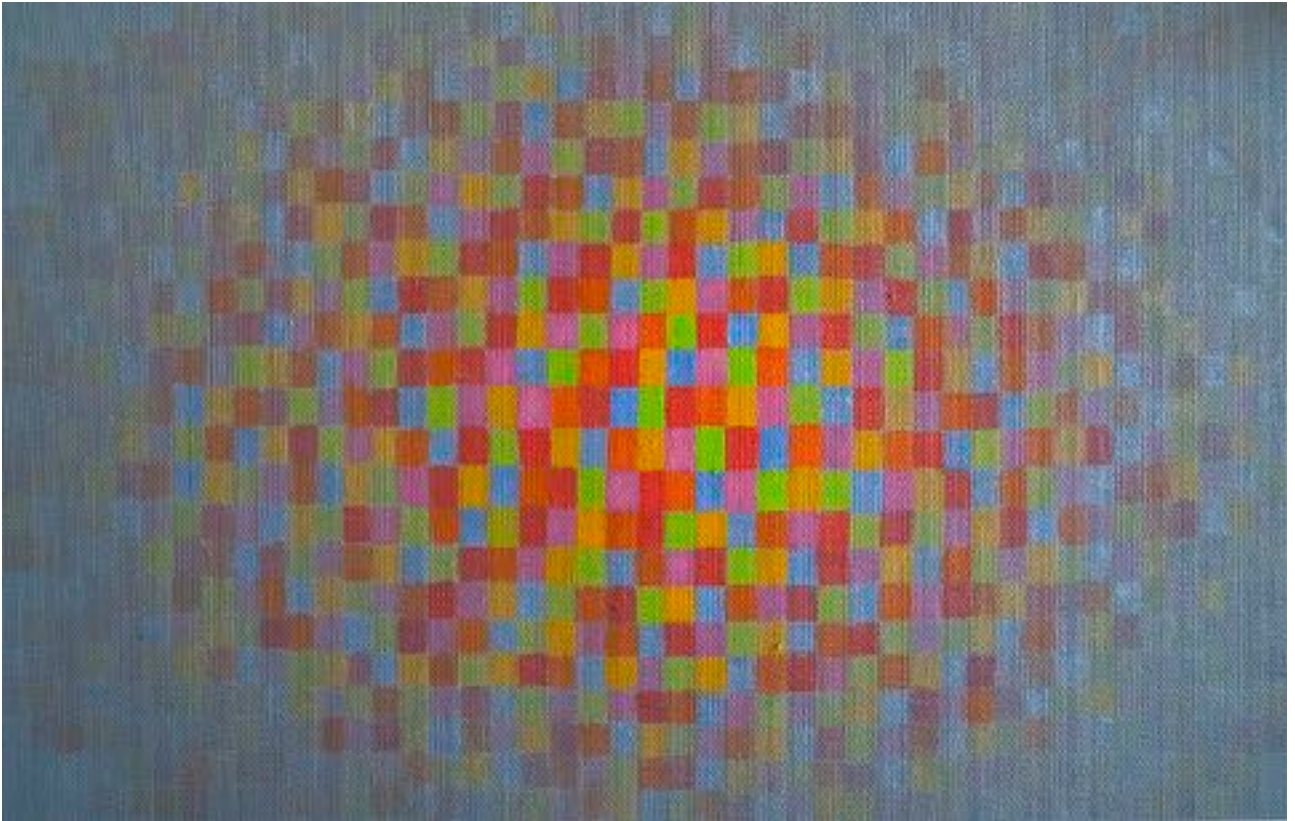


Figure 6: Untitled Study, 2017

These studies demonstrated to me that a colour's chroma affects its perceived brightness, and this colourfulness affects its placement in three dimensional space. Fortunately this correlated with what I observed in the *Sunflowers* and *Apollo Slays Python*.

*

While my research is in a fairly early stage, the initial results both in and out of the studio were indicating that colour could support or override the spatial qualities of tone. If the painter looks beyond the dogma founded on Leonardo's pioneering work, other avenues of modelling form and space become available.

*

Colour. Destroys. Everything

Three words that instigated a research project. It began with the process of critical self reflection - What was I doing? Why was I doing it? Could it be done another way? Followed by a review of the existing material - academic texts, artists' writings, observation of paintings. And culminated in ongoing studio based research.

That is the value of an art school.

This research is supported by an Australian Government Research Training Program (RTP) Scholarship

BIBLIOGRAPHY

AMERICAN ART ARCHIVES, viewed 1 August 2017, <http://www.americanartarchives.com/reilly.htm>.

BACHELOR, D 2000, *Chromaphobia*, Reaktion Books, London.

BARASCH, M 2000, *Theories of Art, 1: From Wincklemann to Baudelaire*, Routledge, New York and London.

BAUDELAIRE, C 1972, "The Life and Work of Eugene Delacroix." In *Baudelaire: Selected Writing on Art and Artists*, trans. P. E. Charvet, Cambridge University Press, Cambridge.

BRIGGS, David, "Part 9. The Dimensions of Brightness, Saturation and Colorfulness." In *The Dimensions of Colour*, viewed 8 August 2016, <http://www.huevaluechroma.com/063.php>.

BRYSON, N 1990, *Looking at the Overlooked: Four Essays on Still Life Painting*, Reaktion Books, London.

CONSBEE, P, RABINOW, RA, RIOPELLE, C, ROSENBLUM, R, SHELTON, AC, TINTEROW, G, VIGNE, G 1999, *Portraits by Ingres: Image of an Epoch*, ed. G TINTEROW, and G CONSBEE, The Metropolitan Museum of Art, New York.

COUTURE, T 1879, *Conversations on art methods (Methodes et entretiens d'atelier)*, trans. SE Stewart, G.P. Putnam's Sons, New York.

DA VINCI, Leonardo. (c.1499-1500). *Child with Saint Anne and the Infant Saint John the Baptist ('The Burlington House Cartoon')* [Charcoal (and wash?) heightened with white chalk on paper, mounted on canvas, 141.5 x 104.6 cm] National Gallery of Art, London.

DELOCROIX, E 1995, *The Journal of Eugene Delacroix*, ed. H Wellington, trans. L Norton, Phaidon Press, London.

DUNNING, WV 1991, *Changing Images of Pictorial Space: A History of Spatial Illusion in Painting*, Syracuse University Press, New York.

FAIRCHILD, MD 2013, *Color Appearance Models*, 3rd edition. Somerset: Wiley, ProQuest ebrary, viewed 28 July 2016, <http://site.ebrary.com/lib/anuau/reader.action?docID=10718850&ppg=5>.

FARAGO, CJ 1991, "Leonardo's Color and Chiaroscuro Reconsidered: The Visual Force of Painted Images." In *The Art bulletin* Volume 73, No. 1: 63-88.

GAGE, J, 1993, *Colour and Culture: Practice and Meaning from Antiquity to Abstraction*. Thames & Hudson, London.

KUEHNI, RG 2012, *Color: An Introduction to Practice and Principles - third edition*. Somerset: Wiley, ProQuest ebrary, viewed 12 August 2016, <http://site.ebrary.com/lib/anuau/reader.action?ppg=1&docID=10606024&tm=1470995839762>.

KUEHNI, RG., & SCHWARZ, A 2007, *Color Ordered: A Survey of Color Systems from Antiquity to the Present*. Cary, GB: Oxford University Press, USA, 2007, viewed 1 August 2016, ProQuest Library. <http://site.ebrary.com/lib/anuau/reader.action?ppg=1&docID=10433777&tm=1470996252795>.

LICHTENSTEIN, J 1993, *The Eloquence of Color: Rhetoric and Painting in the French Classical Age*. Translated by Emily McVarish. Berkeley, Los Angeles, University of California Press, Oxford.

MUNSELL, AH 1905, *A Colour Notation*.

MUNSELL, AH 1915, *Atlas of the Munsell Color System*. Wadsworth-Howland & Company, Malden.

MUNSELL, AH 1929, *Book of Colour: Defining, Explaining and Illustrating the Fundamental Characteristics of Colour*. Munsell Color Company Inc., Baltimore, Maryland.

NAYATANI, Y 2006, "A colorimetric explanation of the Helmholtz–Kohlrausch effect." In *Color Research and Application*, volume 23, issue 6, April: 374–378, viewed 28 July 2016, doi:10.1002/(SICI)1520-6378(199812)23:6<374::AID-COL5>3.0.CO;2-W.

NAYATANI, Y 2006, "Simple estimation methods for the Helmholtz?Kohlrausch effect." In *Color Research and Application*, volume 22, issue 6, April: 374–378, viewed 28 July 2016, doi:10.1002/(SICI)1520-6378(199712)22:6<385::AID-COL6>3.0.CO;2-R.

SHEARMAN, J 1962, "Leonardo's Colour and Chiaroscuro." In *Zeitschrift Für Kunstgeschichte* 25, no. 1: 13-47, viewed 22 July 2016, <http://www.jstor.org/stable/1481484>.