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COLOR SCHEMES IN LANDSCAPE DESIGN: COLOR THEORY

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Abstract. Color has a basic appeal to humans and can be used by landscapers to evoke powerful emotional responses. Color may not be the most important consideration in an overall landscape, but it has a powerful visual effect and should be considered carefully for best results. Color theory in design is based on the color wheel, a standard circular illustration that shows the relationship between all the various colors of the spectrum. The Munsell color-order system is an American classifying system that is used as a standard for color notation in artistic, commercial, scientific and educational work. The Mansell system defines a color in terms of three qualities or attributes: hue, value and Chroma. Hue is the name for the attribute of color that defines its position on the spectrum, such as red, yellow or green. The second attribute of color is value, sometimes called brightness, lightness or luminosity. Location of this study was in Prishtina, S=1000 m^2. For landscape design, the following design programs have been used: Lumion, Landscape design. Monochromatic color schemes use various values and degrees of saturation of a single hue.

Key words:Landscape, color theory, Munsell color system, color schemes.

1. Introduction

Color is a strong design element and can be used to attract attention and guide the human eye. Because of its strength, color can also become a problem when used incorrectly. Color has a basic appeal to humans and can be used by landscapers to evoke powerful emotional responses. Color theory in design is based on the color wheel, a standard circular illustration that shows the relationship between all the various colors of the spectrum. The Munsell color-order system is an American classifying system that is used as a standard for color notation in artistic, commercial, scientific and educational work. The Mansell system defines a color in terms of three qualities or attributes: hue, value and Chroma. Munsell color system, method of designating colors based on a color arrangement scheme developed by the American art instructor and painter Albert H. Munsell. Munsell introduced his system in 1913

with the publication of the Atlas of the Munsell Color System, which featured 15 color charts consisting of several hundred color chips arranged according to the three characteristics of hue, value and chroma. The Munsell Color system is set up as a numerical scale with visually uniform steps for each of the three color attributes in Munsell color notation, each color has a logical and visual relationship to all other colors (Macevoy, 2007).

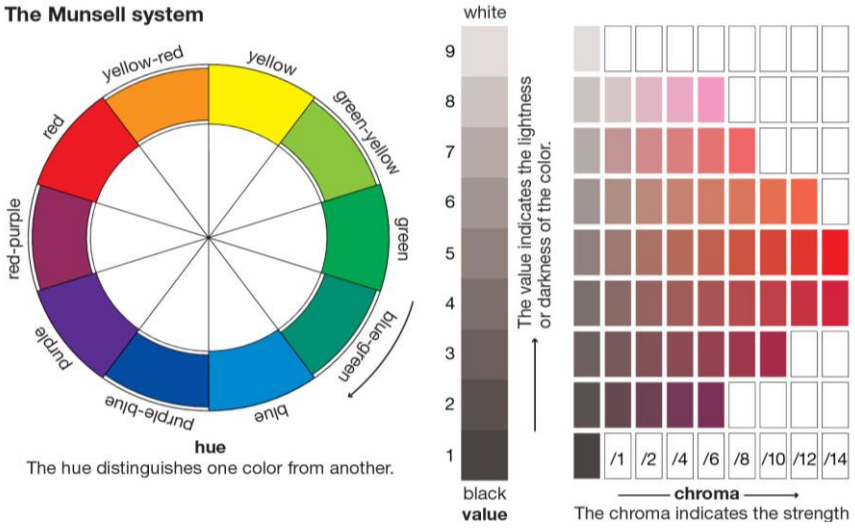

Fig.1. Munsell color system. Encyclopedia Britannica, Inc., 2010 (source).

Hue is the name for the attribute of color that defines its position on the spectrum, such as red, yellow or green. Hue is considered to be important because it is the quality of color that carries the emotional content. Hue is also influenced by the size and shape of the color areas, colors look different when they are massed in different size and groupings (Austin, 1998).

Value is the second attribute of color is value, sometimes called brightness, lightness or luminosity. Value describes the light or dark quality of a color, which is determined by the amount of light reflected back form on object. White reflects almost all light, so it has the highest value and is lightes; black reflects almost no light, and therefore has the lowest value and is darkest.

Saturation is the third attribute of color. It is also called intensity, purity, brilliance, or in the Mansell terminology coma. Saturation is a measure of the color content or the strength of a color.

The color wheel is formed by three groupings- primary, secondary, and tertiary. The primary colors are blue, yellow, and red. The secondary colors (green, orange, and purple) are formed by the mixing of the three primary colors. Finally, the tertiary colors (red-orange, red-purple, blue-purple, blue-green, yellow-green, and yellow-orange) are formed by the mixture of a single primary and single secondary color. It is also important to consider the color effects of evergreen versus deciduous plants. Evergreen foliage provides permanent color in a landscape since these plants are green year-round. Deciduous plants drop their leaves for the winter, but often still possess great winter interest in their bark color and branch structure.

2. Material and Methods

Location of this study was in Prishtina, S=1000 m^2. For landscape design, the following design programs have been used: Lumion, Landscape design, ArchiCad, 3ds Max. The purpose of our work was the study color relationships in the landscape, ways of seeing plants in terms of color, and various ways to use color successfully in plant selection and landscape design and composition. A color scheme is a planned or logical combination of hues on a color wheel. Five color scheme combination have applied in this design project: Monochromatic color schemes;Complementary color schemes; Analogous color schemes; Split-complementary schemes;Triads color schemes. In this study, plant cultivars that are used in this design project are:Begonia seperflorens, Petunia hybrids, Salvia splends, Tagtes erecta, Ageratum hostanianum.

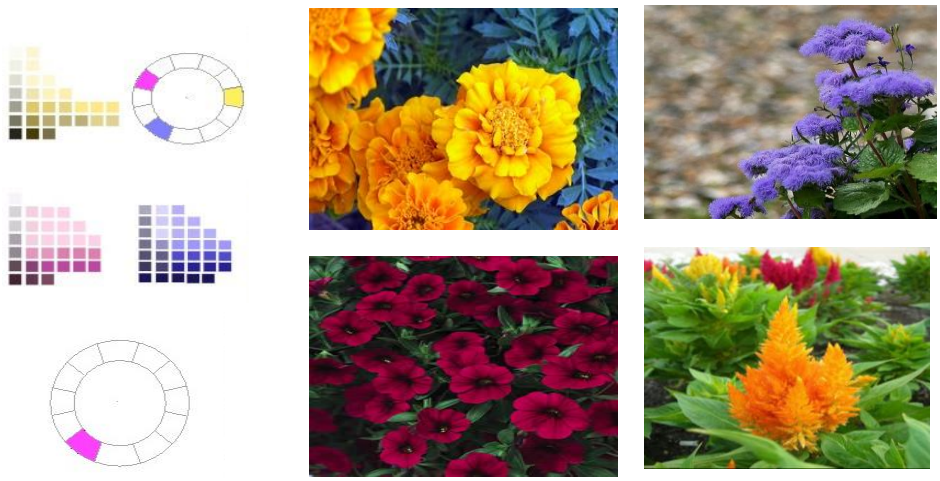

Fig. 2. Type of plants that are used for color scheme combination; Begonia seperfloerns, Petunia hybrids, Salvia splends, Tagtes erecta, Ageratum hostanianum, Monochromatic ; Complementary ; Analogous colour schemes; Split-complementary schemes; Triads; Location of Prishtina.

3. Results and Discussion

3.1 Monochromatic color schemes

Monochromatic color schemes use various values and degrees of saturation of a single hue. Working with a single hue creates naturally harmonious color compositions. Monochromatic color scheme using the hue of violet-red.

Fig. 3. Monochromatic color (violet-red), using the Petunia hybrida plant in the design.

3.2 Complementary color schemes

Complementary color schemes contain two hues that are opposite each other on the color wheel. In a landscape, complementary colors are often most successful when one color is more dominant than the other.

Each complementary color adds to the intensity of its opposite. For example, on the color wheel purple and yellow are opposite each other. Both colors complement each other and make the brightness of the other increase.

Fig. 4. Complementary color schemes, using the Petunia hybrida and Petunia green in the design, (green-purple and violet-green).

3.3 Analogous color schemes

Analogous color schemes use two or three hues that are next to each other on the color wheel. Although this is a low contrast combination, analogous hues still benefit from utilizing variations in saturation and value of the chosen hues, thus introducing more variety.

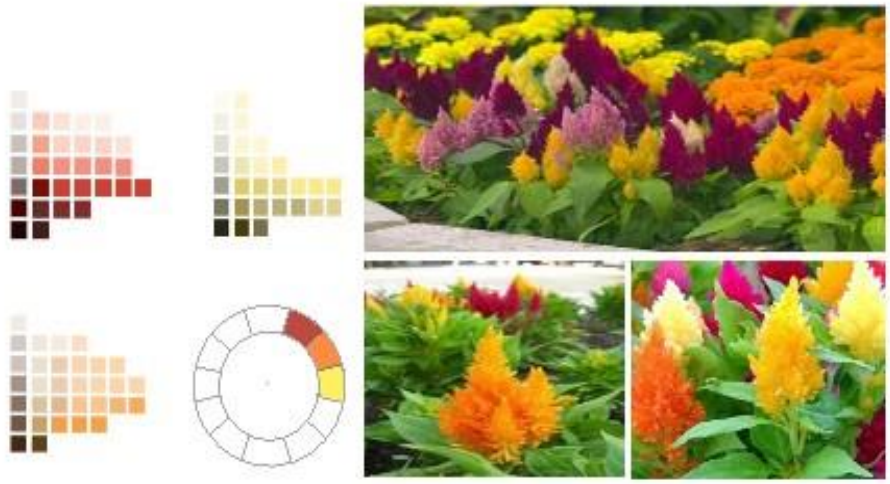

Fig. 5. Analogous color schemes:(orange-red, orange - yellow), using the Tagetes erecta, Salvia splendens and Ageratum hostinianum plant in the design.

3.4 Split-complementary schemes

Split-complementary schemes are three-hue combos that use one hue and the two hues on either side of its complement. The split-complementary color combo has all the dynamism of complementary and counterpoint, with the balancing addition of two hues that are closer together. A garden may transition from the aforementioned counterpoint theme to split-complementary as the growing season progresses and more plants (thus more colors) take the stage.

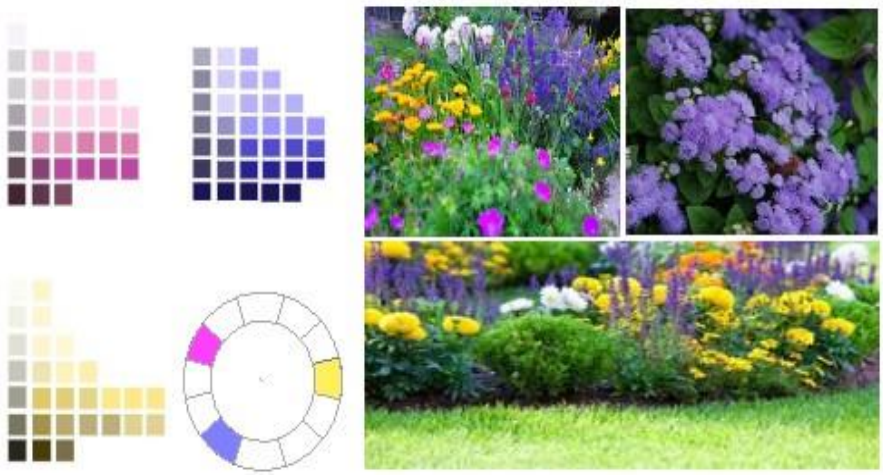

Fig. 6. Split-complementary schemes using the Ageratum hostanianum,Tagetes ercta and Petunia hybrid in the design.Split Complementary color scheme:(yellow, violet-blu and yellow-violet).

3.5 Triads color schemes

Triads use three hues that are equally spaced around the color wheel. Triadic schemes offer interesting color combinations and are inherently balanced because the hues are all equidistant from each other.

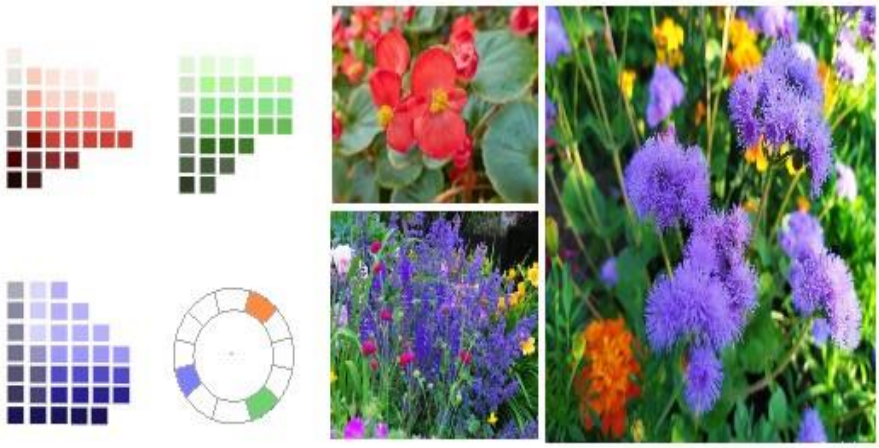

Fig. 7. Triadic color Scheme:(green-blue, orange-red, green-yellow).
Analogous color schemes using the Ageratum hostanianum Tagetes erecta and Salvia splendens, in the design.

4. Conclusions

Color theory in design is based on the color wheel, a standard circular illustration that shows the relationship between all the various colors of the spectrum. Color can come from flowers, foliage, bark, pottery, furniture, fences and even artwork, but in the end it is all about color. Many plants have significant spring or fall coloration that is quite different from other seasons. This factor can lead to exciting plant combinations and color schemes that change entirely from one season to the next.
Complementary color schemes contain two hues that are opposite each other on the color wheel. Each complementary color adds to the intensity of its opposite. Triads use three hues that are equally spaced around the color wheel. Seasonal changes have a great impact on color in the landscape. The flower species under study are suitable for the climatic conditions of Kosovo (Ageratum hostanianum, Petunia hybrida Tagetes erecta and Salvia splendens) and for all schemes used.

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