

Student Name: Monisha Sharma-McLachlan

P Number: 2004248

Programme of study: Surface Pattern Design

Module: ADAD5003/C

Research in Context Lecturers name: Julia Lockheart

Word count: 2532

Throughout this essay I will be exploring and researching three key words which are colour, biophilia and wellness. Whilst Researching different theorists such as Emma Mitchell, Kassia St Claire, Patrick Baty, Laura Perryman, Stephen R.Kellert and Mihaly Csikszentmihalyi, I will be exploring how these three key words link and intertwine with one another.



Fig1, How Isaac Newton changed the world, Biography.com, 2020

Colour is defined as 'The property possessed by an object of producing different sensations on the eye as a result of the way it reflects or emits light' (oxford language dictionary, 2023.). We perceive colour when light penetrates our iris, as it travels through the lens of our pupils and enters the retina which is consumed by rods and cones that are light-sensitive cells. As a species, we have 'about 120 million' (St Claire, 2016, p.13) rods in each eye that sends signals to the brain to visually distinguish objects and our day-to-day surroundings. Each rod is highly sensitive, therefore can predominately differentiate light and dark. However, it is the cone cells that are highly responsive towards how we perceive colours as they are active at greater volumes of light that passes through our nervous system, relaying information to the brain to translate different colours and tonal shades. Each eye consists of significantly reduced amounts of cone cells, 'around six million in each retina' (St Claire, 2016, p.13) which are located in the macula, a part of the retina that is responsible for our central vision. We have three varieties of cone cells that are individually modulated to perceive light emitted at different wavelengths: '440nm, 530nm and 560nm' (St Claire, 2016, p.13). Two-thirds of cone cells are more receptive of warmer tones rather than cooler tones as they are increasingly reactive to longer wavelengths of light. However, '4.5%' (St Claire, 2016, p.14) of the global population have subtle faults in their cone and rod cells, causing colour blindness and deficiencies. This is more prominent in men than women and is normally carried through genetics.

The ideology of seeing a variety of colours and different tones was made predominant by Isaac Newton's colour theory in the 1660s, seen as figure 1. Isaac Newton became infamous in the world of science and colour when he began experiments in 1666 with rays of sunlight being emitted through clear glass prisms to expose a vast range of primary colours, 'He used a prism to prise apart a ray of white light to reveal constituent wavelengths' (St Claire, 2016, p.17). Using two glass prisms in close proximity to one another, Isaac Newton re-joined the wavelengths of light to create a spectrum of colours, seen in the form of a rainbow beam. This helped to differentiate the connection between colours on the colour wheel, especially complementary colours which has been used and developed by scientists, artists, and designers for centuries. The colour wheel continues to be used globally in the present day. Colour greatly affects our experience of life in many different forms and aspects such as how we perceive art, fashion, our surrounding environments and what we consume, 'Colour is intrinsic to the human experience' (Perryman, 2021, p.6). In particular, colour has a strong influence on our state of emotions, wellbeing and cognitive intelligence, this is caused by colour psychology, 'colour psychology proposes that different colours have distinct effects that influence sensory, emotional and physical responses' (Perryman, 2021, p.35). Globally, we are greatly affected mentally and physically by the use of colour, this is because individual wavelengths of tone on the colour spectrum is thought to stimulate different psychological responses and reactions due to their individual aesthetic properties and symbolism.

Biophilia is defined as the 'love of living things and nature, which some people believe humans are born with' (Cambridge Dictionary, 2023). The word biophilia derives from the ancient Greek word 'Philia' (Planteria group, n.d.) which means to love. In 1964 Erich Fromm, a renowned German psychologist of sociology, formulated the term biophilia from 'Bio (life) – and philia (to love)' (Browning and Ryan, 2020, p.2), developing the Greek meaning of philia further for deeper understanding. Since the 1800's there has been researched studies to show that the human mind works more efficiently when experiencing the natural world and being connected with wildlife, 'It was thought that when out in nature, the brain operates on a level of 'soft fascination' (Browning and Ryan, 2020, p.16). Soft fascination is a term used when the mind is less stimulated and increasingly relaxed, enabling us to control and observe our state of consciousness for better mental stability and health. Roger Ulrich, an American professor expressed the importance of nature for mental and physical health through a range of studies based around health and biophilia in 1984. During his most renowned experiment, Roger Ulrich studied and observed hospitalised patients recovering from gall-bladder surgery. Each patient was put in different rooms that had the same layouts and constant variables; however, half of the patients had a window view of trees whilst the other half had a view of industrial buildings and brick walls. Over the period of time that the study took place, Professor Ulrich discovered that patients recovering in the rooms with a window view of nature recovered considerably faster than patients recovering with a view of brick walls, 'the patients with the view of the brick wall took an average of 8.7 days to recover, while the patients with a view of trees to an average of 7.9 days' (Browning and Ryan, 2020, p.12). This study confirmed the importance of the relationship between humans and nature and its healing properties whilst being one of the earliest cases of biophilia and its effects on our physical health.

Nature and the theory of Biophilia has played a crucial part in the development of mankind, our intellectual and current environment throughout centuries, and continues to be important to our development this present day, 'the natural world has always served as an essential contributor to human consciousness, cognitive development, and identity' (Kellert, 2012, p.21). Connection with wildlife has proven to be vital to us, as nature is significantly the most resourceful out of all the environments which provides extensive information for mankind to learn from. When humans were not fully developed such as in the palaeolithic period, Nature helped us to develop both our primary

and secondary senses such as smell, touch, taste, hearing, movement, balance, and emotions. This is because of the continuous and unexpected challenges and changes to our surrounding environment created by different factors: the change in seasons, weather, temperature, time of day and maturation. These natural changes instigated our adaptivity and cognitive skills due to our reaction and exposure to the constant change in the environment that immersed us, 'these changes are often unexpected and unpredictable. These alterations stimulate a Childs awareness and response and require adaptive thinking and behaviour' (Kellert, 2012, p.25). Humans have relied on nature both physically, mentally, and materialistically as we have grown to depend on natural resources for material goods, energy, services, and landmarks, taking advantage of our connection to nature.

Well-being is defined as 'the state of feeling healthy and happy' (Cambridge dictionary, 2023). It is described as multidimensional since to be fully healthy and happy we must achieve balance throughout multiple areas of our life which includes our physical health, emotional and psychological health alongside spiritual, economical, and intellectual wellbeing. The most negatively impacted area of our well-being in the 21st century is our mental health. This is greatly generated by the constant exposure to pressurising factors that immerse our day-to-day lives such as social media and advertisements, causing society to feel unsatisfied, anxious, stressed and depressed about the lives they live due to unrealistic standards of idealised ways of living.

As stated by Aristotle twenty-three hundred years ago, 'more than anything else, men and women seek happiness' (Csikszentmihalyi,1990, p.1) which is experienced most when we live within a 'flow' state of mind as this creates the most optimal state of inner peace therefore increasing our optimal life experiences. Optimal experiences are when we can happily appreciate and feel content with the smaller and unnoticed occurrences in our everyday life that may have gotten lost in our daily or weekly routines. Flow is known as 'the way people describe their state of mind when consciousness is harmoniously ordered, and they want to pursue whatever they are doing for their own sake' (Csikszentmihalyi,1990, p.6), this enables our minds to purely focus on one task at a time thus reducing the feeling of anxiety surrounding uncontrol variables that submerge our thoughts in the present moment, increasing the minds consciousness. The purpose of consciousness is 'to represent information about what is happening outside and inside the organism in such a way that it can be evaluated and acted upon the body' (Csikszentmihalyi,1990, p.24). This is crucial to wellness as our nervous systems have a limitation when processing our over consuming thoughts and the information that surrounds us. When too many thoughts are trying to be processed at a time it creates an unsettled inner state of stress and unclarity. Our nervous systems can only process 'seven bits of information' (Csikszentmihalyi,1990, p.29) at a time which includes optical stimuli, surrounding sounds and varying thoughts or emotions without being overwhelmed. Serotonin is an important chemical when promoting wellness as it acts as a neurotransmitter, carrying indicators between the brain and nerve cells which greatly affects our mood and increases happiness whilst also creating a mild sense of euphoria. Scientists have found that walking in nature and being exposed to sunlight greatly increases the release of serotonin chemicals throughout our body, improving our mental health and diminishes depression, 'interacting with the natural world has been shown to influence serotonin levels...when sunlight hits the skin or the eyes retina it triggers a release of serotonin' (Mitchell, 2018, p.9). However, relying on sunlight as a source of serotonin increases a high-risk of seasonal affective disorder (SAD) which causes depression due to low levels of sunlight during the winter period and colder parts of the world where there is constant rain and overcast.

Nature has been proven to heal mental health illnesses and promote wellness within different cultures around the world such as ancient Japanese and Chinese cultures. In Japan they believe in

the importance of practicing Shinrin-yoku which is also known as forest bathing. Starting in the early 1980s, the Shinrin-yoku concept took part in multiple forests across East Asia in which individuals would immerse themselves within trees and wildlife to gain mental and physical health benefits from soaking in the forest's pure atmosphere. Research shows that 'a quarter of the population of Japan have tried this therapy at forty-eight officially designated forest bathing trails' (Mitchell, 2018, p.8) which emphasises how passionate east Asian cultures are about natural remedies and how important healing properties of the natural world are. Recent investigation into the practice of shinrin-yoku has revealed that submerging yourself in greenery and wildlife not only improves mental health but it also substantially boosts physical and internal wellness, 'walking in a green space has a direct effect on several systems in our bodies. Blood pressure decreases, levels of stress hormone cortisol drop, anxiety is alleviated, and pulse rates diminish in trees' (Mitchell, 2018, p.8).

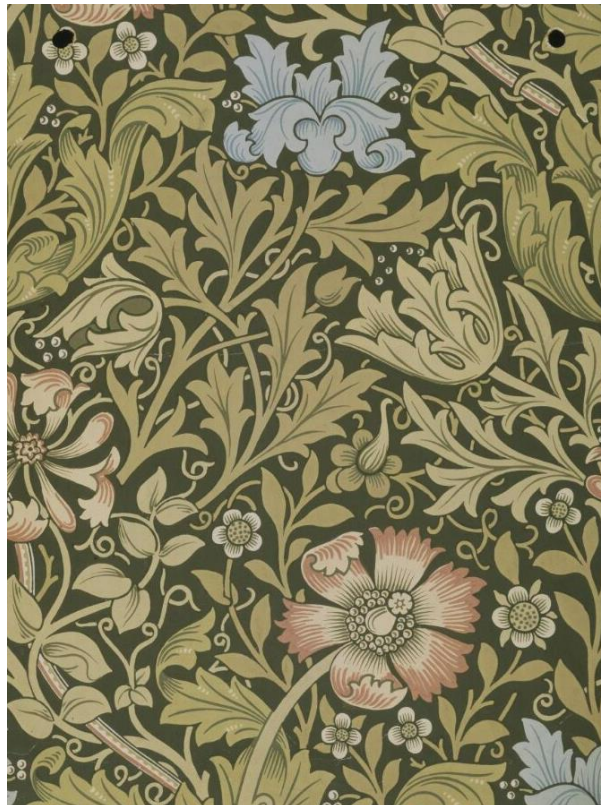


Fig 2, 'Compton' wallpaper, William Morris, 1869

Colour, Biophilia and well-being are all important aspects considered within design work and the interior design industry. Biophilic design consists of man-made buildings or constructions such as interiors, materials and furnishing that are made consciously to reconnect people to nature in a cultural and purposeful context. Biophilic design is often separated into three design categories that includes natural analogues, nature in the space and nature of the space. Each category is designed to manifest better health and well-being within society through sensorial association which is when our surroundings trigger mental connections that are uniquely meaningful for each person. Sensorial association is mainly applied using colours, architectural forms, and patterns, often linking back to the natural world, 'natural patterns and processes are even more subtle expressions of human affinity to nature' (Kellert, 2012, p.168).

William Morris is a prime designer whose work was and continues to be abundant with sensorial association through natural analogues expressed by his repetitive use of floral motifs, biophilic

pattern work and a limited colour palette, as seen in figures 2, 'Natural analogues are indirect or representational experiences of nature in the built environment' (Browning and Ryan, 2020, p.3). His use of overcrowded and maximalist patterned wallpaper designs often creates a sense of being submerged in nature with wildflowers, leaves, vines, and plants organically intertwining throughout his designs. This can be seen profoundly within his 'Compton' wallpaper collection, made in 1896 using traditional woodblock processes. The use of Morris's foliage filled motifs has a strong affiliation to the Shinrin-Yoku theory. This is because the sense of being surrounded by floral patterns and images of nature increases mood whilst decreasing stress or anxiety as it creates a sensory association to being submerged in wild fields and landscapes. Research from a joint project in 2007, including the Norwegian university of life sciences and the university of Madrid discovered that visually experiencing natural landscapes can relieve the mind of fatigue and anxiety whilst creating a sense of serenity and fastening recovery from disease. William Morris's limited colour palette represents popular shades used by early designers as they had limited exposure to materials used to create a range of colours, relying on naturally sourcing pigments from surrounding environments, soil, clay, insects, and a variety of seasonal plants. This enabled creatives to predominantly work with natural and earthy tones which continues to be in demand today especially within interior design. Different earth derived shades have a variety of sensorial association that are substantially beneficial to societies wellbeing such as brown, green, and blue. The colour green which is used throughout Morris's designs is seen as peaceful and refreshing due to the mind's connection between green and nature/wildlife that is abundant with lively plants, 'calming, balancing and rejuvenating, green is the most restful colour to look at' (Perryman, 2021, p.37). The colour blue is also impactful on our mental state, also reducing stress and tension due to its affiliation with flowing water, 'deeply connected with the natural world, blue is easy on the eye and mind. Lighter tints are expansive and serene while darker shades are perceived as reliable and trustworthy' (Perryman, 2021, p.37). Colour is not only impactful on our wellbeing, but it can also be beneficial for the earth and its ecosystems. Many modern designers are using Waste colour within their biophilic designs as a sustainable alternative to chemically and artificially manufactured pigments by utilising and recycling industrial or agricultural waste to make colours, 'examples include vegetable dyes derived from agricultural waste and metal-tinted glazes from post-industrial waste' (Perryman, 2021, p.32). Using waste colours reduces water pollution and overfilling landfills whilst creating unique shades. It also prevents stripping the earth of rare plants to derive natural pigments.

Through my research of keywords, I have discovered the question of 'how can colour and biophilic patterns be developed further within interior design to actively support mental health and wellbeing in a sustainable way? 'That I would like to carry on exploring and researching in my third year.

Bibliography:

Baty, P. (2017) *The anatomy of colour*. London: Thames and Hudson Ltd.

Browning, D. and Ryan, C. (2020) *Nature inside: A biophilia design guid*. London: RIBA publishing.

Cambridge Dictionary (2023) *Biophilia*. Available at:

<https://dictionary.cambridge.org/dictionary/english/biophilia>. (Accessed: 4th May 2023)

Cambridge Dictionary (2023) *Well-being*. Available at:

<https://dictionary.cambridge.org/dictionary/english/well-being>. (Accessed: 30th April 2023)

Csikszentmihalyi, M. (1990) *Flow: the psychology of optimal experience*. New York: HarperCollins publishers.

Kellert, S. (2012) *Birthright: People and Nature in the modern World*. London: Yale University Press.

Mitchell, E. (2018) *The wild remedy*. London: Michael o'mara.

Oxford Language Dictionary (2023) *Colour*. Available at:

https://www.oxfordlearnersdictionaries.com/definition/english/colour_1#:~:text=%E2%80%8B,orange%20and%20green%20are%20colours. (Accessed: 24th April 2023)

Perryman, L. (2021) *The Colour bible*. Hachette: Ilex press.

Planteria group (n.d.) *Biophilia – What is it and how is it important?* Available at:

<https://www.planteriagroup.com/blog/biophilia-what-is-it-and-why-is-it-important/#:~:text=It%20literally%20means%20a%20love,food%20and%20nurture%20new%20life>. (Accessed: 4th May 2023)

St Claire, K. (2016) *The secret lives of colour*. London: John Murray Press.

List of Figures:

Figure 1: Biography (2020) *How Isaac Newton changed our world*. Available at:

<https://www.biography.com/scientists/how-isaac-newton-changed-our-world/>. (Accessed: 6th May 2023)

Figure 2: William Morris (1869) *Compton Wallpaper*. Available at:

<https://collections.vam.ac.uk/item/O248864/compton-wallpaper-morris-william/>. (Accessed: 7th May 2023)