Color Relationships in Paintings

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Abstract
The article describes how colors are formed in nature and the phenomena of their distribution. The integral connection and characteristics of painting with other disciplines are discussed, and how colors are obtained and prepared in nature is highlighted. In this article, visual art training is of great importance in the development of pedagogical activity and artistic creativity of students of general education schools, vocational colleges and universities.

Key words: miniature, fresco, spectrum, contrast, achromatic, chromatic, watercolor, tempera, pencil, photometer.

Over the past period, the Republic of Uzbekistan has adopted a number of normative and legal acts on the development of culture and arts[1]. In particular, the Resolution of the President of the Republic of Uzbekistan No. PD - 3391 of November 17, 2017 “On measures to further develop the art of the Uzbek national makom”, of May 30, 2019 “On the organization of the activities of the state museum-reserves Sarmishsay”, “Shakhrisabz”, “Termez” and “Kokand” Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 443 of April 21 [2], 2020 “On measures to further increase the efficiency of the fine and applied arts” Resolution No. PD - 4688 of May 26, 2020 “Culture Decree No. PD-6000 of May 23 [3]. Decree of the President of the Republic of Uzbekistan “On measures to further increase the efficiency of the field of fine and applied arts” dated April 21, 2020 No. PD-4688, Decree of the President of the Republic of Uzbekistan "On additional measures related to supporting the entrepreneurial activity and employment of young people, their social protection and meaningful organization of their free time" 20th of 2021 Decree No. PD-6208 of April. It is known that the 20th century was a period of sharp changes in the art of Uzbek music, “unconventional” compositional creativity and new forms of concerts appeared. In this regard, the concept of “variety” entered our circulation in musical culture.

Visual art training is of great importance in the development of pedagogical activity and artistic creativity of students of secondary schools, vocational colleges and universities. Of course, every...
person who works in the field of fine arts, be it an artist, a teacher of fine arts, or a craftsman related to this field, all of them, first of all, are good at pencil drawing. knowingly penetrates the painting (in areas related to the painting). From a physiological point of view, light falls on the object being drawn, and the artist sees the shape of this or that part.[4]

The scientific basis of painting is the science of color science. Color science teaches future artists about the formation and distribution of colors in nature, how they change under the influence of the environment, how to prepare and use their paints.

In Central Asia, the doctrine of colors has long been developed in connection with book miniatures, painting, wall frescoes, panels. Because the art of painting requires the ability to choose colors and prepare them. Therefore, every student should first of all learn the secrets of color preparation and the chemical processes related to this work. At the same time, students' memories are strengthened, vocabulary is increased. [5]

Scientists and artists have long been interested in how colors are formed and distributed in nature. The great artists and theoreticians of the Renaissance, Mon Battista Alberti, Leonardo da Vinci, and others wrote about the characteristics of colors in their works on painting.

Color plays an important role in human life. It affects a person differently in different situations. Therefore, it is not for nothing that we sometimes call colors “happy” and “gray”, which can express our mood. It is known that since ancient times, people have taken into account such characteristics of color and used it effectively in their work. Especially as such a tool, artists used it skillfully. A teenager begins to organize his activities on the basis of a particular principle, belief, and personal point of view. [6] By polishing their works with different colors, they have managed to create images that evoke thoughts by influencing people’s moods in different ways. Therefore, color and the ability to use it are of great importance in many genres of fine art. But it is correct to say that it is the most important fact that the pencil drawing is important and powerful. That’s why since ancient times, pencil drawing has been considered as the basis of painting. However, a good knowledge of the characteristics of color is very important for any student of drawing.

Color wheel and color relationships

Color theory is the art of combining colors based on the color wheel, an organized illustration of primary, secondary, and tertiary colors. Accurately combining colors, using the color wheel, and understanding how colors relate to each other are critical skills for artists, designers, marketers, and brand owners.

✓ Primary colors
✓ Secondary colors
✓ Tertiary colors
✓ Additional colors.

Basic colors. Primary colors include yellow, blue and red. These are colors that cannot be created by mixing other colors. Instead, they combine to create secondary colors, which in turn create tertiary colors. In fact, all colors come from three primaries.

Secondary colors. Secondary colors include orange, purple, and green, and they result from mixing equal amounts of two primary colors at the same time. Red and yellow combine to form orange; blue and yellow harvest green; red and blue make violet. Keep in mind that the ratio of each color you use when mixing them affects the final color. For example, mixing 1 part red with 1 part blue produces a
shade of purple, while mixing 1 part red with 2 parts blue produces darker, bluer shades of purple.

Tertiary colors. Tertiary colors, also called intermediate colors, are made by combining equal parts of primary and secondary colors. Sometimes they are named after the two colors that make them up, such as blue-green or orange-red, and sometimes they are named after themselves. There are six in total: vermilion (red-orange), red (red-violet), violet (blue-violet), blue (blue-green), chartreuse (yellow-green) and amber (yellow-orange).

Additional colors. Complementary colors are hues that are opposite to each other and are opposite each other on the color wheel. A color wheel is an arrangement based on the relationship of all the colors in the spectrum and is useful in creating harmonious color schemes. Complementary colors enhance each other’s intensity when placed close together, so they are often used to create bold, high-contrast images that pop.

It is known from the school physics course that almost all colors are obtained by adding the three main colors of the spectrum. They are red, yellow, blue colors. These are called primary colors. Complementary colors are obtained by adding primary colors. For example, by adding red and blue, you can make purple, by adding red and yellow, you can make gold, and by adding yellow and blue, you can make green. We know that colors have two characteristics: warm and cold. Warm colors include red, yellow, gold, and green colors, and cool colors include green, blue, purple, and colors close to them. Also, these are all achromatic colors. All other colors are chromatic colors. Achromatic colors differ from each other only in lightness. For example, white, gray, black, darker, very black, etc. Chromatic colors differ from each other by color, i.e. red, yellow, blue, green, brown etc.

It is known from the above that chromatic colors differ from each other in three main properties: color tone (color itself), color lightness and saturation. If we look closely at the spectrum, we will notice signs of similarity between the red and violet colors at its extremes. When the two colors are mixed together, red colors are formed in the middle of the spectrum. If the resulting color is placed in the middle of red and violet, and the spectrum is connected, a ring is formed. This is called the color wheel in color science. Various shades of red, reddish-golden, yellow, yellow-green, green and blue, bluish-purple, blue, bluish-purple, crimson can be seen from the range of colors.

Chemistry helps to discover dyes, to combine substances chemically, and to determine the recipes of dyes. Paints are mainly made in two different ways. The names of paints are often distinguished by the name of the place where they were mined. For example, if we take Neapolitan yellow from the paints, this yellowish color paint is made from a substance that erupted from the mountains surrounding the city of Naples, Italy. Khalilovka ochre is a gold-colored paint obtained in the village of Khalilovka in the Orenburg region of the Urals. Indian yellow is an orange dye made from the leaves of the date palm tree, which grows in the Indian state of Bengal. Some bright red dyes are made from small animals - oak beetle (size 2-8 mm), red worm living in North America.

The colors are light-dark, i.e. light red, orange, dark red, pale yellow, and it differs in its saturation its brightness. Colors that are opposite in the color circle are called “Contrast” colors. Contrasting colors are sharply different from each other, and one makes the other brighter. For example, red looks brighter on a green background, and green looks brighter on a red background. Nowadays, art needs to make human life more beautiful, to provide aesthetic and spiritual nourishment to a person. It should inspire people to work and live, enrich their inner world. [7] When working with color, it is very important to know color harmony, i.e. color harmony.

Paints such as watercolor, tempera, watercolor, gouache are used to describe things and events. Depicting things with paint is a very complex process that requires a person to know the characteristics
of colors and the techniques of using them effectively and efficiently. Depicting the size, texture and spatial position of an object with the help of paints is the basis of painting. Since he is an illustrator of everything, he must pay close attention to colors. That’s how you can find out that the appearance of color in nature is different. Because the color of an object changes depending on how far it is from us. The reason for this is the effect of air and environment on the appearance of the object. Finding and using color relationships in the right proportions on the paper level is the most important factor in the true reflection of the image. Working in watercolor is also an activity that requires serious study and hard training. The theoretical part of the work requires careful study at the same time as practice.

All colors other than achromatic colors, i.e. colors that have a tint, belong to chromatic colors. It includes all the colors of the solar spectrum and all the colors created by mixing them with each other. White is also a chromatic color. Unlike achromatic colors, chromatic colors are distinguished not only by their light intensity, but also by their names and hues. For example, yellow and red colors differ sharply in terms of light intensity and color. Each chromatic color has three properties. They have color tone, color brightness (in which less or more brightness is observed), color saturation (in which less or more brightness is observed in autumn). Each chromatic color differs from one another according to these three properties.

There can be many shades of color on the color spectrum. But our eyes can distinguish about 150 of them. The order of placement of colors along the circle is kept certain. If the color circle is divided into two equal parts, the first half contains red, golden, yellowish-green (pistachio) colors, and the second half contains greenish-orange, turquoise, blue, blue-violet colors. Those in the first half of the circle are warm colors, and those in the second half are cool colors. The reason for this name is that red and yellow colors remind of fire, red-hot iron and coal, and blue, blue, and green colors remind of the color of ice and water. This distinction is relative, and any warm color can appear cold next to a warmer color, and conversely, a cold color can appear warmer next to a cooler color.

Color is determined by the wavelength of the colors. According to this property of color, we see and perceive red, yellow, blue and other spectral colors through our eyes. But there are many more colors than the names given to them. The wavelength of a color does not change. Because when white color is added, only the brightness of the color changes and is represented by the coefficient of restitution. An instrument called a photometer is used to accurately measure brightness. The closer the colors are to the spectrometer colors, the better their brightness.

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