

Technique for creating non-standard color solutions: influence on emotional and aesthetic perception

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Abstract. The color scheme in the photo plays an important role in emotional perception and esthetic assessment of images. In this scientific article the technique of creation of non-standard color schemes is presented to photos and their influence on emotional perception and esthetic assessment of the viewer. Various theories of color perception and psychology of color and also methods of the analysis of color schemes in the photo are considered. The main attention is paid to a communication research between colors and emotional reactions and also to influence of color combinations on esthetic assessment of photos. This technique and a research will help photographers and designers to create the new non-standard, but harmonious and emotionally filled color schemes in the works.

1 Introduction

Color scale is important aspect of the photo and design which has significant effect on emotional perception and esthetic assessment of the viewer. Colors can cause various emotional reactions and associations and also to influence perception of composition and mood. An objective of this research is creation of a technique of creation of non-standard color schemes and their influence on emotional perception and esthetic assessment of photos by means of which photographers designers and artists will be able to increase expressiveness of the works and to reduce distance in perception between the author and the viewer.

The current problem of the analysis and creation of color schemes for photographers and designers consists in need of effective and exact determination of colors and their new combinations in the photo or in design. Though visual perception of color is subjective process, photographers and designers seek to create the harmonious and emotionally loaded color schemes.

One of difficulties is accounting of perception of color by different people. Perception of color can vary depending on specific features of the viewer, lighting, a context and cultural factors. It means that the same color scheme can cause various emotions and perception in different people.

Other problem is connected with the choice of the correct color combinations and contrast color elements for achievement of certain effects or transfer of certain emotions. The

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unsuccessful choice of colors can result in insufficient expressiveness of the photo or design or even to the wrong interpretation of the message which the author wanted to give.

Besides, need of accounting of different color spaces and devices of reproduction of color (for example, monitors, printers and other devices) adds additional difficulties in the analysis and management of color schemes. Different devices can have different abilities to reproduce and render colors that can lead to distortion and discrepancy between the expected and actual colors.

For overcoming these problems, photographers and designers try to use tools and technology of the analysis of color schemes, such as color histograms, means of computer sight and specialized software for management of color. They can also rely on the professional experience and an intuition and also on feedback from the audience and clients to reach desirable effect in creation and interpretation of color schemes.

The purpose of a technique of creation of non-standard color schemes and the analysis of their influence on emotional perception and esthetic assessment in the photo and design is creation of the attractive and emotionally loaded color compositions which will effectively influence the audience. Based on an environment context, cultural factors, subconscious and psychological perception of the person, this technique helps to transfer certain emotions, to create the atmosphere and esthetic appeal in the photo and design.

2 Problems of a technique of creation of non-standard color schemes

Originality: Creation of non-standard color combinations will help authors to stand out from the crowd and to give to works a unique and original form. It will allow to draw attention of the audience and to attract their interest.

Emotional transfer: Colors have strong emotional influence. The problem of a technique of creation of non-standard color combinations is in using colors so that they transferred the necessary emotions and mood. For example, use of unusual combinations of colors can help to create the atmosphere of mysteriousness, an intrigue or imagination without resorting to large-scale and big-budget receptions.

Visual interest: The use of non-standard color combinations can add visual interest to the work. Contrasting or unexpected color combinations attract attention and create dynamism in the composition. This helps to make photos and designs more attractive and authors memorable.

Expression of individuality: The technique of creating non-standard color combinations allows you to express the personality of the artist and his creative approach. Using unique color combinations helps reflect artistic visions and style. This helps the author stand out and create his own recognizable visual language.

Meet project context and objectives: The goal of the custom color blending methodology is also to ensure that the selected colors match the project context and its objectives. Colors must support the concept and transmit the desired messages or associations.

In general, the tasks of the methodology for creating non-standard color combinations in photography and design are related to originality, emotional transmission, visual interest, expression of individuality and correspondence to the context of the project. This technique opens up the opportunity for artists to experiment, play with colors and create unique and attractive visual compositions.

Color psychology theory studies the effects of color on an individual's emotional responses and psychological processes. Different colors can cause different emotions, associations and moods in people.

Effect of color on emotional responses:

Red: Red creates an association with energy or excitement. This is the color of strength, activity or aggression. Red can also cause a sense of danger or warning. Some studies suggest that red can raise people's heart rate and blood pressure.

Blue: Blue is associated with peace, tranquility and stability. It can make you feel cool and relaxed. Blue also associates with a sense of depth and space. Studies show that blue can lower people's heart rate and blood pressure.

Yellow: Yellow is associated with joy, optimism and energy. It can cause feelings of warmth and sunshine. Yellow also communicates with communication and communication. Research suggests yellow can boost mood and make you feel happy.

Green: Green gives a sense of sustainability and nature. It can evoke a sense of harmony and calm. Green color is often associated with health and relaxation. Studies show that green can reduce stress and improve concentration.

Other colors: Each color can elicit unique emotional reactions and associations. For example, orange is associated with enthusiasm and warmth, purple with luxury and mystery, pink with tenderness and femininity, white with purity and freshness, black with elegance and strength.

Color psychology theory and emotional responses to colors are an active area of research, and there are many papers that deal in detail with the effects of color on emotions and psychological aspects. The examples described above represent only some of the aspects of research in this field and may serve as an introduction to further immersion in the subject.

The use of different color temperatures in photography and art allows you to create unique emotional and visual impressions on the viewer. The same image can convey a completely different meaning and mood when the color temperature changes. As shown in Figure 1 and Figure 2 (warm and cold color temperature)



Fig. 1. Warm color temperature



Fig. 2. Cold color temperature

For example, the first picture, which depicts a couple against a sunset in warm colors, creates an atmosphere of warmth, peace and romance. The color palette consists of bright orange hues that bring out the warmth of the sunset. The picture is filled with a warm light that softens the contours of objects and creates a pleasant feeling. In a story associated with a warm picture of a couple against a sunset, a positive and romantic plot can be imagined. In this picture, the couple can be in a state of happiness and harmony. It can represent their beginning of a relationship, the moment they realize their mutual affection, or even the moment they celebrate their special day such as a wedding or anniversary.

The second picture, with the same image of a couple, but in a cold tint, creates a completely different mood. The color palette consists of blues and purples that give the image a cold and mysterious look. The sunset now looks more calm and mystical. Cold light creates a sense of remoteness and can evoke feelings of longing or melancholy. In a cold-toned story, a couple may be struggling or going through a difficult period. This cold atmosphere may reflect disagreement, conflict, separation, or the last meeting of two people who can no longer

be together. One can imagine a scenario where a couple is trying to find ways to understand each other or forgiveness, but the cold tones reflect their emotional distance and separation.

Thus, the color tone plays an important role in the perception of the image. Warm tones create a feeling of warmth and comfort, while cool tones can evoke more solitary and introverted emotions. Each of the paintings conveys its own unique mood, based on the chosen colors, and allows the viewer to experience different emotional states.

Thus, changing the color temperature allows artists and photographers to control the emotional and visual component of their work. She is able to switch the meaning and mood of the image, causing various emotions and reactions from the audience. Color temperature opens up huge opportunities for creators to create and convey a deep experience. It helps to play with perception and inspire unique and unique stories to the audience through the use of different color effects. The choice of color temperature is a powerful tool for creating unique emotional and visual effects in photography and art, which allows artists and photographers to explore and express different aspects of human perception.

Cinema uses a variety of color techniques to create specific effects and convey mood. Some of the main color techniques used in cinema include:

- Color filters and gel filters: Color filters and gel filters can be used to change the color palette of a scene or create certain emotional associations. For example, the use of a blue filter can convey a feeling of cold or anxiety, while the use of a yellow filter can create a warm and pleasant atmosphere.

- Color contrasts: The contrast between different colors can be used to create visual interest and attract the attention of the viewer. For example, using contrasting colors such as red and green can help highlight specific elements of a scene or accentuate important details.

- Color temperatures: Using different color temperatures can help create a specific atmosphere and mood. Warm color temperatures such as shades of orange and yellow can create a feeling of warmth and comfort, while cold color temperatures such as blue or purple can convey a feeling of coolness or mystery.

- Color symbols: Individual colors can carry certain symbols and associations. For example, red may be associated with love, passion, or danger, while green may symbolize nature, growth, or hope. Using these color symbols can help convey certain emotions and messages to viewers.

Applying these color techniques to design and photography can help create attractive and emotionally charged visual compositions. This can be achieved by using color filters or processing photos with software, adjusting color balances, or applying contrasting color combinations.

Applying color techniques to design and photography is important because color affects the emotional perception of viewers. It can elicit certain feelings, associations, and reactions in humans, and it can be used to convey certain messages and create memorable visual experiences.

However, it is important to remember that the choice and use of color techniques must be conscious and consistent with the goals and context of the project. Individual preferences and perceptions of each viewer's color must also be considered, as color responses can vary slightly between individuals.

Cultural factors and conventional associations with colors can also influence the perception of color combinations. Different cultures and societies can give different meanings and emotional associations to certain colors. For example table 1 (colors and their perception in different regions):

Table 1. Colors and their perception in different regions

	china	west	islam	east
yellow	associated with imperial power, longevity and nobility.	can be associated with joy, sunshine, energy and optimism. It can also be used to indicate a caution or caution (such as the yellow triangle on road signs).	the color of wealth and luxury, great social achievements. A woman in Islam belongs to a man and is considered part of his wealth, and women are allowed to wear smart yellow, it is considered a feminine color and it is considered shameful for men to wear it.	In the countries of the Middle East and Southeast Asia, yellow was an important and beloved color. He was often found in fabrics and in the interior.
blue	signifies trust, tranquility and healing. The blue color in China represents wood and symbolizes spring, immortality and	associated with peace, tranquility, harmony and reliability. It can be used to convey a feeling of coolness and stability.	associated with spirituality, faith and protection from evil forces. It is often used in the decorative elements of mosques and Islamic arts.	is a symbol of spirituality, paradise and immortality in many cultures in the East.
white	color means emptiness and is considered not a color, but its absence. associated with old age, autumn, wilting, i.e. completion of the cycle and going beyond the edge of the world. Therefore, in China, during mourning ceremonies, white is used.	associated with purity, innocence and light. It can be used to create a sense of space and light.	As in many other cultures, white for Muslims symbolizes purity and modesty.	In some Asian and Oriental cultures, white can be associated with death, sadness, and mourning. It is used in mourning ceremonies and rituals.

These are just some examples, and the meanings of colors may vary depending on specific customs and traditions in each culture. It is important to remember that color values are not universal and can be perceived differently in different cultural contexts.

Visual context: The visual context in which color combinations are represented can also influence their perception. For example, color combinations can interact with other design elements or objects in a photo, creating specific effects or emotional associations. Visual context can highlight or change the perception of color combinations.

All of these environmental factors interact and can change the perception of color combinations and their emotional interpretation. They emphasize the importance of taking

environmental context into account when creating and analyzing color schemes in photography and design.

Environmental analysis: The technique involves taking into account the environment in which a photographic or design work will be presented. This includes analysis of lighting, background environment, and visual context. The goal is to select color schemes and combinations that will harmonize and interact effectively with the environment, emphasizing or creating a particular atmosphere.

Using the technique of creating non-standard color schemes in photography and analyzing the impact on emotional perception and aesthetic assessment given the context of the environment, culture, subconscious and psychological perception of a person, helps photographers and designers create effective and attractive visual works. This allows you to convey certain emotions, create mood and aesthetic attractiveness, given the various factors that affect the perception of color.

Taking into account cultural factors: the methodology takes into account cultural factors and generally accepted associations with colors in different cultures. Different colors can cause different emotional reactions and associations across cultures. The challenge is to select color schemes and combinations that will match the expectations and preferences of the target audience or cultural environment in which the work will be presented.

Using subconscious and psychological perception: The technique takes into account the influence of color on a person's subconscious and psychological processes. Different colors can cause different emotional reactions and associations, and they can affect the mood, attention and perception of viewers. The challenge is to select color schemes and combinations that will convey desired emotions and create the desired effect at the audience's subconscious level.

The environment has considerable influence on perception of color combinations and a context in which they are perceived. Perception of color and its impact on us are closely connected with a context and conditions in which we observe colors. Here some factors of the environment which can influence perception of color combinations:

Lighting: Lighting is one of key factors which influence perception of color. Various light sources, such as daylight, artificial lighting or candles, have different color characteristics and spectral structure. It can lead to change of perception of color combinations. For example, the same color combinations can seem more saturated or less contrast at different sources of lighting.

Background environment: The background or the environment on which there are color combinations also plays an important role in their perception. Color combinations can be visually interacting with a background and influence their brightness, contrast and color balance. For example, dark color the combination can seem to more contrast and be allocated on a light background while against a dark background it can seem to less expressive.

There is a standard color circle, such as color circle of Itten which is widely used for determination of compatibility of colors. He is based on the color theory and includes primary colors, secondary and tertiary colors and also their combinations.

However, observations and experiments show that the colors which aren't fitting into habitual combinations of a color circle can harmoniously be perceived if they are applied in the context of the meaning of the environment and the author's idea. Color combinations which can seem unusual or even contradicting standard rules of compatibility of colors can create unique and impressive effects.

The context of the environment plays an important role in perception and interaction with colors. Cultural associations, semantic communications and emotional reactions to colors can influence how color combinations are perceived by the audience. For example, use of the unexpected or contradicting combinations of colors in the photo or design can attract interest

and draw attention if they fit into a context of sense and transfer necessary emotional or esthetic aspects.

Thus in spite of the fact that the standard color circle provides us the important managements for a combination of colors, experiments and observations demonstrate that harmonious and successful color combinations can arise outside this circle. The correct use of colors in the context of sense and the environment can open new opportunities for creativity and creation of original and attractive visual compositions.

However it is important to remember that successful use of nonconventional color combinations demands the attentive analysis and experiments. Understanding of the basic principles of the color theory and also contextual perception of color and meaning of the environment, will help to create harmonious and effective color compositions which will visually enrich art and design.

The technique of creation of non-standard color schemes in the photo is under construction on 5 main steps:

1. Determination of primary color: primary color which will form a basis of the color scheme. It can be any color which will be chosen by the author or which answers the project purpose.

2. Brightness control and saturations: it is necessary to show consideration for brightness control and saturation of colors to create balance and harmony. It isn't necessary to be afraid of too bright or too dim combinations if it creates the necessary atmosphere.

3. Creation of contrast: the standard rule is creation of contrast between light and dark colors and also between colors of various shades and saturations to add interest and depth to the color scheme. But in application of this technique use of low contrasts or creation of contrasts with the help of play of light and shadows is admissible to place emphasis on mood and the atmosphere of the project.

4. Testing on small area: before final application of the color scheme on all project, it is necessary to test it on small area or to create a trial sample. It will allow the author to estimate visual effect and to make sure that colors work well together.

5. Accounting of a context: it is important to consider a context in which the color scheme will be used. It is important to understand target audience, mood or the atmosphere which the author wants to give and also functional or emotional project requirements. It will help to choose the color scheme which in the best way approaches the set purposes.

The combination of these steps proceeds from the basic principles of the color theory and practical examination. However it is important to remember that finally the choice of the color scheme is subjective process and has to correspond to individual taste of the artist or designer, the purposes of the project and desirable effect.

3 Conclusion

The technique of creating non-standard color combinations in photography and design is a powerful tool that allows artists and designers to express their creative personality and create unique visual works. It offers the opportunity to go beyond standard color schemes and create original, attractive and emotionally charged works.

The technique includes color model analysis, contextual color perception, understanding emotional associations and color meanings, and experiments with color combinations. It helps to create non-standard, but harmonious and aesthetically attractive compositions that arouse the interest and impression of the audience.

The technique of creating non-standard color combinations opens up the possibility for artists and designers to play with contrasts, saturation and shades of colors. It allows you to create emotionally charged works, convey mood and stand out from the crowd.

However, it is important to remember that the successful use of non-standard color combinations requires balance and harmony. When creating color combinations, you must consider the project context, its goals, and its target audience. Colors shall be in accordance with the message to be transmitted and maintain the overall aesthetics and style of the project.

The use of the technique of creating non-standard color combinations allows artists and designers to expand their creative boundaries and create unique and memorable works. It is an important tool for expressing individuality, attracting attention and creating visual impact.

Thus, this technique is a valuable set of tools and principles that help artists and designers develop their creative vision and create impressive and emotionally rich works. It opens up opportunities for experimentation, innovation and expression, and allows you to create color combinations that are unique, original and inspiring for the audience. Further research in this area could lead to the development of new tools and approaches to analyze and improve color schemes in photography.

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