

A Theory of Colour Psychology and Colour Harmony

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Introduction

This paper sets out a number of ideas that combine to make a unified theory of colour psychology and colour harmony. It posits the existence of patterns within the visual spectrum that are reflected in patterns of human behaviour. The theory resulted from exploration of the following questions:

- *How does colour influence mood and behaviour?*
- *Why do individuals have different aesthetic responses to the same colour?*
- *What affective differences are there between different versions of the same spectral hue?*
- *Are there any universally attractive colours?*

The answers to these questions suggest that we are all affected by colour psychologically. They suggest that each hue affects specific psychological modes, thereby influencing mood and behaviour in the observer. These effects are unaffected by culture, gender or age and are therefore predictable. They also show that all colours can be classified into one of four groups. The group a colour is in determines how it will affect a psychological mode. Furthermore, there are mathematical relationships between the shades, tints and tones within these groups, not shared with those from other groups. These four groups hold the key to universal colour harmony; colours from the same group will always harmonise, whereas those from different groups never will.

With regard to colour preference, this theory puts forward the idea that humanity too can be divided into four psychological groups that correspond to the four colour groups. People in these groups share certain psychological and physical characteristics. Possibly because of these shared psychological characteristics, they also share aesthetic responses to colour. This is important when it comes to answering the question of whether there are universally attractive colours. This theory suggests that there are not, but that

all colours from a colour group will be attractive to all members of its corresponding psychological group. This means that once a person's group is established, their colour preferences can be predicted. Furthermore, all colours from a colour group have an innate harmony to which everyone responds positively.

However, it is important to draw the distinction between harmony and preference. Anyone will find a palette devised in accordance with this theory harmonious, and it will appeal to the same psychological mode regardless of their psychological group. But they will find a palette drawn from their corresponding colour group more attractive than one drawn from any other.

Therefore the principal tenets of this theory are as follows:

1. Each hue affects distinct psychological modes
2. The psychological effects of colour are universal.
3. Every shade, tone or tint can be classified into one of four colour groups.
4. Every colour will harmonise with every other colour in the same group.
5. All humanity can be classified into one of four personality types.
6. Each personality type has a natural affinity with one colour group.
7. Response to colour schemes is influenced by personality type.

Expansions of these five points form the basis of this paper.

Not all aspects of this theory are, in strict scientific terms, supported by experiment*. Nevertheless, it has been widely tested empirically in its application to the commercial world. It has been used by many companies to evoke specific behaviours in their staff and customers through use of colour in interiors of offices, shops and workplaces, and in the design of their packaging and promotional material. Advising individuals on what colours to wear both to feel and look their best also seems to bear out the validity of the theory. The results of such applications have obviously been difficult to quantify and tend to be anecdotal, but the purpose of this paper is to set out the theory as a basis for further experiment.

* Since writing the above, the OKI Project, carried out in co-operation with five European universities in 2003 – 4, has subjected the theory to stringent scientific scrutiny for the first time, with very positive results.

1. Each hue affects distinct psychological modes

It has long been held that we are affected by the colours that surround us, if only in very general terms. People will begin to feel uncomfortable after only a short while in a ‘garishly’ decorated room, whereas they will feel relaxed and sedated in a ‘cosily’ decorated room. Equally, people derive deep spiritual pleasure from the rich greens of a summer landscape but can be depressed by long periods of grey, overcast weather. (This is most strongly shown in people with Seasonal Affective Disorder (SAD). This has been alleviated by sitting under full-spectrum lighting, which appears to fool the brain into thinking it is receiving sunlight. The exact causes of SAD are unknown; possibly it is linked to colour psychology.)

As to why we are affected by colour, the author believes that over millions of years of evolution humans have developed an innate reaction to colour as a survival mechanism. An example of this is our differing reaction to green apples and green meat. Just like our differing reactions to the smell of fresh and rotting fruit, these are instinctive. Taking this further, we react to the seasons and, along with changes in temperature and daylight, colour is a principal signal that the seasons are changing, so we are affected by the colours that surround us, and adapt our behaviour. The author accepts that this idea is probably difficult to prove.

However, the idea that we are affected by colour has always been a rather generalised one. Few, if any, scientists have explored it in detail, or attempted to isolate which colours provoke which reactions. For over fifteen years the author studied the commonest views of the effects of spectral hues. These studies suggest that there are four ‘psychological primaries’; four hues that affect specific parts of the psyche. These are:

Red – Affects us physically, affecting what might be termed ‘lower order’ psychological activity.

Blue – Affects the intellect, promoting thought and ‘higher order’ activity.

Yellow – Affects the emotions.

Green – Affects the essential balance between mind, body and emotions – a more important consideration than is often realised.

The psychological effects of the remaining hues in the spectrum are combinations of the psychological effects of these primaries.

Orange – a mixture of red and yellow, therefore combining physical with emotional reaction - activates awareness of secondary survival issues of food, warmth, shelter and sensuality.

Indigo – a mixture of blue and violet, and invariably a dark colour – evokes deep contemplation and thought.

Violet – a mixture of red and blue, physical and mental – appears to take awareness to a higher plane of thought, stimulating imagination and consideration of wider philosophical ideas; it can be described as the colour of the ‘spirit’.

Attempting to apply colour psychology based only on the general effects of the seven spectral hues would be like trying to write a symphony without reference to musical key. For example, blue affects thought, but can do so in a number of ways. It is the value and intensity of a blue that controls how it affects thought.

Traditionally it has been thought that long wavelength colours – reds, oranges, and yellows - are stimulating and shorter wavelength colours – greens, blues, and purples – are soothing. Furthermore, long wavelength colours are deemed warm and short wavelength colours cool. The author disagrees with this. She opines that there are soothing long wavelength colours and stimulating short wavelength ones. The important factor in a colour’s stimulating or sedating influence is chromatic intensity; a very soft, light red – i.e. pink – is physically soothing. Equally, a very strong, saturated blue is mentally stimulating. However, whether stimulating or sedating, the red wavelength always evokes a physical reaction, the blue a mental reaction etc.

2. The psychological effects of colour are universal.

The most recent work of Li Chen Ou (“A Study of Colour Emotion and Colour Preference” 2002, unpublished at the time of writing) confirms that response to colour is not influenced by gender or culture. He noted observers’ reactions to single colours and pairs of colours, asking them whether they felt a colour was, for example, warm or cool, masculine or feminine and so on. These criteria were unrelated to the psychological effects of the colours put forward in this theory, but to some extent this is not important. What is important is that the observers were a mixture of males and females, Europeans and Chinese and that in a statistically significant number of cases, the observers’ reactions tallied. This suggests therefore that reaction to colour is unaffected by matters of gender or culture.

3. Every shade, tone or tint can be classified into one of four colour groups.

The author’s theory classifies colours into one of four tonal groups. Firstly they are divided into ‘cool’ and ‘warm’ hues. This does not mean, as generally considered, long wavelength colours and short wavelength colours. Rather, they derive from the idea of blue and yellow as the true primaries - yellow-based colours being warm and blue-based colours being cool. This means that there are in fact cool reds and yellows, and warm blues and greens. The colours are then subdivided in terms of both saturation and the addition, or not, of black (value).

Much of this classification was originally done by eye, but during work with the Colour & Imaging Institute, at the University of Derby, mathematical correlations between the colours in the four groups were identified. Mathematics being an unequivocal language, this suggests that the author’s classification was more than just a subjective exercise. The visual qualities of the colours in the four groups are as follows:

Group 1. These colours are delicate, warm and clear, containing very little black – ideally, none. They are often tints. The hues contain a percentage of yellow and the colours are not highly saturated. Common descriptors of these delicate colours are, for example: scarlet, watermelon, strawberry, peach, cream, coral, daffodil, apple green, emerald, aqua, sky blue, cobalt blue, bluebell, periwinkle, lilac, violet.

Group 2. These tones are also delicate, but they are subtle and cool, most of them containing grey. The hues have a percentage of blue added and chromatic values are relatively low. They can be dark, but are never heavy. Yellows in this group have a touch of both green and black added. Common descriptors are, for example, shell pink, raspberry, plum, milk, rose pink, taupe, grapefruit, sage green, viridian, bottle green, Royal Air Force blue, powder blue, lavender, mauve, burgundy.

Group 3. These colours are again warm, but more intense and more subtle than Group 1, sometimes with very high chromatic values and usually the addition of some black. The hues have yellow or red added to them. Examples of common descriptors of this colour group are vermilion, poppy, flame, ivory, burnt orange, russet, rust, chrysanthemum yellow, egg-yolk, saffron, olive green, forest green, leaf green, teal blue, petrel blue, aubergine.

Group 4. The essence of this colour group is contrast and strength. The hues have blue added and either white or black, although they can be pure hues. The yellows are cooled by the addition of green in their mix, and the reds by a touch of blue. Pure black and white themselves belong in this colour group and common descriptors for other colours in Group 4 include crimson, cherry, pillar-box, iced pink, shocking pink, lemon, Persian orange, lime green, pistachio, crème de menthe, cyan, royal blue, ice blue, indigo, magenta, royal purple.

In practical terms, there are far fewer colours available in Groups 1 and 4 than there are in Groups 2 and 3. This is because of the clarity and relative simplicity of Groups 1 and 4. The huge majority of colours are derived from complex equations of hue, value and chroma.

4. Every colour will harmonise with every other colour in the same group.

A few moments thought will confirm that colours in the same colour group belong together, and combining colours from different groups does not work as well. For just one example, consider how magenta and black combine dramatically to produce sophistication and elegance, whilst flame red and black are aggressive and demanding.

Each of the four groups contains versions of all the main colours – red, blue, yellow etc. - so this colour harmony theory is a departure from traditional colour theories based on the colour wheel.

This is not for a moment to say that traditional colour theory should be abandoned - harmonies of Hue, Light-Dark Contrast, Complementary Contrast, Simultaneous Contrast, Contrast of Saturation etc. These classical colour theories receive an added powerful dimension of harmony when all the shades, tones and tints are drawn from the same colour group, which is unmistakable, and upon which most people will agree.

5. All humanity can be classified into one of four personality types.

Thinkers throughout history have classified humanity into four groups that have their own distinct mental characteristics. Galen in ancient Rome divided us into Phlegmatic, Melancholic, Sanguine and Choleric, with each of the four being influenced by a preponderance of one of the four ‘bodily humours’ in our bodies. Centuries later, Carl Gustav Jung divided us in terms of ‘determining function’, with all of us being motivated either by thought, feeling, sensation or intuition. Galen was right to identify four distinct personality types, if wrong in describing their causes, and Jung too was heading in the right direction. This theory indeed builds on Jung’s theories, taking them further by linking physical and aesthetic characteristics to the psychological characteristics of the four groups.

It is important to recognise that very few, if any, archetypes of these classifications exist. Everyone has one or more subordinate elements – some personalities contain a bit of each of the four. However, the root of the personality can be classified accurately and will be the prime motivation of the individual, whether it is immediately apparent or not.

The four personality types are defined, firstly by whether they are cool (blue) or warm (yellow) – i.e. introvert or extravert. Secondly, they subdivide into intensity of energy.

The two cool personality types can be generally described as follows:

Type 2. This personality is internally motivated, and generally understated. They are quiet, with soft voices, and do not find it necessary to comment on everything, although they are often highly perceptive, and do not miss much.

They have a well-developed sense of touch, and sensitive skin, and therefore tend to have a talent for any activity involving the fingertips (playing the piano, needlework, painting etc.) They dislike poor quality or rough fabrics, and often develop skin sensitivity to them, or to cheap metal jewellery. They abhor vulgarity in all things and can be quite trenchant in their views; under a calm, soft exterior is a core of fine steel. Their humour is subtle and they are often extremely amusing. It is easy to underestimate this personality, mainly because of their genuine wish to avoid the limelight; however, they are well placed 'behind the throne' as they love to maintain an orderly and efficient environment. They relish bringing order out of chaos. If they decided to pursue a medical career, they would be at their best as general practitioners, where a calm personality and the ability to analyse and identify what is important are required.

Type 2 personalities are the least commonly found.

Type 4. This personality type is also internally motivated, but often far from understated. They are more intense and often have a compelling 'presence'. Most people respect or admire these personalities and they are often found in the public eye. They remain focused, and are not easily diverted by other people's views, or by emotional distractions and they are natural leaders, with a gift for accurate delegation. Their sense of space is highly developed, so they prefer minimalist design. They too dislike anything cheap or shoddy and usually gravitate towards a sophisticated, sometimes even hedonistic, lifestyle. Their voices are clear and clipped. They are extremely pragmatic so, in adversity, they will be perfectly stoical, and not find it necessary to share their feelings. To take the medical world again as an example of the ideal environment for this type, Type 4 would shine as a surgeon, having the precision and efficiency that this role requires, and automatically commanding respect.

The two warm personality types generally display the following characteristics:

Type 1. Type 1 personalities are very aware of other people and often allow their own behaviour to be influenced externally. They are light on their feet and quick, often communicating well over a large area (or to a large audience), but reluctant to get into great depths of academic debate. They are caring and friendly and they love to sing and dance; they often have great

charm. They are very practical and like to get on with things. They can be more easily diverted from the main objective than a Group 4 or a Group 2 personality. They have an indefinable quality of eternal youth and lightness, even if they are actually old and overweight. Where Group 2's sense of touch and Group 4's sense of space are paramount, Group 1 is very aware of light and dark and is never happy in a badly lit environment. In the medical world, with their strong practicality, Group 1 personalities make wonderful nurses, as they have a knack of making people feel better, even when things are quite bleak, and they are caring to the point of sentimentality.

Type 3. This personality type is also very aware of other people, and externally motivated. However, they want to 'save the world' and their energy is directed to action. They are prepared to debate an issue in great depth, as they have a fundamental need for authenticity – they need to understand that something is real. They are not impressed with the concept of style over substance (Group 1 virtually invented the concept!) and are sometimes idealistic at the expense of getting on with things. Group 3 have a need for a sense of substance, so they dislike flimsy furniture, fabrics etc. and the same applies to what they consider superficial ideas. They abhor feeling restricted, so they can be quite rebellious. With their endless patience in the quest for answers, and the wish to put things right, the ideal discipline for them in the medical world would be psychiatry or psychology.

There are blonds, brunettes and redheads – as well as less distinctive colouring – in each of the four personality types. However, the precise tones do vary. For example, the natural red hair of a Type 1 personality is likely to be lighter and slightly pinker than that of a Type 3 redhead. Descriptors such as Titian, Copper or Ginger apply to Type 1, whilst Chestnut, Russet or Auburn would be Type 3 hair colours.

Purely using colouring to establish a personality type is virtually impossible without visual tests, to see how, for example, the appearance of the skin is affected by colours near it. Skin tones can appear identical, but there seems to be some difference in undertones that is not apparent to the eye, but shows when observed with another colour and clearly confirms the type. Two people can have generally dark colouring but the undertones on one might be cool while those of the other are warm, because one is a Type 4 personality and the other is Type 3. This difference only shows up in relation to other colours. For example, wearing a black garment will give an

indefinable, but unmistakable, glow to the Type 4 skin, whilst a Type 3 person's skin will appear slightly unhealthy if black is worn. Hence: "That colour really suits you."

Other physical traits are more easily recognised:

Type 1. The face is often rounded, or elfin; movements are quick and light and the body never appears heavy, regardless of weight. Type 1 people often have curly hair and round eyes. Their colouring is lighter than their counterparts in other groups and, if the eyes are predominantly blue, they have other colours in them - sometimes green or grey, or a creamy 'lace' effect appearing to cover the iris, so the eyes can appear to change colour. Type 1 eyes are lively, appearing to 'dance'. The voice is usually light and the laughter 'tinkling'.

Type 2 features are softer and are curved rather than rounded; their faces can be quite long. The Group 2 hair is likely to be fine and soft, sometimes wavy. The eyes have a 'misty' quality to them, and they are still. The Type 2 movements are graceful and the body has a quality of stillness. The skin is fine and sensitive and they are prone to skin disorders (rashes etc.) under stress. The voice is soft and laughter rarely uproarious.

Type 3. The facial features can also be curved, but appearing heavier, or more substantial than a Type 2 face. The eye colour known as 'hazel' – i.e. a mixture of green and brown – only appears in this type. Whatever eye colour predominates, there are usually tan or gold flecks in them, and they are usually very expressive. The body also appears substantial, regardless of weight. The typical hair is thick and sometimes, but not necessarily, wavy. The colouring can equally be quite subtle, or positively flamboyant, but it will never be cool.

Type 4. The Type 4 features are well defined, possibly even quite sharp, often with high cheekbones, and the body is usually compact. The eyes do not have flecks or mist or lace, they are usually one colour and, if they are brown, they will be very dark, rather unfathomable. If the eyes are blue, they will be icy and have a crackling quality to them. The hair is dramatic, whether curly or straight; there are no half-measures – it will either be very curly indeed or poker straight. Black hair only belongs in this type.

6. Each personality type has a natural affinity with one colour group.

In 1928, teaching his art class at the Bauhaus about harmonic colour combinations, Johannes Itten found that each student had his or her own private conception of colour harmony. He called this 'subjective colour' and went on to build a strong body of documentation in support of his observations that each student had a preferred palette of key colours. They seemed to paint with more confidence and clear self-expression when using these key colours. He was extremely cautious about using subjective colour to discover character, or mode of thought or feeling, but he did permit himself to record his associations between the colour palettes and the students' personalities. He cites the example of a girl who had a broader palette than most, having all the principal colours represented, plus black and white, in her personal palette. He described her as having an unusual breadth and depth of personality.

Words used to describe colours are often the same words as are used to describe characteristics – e.g. warm, bright, lively, quiet, soft, bland etc. These associations have been developed in this theory between the four personality types and the four colour groups. Each personality type is expressed by a specific tonal family of colours. Conversely, a specific tonal family of colours expresses a collection of characteristics – a personality:

- Group 1 colours are warm, clear and delicate, as are the personalities of Type 1 people.
- Group 2 colours are cool, subtle and delicate, as are the personalities of Group 2 people.
- Group 3 colours are warm and rather offbeat, as are the personalities of Group 3 people.
- Group 4 colours are strong and clearly defined, as are the personalities of Group 4 people.

Each personality prefers the colours that best reflect and express their own innate characteristics.

7. Response to colour schemes is influenced by personality type.

The difficulty of colour psychology is one of interpretation. There appears to be no such thing as a good colour – nor, for that matter, a bad colour, despite the fact that reaction to spectral hues is universal. For example, red is universally stimulating, raising the blood pressure and the pulse rate, but that

can be interpreted as stimulating and exhilarating, or stressful and demanding. Blue universally activates mental activity, which might evoke sweet reason and calm thought, aiding concentration, or might be perceived as cold and bureaucratic.

We are all familiar with the subjective nature of colour preference. Show any group of people one very strong colour and some of the audience will express a strong opinion that it is a good colour, possibly using words such as “great” or “wonderful”, whilst others will consider it “gaudy” or “frightful”. Show them a low-chroma colour and opinions will again vary. Adjectives such as “peaceful” and “calming” will be used, alongside “boring” and “wishy-washy”.

Those who respond positively to bright colours relate to Jung’s extravert personality types and the ones describing soft colours as “peaceful and calming” are likely to be introverts.

However, it is more complex than that, because every individual needs stimulus and excitement in his life at some times and peace and tranquillity at others. Each of us has our own balanced palette of colours that contain versions of all the spectral hues and thus encompass all human emotions. Within the extraverts, there are those who like delicate, clear colours and those who prefer more intense shades, with more variation. Introverts also sub-divide into those who prefer subtle tones and those who respond to strong, contrasting colours.

There is likely to be a little more agreement when asked to respond to colour schemes. Many factors determine whether a colour scheme is positively or negatively perceived:

- The overall composition.
- The colour balance of the composition.
- The relationships among the exact tones in the scheme.
- The state of mind of the observer.

The most important factors in this list are the last two: the relationships among the exact tones in the scheme and the state of mind of the observer. Assuming the state of mind to be relatively undisturbed, it is the general personality type that will govern the response.

If a particular observer's personality relates to the colour group used, that observer will have a stronger response – a sense of identifying with the colours. However, empirical testing suggests a high degree of agreement from all personality types that the colours work well together, when this theory is applied. The theory therefore presents an opportunity to address the eternal question of objective colour harmony.

Conclusion

This paper has outlined a very wide-ranging theory, indeed it could be said to encompass a number of theories. It deals with both the physical and psychological nature of colour and attempts to link the two in a manner not hitherto considered possible or indeed necessary. The author is not a scientist in the strict sense of the word and has not subjected many of these ideas to formal, structured experiment*. However, the purpose of this paper is purely to clarify the fundamental aspects of the theory, forming a basis for further experiment and discussion. The author sincerely hopes it has done so.

* Since writing the above, the OKI Project, carried out in co-operation with five European universities in 2003 – 4, has subjected the theory to stringent scientific scrutiny for the first time, with very positive results.

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