COLOUR PSYCHOLOGY

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Abstract

At first a transparent subject, colours and their psychology hide a much more substantial implication than we would expect. No matter the mood a plain colour flickering before our eyes can induce or the operative use of colours in various fields of work, a fact is clearly stated: colours do have an impact on our daily lives. Having biological matters as a starting point, we are able to cruise towards a bumpy road which ends with the psychological dimension, finding out that there is a truly solid bond between visual and reaction. Human beings respond to the action of external factors (positively or negatively), sinking in the information with the help of diversified processes and filters. This piece of work's aim is to study the divergent types of influences that the variety of existent colours happen to have upon the human mind and, unreservedly, the use of colour as an instrument of therapy. An extensive view comes within mentioning the concept of colour blindness (Inherited Colour Vision Deficiency), a concept that makes us wonder and ask a lot of questions that can be amply answered. Colours remain frequently ignored factors in studying human states of mind and responses, reason for bringing to light their far-reaching value.

Keywords: *colours; visual; psychology*

Introduction

We all do encounter the ravashing beauty of a bright colour set in our everyday path. It may be about a simple image printed out carefully on paper, nature at its finest or even the thin display of a modern TV – the human being never stops being surprised by the quantity of information and the reaction power colours own. The diverse intermix of nuances makes reducing the magnitude of the subject impossible, offering us a very large spectre of analysis, simply

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unlimited when it comes to discovering new variants or new open doors. Studying a subject – which might seem childish at the beggining – like colour psychology, forwards us to less theory and more practice, mostly visual. Colours have the amazing quality of catching attention and emphasizing what the eye cannot easily perceive, reason for – while time passes – this quality became forcefully exploited, especially in marketing and therapy.

Each and every colour tends to wear an archetipal symbolistic value, corelated with a certain culture, historical period or context. Perceiving colours regarding tradition differs almost antithetically. Where white means life, somewhere else it means death – this way, the colour might provoke diverse reactions, psychologically speaking, because of the subjectivity of the society as a whole (Georgescu 2012). Colour therapy works for and through individuality, yet its effects can be seen in large groups as well, by addressing them colour's informational value in the active process.

Masses have a crucial role in understanding and developing this theme, because the vast majority of marketing colossus are using colours for their logos and packing designs, exactly with the purpose we mentioned – to induce a certain state of being, benefic to commerce. Thus, it is useful to assume and understand crowd psychology, because crowds are actually exposed to colour's capacity to persuade, provoke, relax and so on.

> *The inferior reasoning of crowds is based, just as is reasoning of a high order, on the association of ideas, but between the ideas associated by crowds there are only apparent bonds of analogy or succession. The mode of reasoning of crowds resembles that of the Esquimaux who, knowing from experience that ice, a transparent body, melts in the mouth, concludes that glass, also a transparent body, should also melt in the mouth; or that of the savage who imagines that by eating the heart of a courageous foe he acquires his bravery; or of the workman who, having been exploited by one employer of labour, immediately concludes that all employers exploit their men.* (Le Bon 1997, p.25)

The same thing can be stated in our situation, colours wearing a generally valid significance in each and every context, significance that is accepted as a whole by a particular target group. It is essential to comprehend the implications every colour has in our path towards a favorable outcome. In this regard, we will briefly introduce the reverberations colours and combinations of colours produce once we are exposed to them.

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1. *Red*

   Colour of power, health, passion and energy, it stimulates orientation. Red brings out the impulsive side of human beings, making them more alert, quicker in taking decisions, in sense of properly directing their resources. Red is an agressive colour, but it sends impulses of trust, comfort and stamina when used at the right time. Examples of well-known brands that use red for advertising: Coca Cola, Nintendo, Red Bull, Pinterest, Lego, Vodafone etc.

   Red is recognized as a colour which allows the altering of sports (of any kind) contests' results. A study regarding this fact proved that wearing red while participating in this kind of contests can seriously improve your chance of winning. (Hill, et al. 2005).

2. *Orange*

   Colour of curiosity, arts and restlessness. Part of the same category as red, orange manages to easily catch attention. It triggers empathy, intense desire to know and tolerance. People who's favourite colour is orange tend to be adventurous, nature lovers and full of life. This colour sets off a certain thirst for freedom, for knowledge, discovery and experimentation. Sometimes it is perceived like a colour of praise and tribute. Examples of well-known brands that use orange for advertising: Fanta, Orange, MasterCard, Bitly etc.

3. *Green*

   The green colour express the idea of equilibrium, rebirth and peace. Green bring out qualities like patience, sincerity, modesty or kindness. It is specific for persons orientated towards career and it encourages social relationships. Loyalty and organizational skills are corelated with green. Once exposed to this nuance, Examples of well-known brands that use green for advertising: Tic-Tac, Lacoste, Starbucks etc.

4. *Blue*

   Blue is the colour of conventional, of duty and serenity. It generates inner peace, a constant need for truth. It guides you towards being sincere and use your imagination at its finest, it stimulates creativity, compassion and self-esteem. It helps setting up future plans and it is known as a colour of fixed belief. It brings out ambition, determination and open perspectives. Examples of well-known brands that use blue for advertising: Internet Explorer, Skype, Intel, Blu-ray, Wordpress, Twitter, Facebook, Tumblr.

5. *Purple*

   Purple is the colour of romantic being, of respect, luxury and harmony.

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Once exposed to its beauty, we become more self-assured, more selfish, concentrating on us as individuals. It is a colour which highly stimulates the psyche, encouraging originality and boldness. It is a profound colour, which brings out strong feelings and deep memories. Examples of well-known brands that use purple for advertising: Yahoo!, Milka, Benq, FedEx, Wizz.

6. *Pink*

   As a nuance, pink implies kindness, delicacy and maternal senses. Those displayed to this colour tend to become more emotive, thoughtful, getting rid of any trace of selfishness behind. It represents romance and feminity. Pink brings up a strong motherly feeling, which means taking care of people around you, forgetting about your own person and canalizing all your resourses towards making everyone else happy. It is the colour of charismatic and open-minded people. Examples of well-known brands that use pink for advertising: Barbie, Victoria's Secret, Taco-Bell, Telekom, Bourjois, Cosmopolitan.

7. *Brown*

   Colour of security, comfort, intimacy – brown has the power to make us more sincere, patient, while bringing out our true self. This colour represents simplicity and clean thoughts, motivating us to be hardworking and stable in our lives and careers. It has a much greater effect while used in pairs with other nuances. Examples of well-known brands that use brown for advertising: Magnum, Kinder, M&M.

8. *Black*

   Colour of power, mystery, control – black means autonomy, intelligence. It brings out the need to rule over others, to get your business to the absolute peak. It builds the idea of constant protection, of distance and absence. Black involves clarity, being a nuance that contains every other existent colour. To some cultures, it is associated to death and may induce negative reactions. Examples of well-known brands that use black for advertising: Adidas, Apple, Nike, HP, Chanel, HBO, Puma.

9. *White*

   The white colour denotes purity, perfection, order, simplicity. While black means full absorbtion of everything around it, white means total reflection, repelling any staining that may occur, reason for its quality of sterilizer. It brings out the image of an infinite open space, the image of freedom. Once exposed to white, the standard reaction is feeling neuter

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and peaceful. Some cultures use white for the significance of death, in opposite to black. Most of the brands that are using black for advertising tend to use white too.

Colour therapy

Chromotherapy represents a quite controversial practice, due to the fact that the results of this type of help cannot be purely scientific proven, although it is well-known that some reactions are encountered at a biopsychological level. Leaving behind the exceptional cases and focusing on generality, we can observe that each colour spectrum has a certain resonance regarding the person who distinguishes it, fact that can be used therapeutically. Inducing a state with the help of a long exposure to one or more specific colours is a real practice with visible after results. Personality works like a rainbow, in a world where colours replace the earth elements and interpersonal linkings are being established by a nuance criteria (Hartman 2007).

The colours became a research matter around the 20th century, interspersed with psychology in the visual perception area. The absolute first explanation which bonds colour perception to the human existence refers to human's capability to adapt. In order to act accordingly to the requirements of the world (and, of course, society) colours are an occurrence we need to perceive correctly, chromatics being one of the most substantial dimensions of the visual. A lot of studies accentuate the effects humans experience once exposed to particular nuances: cars which have a certain range of colours are more liable to accidents than the others (Crozier 1996).

Car colour	Accidents (out of 10 000 tested cars)
black	179
white	160
red	157
brown	133
yellow	133

Table 1 - The risk of accidents in traffic regarding colour (Crozier)

In another study of his, Crozier manages to get to the conclusion that blue tones bring a lot more contentment to the human eye than nuances of red, purple, orange or yellow. He mentions five explanations to this dilemma, stating: either

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the choices are purely conventional, either the choice of blue tones is directly influenced by their neutrality and generality, either the colour is susceptible to extremes and easier to pick from a certain range, either blue holds strong positive implications, either it has received meaning through evolution. A sure fact is that blue colour is being chosen with a lack of difficulty or over-thinking, passively – in the RGB range of colours – proving the presence of conscience and collective preferences (Cozier 1999).

It is claimed that every colour wears an express informational weight which can be passed over and might lead to desired effects (red stimulates, blue alleviates etc.). Yet the proof is not numerous enough and quite sporadic mentioned, the entire concept remaining something pseudoscientific. The one and only proven fact is that the spectrum of sunlight (keeping in mind its intensity and other parameters) may affect the human body through the sense organs (O'Connor 2011).

A research focuses on 11 steps of study for the relationship between colour and emotion (warm–cool, heavy–light, modern–classical, clean–dirty, active–passive, hard–soft, harmonious–disharmonious, tense–relaxed, fresh–stale, masculine–feminine, and like–dislike) where there have been used 190 colours and some observers. As a result, it was stated that there can't exist a clear pattern in choosing a certain colour, but the same colour provokes the same reaction to all the participants, no matter their background. Of course, the human psyche perceives and stores much more fluently combinations of colours instead of singular colours, mostly consonant blends (which are desirable because they produce emotions of attachment, relaxation, pleasure or patience – e.g. a beautiful scenery with a rich composition which might express strong emotions will remain stocked in our memory). Therefore, we can use this type of nonsingular images in therapy (Ou, et al. 2004).

Biopsychological aspects

Biology, especially the brain structure and its mode of operation, clearly intervenes in informational processing regarding colours. This being said, we need to clarify some concepts about the eye-functioning and image forming at the posterior region of the brain. Light rays that make distinguishing colours possible get in through the cornea (the clear side of the eye). The cornea bends the rays of light which pass through the pupil to the center of the iris where light can get in. The iris has the ability to change its size depending on the amount of

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light it absorbs. After passing the iris, the light is carried to the crystalline (a flexible, transparent medium) and reaches the retina, which captures all the rays of light and prepares them to be transmitted to the brain and, eventually, processed.

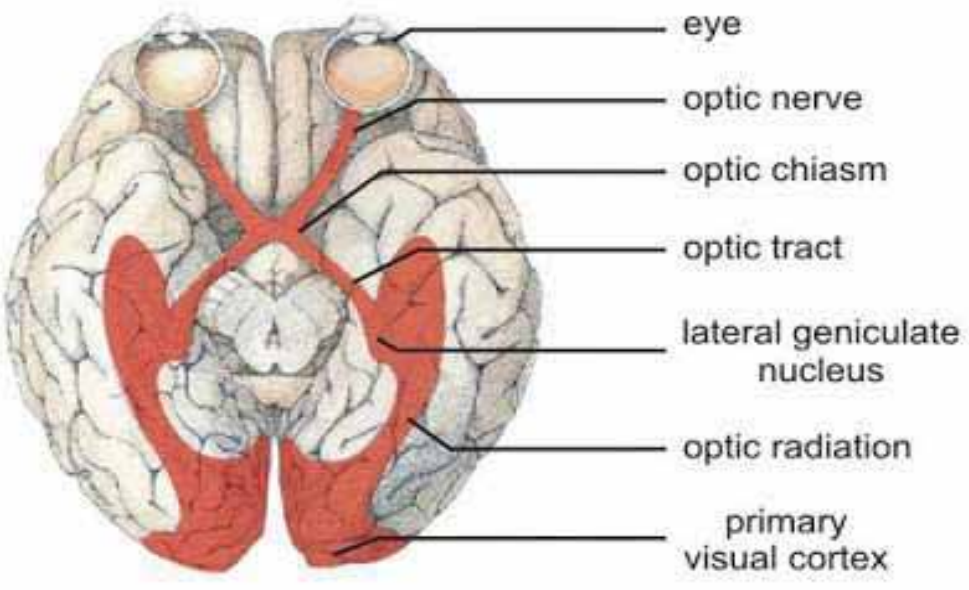


Figure 1. http://www.jjkvc.org/visual-system

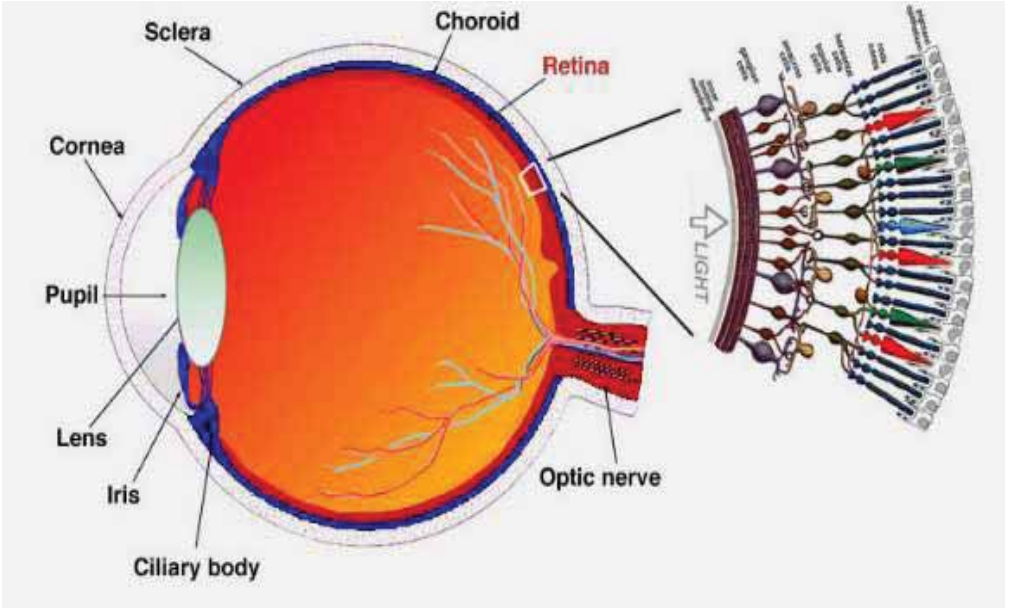


Figure 2. http://www.sci-news.com/othersciences/psychology/article01130-eye-blood-iq.html

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The faults of the eye can make the person no longer properly distinguish the surrounding reality. It is important to note that not the neuronal processing of the problem is the issue, because the brain keeps its role of decoding and assimilation. Even in some cases of Discromatopia, once corrected, the effects of colours on the human psyche are more significant as in the case of a normal person (maybe even stronger effects than the usual). However, there are cases where cerebral Acromatopsia intervene – a very particular case – where the brain can no longer distinguish colours, strictly psychologically, in the absence of any eye defect (Heywood, et al. 1987)

In this domain, experimental psychology has a great role in tracking the evolution – or involution – of a subject while applying Chromotherapy. It is proven that the perception of colour through the normal healthy eye can be altered by consecutive negative images (one image of a certain colour is being watched for a short amount of time and another one is placed quickly in front of our view), resulting in a detection of eventual visual issues (e.g. chronic tiredness of the eye). Through tests and experiments we can separate general cases from the more particular ones, leaving us space for having a conclusion which may fit all the possible subjects (Lungu 2000).

With Chromotherapy, colours can be used in each aspect of our everyday life (interior design, fashion, even food we usually consume or jewellery we often wear) without us being totally aware of the effects they have upon us. Yet, once we become aware, once we direct our interest towards them, we can fructify their beneficent impact. For each existent colour there is both psychological and biological informational value (wavelenght, wave frequency, substance release etc.).

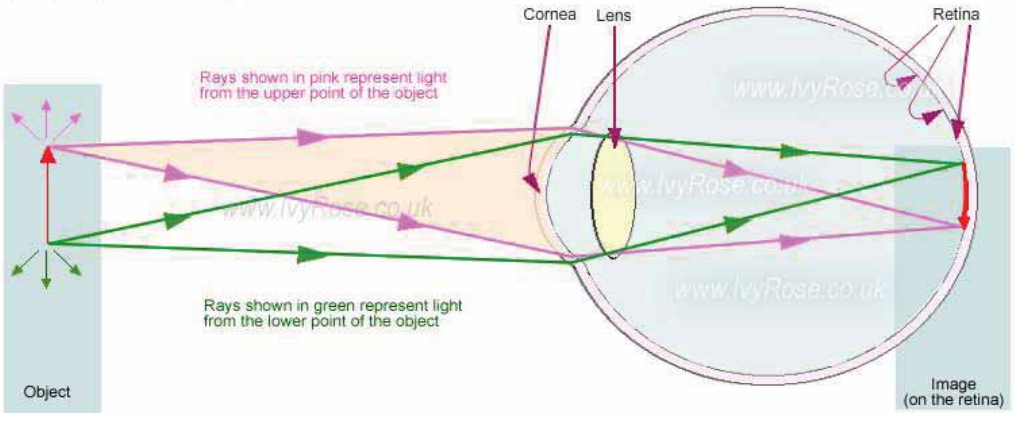


Figure 3. http://ibnmazeni.blogspot.ro/2011/03/as-easy-as-abc.html

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Inherited Colour Vision Deficiency

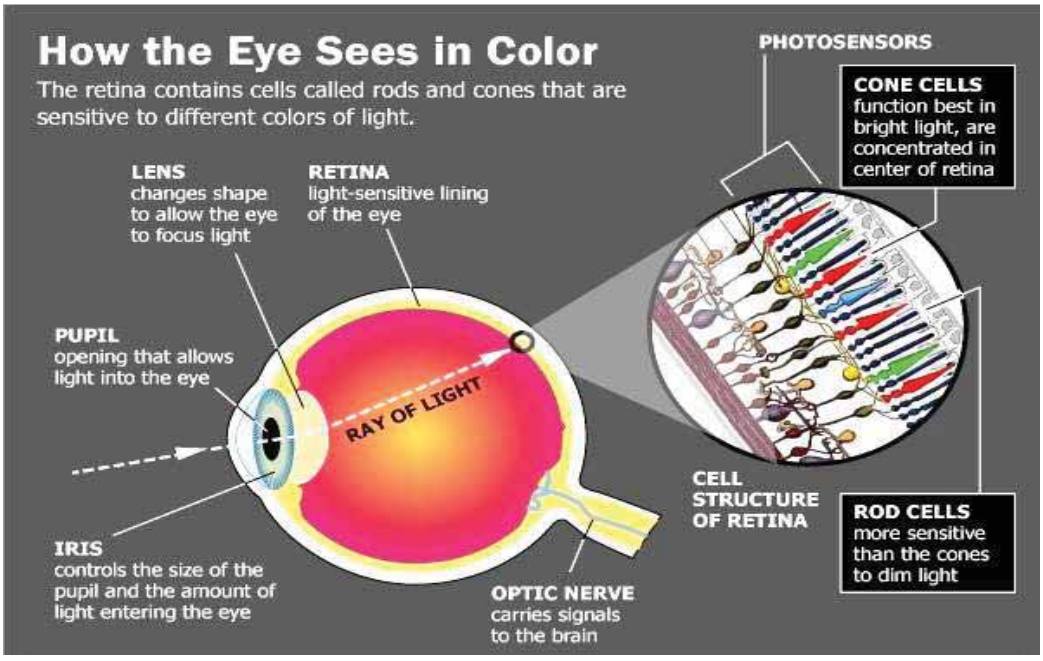


Figure 4. http://westsideoptometrynow.com/services-we-provide/childrens-vision/color-vision-deficiency/

Having thus established the effects that colours have on the human psyche, what could happen if we lack the ability to normally perceive the whole array of nuances? Inherited Colour Vision Deficiency (ICVD) or colour blindness, scientifically called Discromatopsia, is a certain type of eyesight anomaly which affects the retina, resulting in the impossibility to distinguish the red, green and blue (RGB) colours of the spectrum, as well as combinations of those (Mahjoob, et al. 2017).

With no possibility at all to differentiate between nuances, what is the applicability of the previously mentioned ones in this particular case, and how can the validity of the effects of colours on the human psyche be proven? Putting aside the fact that Discromatopsia affects many aspects of our daily life, think about the basic activity of shopping or the impending difficulties that arise in the learning process of elementary school, how it could all be efficiently accomplished, when the diagnosis is still not properly established? This disease succeeds in crippling the more sensitive psychological parts of the developing process.

There are numerous studies concerning the fact the colour therapy has

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certain benefits on the general wellbeing of an individual, reason for which their lack is a disadvantage from the beginning. Realising the catastrophic effects of the lack of colours in the day-to-day life of people suffering from ICVD, many professionals sought to fix this problem. Among them is Holly Atkinson with her novel study, in which she promotes modern technology as an means of curing Discromatopsia. She managed to find the exact method of operating a healthy eye, its replacement with the aid of computerised emulators which detect, ahead of time, the type of Discromatopsia that an individual suffers of, perfectly coping with any individual's necessities, and precisely applying those alterations that allows the correct perception of colours to take place. Starting this moment, with the correct distinction of nuances, colour therapy can be very easily applied, the brain's reactions being indistinguishable from those of a healthy person, with biologically normal eyes (Atkinson 1996).

The emergence and development of such an affliction starts with the alteration of the genes, which contain the information regarding the red-green pigments (pigments that are responsible for the colour blindness phenomena). A number of 25 genotypes have been studied, as results of unequal re-combinations and gene conversion, and the obtained results were not unexpected at all: the colour blue will be excluded from this experiment, although its use would have been possible – the colours red and green are therefore the subjects of the study, observed in various situations, the results showing that 24 out of the 25 cases tested had the dispositions of pigments and genes different that their structure and layout in a normal human. These permutations make the distinction of the three basic nuances utterly impossible. (Nathans 1986).

Those affected by this abnormal perception of colours have to struggle with the consequences, reason for which the contemporary society is trying to give them convenient options to overcome, to substitute the lack of colours (the law of equal opportunity). To this purpose, the exclusion of such individuals from normal activities of the community, such as the potential for performance in a career one indicates, is strictly forbidden and illegal. This can be avoided only by mending and healing their condition, through the use of remedies or medicine that dulls the effects of their disease. Discriminating between nuances or an anomalous perception represents a barrier, in situations such as decoding the colour-based information encrypted by man for security purposes, or colour codes regarding the distinction between quality products. This virtually makes it impossibile for people suffering of this disease to effectively operate and organize complex elements from a visual standpoint (Cole 2004).

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Practical conclusions

Now that we managed to decode and understand all this theory about colours it would be the right time to sum it up into some good practices you should keep in mind when you're surrounded by colours. This alternative system of healing based on (initially) colourless sunlight rays stands tall besides photosynthesis, bio-metabolism or protein biosynthesis. The absorption of colours through sense organs is necessary for our bodies' well-functioning.

1. Try to believe this kind of therapy actually works

It is quite complicated to trust a theory, especially if it represents a new kind of therapy, as long it has no solid informational background. Since it is a relative practice, Cromotherapy may not bring the exact results we expect, but it defines a non-invasive treatment that can heal custom conditions. Hope, trust and a little bit of magic might be the key!

2. Surround yourself with positive-value colours

Even if you are not entirely convinced of the effects colours may have, try to bring them closer into your life. Whether is an interesting painting you want to admire on your wall or a new shade of nail-polish, inviting some colour into your life might change the way you used to see things around you. Avoid colours that have a negative connotation and try to get to know yourself a bit more deeply. At the end of the day, what was that colour you used to adore in your childhood? Why not use it now!?

3. Be more aware of the influences colours have on you

As mentioned above, focusing your attention towards the significance of colours around you may awaken certain feeling inside you. In the everyday chaos we live it is fairly complicated to spend our resources on thigs we believe won't make a big difference for ourselves, but with this small change you could find the newly installed state of being surprising.

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