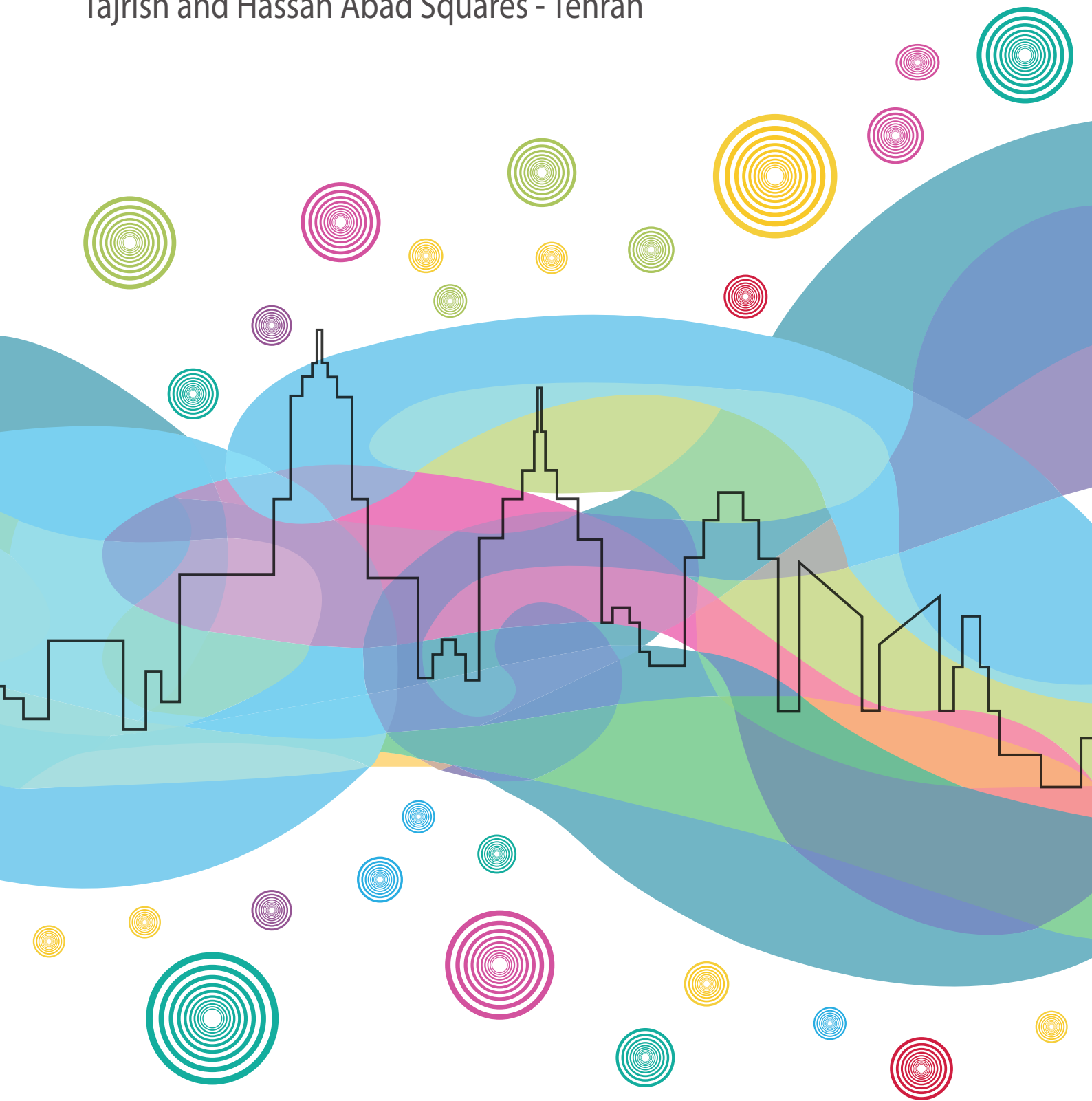


THE ROLE OF COLOR IN SENSE OF PLACE

Tajrish and Hassan Abad Squares - Tehran



POLITECNICO DI MILANO
MASTER THESIS
URBAN PLANNING AND POLICY DESIGN
FACULTY OF ARCHITECTURE AND URBAN PLANNING

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Case Study: Hassan Abad and Tajrish Squares - Tehran

THESIS ADVISER: PROFESSOR ROSSELLA SALERNO

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ABSTRACT

Cityscape is an objective reality that every person achieves and experiences in the process of interacting with the city and evaluate in his mind that leads to perception of perspective. Colors are one of the elements which can influence people in different ways and can reflect culture, beliefs and even emotions of the people.

Different colors can stimulate different emotions in people and they are one of the important elements in creating spaces. Therefore, in order to optimize the use of color and create responsive urban environments, it seems that it is important to know the features of the colors. Unconscious and disregarded use of color and carelessness about effects of colors on people can cause to create spaces which are not responsive to people's need but utilization of colors in a correct way in urban spaces create a sensation full of vivacity and calmness on citizens and improve the sense of place.

Ancient cities were harmonic and homogenic. When we walk through these cities, we can experience authentic and memorable places which each of them has their own unique characters because of unique climatic and cultural aspects. But in today's modern world everything is changing; colors and spatial effects seems less important and cities are losing their local colors which are rooted in the geography, culture and tradition; and turning to the global cities with no identities.

When the colors exist without aim and coordination, cities face with deterioration of quality and that is the subject which today's world encounter with it. Therefore, it is important to increase the sense of place by using proper colors based on the parameters of beautification, identity, bahvior and function.

Take a look at big cities like Tehran, always face dusty cities with a multitude of colors and shade of gray. Improper use of colors in this kind of cities cause lack of special color identity and sense of place and belonging for the citizens. Also, there are different places which are colored without aim or left without color that it causes people not to have any special memory about being in these places.

Thus, the purpose of the paper is to achieve a desired colorscape in the city and improve the identity of the city by promoting sense of place and belonging for the users. Therefore, some special guidelines and policies have been suggested for the city of Tehran.

Key words: Color, Colorscape, Sense of place, Identity, Urban Colorscape Planning

ABSTRACT

Area urbana è una realtà oggettiva che ogni persona realizza e sperimenta nel processo di interazione con la città e valuta nella sua mente che conduce alla percezione della prospettiva. I colori sono uno degli elementi che possono influenzare le persone in modi diversi e possono riflettere la cultura, le credenze e persino le emozioni delle persone.

Colori diversi possono stimolare emozioni diverse nelle persone e sono uno degli elementi importanti nella creazione di spazi. Pertanto, per arrivare all'ottimo uso del colore e creare una risposta ambienti urbani, sembra che sia importante conoscere le caratteristiche dei colori. L'uso inconscio e disattentato del colore e della noncuranza sugli effetti dei colori sulle persone può causare la creazione di spazi che non rispondono alle esigenze delle persone ma l'utilizzo dei colori in modo corretto negli spazi urbani crea una sensazione piena di vivacità e calma nei cittadini e migliora la senso del appartenenza al luogo.

Le città antiche erano armoniche e omogenee. Quando camminiamo attraverso queste città, possiamo sperimentare luoghi autentici e memorabili che ognuno di loro ha i propri personaggi unici a causa di aspetti climatici e culturali. Ma nel mondo moderno di oggi tutto sta cambiando; i colori e gli effetti spaziali sembrano meno importanti e le città stanno perdendo i loro colori locali che sono radicati nella geografia, nella cultura e nella tradizione; e diventeranno alle città globali senza identità.

Quando i colori esistono senza scopo e coordinamento, le città affrontano il deterioramento della qualità e questo è il tema che il mondo di oggi incontra con esso. Pertanto, è importante aumentare il senso del appartenenza al luogo usando colori appropriati basati sui parametri di abbellimento, identità, comportamento e funzione.

Dando un'occhiata alle grandi città come Teheran, affronta sempre le città cupe e polverose con una moltitudine di colori e sfumature di grigio. L'uso improprio dei colori in questo tipo di città causa la mancanza di un'identità cromatica speciale e il senso del luogo e dell'appartenenza dei cittadini. Inoltre, ci sono diversi luoghi che sono colorati senza scopo o lasciati senza colore che inducono le persone a non avere nessun ricordo speciale dell'essere in questi luoghi.

Pertanto, lo scopo di questo progetto è quello di ottenere un desiderato paesaggio ai colori in città e migliorare l'identità della città promuovendo il senso del luogo e dell'appartenenza per gli utenti. Pertanto, alcune linee guida e politiche speciali sono state suggerite per la città di Teheran.

Le Parole Chiavi: Colore, Paesaggio ai Colori, Identità, Pianificazione del paesaggio ai colori urbano

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INTRODUCTION

Color and Significance of Our Study

Human senses are fundamental to the human species. Our sense of smell, taste, touch, hearing, and sight play a crucial role in human's life. Among senses, sight has been considered the most influential. The visual information and specially colors are important to understand the surrounding world.

Color is one of the characteristics beside form, dimension, material and texture which indicates the volume of the objects. In the most cases, the first thing that viewers recognize about the shapes is the color.

It's important to know that, color is much more than aesthetic statement: it is part of life-giving and life-preserving process. We are all influenced by colors and have a lively relationship with them. Colors affect us and our emotional world, even when we do not consciously perceive them. (Meerwein, 1998: p.16-17) Colors can affect people psychologically and have influence on their moods and emotions. Dark and Heterogeneous spaces can cause depression and unconditional mental pressures; while bright and colorful spaces can reduce the tiredness and create livable and various spaces. In the other word, we can say that colors, apart from visual function, have emotional and biological function.

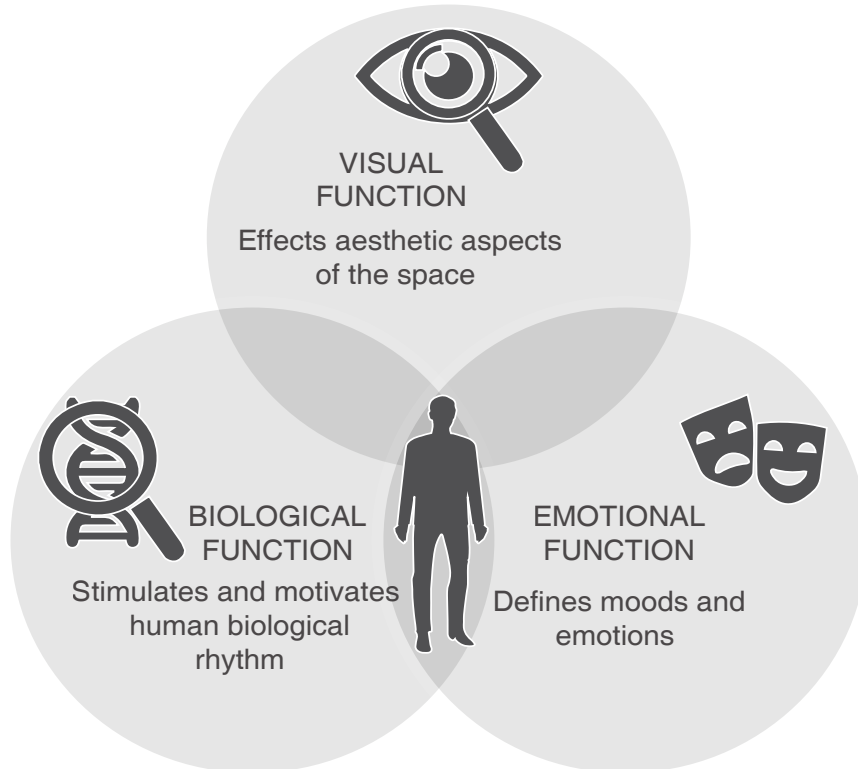


Figure 1: Function of color (Self Elaboration)

Color is one of the important elements in urban life and it's impossible to imagine the world without colors. In nature we see color in the light of the sky, when looking at water and landscapes. We see it in trees, stones, plants, fruits, and flowers. We encounter color in diverse combinations in the animal kingdom: on animal's skin, shells, markings, features and fur. People's skin, eyes, hair and clothing also contain color. The human-designed environment is all in color: streets and shops, buildings and spaces. We see it, in all its variety, in different objects and cultural products (Meerwein, 1998: p.16); which all of them play an important role in determining the colorful aspects of the city.

Color is a tool of expression and communication and space is the framework for social relationships and human activities. A fundamental aspect of the function of color as a communication factor is thus linked to its interactive characteristics. Color exists in itself, it connects things with each other and connects things with people. (Meerwein, 1998: p.17)

Color is integral to the character of cities. A color identity defines and distinguishes urbanity and influences the way in which residents, future residents and visitors will experience the city. (Synnes, 2000: p.1) But today's modern cities are facing with color confusion; where not only colors are not complementing each other but also, they are not following certain rules.

Research Purpose

As urban colorscape is a new field in urban planning, in many cities and countries is not considered as a crucial point. Although there are some successful cases in western developed countries, the scope on this field is not so wide and many cities don't have their own independent color palette. Therefore, it is crucial to focus on this element as an important part of the environment; not only to beautify the city, but also create pleasant and comfortable spaces for the citizens and increase the sense of place and belonging.

In urban planning, there are a lot of aspects to be developed and colorscape is one of these aspects. City of Tehran don't have its own urban colorscape program. We hope that we could develop a colorscape program for Tehran through our research to create an identity spaces in order to increase the sense of place.

In order to solve the management problem of colorscape of Tehran, one of the main aims of this research is to present a process or methodology to prepare a color palette and the other one is to provide some designing suggestions and policies as a guideline. In the direction of provision of this guideline following aims have to be considered:

- Preserve and strengthen the identity landscape and improve the sense of place
- Improve the quality of colorscape of the city
- Improve the social health and sustainability
- Create an identity landscape adopted to the modern lifestyle

In general, the aim of this research is by improving the colorscape of the city, increase the sense of place and belonging for the citizens and also provide required qualities for the sustainability. On the other hand, to indicate the attractive and beautiful features of the city for the economic development.

Research Questions

The main questions of this research based on mentioned problem and aims are:

- What is the relationship between level of color's impact on people and environmental quality?
- How color's capacity can be used to improve the quality of spaces?
- How it is possible to increase the sense of place by using the proper colors?
- How it is possible to plan and manage colorscape of the city to give a specified identity to the space?

Research Methodology

The aim to research the relationship of urban colorscape is to study urban color history and the current ones. Comparing the characteristics of the old elements and the new ones and their relation is crucial. Therefore, descriptive - analytical methodology is used for this research. Descriptive research includes surveys and fact-finding enquiries of different kinds. The major purpose of descriptive research is description of the state of affairs as it exists at present. In analytical research, facts or information already available are used to analyze and make a critical evaluation of the material. (Kothari, 2004: p. 2-3)

This research is an applied (action) research, which aims at finding a solution for an immediate problem facing a society. (Kothari, 2004: p.3) In this case, the problem is the decreasing sense of place which based on fundamental and basic information about color, we are trying to give some solutions.

The quality of the environment is our main concern in this research. Qualitative methodology is used to observe the behavior of the people in the environment. Through such research we can analyze the various factors which motivate people to behave in a particular manner or which make people like or dislike a particular thing. (Kothari, 2004: p.3)

Urban experience is a crucial point for researching the relationships of urban colorscape. The experience leads us to analyze and evaluate the current situation to solve the existing problems. Empirical research is data-based research, coming up with conclusions which are capable of being verified by observation or experiment. We can also call it as experimental type of research. (Kothari, 2004: p.3) Thus, based on existing facts and data, we are trying to prove or disprove that colors have a considerable impact on people's behavior.

Research Structure

This research is based on two practical and experimental sections which each section includes different parts. The first section is divided to three chapters of practical background, experimental background and conceptual framework. In the second section the studies have been done based on the chosen case study of Tehran and in order to achieve a desirable colorscape, it is provided a planning methodology and color management and finally the suggestions and policies of the project are represented as an urban designing guideline in two aspects of substantial and procedural aspects. The research table of the project is summarized in following table:



First Section: Practical Studies



First Chapter: Practical Background

QUESTIONS:

- Is color effective on sense of place?
- How it is possible to increase the sense of place by using proper colors?
- How it is possible by using colorscape planning and management, give a specified identity to the city or area?

Color	Urban Landscape	Sense of Place
-------	-----------------	----------------

ANSWER: By cognition of color, it's effect on cities, sense of place and the effective factors, cognition the role of color and sense of place in cities and knowing the features and role of colorscape in increasing the sense of place have been studied.



Second Chapter: Experimental Background

QUESTIONS:

- Which methods and strategies have been used in global experiences in order to improve the sense of place by using colors?
- What is The Color Plan and which methodologies have been used in order to improve the quality of historical spaces?

Learning From Global Experiences

ANSWER: Using NCS method for finding native colorscape of the city, preserving native color palette of the city, encouraging people for participating



Third Chapter: Conceptual Framework

QUESTIONS:

- What are the issues, concepts, macro and micro goals in managing the colorscape of the city in order to increase the sense of place?

Main Issues and Concepts	General Goals	General Principles
--------------------------	---------------	--------------------

ANSWER: The main aim of studying mentioned factors is finding the existing relationship between the color, colorscape and the sense of place.



Second Section: Experimental Studies



Fourth Chapter: Evaluating the Colorscape of Tehran

QUESTION:

- In studies about colorscape of Tehran which methodology is possible to use?

Tajrish	Hassan Abad
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ANSWER: In order to evaluate the colorscape of city of Teharn the NCS methodology have been used in order to find out the main and other constitutive colors of the city to manage and design the coloscape of the city and increase the sense of place



Fifth Chapter: Designing Guidelines

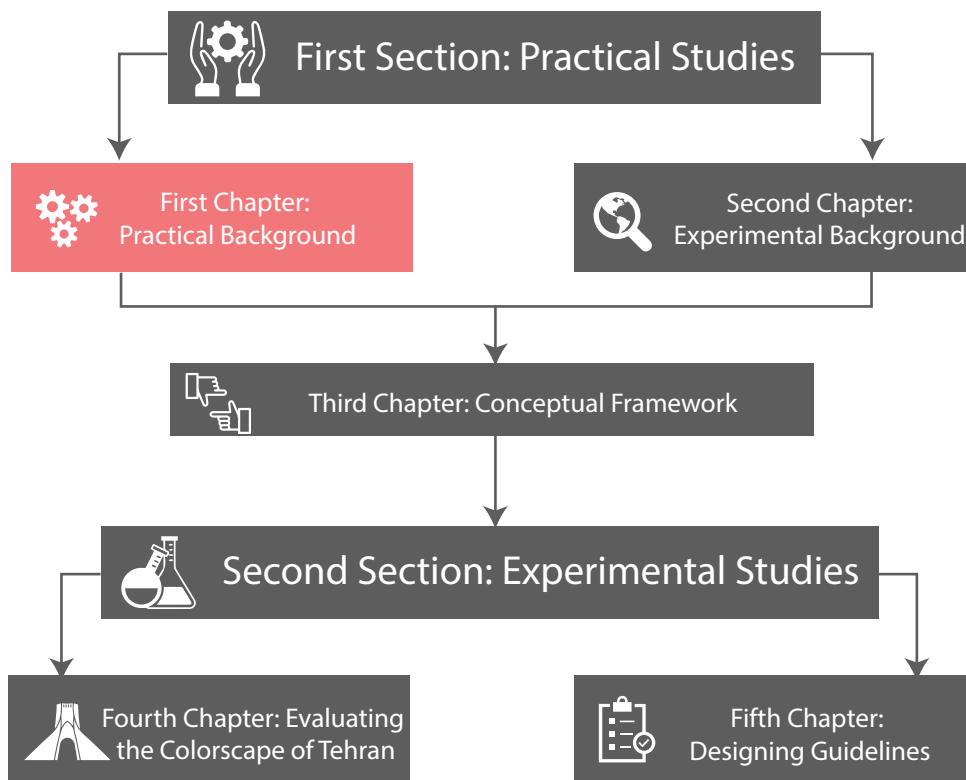
QUESTION:

- which are the policies and strategies which urban design use in order to manage the colorscape of the city to increase the sense of place?

Composition of Vision	Designing Guidelines	Substantial Aspects
Macro and Micro Goals		Procedural Aspects

ANSWER: Some colorscape strategies and guidelines have been suggested in order to improve the quality of the urban lanscape.

Table 1: Research Structure (Self Elaboration)



1. Practical Background

1.1. Acquaintance with Color Concepts

1.1.1. Color Definition

Color is the single most important design element. No other formal design component has its unique power. Color stimulates the eye and brain and creates an immediate unconscious response from the viewer. (Bleicher, 2012: p.viii)

In general, all manifestations of color are created when electromagnetic radiation at wavelengths in visible spectrum interact with physical matter. (Meerwein, 1998: p.18)

1.1.2. The History of Color

A story of color is almost the story of civilization itself. Man's love of color is as old as his time on earth, and it is apparent in his early pottery and art. All nature was colored; and ancient man tried to emulate it, copy it and symbolize it. Unlike his modern descendant, early man was little concerned with aesthetic. He used color to express the ideal and mysterious rather than merely to add charm to his environment. The body of man is red, his mind is yellow and his spirit is blue. With such a statement, ancient man made clear that color was an inherent part of his life. (Birren, 1963: p.11-12)



Figure 2: Color as a way of expressing by ancient man (Self Elaboration)

1.1.3. Light and Color

Light is a form of energy, travels in straight lines and flows in a three-dimensional way to reveal structure and form. (Bright, 2010: p.46) Color is a property of a surface or substance resulting from absorption of certain of the incident light rays, and reflection of others. (Mayer, 2014: p.5) If everything in the surrounding world, even shadows, had the same hue and nuance, we would not be able to discriminate on thing from another. There would be no visual reactions, no significant visual form. Color contrasts help us to distinguish borders and edges. (DeLong, 2012: p.4-5)

Color is life; for a world without colors appears to us as dead. Colors are the children of light and light is their mother. Light, the first phenomenon of the world, reveals to us the spirit and living soul of the world through colors. (Itten, 1970: p.8)

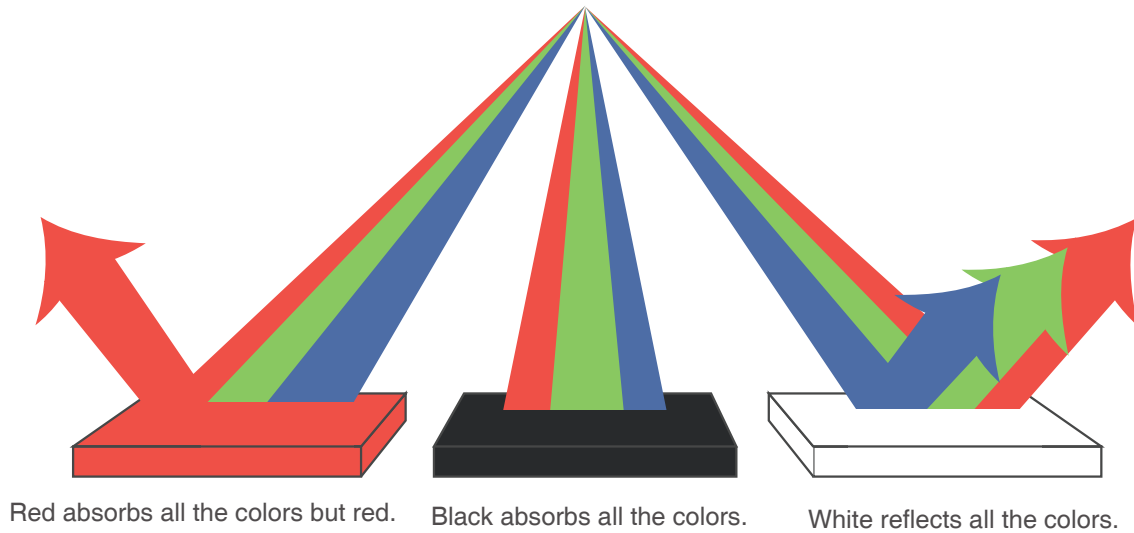


Figure 3 : Light and colors (Self Elaboration)

Philosophers have said that the world is colorless and that our perceptions of hues are nothing more than illusions. This is like the old question: if a tree falls in the woods and no one is around to hear it, does it still make a sound? You could also ask a similar question about color. If you close your eyes, does the world retain in color or it is only in the eye of beholder? (Bleicher, 2012: p.2)

Sir Isaac Newton proved that, by setting up a prism near his window, it projected a spectrum of colors. The diagram shows that violet is bent more than yellow and red, so the colors separate. He concluded that white light is made up of seven different colored rays. Newton by using a prism indicates that light is made of colors and used two prism to convert the rays to original light (Mayer, 2014: p.3)

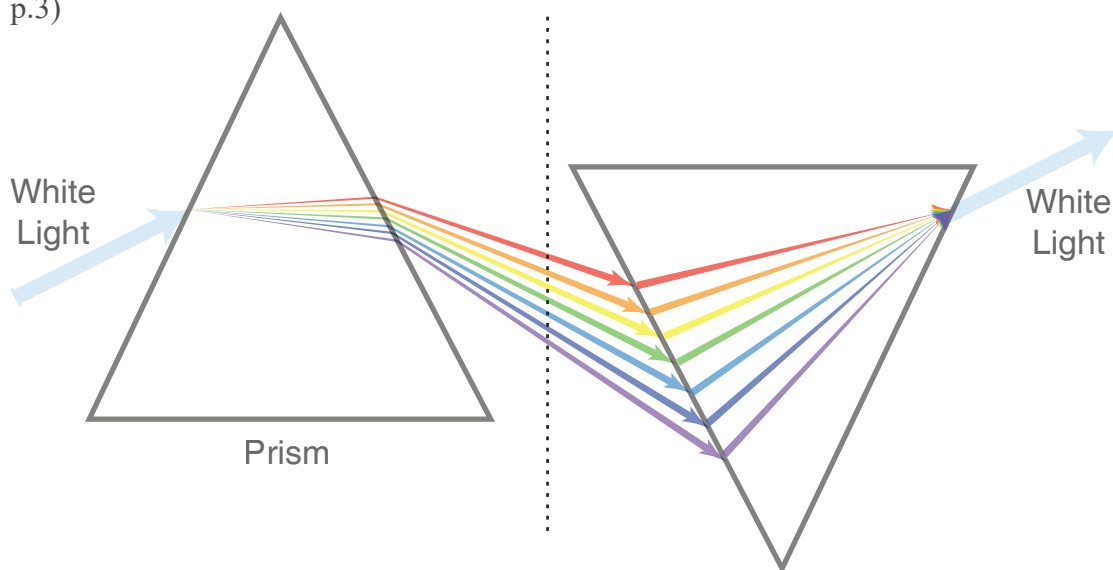


Figure 4: Newton's prism: (Mayer, 2014: p.3)

1.1.4. Seeing Color

The colors we see do not exist on the surface; they are manufactured in the mind's eye. Our experience of color is a subjective sensation conveyed through the medium of wavelengths, i.e. energy in the form of light radiations within the visible spectrum. Without an observer, light rays do not, in themselves, constitute color. In them there is nothing else than a certain power and disposition to stir up a sensation of this or that color. The eye and brain of the observer interpret the meaning of these sensory message. (Porter, 1982: p.77-79)

Seeing is a process of mental interpretation of looking at the world of color and reducing it to its simplest elements. The eye and the mind always struggle to make order out of chaos and to see as few colors as possible. (Birren, 1963: p.151)

Seeing color is a sensory experience that depends on the following conditions: (Meerwein, 1998: p.18)

1. The lighting condition

Despite visual adaption (the automatic adjustment of the eyes to prevailing levels and color of illumination) artificial light sources may sometimes cause perceptible alterations of object colors as compared with their appearance in natural daylight.



Figure 5: The lighting condition (Self Elaboration)

2. The spectral properties of the object

The second factor of color vision depends on the spectral characteristics of the objects; the ability of its substance to absorb, reflect or transmit light. In working with a gamut of materials, the architect controls space using surfaces and finishes with varying abilities to absorb, reflect and transmit light.

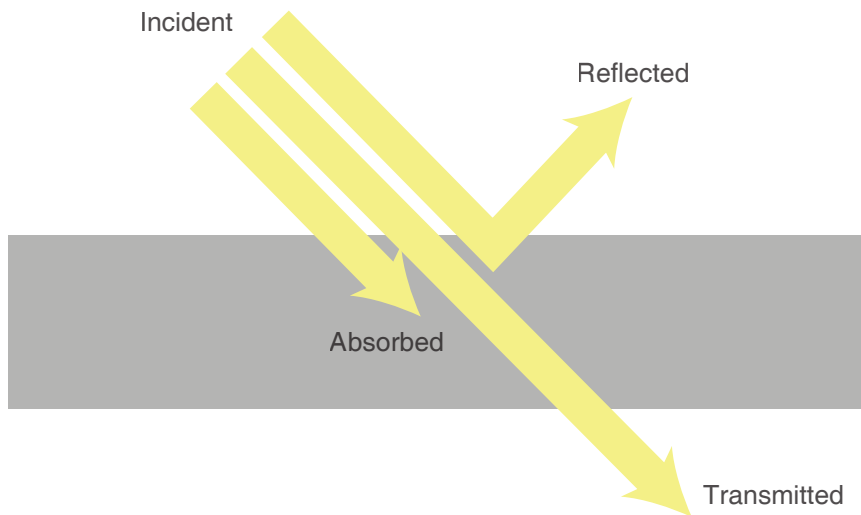


Figure 6: The spectral properties of the object (Self Elaboration)

3. The sensation of color

The third factor in our perception of color is the chromatic sensitivity of our personal technicolor processing laboratory; the eye and brain. (Porter, 1982: p.77-79)

When we look an apple and observe its bright red color, what we are seeing are the reflected light waves. There are two parts that make up a reflection or the bouncing of light waves from a given surface:

1. The incident beam comes from the light source hitting the object.
2. The reflected beam bounces off the object and allows us to see its particular hue. (Bleicher, 2012: p.5)

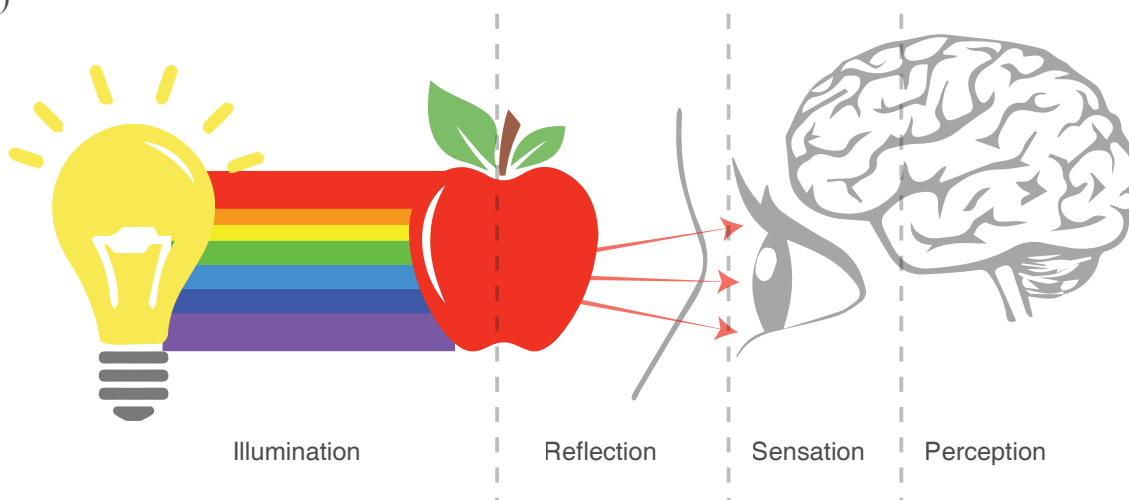


Figure 7: Seeing color (Self Elaboration)

1.1.5. Color Theories

1.1.5.1. Wilhelm Ostwald

Wilhelm Ostwald was one of the few renowned scientists ever to devote a considerable portion of time to the problems of color theory and harmony. He concluded that color as sensation properly belonged in the realm of sensation and that a true solution of color's mysteries lay in analysis of the physiological and psychological processes of seeing. Ostwald standardized a chromatic circle using red, yellow, green and blue as his primary keys, spaced at equal intervals around a circle. He then added intermediates to make a total of twenty-four pure hues. Ostwald then arranged his colors within equilateral triangles. Pure hue was placed at one angle, white at the second and black at the third. Every color seen by eye was made up as pure hue, white, black, any or all, and the qualities were always measurable. (Birren, 1963: p.150-151)

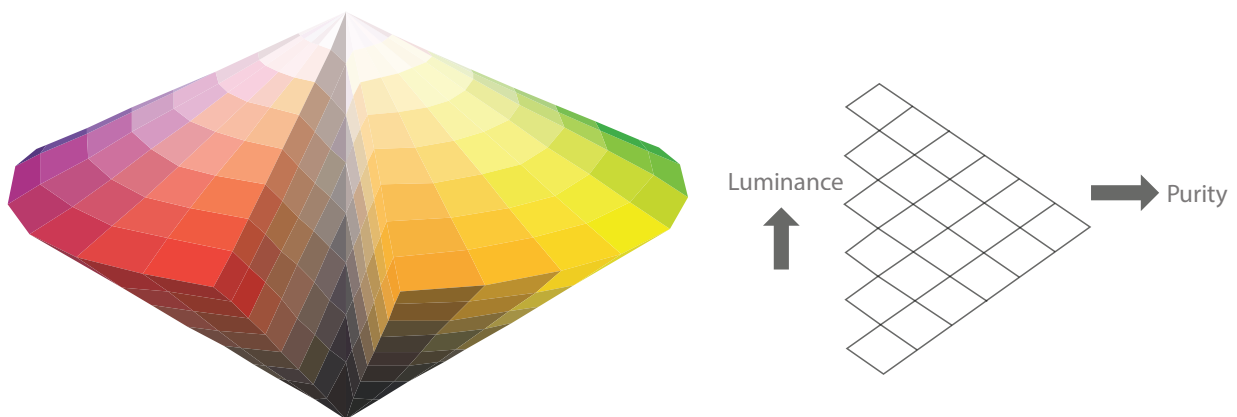


Figure 8: Wilhelm Ostwald color theory (Birren, 1963: p.150)

1.1.5.2. A. Höfler

A widely recognized chart or graph is that of A. Höfler. It consists of a double pyramid. At the top apex is the color white; at the bottom, black, between the scale of neutral grays. On the four corners of the central connecting base are red, yellow, green and blue; the four primaries universally accepted in the field of vision. All the colors seen by the eye lie within the outer boundaries of Höfler pyramid.

Pure colors which run about the circumference of a color solid, are termed hues. The colors that progress from lightness to darkness are known as values. The colors that run from neutral gray toward pure hues are characterized by chroma or saturation. A simple color triangle plots color variations with respect to pure hue, white and black; and tint, tone, shade and gray. All these variations fit within the Höfler pyramid and most color solids. (Birren, 1988: p. 99)

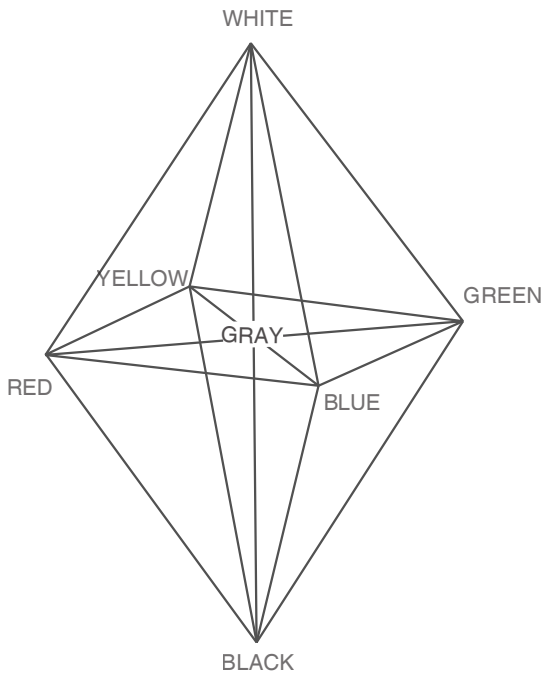


Figure 9: Double pyramid chart of A. Höfler (Birren, 1988: p.98)

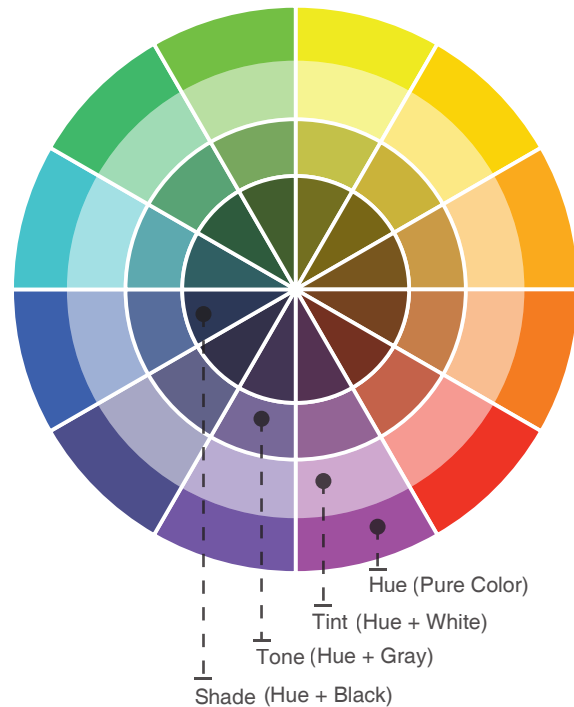


Figure 10: Hue, tint, tone and shade (Self Elaboration)

1.1.5.3. The Munsell System of Color Notation

A large part of the world of color recognizes the principle of color identification set by Albert H. Munsell as early as 1898. Today the Munsell system is the most widely used method of color notation in existence. (Birren, 1988: p. 99) His method of notation arranges the three attributes of color into calibrated scales of equal visual steps. These scales are used as dimensions or parameters for the accurate analysis or description of color under standard viewing conditions which every color can be defined by these parameters: (Porter, 1982: p.80-81)

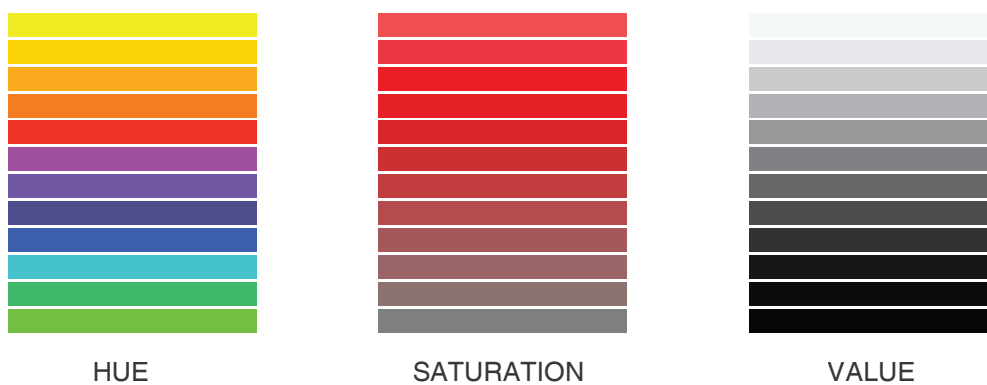


Figure 11: Parameters for description of color (Self Elaboration)

1.1.5.3.1. Hue

Hue is generally defined as a source color, one of the twelve basic colors on the color wheel. (Mayer, 2014: p.3-4) It is the attribute of color discernible by its redness, blueness, greenness, etc. In the Munsell system 100 hues are arranged in spectral sequence around perimeter of its color circle. This number results from a decimal subdivision of its ten (five principals and 5 intermediate) hues: Red, Yellow-Red, Yellow, Green-Yellow, Green, Blue-Green, Blue, Purple-Blue, Purple and Red-Purple. White, gray and black are perceived as being colorless, not reddish, yellowish, greenish or bluish. They are therefore termed achromatic. (Meerwein, 1998: p.33) Hue is the quality or characteristic by which one color is distinguished from another. All colors are judged to be similar to one hue or a proportion of two of the spectral hues. Physically, hue is determined in wavelength. (Porter, 1982: p.80-81)

1.1.5.3.2. Saturation

Saturation is the second attribute by which a color is distinguished. Also referred to as strength, intensity or chroma, it designates the purity of a given color, the quality that distinguishes it from a grayed-down color (chromatic or intense). Two colors may be the same in hue and one lighter or darker than the other, yet still appear different in color strength. (Meerwein, 1998: p.33) Chroma scales radiate in equal decimal steps from the neutral axis outward to the periphery of the color model. (Porter, 1982: p.80-81)

1.1.5.3.3. Value

Lightness or value is the third dimension in the description of color, differentiating dark colors from light ones. The lightness of a pigment is the measure of how much light is reflected from its surface. (Meerwein, 1998: p.33) This occurs as an achromatic scale which descends in ten equal steps from absolute black (value 0) at its base to absolute white (value 10) at the top. The center of this scale, located at the core of the color solid, is occupied by a mid-grey with a notation of 5/. (Porter, 1982: p.80-81)

The system follows the general shape of a sphere, somewhat bulbous in parts. Because pure colors do not have equal value, hues such as yellow are placed near the white apex, and hues such as blue near the black apex. Again, colors with strong chroma or saturation, such as vivid red, extend farther from neutral-gray axis than do weak colors such as blue-green. There are 10 major hues: red, yellow-red (orange), yellow, green-yellow, green, blue-green, blue, purple-blue, purple and red-purple. They are further divided into 100 subhues. There are 9 value stages (vertical) from ideal white to black. Chroma or saturation stages (horizontal) vary according to the purity of the key hue. (Birren, 1988: p. 99)

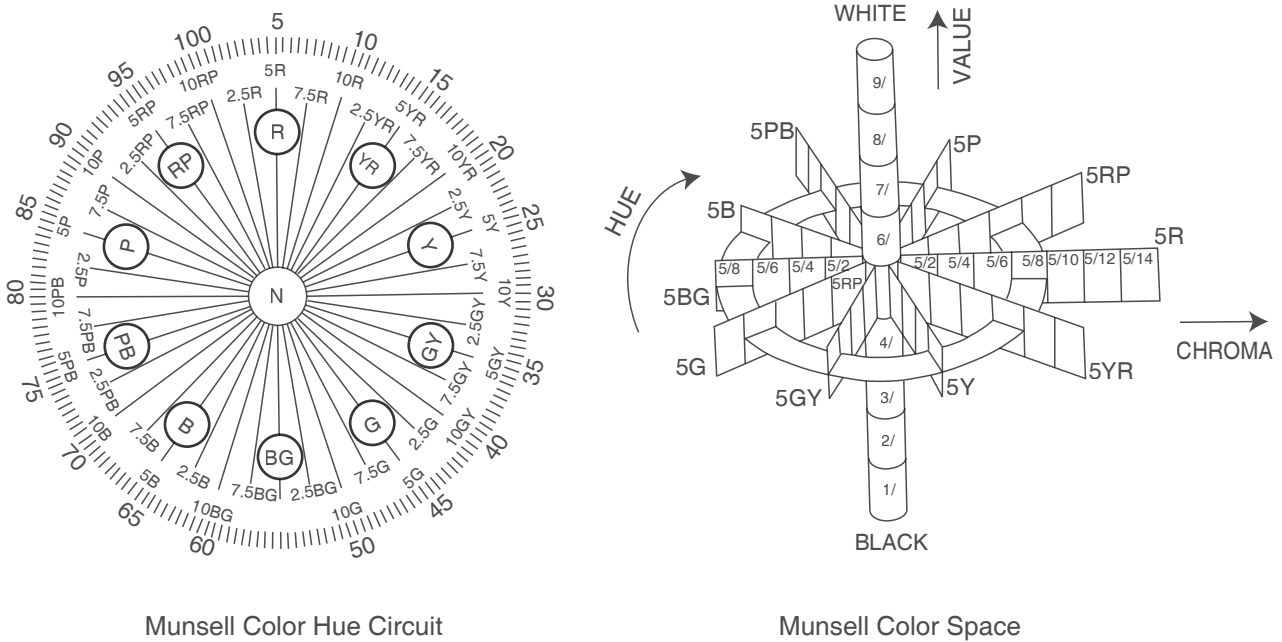


Figure 12 : The Munsell system of color notation (Porter, 1982: p.81) (Birren, 1988: p. 98)

1.1.5.4. NCS (Natural Color System)

NCS is built on decades of scientific research and development, carried out by architects, designers, psychologists and physicists. It is based on the use of color in our environment and on how we see color, and it has been produced by the Scandinavian Color Institute AB. The aim of the NCS study material is to increase understanding of the role and importance of color. Architects and designers, in fields such as interiors, product and graphic design, all need to understand color. NCS is an aid to learning, although it's not the answer to every question about color. NCS describes color as we see it and is a tool for communicating color - a language which makes it easier to understand and learn more about color.

Traditionally, knowledge of color has been related to color mixing and pigments. From the primary colors, the secondary and tertiary colors can be mixed. A lot of knowledge and many theories about the harmony of colors are based on this type of mixing of pigments. The new digital world uses three other primary colors: red, green and blue (RGB) to produce the different colors on the monitor screen, and another set of four: cyan, magenta, yellow and black (CMYK) is used in four-color process to produce full-color printing. What separates NCS from other systems is the deal with pigment mixing or light energy mixing.

The NCS study material offers a unique opportunity to work with precise color samples. The six pure colors: White, Black, Yellow, Red, Blue and Green, correspond with the perception of color in our brain. NCS notations describe how we see a color in relation to these six elementary colors. Within this 3-dimensional model all surface colors can be plotted and given an NCS notation. (Färginstitutet, 2006: p.1-8)

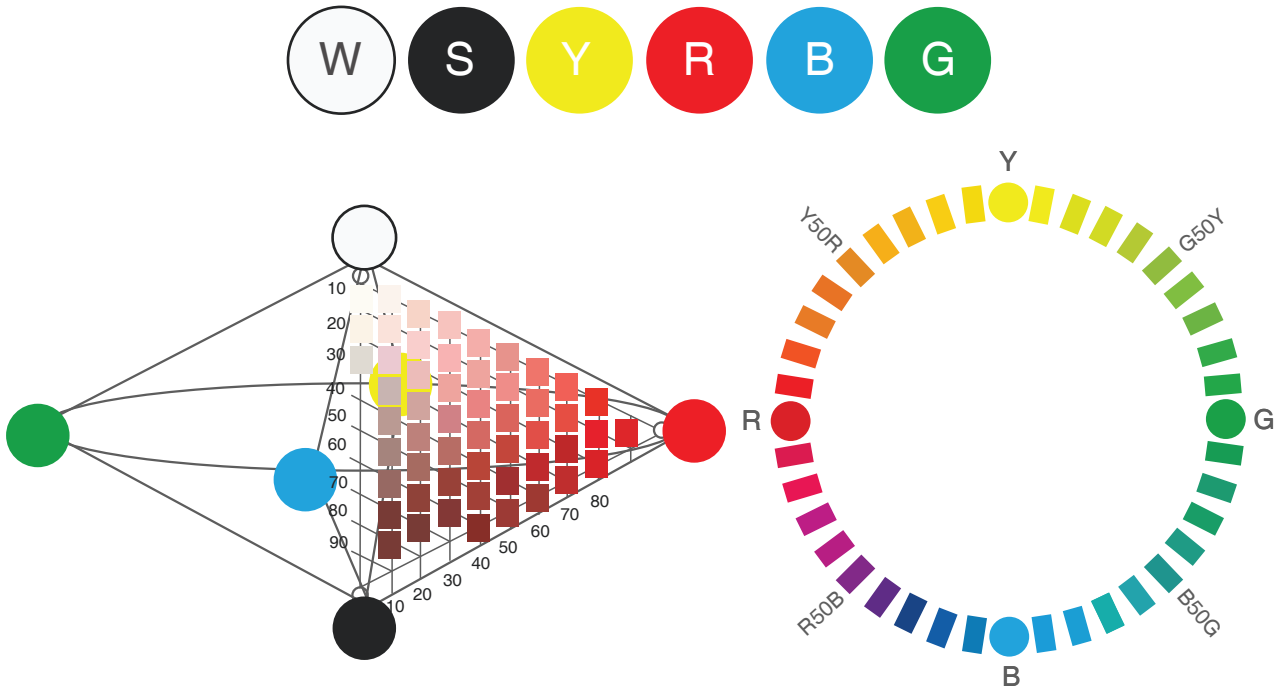


Figure 13: Natural Color System (NCS) (Färginstitutet, 2006: p.8)

In this NCS notation 1050 describes the nuance, i.e. the degree of resemblance we see to black (10%) and to the maximum chromaticness (50%). The hue Y90R describes the degree of resemblance we see between Yellow and Red. (Färginstitutet, 2006: p.8)

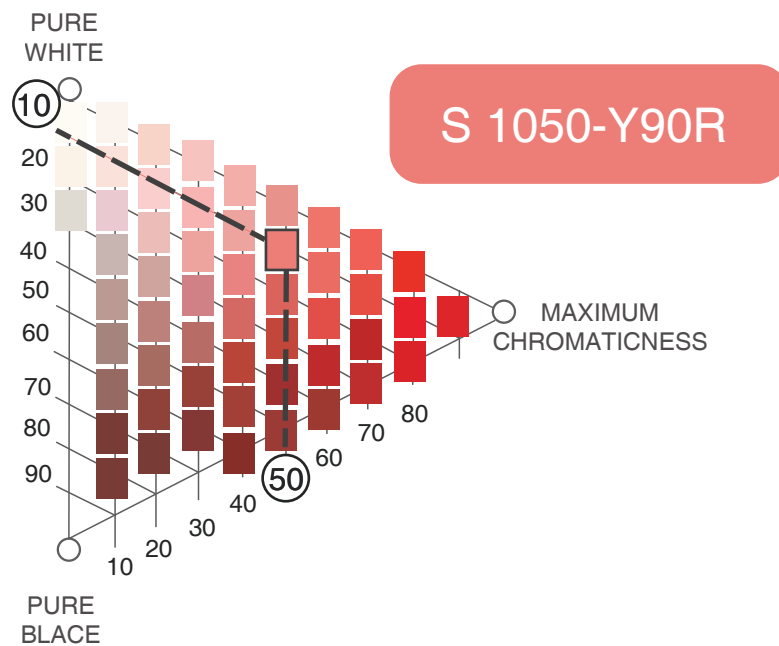


Figure 14: How NCS color system is calculated (Färginstitutet, 2006: p.8)

1.1.6. Color Wheel

In accordance of Johannes Itten proposition, the color wheel, which represents relations between hues, is divided in twelve sections. (Ivanova, 2009: p. 182) 12-hues color circle is developed from primary colors; yellow, red and blue.

The primary colors must be defined with greatest possible accuracy. We placed them in an equilateral triangle and circumscribe a circle, in which we inscribe adjacent sides of hexagon. In the isosceles triangles between adjacent sides of the hexagon, we placed three mixed colors, each composed of three primaries. Thus we obtain the secondary colors:

- Yellow + Red = Orange
- Yellow + Blue = Green
- Red + Blue = Violet

Now, at a convenient radius outside the first circle, let us draw another circle, and divide the ring between them into twelve equal sectors. In this ring, we repeat the primaries and secondaries at their appropriate locations, leaving a blank sector between every two colors. In these blank sectors, we then paint the tertiary colors, each of which results from mixing a primary with secondary. As follows:

- Yellow + Orange = Yellow-Orange
- Red + Orange = Red-Orange
- Red + Violet = Red-Violet
- Blue + Violet = Blue-Violet
- Blue + Green = Blue-Green
- Yellow + Green = Yellow-Green (Itten, 1970: p.30)

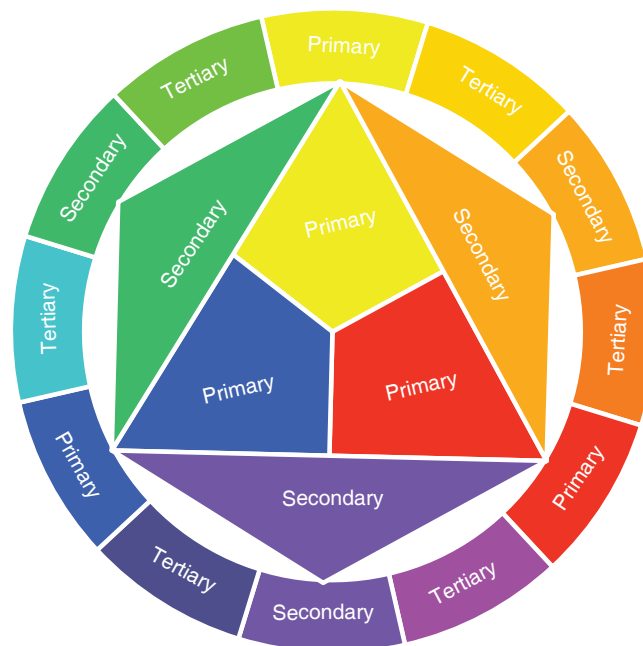


Figure 15: Color Wheel (Itten, 1970: p.31)

1.1.7. Color Categories

Colors are divided into six broad categories:

- Warm and cool refer to the hue, the actual color.
- Light and dark refer to the shade, the amount of a white or black mixed with the color.
- Vivid and dull refer to the vividness and intensity of the color. (Chijiwa, 1987: p.11)

1.1.7.1. Warm Colors

The hues from red to yellow, including orange, pink, brown and burgundy are called warm colors. In fact, the wavelength of red light is very close to that of infrared radiation, which transmit heat. Warm colors are bright, splashy and aggressive like the molten lava flowing from crater. (Chijiwa, 1987: p.20) Warm colors are defined as being bold and energetic, and they have the tendency to advance in space. This characteristic has both positive and negative effects because while using them can make something stand out, too much of them can be overwhelming in a sense that it drowns out the other colors. (Rahmatabadi, 2011: p. 215-216)

More than any other colors, they attract the eye and excite our emotions.

In the workplace, warm colors can heighten motivation and make us work faster; and on books, magazines and posters, they almost always grab our attention. Warm colors make a color scheme look brash, cheerful and exuberant. (Chijiwa, 1987: p.20)

The warm colors cause an increase in heart rate, respiration, and blood pressure because it has a stimulating effect on the nervous system. Due to the size of its wavelength, Red is the warmest color and has the strongest effects on the human mind. (Rahmatabadi, 2011: p. 215-216)

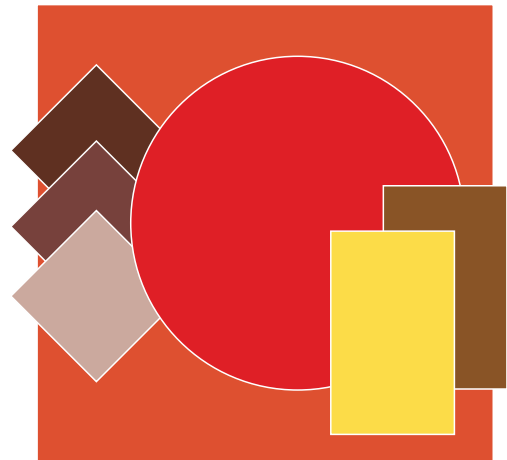


Figure 16: Warm colors (Chijiwa, 1987: p.20)

1.1.7.2. Cold Colors

The hues from green to violet, including blue and all the shades of gray, are known as cool colors; perhaps because they remind us of snow and ice. Cool colors have exactly the opposite effect as warm colors: they slow down the body's metabolism and are even used in hospitals to calm manic patients. At times, they can seem unbearably gloomy and oppressive. However, cool colors can sometimes make a nice change: cool shades of blue and green look clean and inviting. (Chijiwa, 1987: p.21) They are good to use with things that are meant to be located in the background and they

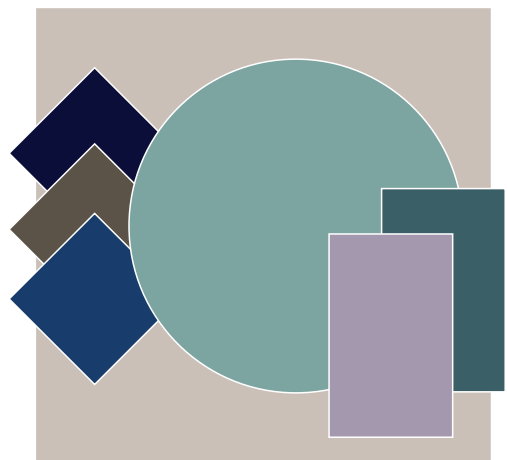


Figure 17: Cold colors (Chijiwa, 1987: p.21)

can make the space that they are used in seem bigger than it really is.

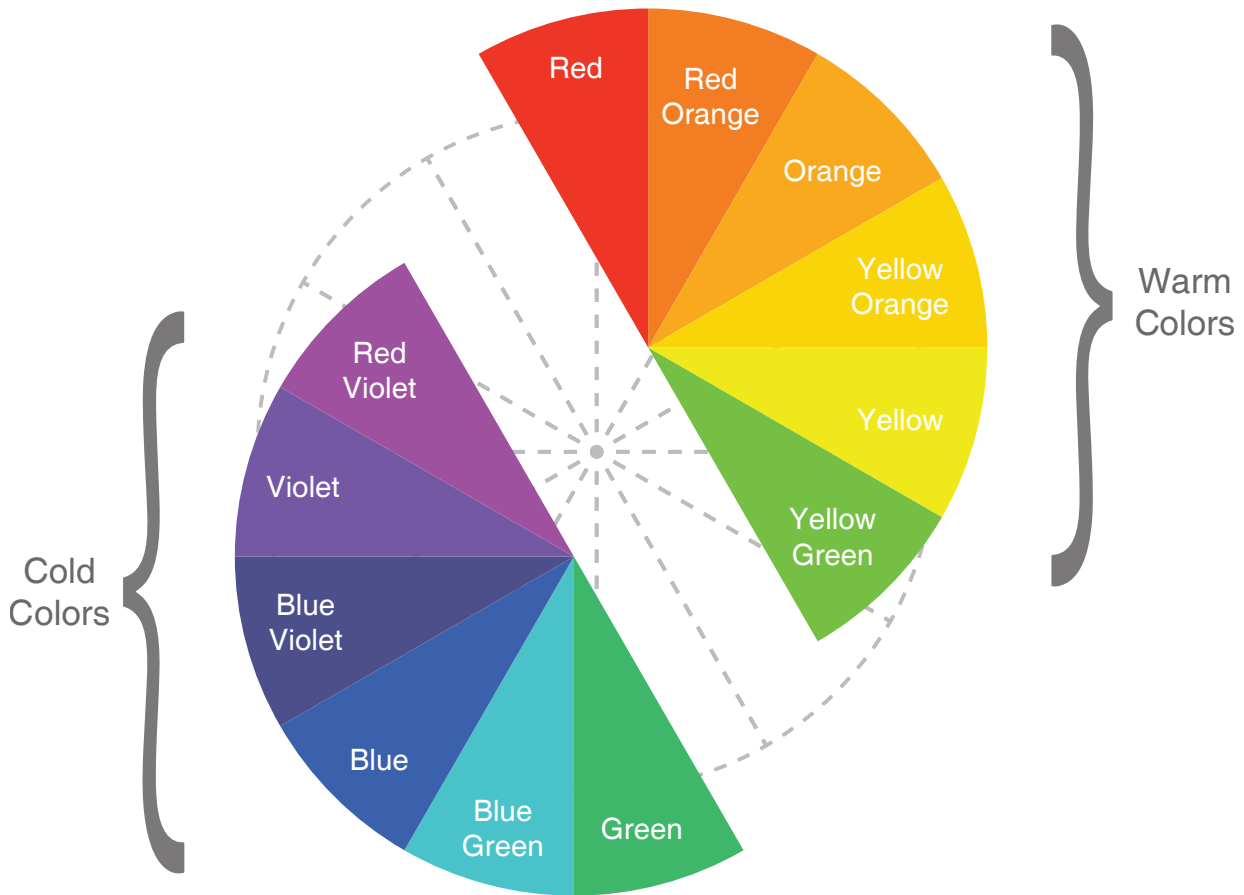


Figure 18: Warm and Cold colors (Rahmatabadi, 2011: p. 216)

1.1.7.3. Light Colors

Light shades of any color, look soft and ethereal, like cotton candy or fleecy clouds floating in the summer sky. The hue is relatively unimportant: even light shades of orange and purple have a gossamer, fairytale quality. Light colors are overwhelmingly preferred in interior design and are popular in women’s fashions as well, but lack the eye-grabbing quality that most graphic designers seek. Nevertheless, a color scheme that uses only light colors, can be effective in its own quiet way and may actually stand out from the brash, overconfident color scheme that surround it. (Chijiwa, 1987: p.22)

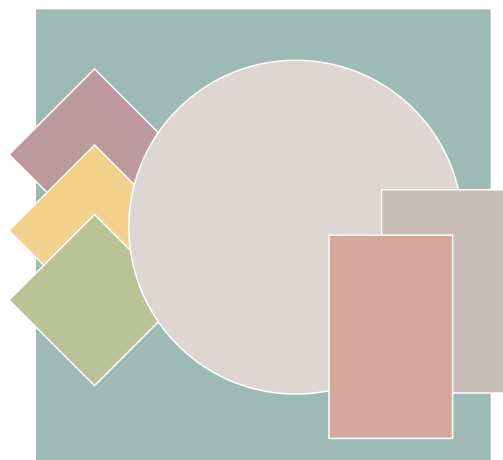


Figure 19: Light colors (Chijiwa, 1987: p.22)

1.1.7.4. Dark Colors

Black and other dark shades, feel heavy, like rain clouds dense with moisture. Black, in particular seems strong and solid. Dark red, dark purple, dark green and dark blue are the colors most often associated with royalty and have an aura of almost ponderous dignity. Dark colors are also the colors found in men's suit and formal wear, and give furniture and household furnishing an expensive, hand-crafted look. The dark colors are used mostly for type and accent in graphic design, and are usually paired with lighter, more conventional colors. (Chijiwa, 1987: p.23)

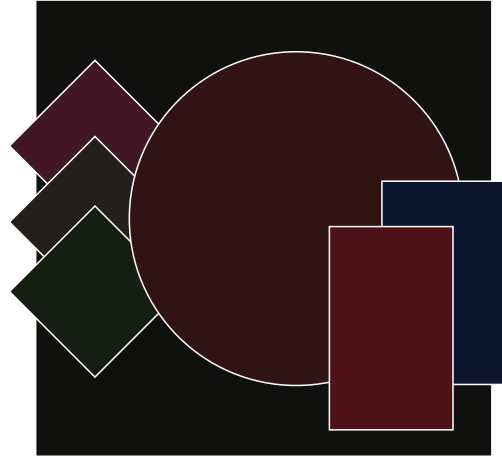


Figure 20: Dark colors (Chijiwa, 1987: p.23)

1.1.7.5. Vivid Colors

All the vivid colors have powerful personalities. Red stands out, but blue and yellow are also vivid, and paradoxically, so are black and white. However, when you combine two or more vivid colors, the result is cacophony; to many voices shouting at once. For some reasons, this is fine: bright contrasting colors are often used in fast-food restaurants and in children's toys and clothing. But perhaps, because the eye tires of them so quickly, vivid color scheme tend to look a little tacky. (Chijiwa, 1987: p.24)

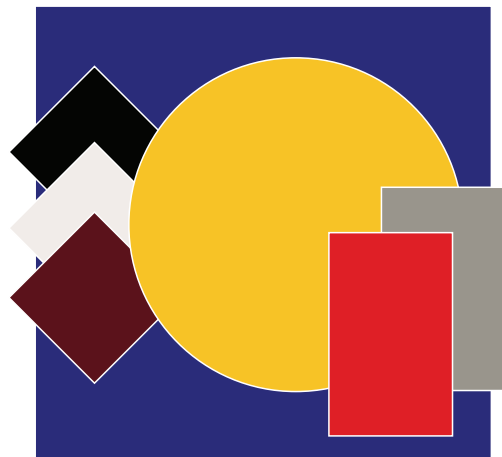


Figure 21: Vivid colors (Chijiwa, 1987: p.24)

1.1.7.6. Dull Colors

When gray is added to a color, the personality of the color is softened: if you add enough gray, the result is muddy shade like the dull colors. Our eye instinctively prefers bright, vivid colors; dull colors are annoyingly vague and diffuse and create a blurry expression. However, dull colors, help to reduce tension and can give color schemes a meditative, dreamlike mood. Dull colors run the risk of looking insipid, so use at least one vivid color as an accent in your color scheme. (Chijiwa, 1987: p.25)

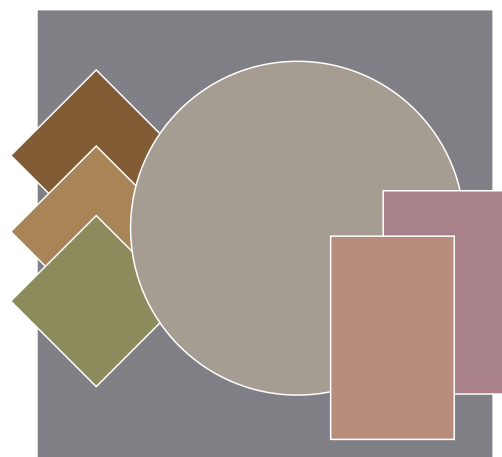


Figure 22: Dull colors (Chijiwa, 1987: p.25)

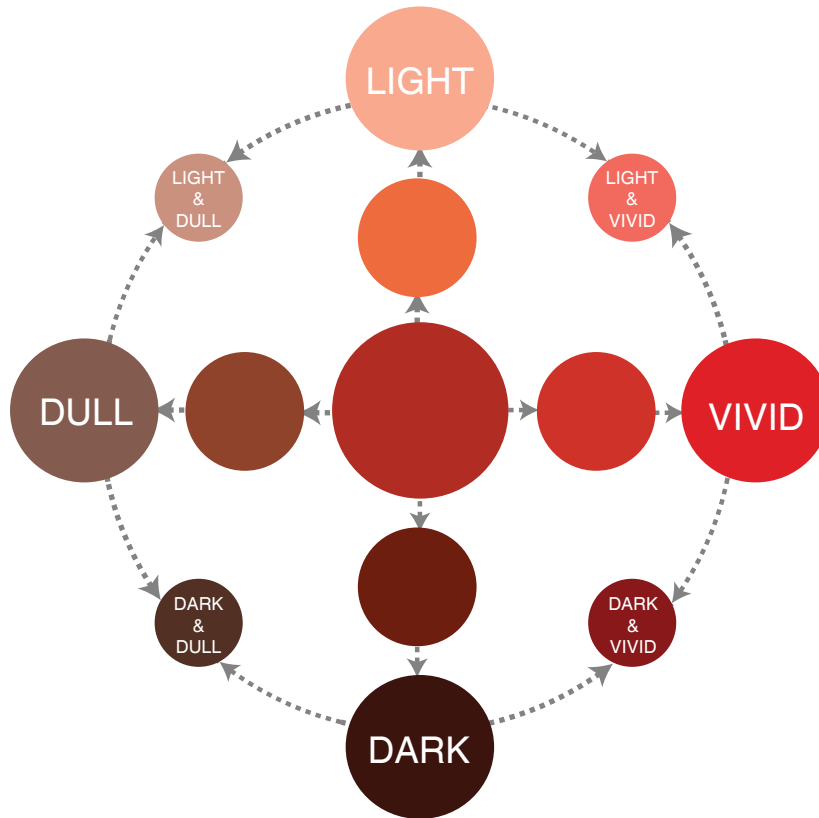


Figure 23: Color categories (Itten, 1970: p.31)

1.1.8. Color Harmony and Disharmony

In color as well as music, harmony means an aesthetic arrangement of parts to form a pleasing whole. Choosing colors is fun, but there's more to choosing an effective color scheme than simply picking the colors that appeal to you. The colors that you like best might not go well together, or they might not convey the effect that you're after. Color harmony is as much of a science as an art and follows very specific rules about hue, brightness and contrast.

If the science of color harmony is knowing which colors to use, the art is knowing what order to put the colors in and what proportions of each. (Chijiwa, 1987: p.6) When people speak of color harmony, they are evaluating the joint effect of two or more colors.

The color combinations called harmonious in common speech usually are composed of closely similar chromas, or else of different colors in the same shades. They are combinations of colors that meet without sharp contrast. (Itten, 1970: p.19)

Three sorts of unambiguous color harmony have been proposed: identity, similarity and contrast. Identity refers to colors of the same or nearly the same hue, as with monochromatic harmony. Similarity in color harmony refers to colors linked by having a shared hue. Contrast refers to colors of distinctly different hue, i.e. drawn from a wide segment of hues on the other side of the hue circle from the reference hue. (Porter, 1982: p.85-86)

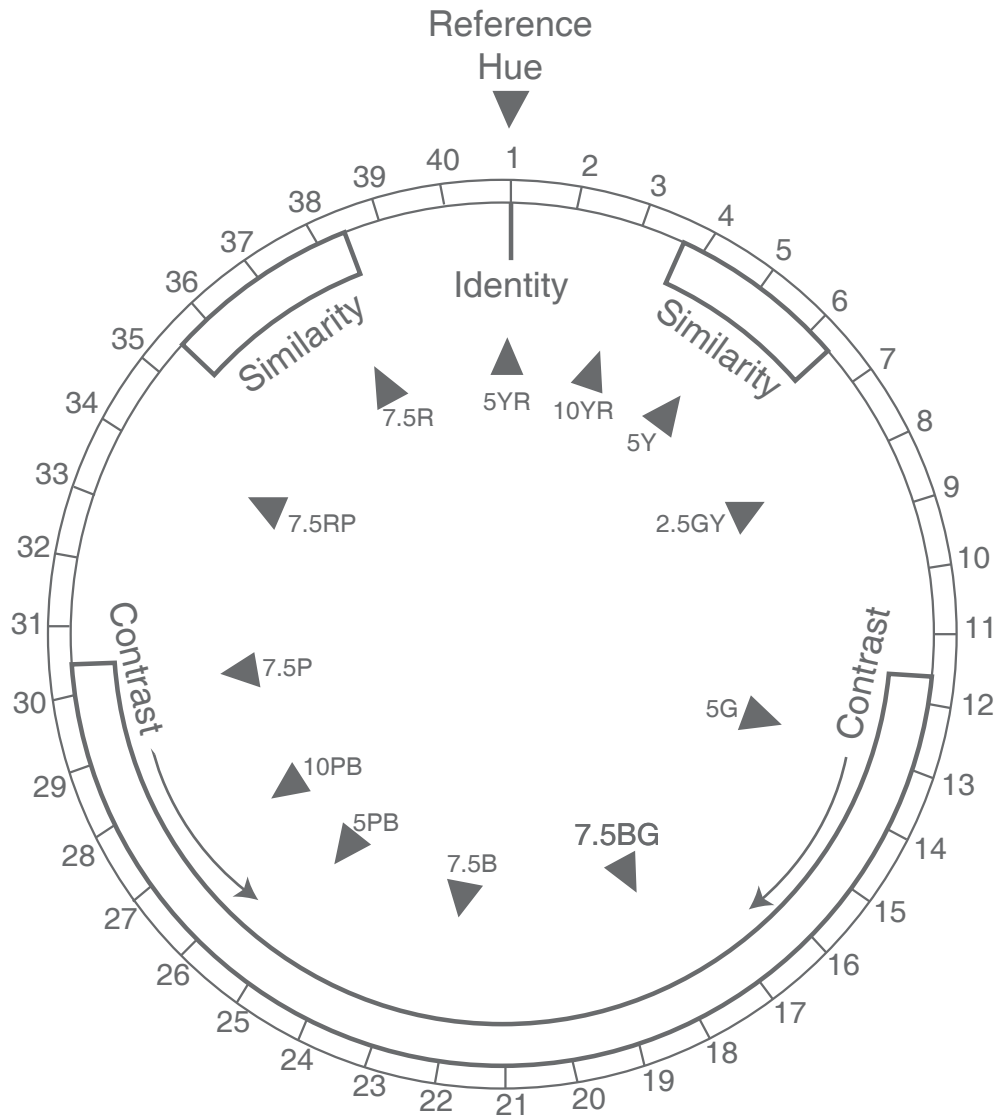


Figure 24: Color harmony (Porter, 1982: p.84)

1.1.9. Perception of Color

Colors are fundamental elements of our visual perception. We encounter and are surrounded by color whenever we open our eyes. (Meerwein, 1998: p.16)

We perceive color mainly as a characteristic of the objects that surround us. Color is one of the characteristics that enable us to determine, judge and evaluate an object. (Meerwein, 1998: p.19)

Although color is perceived with the eyes, all five of our senses react to it, so it is a means of expression by which an architect can illustrate the spirit of what he or she wants to convey. (Bahamon, 2010: p.9)

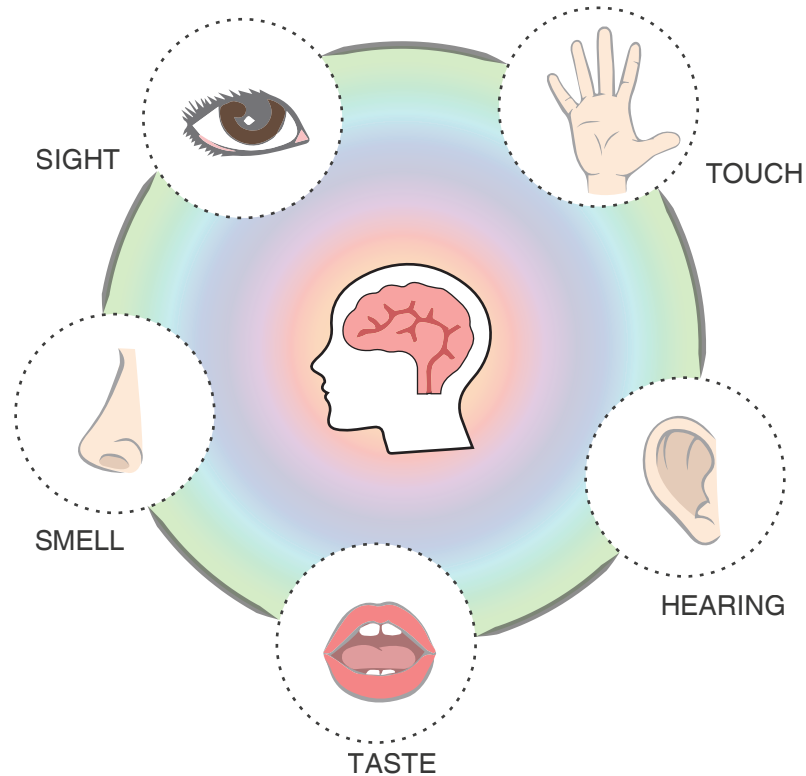


Figure 25: Perception of color by all five senses (Self Elaboration)

1.1.10. Color and Functions of Body

Light and color undoubtedly affect body functions, just as they exert influence over so-called mind and emotion. By what is known as the unity of the senses, individual experiences are seldom confined to one organ or sense of the organism. All parts of the nervous system are connected together and no part of it is probably ever capable of reaction without affecting and being affected by other parts.

Color affects muscular tension, brain waves, heart rate, respiration and other functions of the body and also arouses definite emotional and aesthetical reactions. (Birren, 1963: p.177)

1.1.11. Psychological Aspect

Psychology is the science of people's conscious and unconscious mental processes and behavior, including their thoughts, feelings and dreams. Color is a significant element of psychology, because its effect is based on conscious and unconscious processes. Color is also an experience that influences behavior. (Meerwein, 1998: p.25) Colors are forces, radiant energies that affect us positively or negatively, whether we are aware of it or not. (Itten, 1970: p.12) Each color has following effects on our behavior:

1.1.11.1. Red

Red is passionate, the color of hearts and flames: it attracts our attention, and actually speeds up the body's metabolism. Red is popular among the young, and pink in particular is associated with romance. Deep red, on the other hand, looks aristocratic. (Chijiwa, 1987: p.12)



Figure 26: Red (Chijiwa, 1987: p.12)

1.1.11.2. Yellow

Yellow is lively and happy, the color of sunshine and daffodils. Because it is so relentlessly cheerful, we tend to tire of it quickly. An apartment painted in bright yellow would be oppressive, but pale yellow would make it breezy and springlike. (Chijiwa, 1987: p.13)



Figure 27: Yellow (Chijiwa, 1987: p.13)

1.1.11.3. Green

Green is tranquil and pastoral, the color of trees and grass. Bright green reminds us of spring and fertility, but it's also the color of mildew, poison and jealousy. Dark green is an eloquent color and brings to mind the deep quiet of a pine forest. (Chijiwa, 1987: p.14)



Figure 28: Green (Chijiwa, 1987: p.14)

1.1.11.4. Blue

Blue is the color of the sky and the sea. Like green, it has a claiming effect, but it's also quite powerful; the strongest of the familiar colors after red. Light blue looks young and sporty, but royal and navy blue has a dignified, wealthy air. (Chijiwa, 1987: p.15)



Figure 29: Blue (Chijiwa, 1987: p.15)

1.1.11.5. Purple

Purple is a sophisticated color, long associated with royalty. We don't often see it in nature, we think of it as an artificial color and find it a bit hard to take. The lighter shades of purple have dominated women's fashions in recent years. (Chijiiwa, 1987: p.16)



Figure 30: Purple (Chijiiwa, 1987: p.16)

1.1.11.6. Brown

Brown is rich and fertile, like soil; it is also sad and wistful, like the leaves in autumn or an October moon. Light brown, tan and beige give fabrics and housewares a rustic, nature look, while dark brown suggests opulent hardwoods and leather. (Chijiiwa, 1987: p.17)



Figure 31: Brown (Chijiiwa, 1987: p.17)

1.1.11.7. White

White is the color of purity, virginity, innocence and peace. But it is also associated with hospitals, sterility and winter. This dichotomy is also seen in white household objects: they either look expensive or disposable. (Chijiiwa, 1987: p.18)



Figure 32: White (Chijiiwa, 1987: p.18)

1.1.11.8. Black

Black is the color of night and death, and is often linked with evil. Its unorthodox appearance has made it popular with artist, but it's also associated with wealth and elegance. (Chijiiwa, 1987: p.19)



Figure 33: Black (Chijiiwa, 1987: p.19)

1.1.13. Color and Symbolism

A symbol is a picture that stands for something. It represents and signifies something. It is a medium for communicating messages. Many things can be symbolic; a word, a gesture, a color. For centuries, people from all over the world have used color to symbolize particular beliefs or events. (Dilloway, 2006: p.2)

We can assume that the symbolism of color has developed out of the original human color experience. Color symbolism grew out of the generalization of color's effects on the emotions and tradition of color's meanings associated with color. Symbolic and psychological effects of color are thus closely linked. (Meerwein, 1998: p.28-29)

Early man, superstitious at heart, found color could be used to symbolize virtually everything concerning life and death. (Birren, 1963: p.105)

To understand the symbolic effect and expression of a color, we should also consider whether it is alone or its effects is in relation to something else. (Meerwein, 1998: p.28-29)

Colors have different meanings in different cultures and religious. The meaning of a color can be seen not only to vary , but times to times assume a completely opposite meaning altogether.

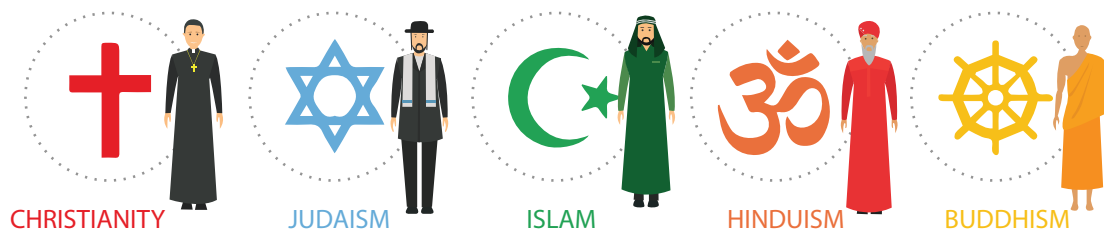


Figure 34: Important colors in different religious (Self Elaboration)

1.2. Color and Urban Landscape

The dimensions of color are many. For the painter color is the primary sensory marker, direct, immediately expressive and resonant with meaning. It shapes urban environment as well. Color affects environments, forming and transforming them. In towns and cities, it confers magic to everyday life and experience. (Swirnoff, 2000: p.IX) They are part of everything, from nature and rainbows to man-made creations. (Mayer, 2014: p.1)

In general, the core elements which have profound effect on appearance and perception of environmental color can be classified as: nature, the built elements, and people's actions. (McLellan, 2014: p.3)

A vital urban environment is one in which the visual elements, light, color, and architectonic form, signify and express civic functions. Color is universal expression, woven into the pattern of the urban fabric by people themselves. (Swirnoff, 2000: p.IX)

There is a relationship between man, the environment and color; the human society would look uninteresting and formless if the physical environment and everything in it was colorless. Our built environment should not be experienced as a lifeless achromatic environment. Instead, it should be transformed and enhanced by color and light, with various degrees of shadows. In this way people feel better for being in this environment.

Colors are fundamental part of a city skin and they alert moods and perceptions. They have their own intrinsic properties, over and above being a layer on a surface. During the last three decades of the twentieth century, color took on a leading role instead of being a complement. (Bahamon, 2010: p.8-9) None of the visual elements gives us so much pleasure as color. Different colors enhance different achievement motivations, which can then affect the performance on different types of cognitive tasks. (Olsen, 2010: p.3)

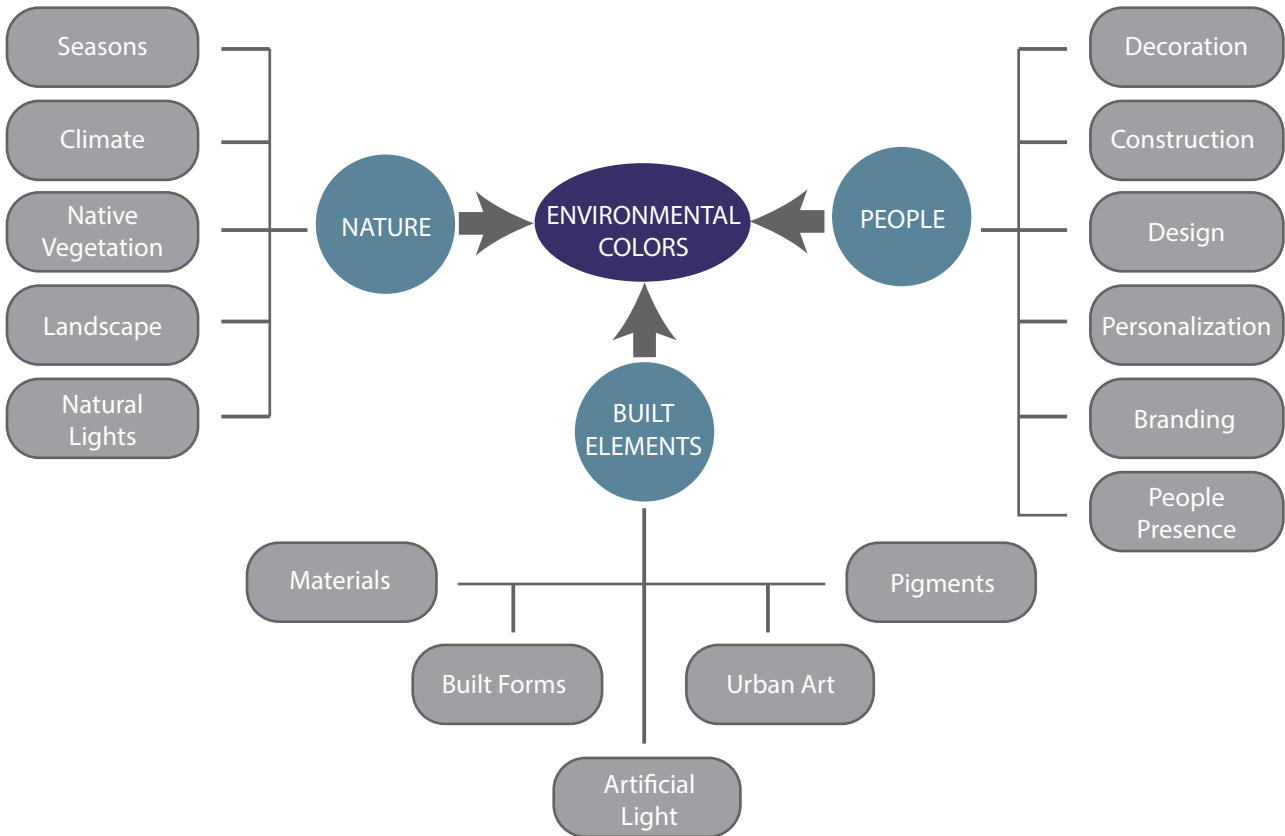


Chart 1: Environmental Colors (Galyna, 2014: p.3)

Color is applied to houses, to the facades of streets, on shops, in marketplaces and squares; wherever people dwell, carry out their transactions, interact with one another. (Swirnoff, 2000: p.2) Colors can help us to read a place. (Cugley, 1987: p.2) Many everyday objects have been designed to convey a message through color. (Olsen, 2010: p.3) Color tends to highlight parts of a building; it can emphasize them, make them invisible or transparent, or conceal them. Once color is separated from customary role, it becomes the guiding element of a design. (Bahamon, 2010: p.8) The secret is in knowing how to use color, light and contrast effectively to achieve a good visual experience. (Bright, 2010: p.1)

A good color scheme will meet two equally important criteria. First, the colors selected will create an attractive color scheme and produce an environment in which people feel comfortable. Second, it will also enhance the user’s ability to participate in the activities taking place within the space by helping them to move around safely and with confidence. (Bright, 2010: p.113-114)

1.2.1. Mono-Chrome and Multi-Chrome Spaces

In the study of old cities, harmonious image of the city is recognizable. In these cities, feeling of being in a spaces with strong identity is experienced. The memorable and original spaces which are adapted to the climate and culture of the people because of using the natural and native colors and materials. Therefore, each city had its own color identity and was distinguished from other cities. Today's modern world, due to the rapid changes in the image of the cities, use of the color, has become an unsolvable problem. In fact, changing the aesthetic taste of the people after getting away from nature and using the artificial materials in the cities, led to the formation of a new colorful identity in the modern cities. This change often does not correspond to the nature and willing of the people and causes chaos in the spirit of the city and the citizens. Problems of using the color in an irregular way, classified into two categories:

1. The first category is due to mono-chrome, which cause the formation of gray cities. This is the title that many years after the modernization of cities and the introduction of asphalt and concrete technology raised.
2. The second category is contaminated urban landscapes which is caused by unconventional use of color in today's cities. This contaminated landscapes introduced with the title of multi-chrome spaces.

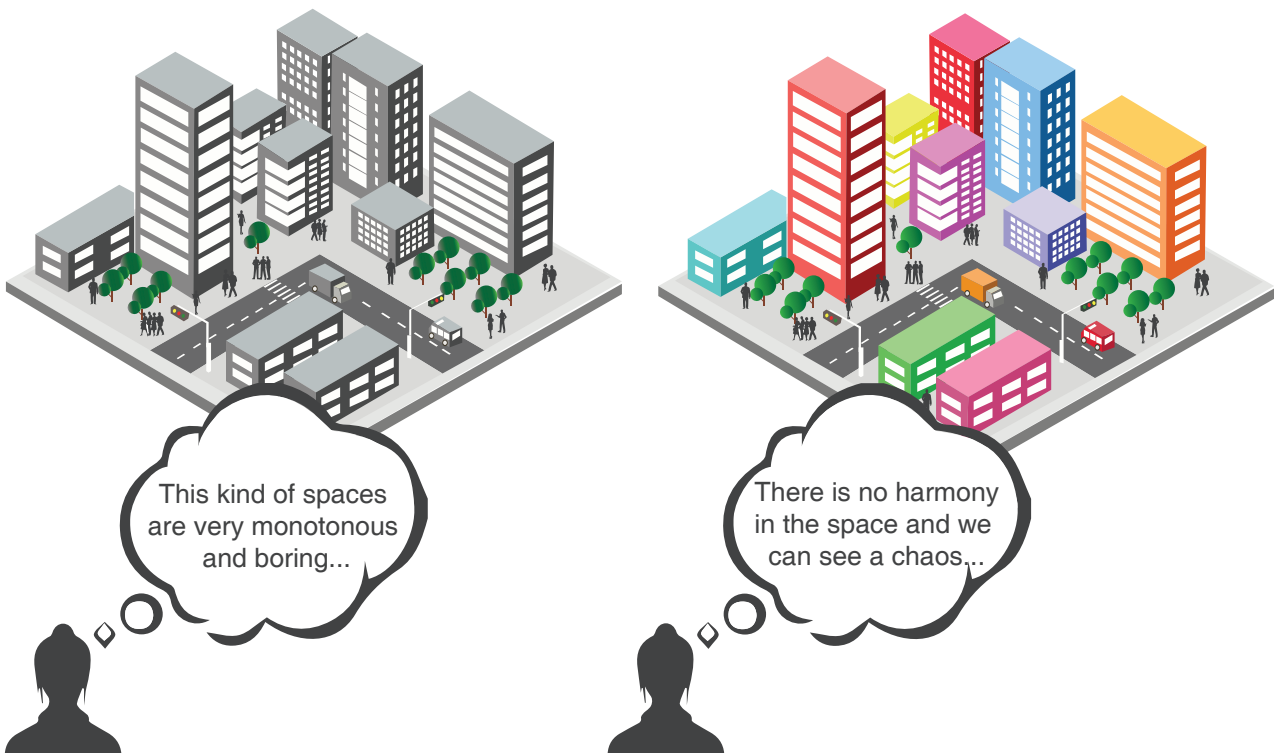


Figure 35: Mono-Chrome and Multi-Chrome spaces (Self Elaboration)

The reason for the formation of gray cities can be seen in the absence of vibrant colors and also the increasing expansion of streets, highways, concrete walls and cemented facades. On the other hand, the issue of pollution has a huge effect on this kind of cities. Heavy traffic of vehicles, soot and pollutants from factories, covers the city's surface and effect the gray image of the city. Even the green leaves of the trees become invisible because of strong effect of grayness. In this situation, cities especially metropolises turn in to mono-chrome spaces.

In the big cities like Tehran we always face gray and dusty covered spaces which it is seen not only in building facades, street asphalts and pavements, but also, in the way of dress up of the citizens and also some vehicles. In compare to old towns of Iran, it seems that the color palette of the city doesn't have enough quality to improve urban attractions.

On the other hand, inappropriate and unplanned use of colors in many cities and public spaces can cause a kind of color anarchy in urban landscape; exorbitance use of colors which are not complementary colors and are not following any order or regulation are the reason for color pollution. Besides the unaesthetic consequences, visual pollution leads to the overstimulation of the senses and increasing the load of information to be processed by viewers; this can lead the viewer's attention to the irrelevant information from the city.

Growing commercial competition, in the cities like Tehran, can make the colors one of the reasons for anarchy and disorder in the public space. When people walk in the streets, they feel a kind of confusion from dazzling colors and huge advertisements which is an annoy vision.

1.2.2. Cities and Urban Elements

City is a complex existing which is made of different components. What have to be considered in color management is that city landscape is not only made of buildings, pavements and other fixed elements, but also color of any advertisement, city panels, traffic signs, clothing of the citizens, color of cars, season changing according the position of the city, have an impact on the image of the city and are considered as unsteady elements. In general, city components can be divided to two classifications: temporary and permanent elements.

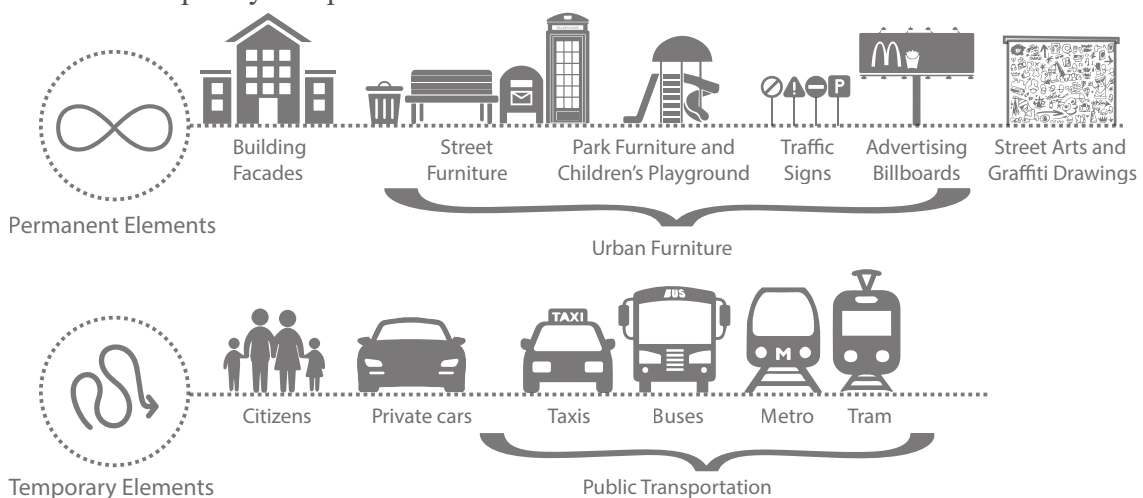


Figure 36: Temporary and permanent urban elements (Self Elaboration)

Permanent elements are buildings, urban furniture and street arts and graffiti drawings. Temporary elements which effect the urban landscapes are citizens, public transportation and private cars.

Urban elements, as one of the main components of the city, have an important role in emotional connection of people with the city and enhancing the vitality.

Apart from being permanent and temporary, in addition to the specific function, each of these elements have social and cultural usage which creates sense of inviting people and they have an important role in creating a sense of identity, belonging and unity in the city. In terms of the specific color that these elements have, they become a part of the city and for this reason their color composition effects the information that the viewer get from the space.

1.2.2.1. Permanent Elements

1.2.2.1.1. Building Facades

Color harmony between the component of the city is one of the crucial criterion in creating attractive spaces with strong identity. Buildings are the main part of a city, so is the color of the buildings. For this reason, building facades of streets, squares and other public spaces which creates a major sight of the viewer, should have a proper color according to the environment. Building facades as a fraction of the total, in terms of color composition, have an important impact on the quality of urban spaces.

During the history, with the development of thoughts, demands and technology, building façade's appearance was always changing. Creation of new methodologies in architecture, not only the shape and the form of the buildings has been changed, but also new innovations in colors and materials has been seen.

Cities has been made gradually, based on native materials. But with the development of science and technology, different methods of construction have been used. Most of the today's cities broke the rules of the construction based on the social, cultural and climate aspects. Modern evolution and constant development of the science and technology, bring some problems which can be seen also in Tehran. These problems are based on unplanned use of colors which turn it to a disharmonic city.

In the other word we can say that the problem of facade starts when there is no common language between the buildings. In the city we face facades which they have no common culture, no similar materials and no similar styles. Each building just show economic condition of the owner and thoughts and attitudes of the builder and the designer without considering any rules. The building facades is just used as tool for constructing different and being a landmark or symbol in the area.

Therefore, it is a crucial point to design the building facades in a way that they have harmony with each other and the environment.



Figure 37: Building facade
(Self Elaboration)

1.2.2.1.2. Urban Furniture

In the spaces between buildings, there are some complementary elements to regulate and arranging the urban life. An equipment like home furniture which facilitate our lives in enclosed spaces between stones, concretes and glasses. These components, set up flow, movements and stationary and give life to the city. Urban furniture is the main communicative element between citizens and the city.

Colors as an element for vitality, have a crucial role in identity and legibility of the spaces. Using appropriate design and color palette for the urban furniture according to the space, helps to improve the quality of the area.

In general, we can divide urban furniture to four classifications:

- Street furniture
- Park furniture and children's playground
- Traffic signs
- Advertising billboards

1.2.2.1.2.1. Street Furniture

For coloring the street furniture, like other elements, wide number of factors should be considered. Some elements, like trash cans, post boxes and telephone boxes are colored the same all over the city. But it should be considered that these elements according to the culture and climate of the city can be different.

About this kind of elements, we have to consider that some of them have to be invisible and some have to be highlighted. This is the trick that have to be used according to the color and the place that we are using it.

1.2.2.1.2.2. Park Furniture and Children's Playground

Color is the most important factor in the attractiveness of urban parks and green spaces and awareness of using appropriate colors will achieve the purpose. (Talebi, 2016: p.39) Coloring the park furniture like other urban furniture depends on cultural and social aspects. The other important factor is the users. As children's playgrounds are the spaces which are used by the children, they have to be happy and vital spaces. For this reason, attractive and vivid colors have to be used for this furniture.



Figure 38: Yellow post box
(Self Elaboration)



Figure 39: British telephone booth (Self Elaboration)



Figure 40: Children's playground
(Self Elaboration)

1.2.2.1.2.3. Traffic Signs

Color’s role in the city is more than aesthetic and artistic aspect. They are one of the important part of people’s everyday lives. Colors as an international language are used for warning and informing people. In these cases, they can transfer a caution, danger or safety meanings. Therefore, colors have an important role in traffic signs and regulations. These regulations in a long-term help us to recognize that sign with that color. For example, when the red sign of stop is recognized, help us to speed up the reaction.

Also the traffic lights are a kind of signs which are the crucial elements in the city to guide the people. By the help of the colors (Green, Yellow and Red) of traffic signs, people know when they have to stop and when they have to move. This kind of signs should be in the places that attract the driver’s and pedestrian’s attention to be efficient.

1.2.2.1.2.4. Advertising Billboards

Nowadays with growing competition of big trading companies, people get used to see advertisement everywhere. Advertisement billboards become an inseparable part of the city. Today, in big cities, it is hard to find public spaces without advertising. Citizen’s urban vision is dominated by the advertisement. Therefore, since one of the important role of color is advertising aspect, owner of the goods and investors, for communicating with the consumers, use the colors to attract them. Using improper colors, would be inefficient in sending message to the viewer. For this reason, using colors like red and yellow, become common colors in advertisement.

We have to consider that advertisement is not only billboards and panels, but also shop windows and restaurant decorations are part of the advertisement and their color can attract the viewer’s attention. The owners have to use designing skills by locating proper colors to highlight their goods.

1.2.2.1.3. Street Arts and Graffiti Drawings

Wall painting has since flourished intentionally as an activity involving individual artist, muralist groups and members of local neighborhoods. The initial experiments concentrated on improving the visual lot of slum and ghetto dwellers but soon proliferated into as many forms as there are regional, social and ethnic differences. There is no single movement directing this activity and the functions



Figure 41: Traffic sign (Self Elaboration)



Figure 42: Traffic light (Self Elaboration)



Figure 43: Advertising billboard (Self Elaboration)

of murals are diverse as their settings. Some are painted in anger to protest against social and environmental deprivations, while others lovingly celebrate local history or heroes or simply bring art to the public view. (Porter, 1982: p.25) Wall art has become an intrinsic part of urban experience. (Porter, 1982: p.28)

Graffiti are drawings or writings which indicates shapes, forms, symbols, patterns, alphabets or words, on the walls or any other public places. This kind of arts can be in the shape of tilling, scratching or painting. They improve the quality of life and public spaces. Bring an identity to the area and reduce the psychological damages caused by visual contamination.

In the cities like Tehran, it is necessary to use this kind of art works, because most part of this city is mono-chrome and actually there is not too much green spaces and on the other hand the climate of Iran is warm and dry and possible to see plants and flowers in a short-term period. Public art works can compensate the colorless atmosphere of the city which is enclosed between tall buildings.

Street drawings, like other elements have to be implemented with a large investigation; not only in terms of color that is used and the resistance of the material to the climate change, but also the harmony of the colors and forms that are used with the space and other elements.

1.2.2.2. Temporary Elements

1.2.2.2.1. Citizens

Citizens are the effective and unstable elements of the color landscape. The way of clothing in a society is effected by political, religious, social, cultural and also climatic aspects. Therefore, as the life of the city depends on the presence of the people in public spaces, this presence of citizens effects the color palette of the space.

In a cold season, clothing color palette of people is mostly in a dark spectrum but in a warm season like spring and summer, colorful and bright colors are used more.

As it mentioned before, part of the reason of choosing colors for clothing depends on the religious and political aspects and have a two-sided effect on each other. For example, in



Figure 44: Graffiti drawing (Self Elaboration)



Figure 45: Wall art on the stairs (Self Elaboration)



Figure 46: Citizens in Iran with dark clothes (Self Elaboration)



Figure 47: Citizens in Italy with colorful clothes (Self Elaboration)

European cities it is possible to see the presence of people with colorful clothing but in Islamic cities like Tehran, because of mentioned aspects, suitable way of dressing is mostly dark colors like black, gray, brown or navy blue and it is hard to find people with colorful clothes.

1.2.2.2.2. Private Cars

Cars are the other moving and unstable elements in the city which effects the color landscape of the city. In fact, colors are one of the most important factors of the appearance and have the first and the direct effect on people's sight. From the movement of the cars, constantly, different kind of color compositions and spectrums is created which depends on the color choice of the society. Each private car, is a private property and it is the owner's choice to choose the color and the model of the car depends on his own interest and need. Color spectrum of the cars which are released today in global market are varied. Plurality of choices on specific colors in society and city, is one of the key aspects in color palette of today's cities. In Tehran, in spite this varied color spectrum, preferred colors for their private cars, are white, black, gray and beige. For this reason, even the private cars don't make the city more colorful.



Figure 48: Private cars
(Self Elaboration)

1.2.2.2.3. Public Transportation

Increasingly growth of the populations in cities and specially metropolises like Tehran, the need of the citizens for commuting around the city, heavy traffics and pollutions caused by private cars, highlighted the role of public transportation. For this reason, public transportation become one of the effective elements in the color palette of the city. Sometimes they can become a part of the identity of the city. For example, black taxis and red buses in London, become an identity of the city in a way that they become a recognizing elements for London. Also in Iran it is possible to see the red buses and yellow taxis around the city which they become a part of the identity of the city. These elements as moving elements have an important role in the colorscape of the city. Nowadays, advertising techniques are used also on the public transportations to be seen by large number of people. Therefore, large number of color spectrum with the business target beautify the colorscape of the city.



Figure 49: Red buses in Tehran
(Self Elaboration)



Figure 50: Taxi station in Tehran
(Self Elaboration)

1.2.3. Color and Psychological Functioning

Man is the core of any study and his needs, inspirations, and contributions are the main motive for scientists and researchers. Man's daily life is directly affected by the surrounding environment, as the daily contact with nature is essential for his psychological health. (Shawkat, 2016: p.1) For this reason, it is possible to say that physical place is important in shaping people's behavior and color as an element of physical space has a crucial role. Color clearly has aesthetic value, but it can also carry specific meaning and convey specific information. (Elliot, 2007: p.155)

Color as an integral element of city design significantly influences perceptions of the urban environments. Color design in a city delivers

unique quality that cannot be obtained through any other means. Satisfaction with the visual qualities of the urban places has positive impact on the psychological well-being of people who use or visit these places. (McLellan, 2014: p.1) Urban landscape with simple and harmonious color is a perfect environment which gives people the sense of pleasure and comfort.

Color, lighting and contrast influence the way in which we live our everyday lives. They can be used to communicate information, to stimulate our senses, to influence our emotions, to enable independence and participation, and to instil feelings of wellbeing, comfort or danger. Well-selected and properly maintained color and lighting schemes can enhance considerably our experiences of the world in which we live. Poor ones can seriously hinder how usable a space is and the effectiveness which we can access both the space itself and the activities taking place within it. (Bright, 2010: p.1) Color effects feelings, physical status, psychological moods and even daily conversations i.e. color of space users of environment make them think about warm feelings and vice versa cold and depression and impatient feeling. (Babakhani, 2017: p.5)

Color carries different meanings in different contexts. (Elliot, 2007: p.156) The colors of the environment can change the behavior of the people in a positive and negative way. It is important to where to use them and how to use them. They can create happiness only when color is used correctly with a due regard to the role or function for that particular environment. To some extent people are able to feel when a place is psychologically healthy and when it is not. Vibrations of color are powerful enough to generate inspiration, increase motivation and deliver positive emotions. Therefore, environmental color design has potential to restore energetic fields in cities and enhance wellbeing of city's inhabitants. (McLellan, 2014: p.7) Color as a component of the living environment not only have to have a relationship with each other as unique components but also they have to have a relationship with the people which are living in this environment. In the other word, people as an important elements of the environment have to feel themselves as a part of the space.

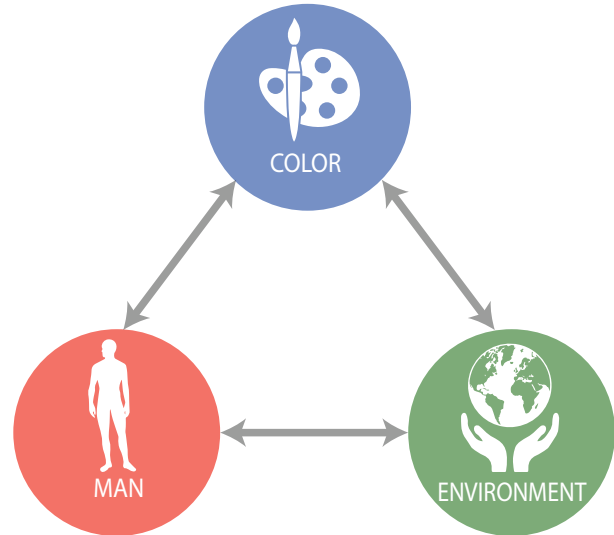


Figure 51: Human, color and environment relationship (Self Elaboration)

1.2.4. Objective and Subjective Factors

Urban landscape consists of subjective and objective factors. Objective factors can be artificial like building forms and façades and also natural like greenery and mountains. Subjective factors include cultural and historical events, memories, human interactions, and individual experiences.

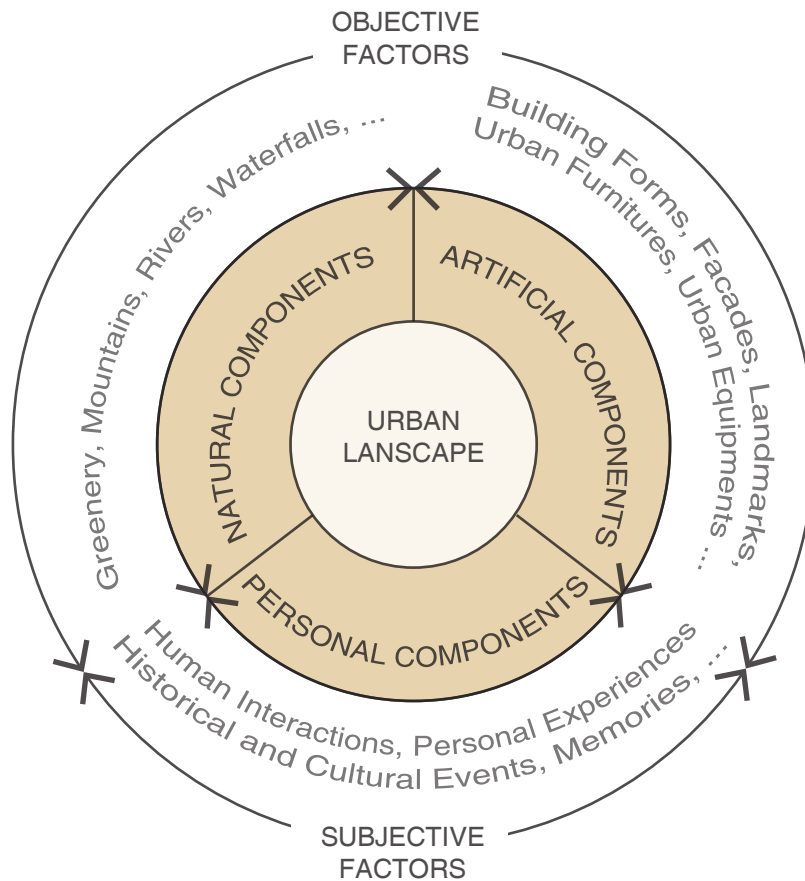


Figure 52: Objective and Subjective factors (Self Elaboration)

There is a reciprocal relationship between environment features and human perception, recognition, evaluation and behavior in the environment:

1. In the first step, people by their five senses percept the features of the environment like visual features.
2. In the second step, people recognize the environment based on previous memories and environmental data.
3. In the third step, people base on the recognition of the environment evaluate the area in a positive or negative way.
4. Finally, in the last step, people based on the evaluation decide how to behave in the area.

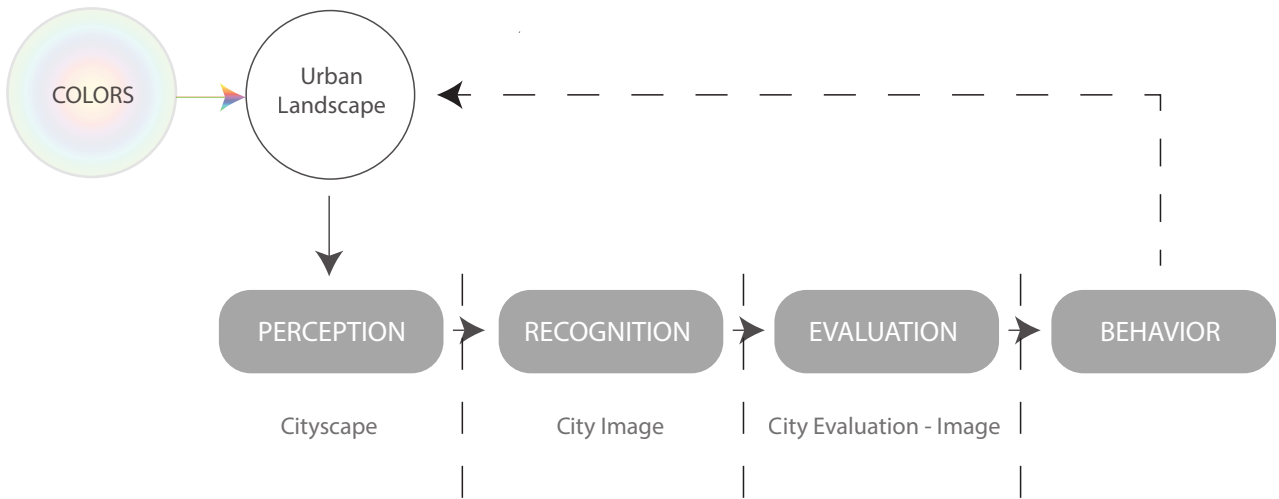


Chart 2: Relationship between color, environment features and human perception (Self Elaboration)

For the recreation of urban environments, it is crucial to study the current situation of these areas based on objective and subjective factors. It is obvious that these are the objective factors which creates subjective factors. These are people’s which will experience the area and how they feel in the space effect their behavior and social interactions. For this reason, it is important to focus on the physical elements. This will lead us not only to have a space which is optimized on aesthetic features but also on social features and people feel happy to be in this spaces.

- 1) Artificial and natural components as a subjective factors are creating the physical part of the urban square.
- 2) As a result of suitable subjective factors, the area would have a suitable personal components.
- 3) In the environment which subjective and objective factors are provided, people feel happy for being in this area.

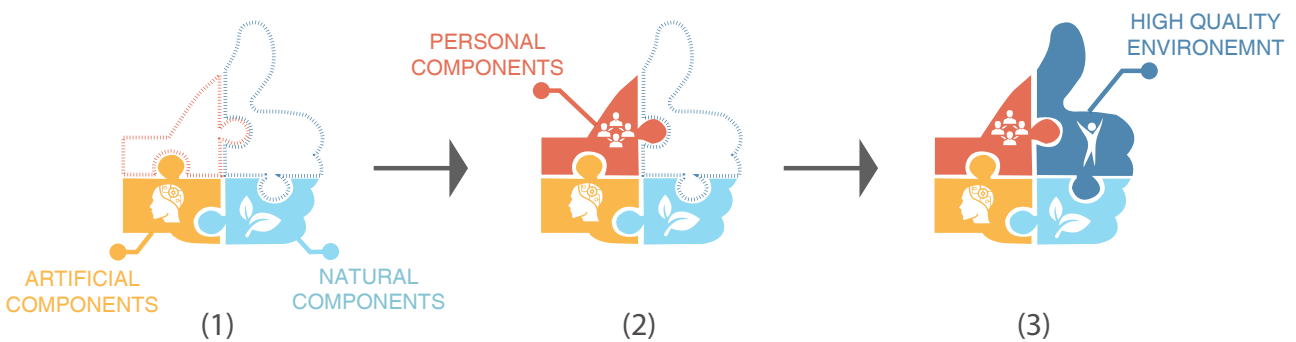


Figure 53: Conceptual design process to create high quality environment (Self Elaboration)

Different subjective and objective factors such as perception, readability, visual aspects and functional capabilities of public spaces are effective for creation of strong memory and mental landscape which plays an important role in the quality of urban spaces.

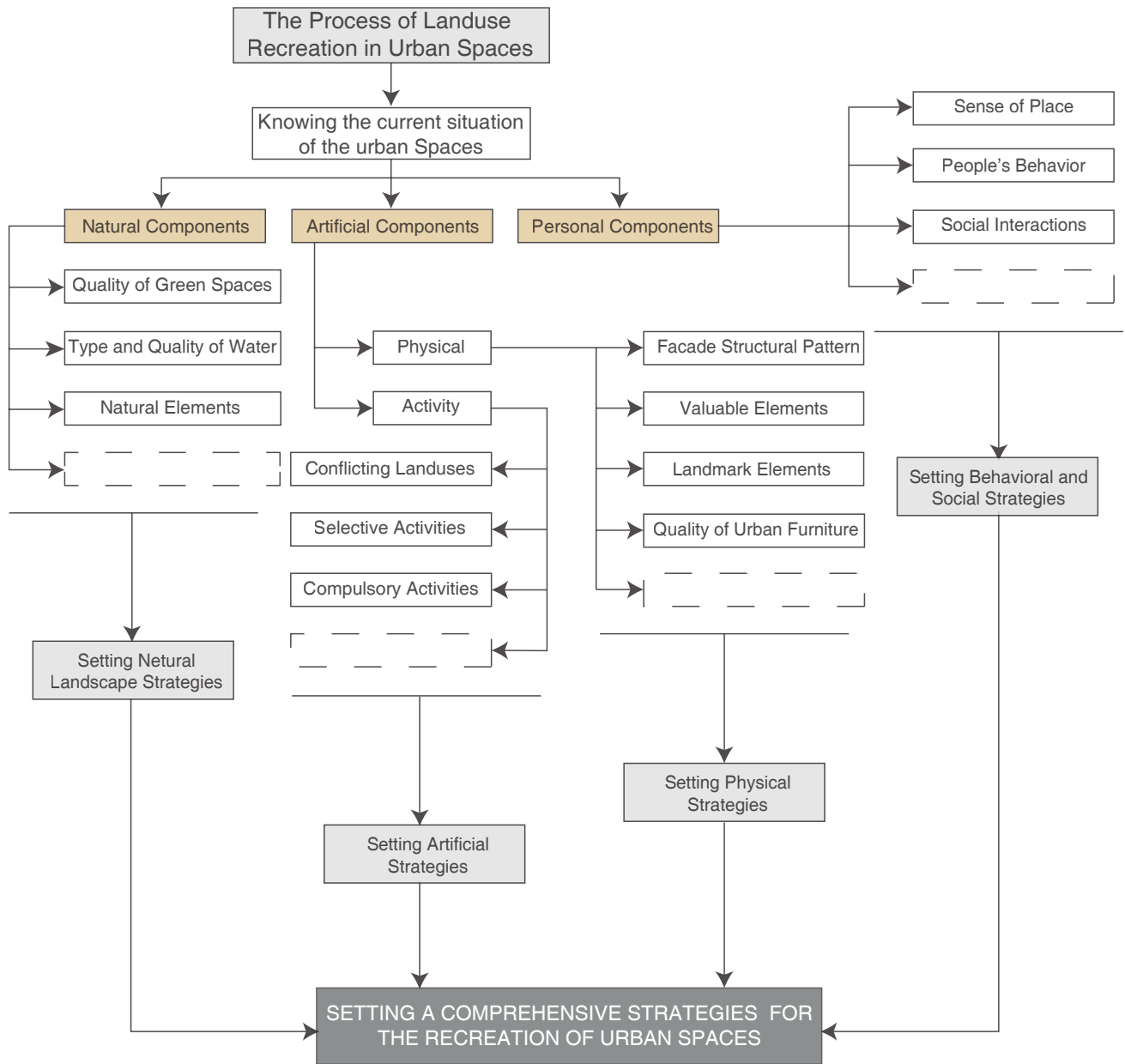


Chart 3: The process of landuse recreation in urban spaces (Self Elaboration)

Color is a crucial element for the creation of urban landscape. They are effective not only on the objective components but also on the subjective ones. The color harmony of artificial components as a manmade feature and natural components as a background has an important role on people’s behavior. Color research is a beginning to pay more attention to how people have different physiological reaction to different colors and scientifically use color for the urban dwellers to create a pleasing, lively and comfortable environment.

1.3. Color and Sense of Place

1.3.1. Color, Identity and Culture

The term 'Identity' is replacing the term 'Culture' nowadays. (Shawkat, 2016: p.1) The color of a city is an aspect of history. Therefore, color expresses urban historical tradition, characteristics and local culture. Many cities in history, were designed with a sense of the significance of order and clarity, and sensitively to perceptual patterning, in which color played a part. Until the early nineteenth century, European town and cities developed by a slow process of organic growth, generally employing materials indigenous to their regions. Architectural styles evolved within the limitation of available materials and the disciplined the form of the buildings, which were related to human scale. The constant use of local materials produced urban settings with visual harmony despite a diversity of forms. In turn, this process created architectural color maps in which certain colors became identified with particular regions. (Porter, 1982: p.37) Italian cities, those of Venice, Rome, Firenze, Bologna and hill towns of Tuscany and Umbria are uniquely formed and distinctively colored. In Mexico and the Caribbean, color plays a role in shaping the urban environment, while vividly expressing the character and culture of its people. (Swirnoff, 2000: p.1) Color is also a memory. Local features of the chromatic urbanscape are generated by the location and by the culture and dynamics of the urbanscape. In terms of the role of color in the urbanscape, this is the means to store and transmit the historical and cultural memory, namely the chromatic identity. (Zybaczynski, 2014: p.91) The memory of the cities we visit is often associated with specific colors: Paris is gray, New York blue, Tokyo Red, Lisbon white. If the color of well-known shape is changed, our perception of it also changes and it is no longer so easy to recognize. (Bahamon, 2010: p.8-9)

Not only religion, ethic and scientific paradigms, but also collective memory and lifestyle are important aspects of a culture. Every culture makes the difference between social system and environment. In the city of collective memory, we are interested particularly in the creation of meaningful and imaginative public spaces. (Boyer, 1994: 7) The role of history and memory and the concept of space and time in our contemporary arts of city building need to be reconsidered when they rely to explicitly on constructs and models formulated in earlier periods. (Boyer, 1994: 2) In the other word, it is important to keep the identity elements in order to save the collective memory.

The sensations produced by color in architecture depend upon its setting, history, atmosphere and light. (Bahamon, 2010: p.8) The lack of aesthetic dimensions produces the monotonous achromatic environments familiar to many modern city dwellers. (Swirnoff, 2000: p.1)

Color is almost everybody's business but it has rarely been treated in a unified way. (Gage, 1993: p.7) Today, architects and designers all over the world are showing a renewed interest in the role of color in all aspects of design, but particularly in the creation of built environment. (Porter, 1982: p.9) Designing products, environments and spaces to meet the needs of the population who will use them has become an important issue across the whole spectrum of social and economic activity. (Bright, 2010: p.4) Today, they can select colors for external use from an assortment of similarly priced and reasonably stable paint colors. In order to protect color traditional certain cities, exercise legislative control. The chromatic identity of certain structures is immutable. (Porter, 1982: p.38)

1.3.2. Sustainable Development

The term sustainability has been widely used in the context of ecological, economic and social studies. (Moldavanova, 2013: p.1) Some recent scholarship suggests that the traditional dimensions of sustainability do not fully reflect the complexity of contemporary societies, and a fourth cultural dimension of sustainability should be added to ensure a more holistic understanding of this concept. (Moldavanova, 2013: p.3) Community sustainability continues to be most commonly seen as a way to improve a community's "well-being" in social, economic, and environmental terms, with culture gradually forming a part of this vision. (Duxbury, 2007:1) Overall well-being, which it places at the center, is enhanced when all four areas are given equal weight, are interdependent, and are able to move efficiently around the center. (Duxbury, 2007:2)

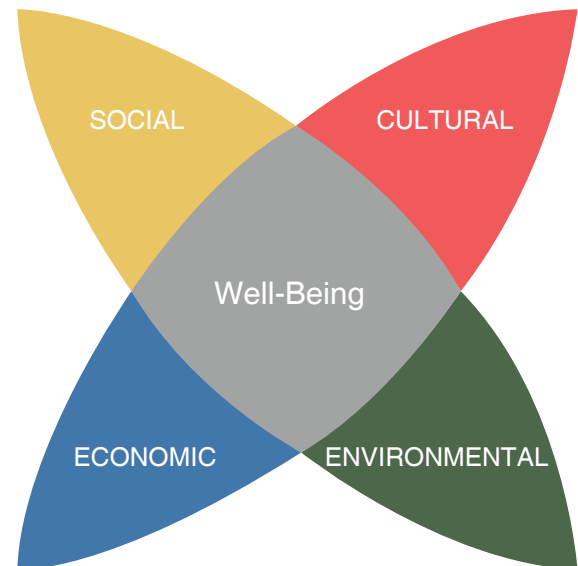


Figure 54: Well-being factors
(Duxbury, 2007:2)

Color should be included in the consideration of sustainable development of buildings as an important factor. The built environment, in any community has a crucial role in how people feel about their health and wellbeing.

When adding culture to the dimensions of sustainability, one should be aware that culture itself is a very complex term, and there is a multitude of definitions associated with it. Culture is often viewed as a complex mix of tangible and intangible resources. (Moldavanova, 2013: 5) Our culture embodies the sense we make of our lives; it is built on the values we share and the ways we come to terms with our differences; it deals with what matters to people and communities: relationships, memories, experiences, identities, backgrounds, hopes and dreams in all their diversity. And most of all, our culture expresses our visions of the future: what it is we want to pass on to future generations. (Duxbury, 2007:1)

Community's vitality and quality of life is closely related to the vitality and quality of its cultural engagement, expression, dialogue, and celebration. The contribution of culture to building lively cities and communities where people want to live, work, and visit plays a major role in supporting social and economic health. (Duxbury, 2007:2)

Sustainability discussions frequently focus on how culture contributes to a sense of place in communities and cities. Initiatives to enhance sense of place commonly recognize the importance of heritage and symbols, and acknowledge the role of the arts in raising community awareness and interest in sustainability. (Duxbury, 2007:7) Art as a part of culture, seen as both development and communicative tool in communities. Therefore, using appropriate colors in the city can help to improve cultural aspect of the city in a way to reach the sustainable environment.

The concept of sustainable competitiveness, referring to the city, requires the analysis of the characteristic elements that confer identity to the city. The color control in urban areas can be a means of preserving local identity and a potential element of sustainable urban competitiveness. (Zybaczynski, 2014: p.87)

1.3.3. Color and Components of Quality

Quality is one of the central concepts of knowledge and profession and urban design. The quality of urban design consists of three components: "aesthetical quality", "functional quality" and "environmental quality". (Golkar, 2000: p.2) These three components are interconnected and they are the necessity for creating sustainable spaces; the places which people have satisfaction because of quality of their lives.

Colors as an important element of quality is not only improving the aesthetical aspect but also other two elements. Functional quality is based on activities and uses and they can be meaningful with appropriate colors, otherwise not only they cannot improve the quality but also lead the city to disorder. On the other hand, environmental qualities are possible to achieve when suitable materials according to the climate change have been chosen, otherwise climate changes could damage the material.

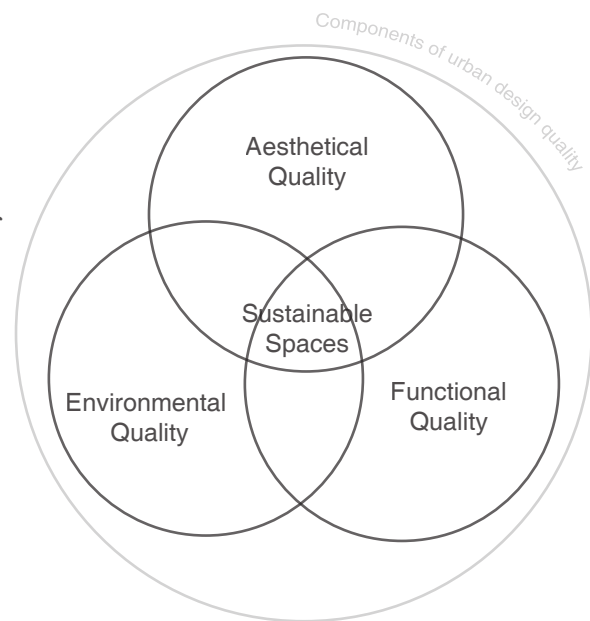


Figure 55: Components of urban design quality (Self Elaboration)

1.3.4. Sense of Place

Place is a where dimension formed by people’s relationship with physical settings, individual and group activities, and meanings. Sense of Place is a concept that could describe the quality of people’s relationships with a place. Sense of Place usually is defined as an overarching impression encompassing the general ways in which people feel about places, sense it, and assign concepts and values to it. (Najafi, 2011: p.1100) The sense of place creates such a link between the individual and the place that one considers himself as a part of the place and based on his experiences of signs, meanings and functions, he regards a function for the place. (Pakzad, 2009: p.319) It is not preset from before and it is formed by the daily interaction of person with the space. Therefore, the place change into a set of preconceptions. (Falahat, 2006: p.64)

People’s experience of the urban environment directly influences their emotional attachment to a location and ultimately satisfaction with the living conditions. (McLellan, 2014: p.1)
 Sense of place is people’s subjective perception of their environments and their more or less conscious feelings about those places. Therefore, sense of place is both interpretive and emotional aspects of environmental experience. It means the concept of sense of place is psychological or interactional and physical. Sense of place not only is a sense of affection with a place, but also it has a cognitive structure where an individual attach himself to concepts and meanings of a place. (Najafi, 2011: p.1100) This function is unique and different for him from other. (Pakzad, 2009: p.319) This concept on one hand depends on experiences like memories, culture, history and society and on the other hand depends on urban features like form, color, smell and sound. (Falahat, 2006: p.63)



Figure 56: Definition of sense of place (Self Elaboration)

Effective factors on the sense of place can be divided into two groups: activities and meanings. These two factors effects sense and behavior of the people. (Falahat, 2006: p.64)

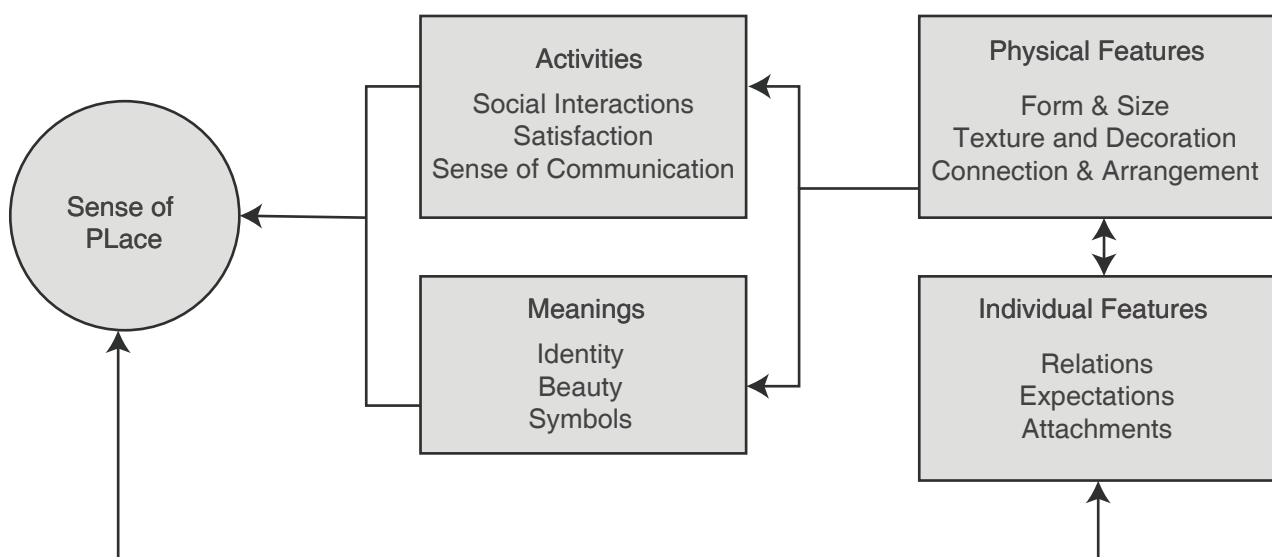


Chart 4: Effective factors of sense of place (Falahat, 2006: p.64)

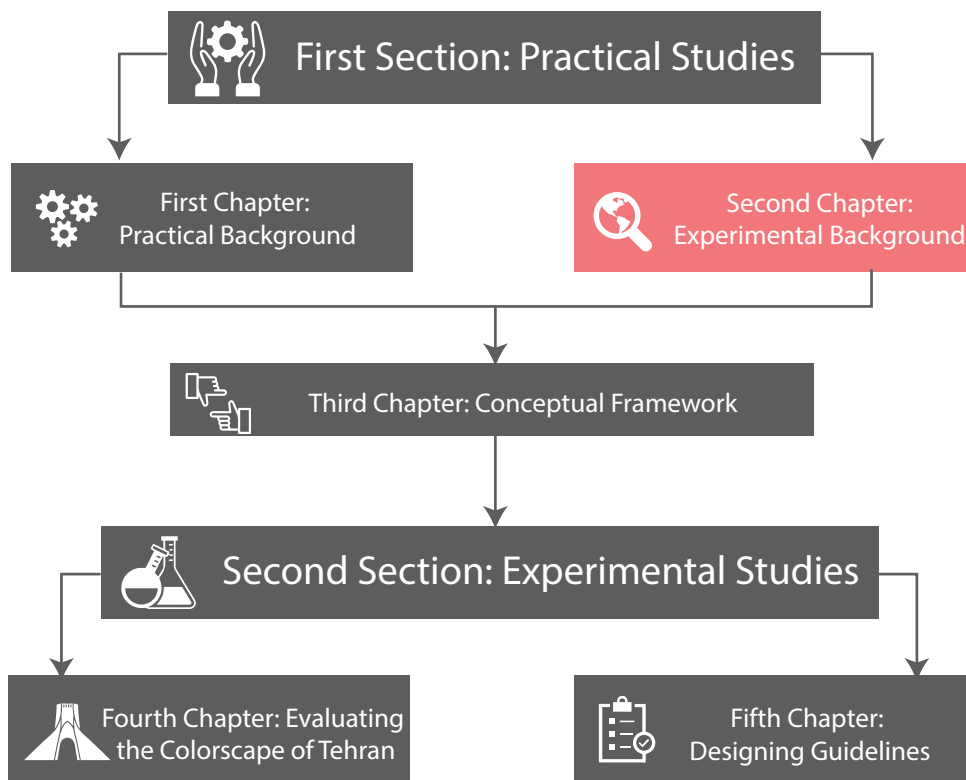
1.3.5. Sense of Place and Today's Cities

Place attachment is a contractual concept between people and place and it is reflected in their identity. But today due to inappropriate development of architectural and urban spaces, sense of place and place attachment is broken. Because meaning and attachment are place characteristics, so lack of meaning in environment results in weakness of sense of place and place identity. (Yazdanfar, 2013: p.855)

Today's world with some kind of complexity is created special condition which leads people to uncertainty and confusion. In today's urban life, people by being in different places feels like there is no place for him. In this situation he is facing with new issues like "Where is my place in this spaces?" and "Which place do I belong to?". In today's cities and especially in metropolises like Tehran, by unfounded developments, we are experiencing cities without identity which got away the citizens from their original culture and lead them to modern life.

Due to poor development, weakening of the sense of place and attachment has changed the feelings and imagination of the people from the place. Since the meaning and attachment are the properties of the place, lack of it, weakens the sense of place and identity.

In today's modern cities, most of the citizens don't have enough satisfaction from the place that they live because they cannot communicate with their surroundings. In fact, there is not any element as a reminder of their memories and attachment like native and climatic color and form. For this reason, they cannot satisfy from their urban life and as result they don't feel themselves responsible to the city. They just see this spaces as physical places that are not associated with common memory and aesthetical experience. People feels alienated in this cities and they are like strangers which are apathetic about their surroundings.



2. Experimental Background

Based on the practical backgrounds which are discussed in first chapter on the color and sense of place, it is time to find some case studies which used color as an element for increasing the sense of place. In each case study the important aspects which are crucial to learn from their experiences and the way that they use to improve the sense of place have been highlighted.

2.1. Global Experiences

2.1.1. Color Palette of Oslo - Norway

In the city of Oslo, like most of the other European cities, until the early nineteenth century, generally native materials have been used. Therefore, in spite of various forms of construction and architecture, there is a general harmonic vision which with the current developments and breaking the limits of using materials, colors and the architecture of this city is in danger. So, in order to improve the sense of space, deep studies and planning is needed.



Figure 57: Colorful buildings of Oslo (Porter, 1973 p.49)

Project Implementation Process:

Tom Porter, the responsible of this project, used three phases method of Jean-Philippe Lenclos in order to study the color palette of the city and implementation of possible modifications. He used different professions from architects, designers and planners in order to implement three phased method:

1) First phase involves collecting color samples and sketching the colors of chosen district in order to classify the color image of the districts into 4 categories of traditional, modern, industrial and transitional cities.



Figure 58: Collecting color samples from buildings of Oslo (Porter, 1973 p.50)

2) Second phase involves classification of collected colors and paper recording in order to provide primary color maps of the different part of the city.



Figure 59: Providing color maps (Porter, 1973 p.51)

3) In the third phase, in order to identify the colors, primary and secondary hues are used for naming them.

Based on this process, in the studying of the color palette of Oslo, 5 different districts involving: residential, industrial, historical and cultural center have been identified. Finally, in order to attract people’s participation, the project’s results have been published on television and publications. (Porter, 1973: p.48-54)

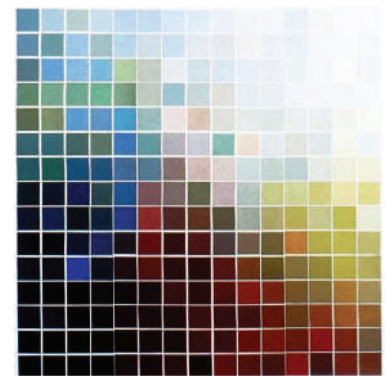
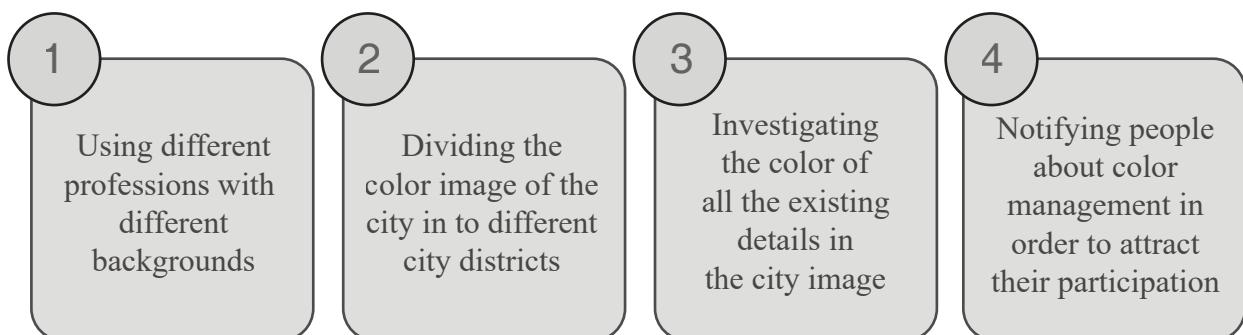


Figure 60: Color palette of Oslo (Porter, 1973 p.51)



In the Project of Oslo, different kind of professions and also people have been involved in order to participate in the project to feel themselves as a part of the city. Every detail in the city is important to create the general image of the city and have been considered. Based on the functional district that they have been located the color of the elements have been chosen.

2.1.2. Color Palette of Anchorage - Alaska

Anchorage is a frontier city surrounded by stunning natural beauty. The outstanding setting, however, contrasts vividly with its built form. Its architecture and urban form reflect the history of a young city that has experienced dramatic economic flux, a transient population, and an urbanity designed around the automobile. Anchorage's physical attributes, combined with its dramatically changing northern light, comprise a challenging and inviting framework in which to study urban color.

During the planning process that led to Anchorage's comprehensive plan, Anchorage 2020, residents articulated a number of urban design goals and objectives. They included: to improve the aesthetics of Anchorage, to design in harmony with the natural environment, to link the city's character to its northern context, to express the distinct character of the city and its neighborhoods and to enforce design standards and guidelines to enhance the economic viability of the city.

Project Implementation Process:

There are a number of urban design strategies that could and should be used to achieve the community's future vision. Color is one possibility. The color study of Anchorage has been carried out in three phases:

1) First phase; Environmental color analysis: This is done by taking pictures of the same areas in different seasons of summer and winter in order to examine the deep difference between the summer and winter light and the necessity of paying attention to the elements of the season in urban design of cities like Anchorage.



Figure 61: Anchorage viewed from the Coastal Trail in summer (1) and winter (2) (J. Synnes, 2004, p. 9)



Figure 62: Downtown Anchorage viewed from Midtown in summer (1) and winter (2) (J. Synnes, 2004, p.11)

2) Second phase; Identify the city color features: By using the photos and NSC method, the colors are grouped into two categories of perceptual colors and local colors on different urban scales.

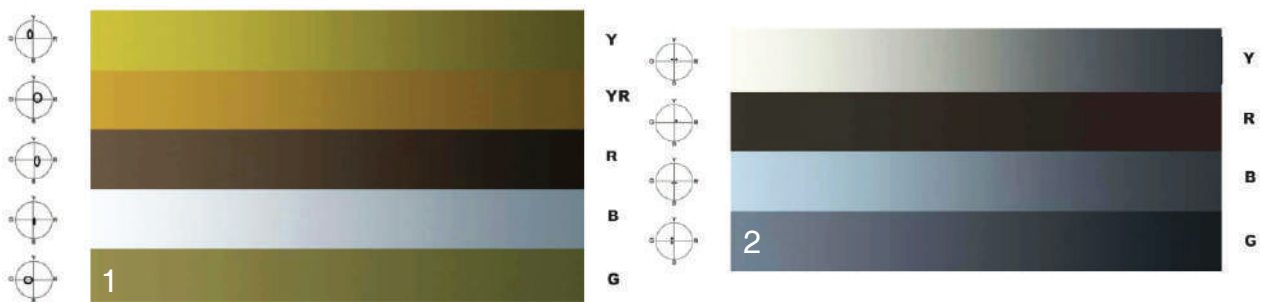


Figure 63: Coastal Trail summer color swatches (1) and winter color swatches (2) (J. Synnes, 2004, p. 10-11)

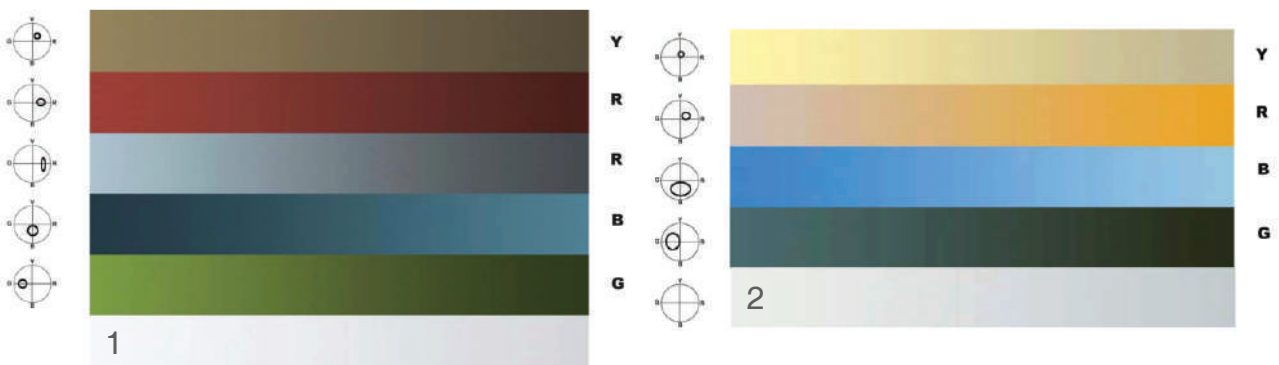
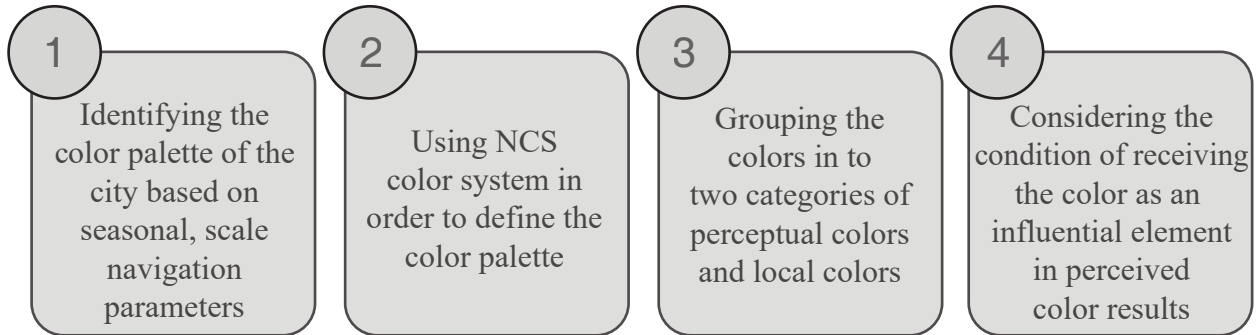


Figure 64: Downtown summer color swatches (1) and winter color swatches(2) (J. Synnes, 2004, p.12-13)

3) Third phase; Analyzing surveys: Analyzing the studies based on seasonal, scale and navigation parameters. (J. Synnes, 2004, p.8-17)



The most essential factor which makes the Anchorage project especial is considering the lighting condition and also climatic changes of the seasons as effective elements which change the colorscape of the city. This factor cause to have different images in different times of the year. Therefore, the design of the colorscape should be in way that is suitable for each season. On the other hand, using the NCS color system for defing the colorscape of the area could be a great experienced sample for other cities.

2.1.3. Color palette of Longyearbyen - Norway

Longyearbyen is a privately owned mining town. The company’s board of directors commissioned Grete Smedal to create a color plan for the various buildings and installations. The project took into consideration the ever-changing light, the extreme climate, the coloring of the landscape, and the great influence the building environments have on the life and well-being of the inhabitants.

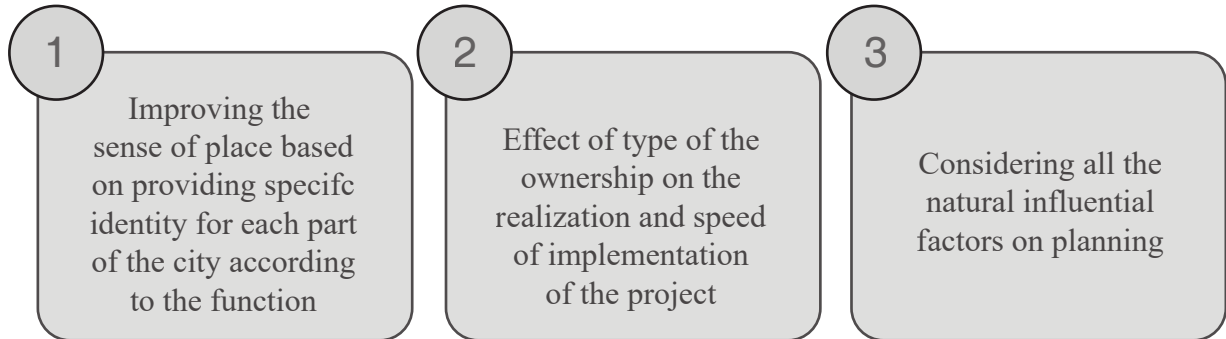
Project Implementation Process:

Grete Smedal in order to get the proper color palette for the city, first analyzed and investigated the natural colors and all the influential factors on the color planning of the city like: changing lighting angle, changing weather and color combination of natural environment and in order to find out the specified color palette she used the NCS in her analysis and application. Her approach was to give each part of town its own unique identity that reflects its function.



Figure 65: Longyearbyen (J. Synnes, 2004, p.7)

In some instances, building colors were chosen to contrast with the environment while others were blended into the environment. What distinguishes Smedal’s work in Longyearbyen is the advantage of a single owner and the latitude to change the color of all buildings. This enabled her to create a comprehensive color plan and implement it relatively quickly. When the first buildings were painted, many inhabitants were skeptical. The overall vision was quickly evident, however, so that the focus on individual buildings and their color was secondary to the total impact of the color plan on the town. (J. Synnes, 2004, p.7)



The important aspect which is considered in the project of the Longyearbyen is arranging the colorscape of the area based on the function of each building in a way that some colors are chosen in order to create contrast and some to blend into the environment. This characteristic of the area leads people to have clear image of the city in their mind according to the function of each space.

2.1.4. Color Palette of Burano - Italy

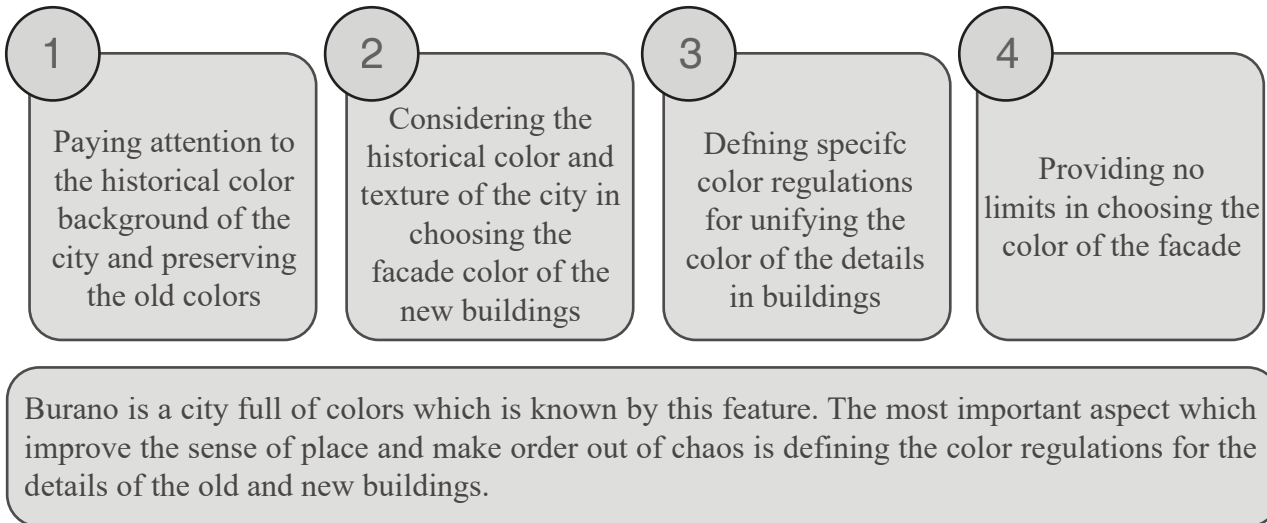
Burano is one of the touristic cities in Italy, located in Venice Lagoon. This city is tourist’s heaven; not only historic background, but also because of the special beauty and characteristic. There are colorful buildings which seems like an old painting.

Project Implementation Process:

On the island of Burano, the houses can be any color. In this regard, the efforts of city authorities have been first to identify and preserve the colors of the old houses. In the next step, the color palette of the new houses is chosen in way that the city image still looks historic. Therefore, in order to keep the harmony of the city, from the city authorities, specific regulations have been set up for the building details. Unity is preserved by the tradition of painting door and window surrounds white and window shutters green. (Cugley, 1987: p.8)



Figure 66: Burano (Cugley, 1987 p.8)



2.1.5. Learning from Global Experiences

Practical examples lead us to learn about the identity and color palette of the cities which have been managed by different plans according to their features. Generally, based on strength of each projects, it is possible to define some influential points for the success of the color management of the city:

- Considering different parameters for identifying the color palette of city: seasonal, scale and navigation parameters.
- Importance of natural landscape and environmental color in color palette and bautifying of the city.
- Importance of historical and social texture in formation of native color palette.
- Importance of preserving the historical, traditional and native colors of the city in order to preserve the identity and sense of place
- Importance of the harmony between function and color palette
- Possibility of participating of the people in urban projects and city planning
- Flexibility and considering the opinion of people and different professions in designing the color palette of the city.

2.2. Piano Del Colore (The Color Plan)

Italy is one of the successful countries in preserving the native colors of the historical centers by using The Color Plan. The Color Plan of the buildings is an urban instrument that can be adopted by a local administration in Italy with the aim of improving, safeguarding or protecting the dominant features of a country or a city as regards the chromatic tones. The purpose of The Color Plan of buildings is to ensure a certain visual continuity, a certain homogeneity and a certain coherence to the appearance of a city, so that the decision of an individual cannot compromise, damage or ruin its image. (Zunno, 2006: P. 4) Therefore, The Color Plan is a cultural, environmental and historical recovery of the city. (Bianchetti, 1993: p. 16)



Figure 70: Cultural, Environmental and Historical Recovery of The Color Plan (Self Elaboration)

Color Plan is a way to achieve a better quality of our built environment, both through the structural recovery of buildings, and through the enhancement of its architectural and cultural features. The Color Plan will allow to realize a chromatic of the city, through the rereading of the urban fabric as it has been forming and modifying over time, both with respect to its construction techniques and to the materials and typical colors used in the local tradition. Color Plan collects a systematic and functional subject, to deliver a knowledge not only to the insiders, but also all the citizens which as a cultural contribution have a considerable value. (Bianchetti, 1993: p. 11)

Preserving architecture means going beyond the single punctual intervention and reaching the conservation of the space that surrounds it. The building is not unique but presupposes a coexistence with the space in which it was built, or that has grown around it, a relationship that cannot be separated from the context. (Zunno, 2006: P. 5)

2.2.1. Why a Color Plan?

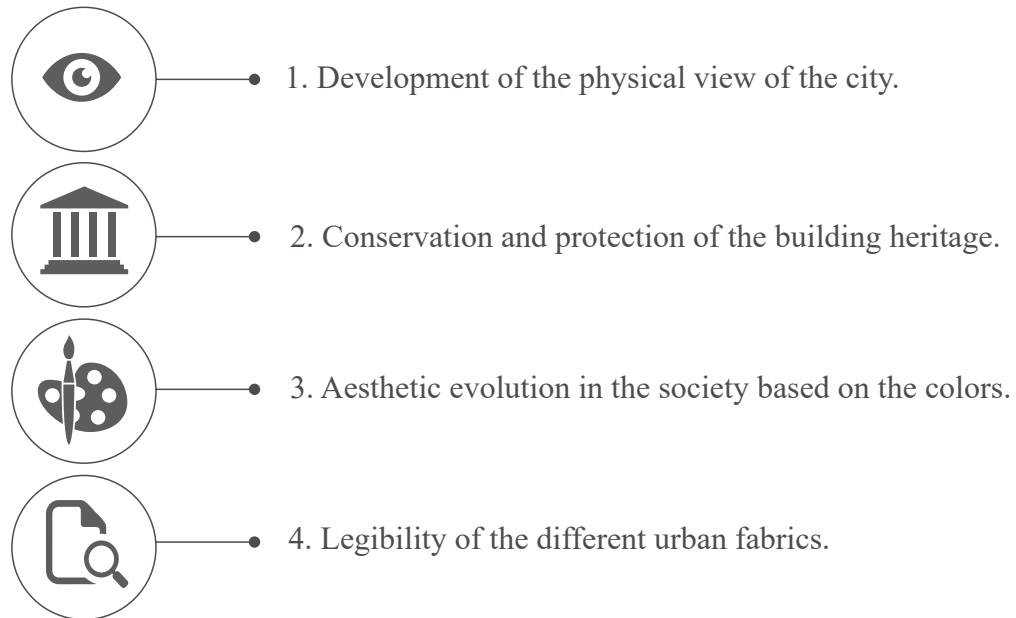
The problem that the architectural culture is facing today is no longer the expansive phase of the building but the management of the existing building heritage; its redevelopment in terms of recovery and rehabilitation. The historical environment of Italian cities has acquired ever greater importance in everyday life as well as in urban culture. Next to the structural recovery of the buildings, the city's chromatic project as a tool for understanding and enhancing the architectural and typological characteristics of houses.

Today, the randomness in the use of color has caused serious degradation phenomenon of environment quality. To the original colors have gradually added a number of heterogeneous chemical colors. The danger is represented by the series of wild interventions of color that are now visible everywhere. Here is the usefulness of color plan. The recovery that aims at a process of enhancement of the building heritage. (Bianchetti, 1993: p. 13)

The maintenance of the facades of our buildings, if started in complete indifference, are able to irreparably compromise the delicate aesthetic balance of the city. (Bianchetti, 1993: p. 16)

2.2.2. The Aims of the Color Plan

The Color Plan is therefore a project aimed at the redevelopment of the image of the city that regulates the correct performance of the operations of coloring, cleaning and restoration of the facades, or parts of them, and of urban furnishings in the municipal area. The Color Plan's main objectives are: (Assessorato allo Sviluppo Urbano, 2015: p. 2)



2.2.3. The Color Plan Realization

The realization of a Color Plan goes through four phases:

1. Preliminary analysis: Analyzing the territory and retrieval of material
2. Surveys: Collecting all the information and data from general to particular
3. Project: Defining the color palette
4. Implementation (and verification): The result is a palette of colors with the definition of the rules of application (Zunno, 2006: P. 9)



Figure 68: The Color Plan phases (Self Elaboration)

The Color Plan is a particular urban instrument with cultural and technological aspects. On one hand, stick the city to the historical richness based on colors at a set of time, on the other hand, it makes it possible to use the data collected on site through graphic, photographic and chromatic surveys. (Brino, 2001: p. 12)

The Color Plan of a municipality because of different urban instrument that intervenes, is different from that of another municipality. Inside, in any case, are always contained the requirements and indications that must be followed in the construction, restoration, renovation or maintenance of the common parts or the external parts of a building. (Zunno, 2006: P. 4)

Although The Color Plan of each city is different, the methodology that have been used for creating the color plan of the Italian cities is more or less the same which is followed as:

1) In the first step the color palette of the area has been organized according the historical colors which is defined based on archival documents and on-site samples. Each of the color samples are identified by a code that specifies the composition and are provided by the Munsell system, NCS or similar.

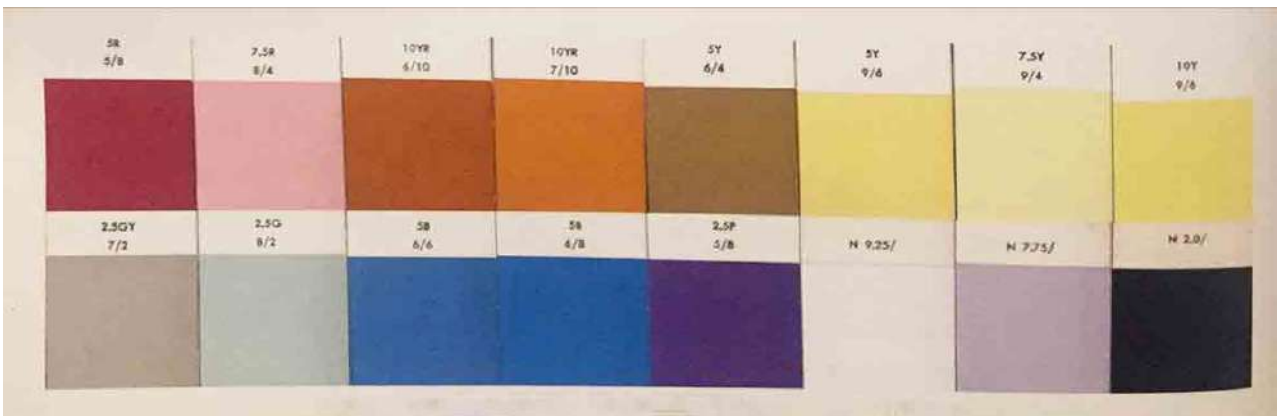


Figure 69: The color palette of an Italian city (Alessandria) based on archival documents (Brino, 2001: p.16)

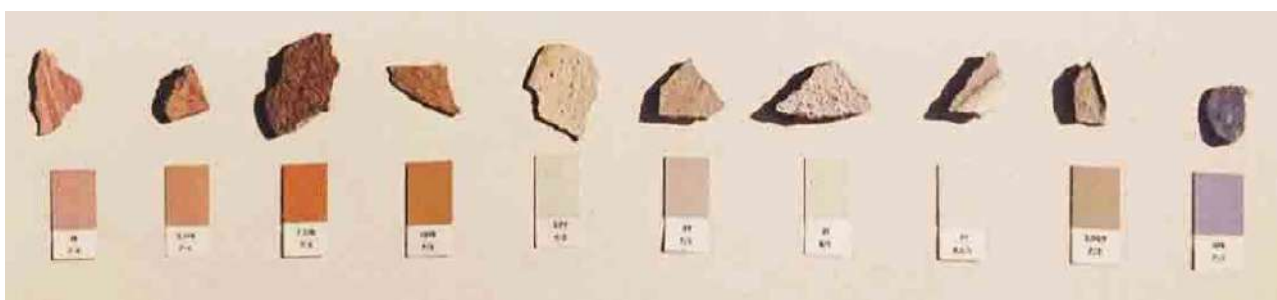


Figure 70: The color palette of an Italian city (Alessandria) based on on-site samples (Brino, 2001: p.16)

2) The color map of each city as a visual presentation has been drawn as a summary of the colors of the façades represented by the streets and squares, in the form of parallel strips on the street. Perhaps the most useful aspect of these maps is its overview of the relationship between color and whole area. It is possible to see how various color themes are followed along streets and through whole districts.



Figure 71: The color map of an Italian city (Saluzzo) (Brino, 1985: p.22-23)

3) The next step is to prepare façade drawings, showing the color scheme of each façade. The chromatic finds of the facades have been archived from every streets and squares. These drawings enabled the architects to make a systematic analysis of the different chromatic typologies.

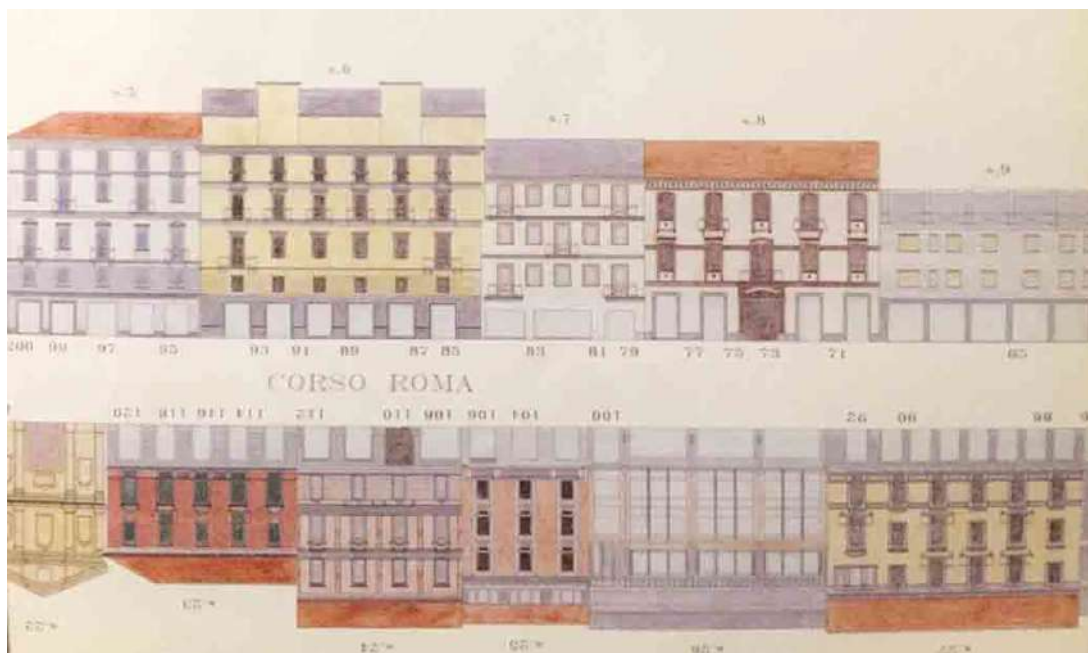
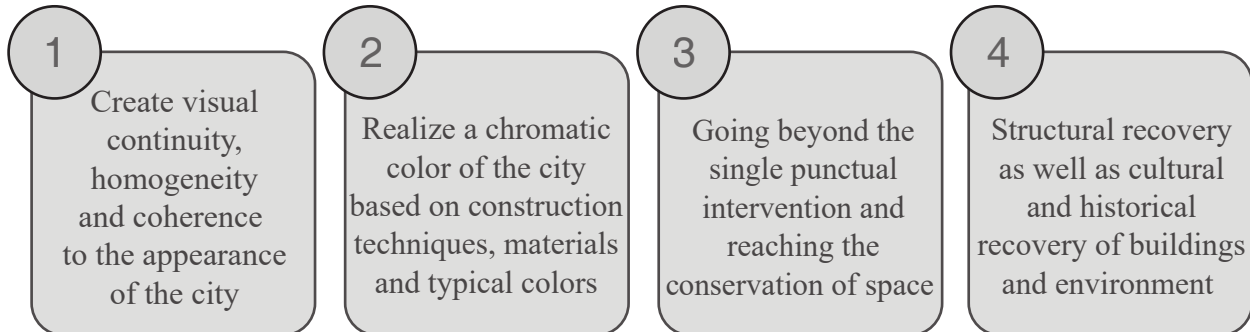


Figure 72: Coloring scheme of the facade (Brino,2001: p.20)

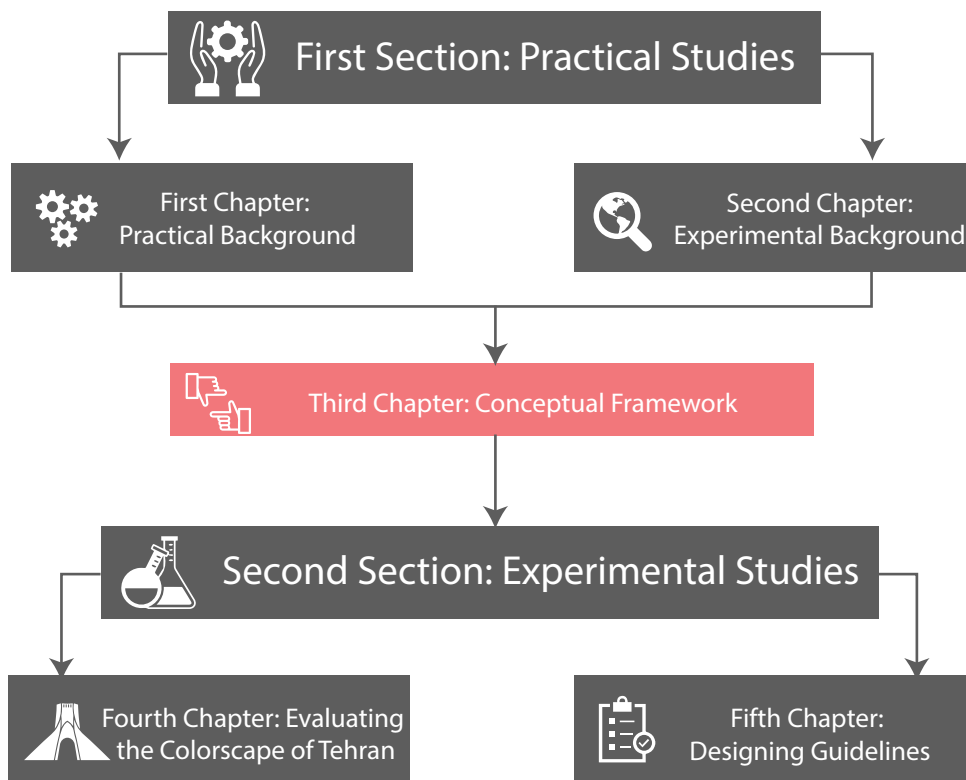


Italian cities are the centers of culture and history. Therefore, it is important to preserve the historical centers and the colorscape of these areas in order to on one hand, keep them beautiful and on the other hand, keep the identity of the cities which is based on the history. This feature will help us to increase the legibility of the area.

2.2.4. Concluding from The Color Plan

It is always difficult in a complex work such as Color Plan to draw conclusions because each city has their own characteristics and considering color as an important factor of city is quite new issue. But on the basis of experiences at least it is possible to conclude following statements:

- The Color Plan has an important role in preserving and improving the identity of historical centers by using the native colors.
- The Color Plan have to be considered as an element which enhance the environmental features not only in aesthetical aspects but also cultural and historical aspects.
- The Color Plan must be conceived as an open instrument; Archival research and on-Site survey can never be considered finished and indeed must be continued by exploring new sources.
- The experiences acquired through the preparation and practical implementation of the plan serve to construct a color plan that must work well from a practical point of view; able to convince users to collaborate actively with the bodies, feel responsible for city's color control and not to passively pass it as an abstract urban instrument.



3. Conceptual Framework

As the current project is based on the answering the main question of: “If the color and color management is effective to increase the sense of place”, in the first chapter, constructive concepts based on color, sense of place and landscape have been analyzed. Therefore, to complete the previous topics and define the relation between these topics, in this chapter some concepts and goals have been presented in order to create a framework by inspiring from the global experiences. This framework will help us to define some policies and guidelines in the following chapters.

3.1. Relation of Color and Sense of Place

In order to measure the concept of sense of place in urban spaces, four components have been introduced: physical component, perceptual component, social component and functional component. The subcategories of these components can interact with each other and influence each other.

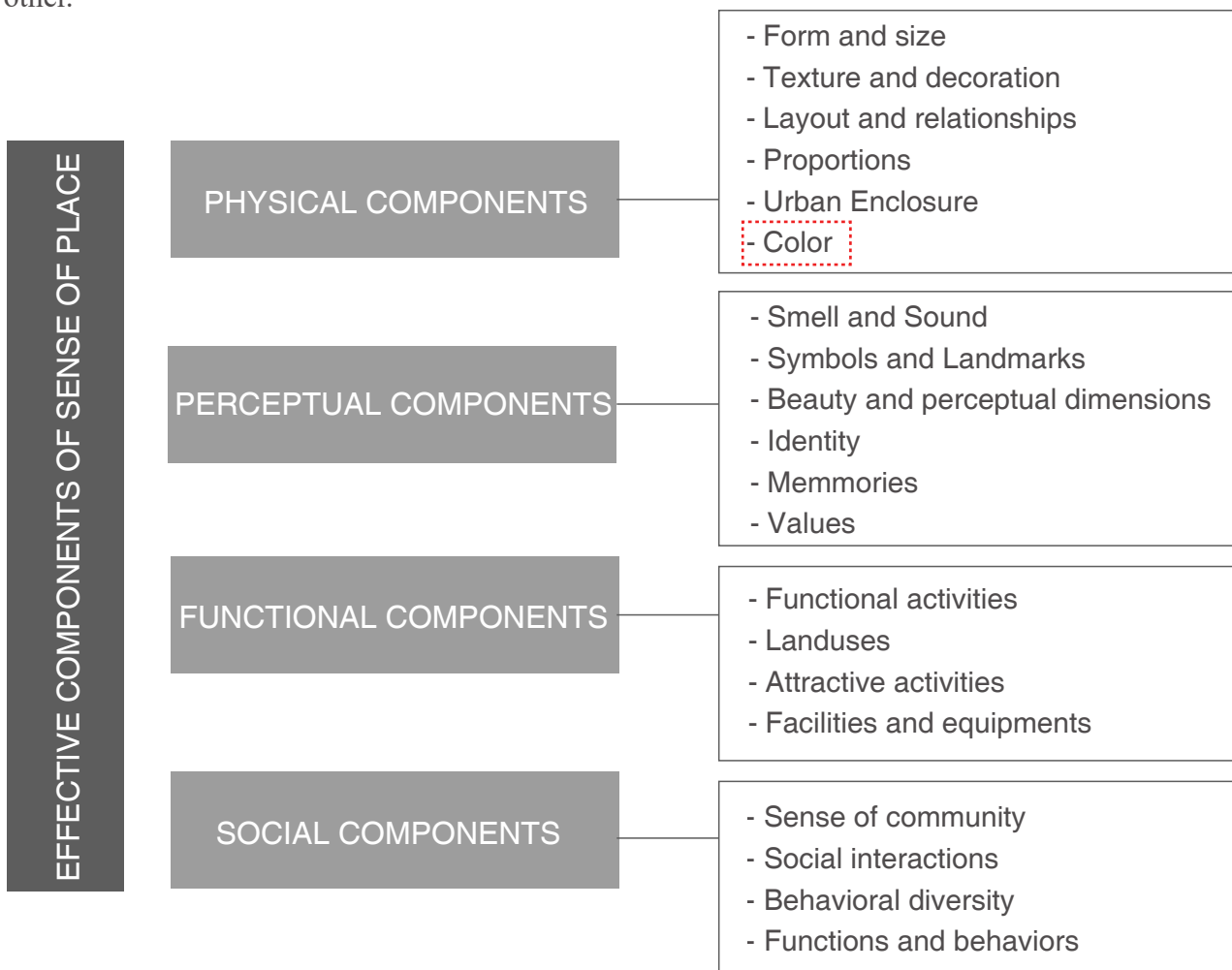


Chart 5: Effctive components of sense of place (Self Elaboration)

Color can affect all other components in different ways:

- Color and physical components: Color as a physical component has an important role in the beautification of the cities.
- Color and perceptual components: Colors as basic elements of beautification, give an identity to the area and they can make the space memorable.
- Color and Functional components: Color, functions and landuses are integrated to each other.
- Color and social components: Colors have an impact on people's behavior and social interactions.

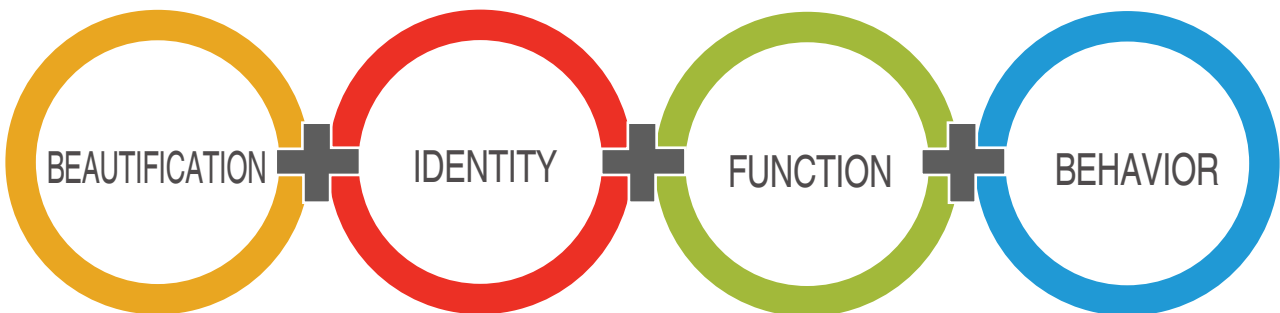


Figure 73: Color parameters for creating sense of place (Self Elaboration)

3.1.1. Color and Beautification

The satisfaction of citizens and visitors strongly influenced by image of the city. So, the city must be beautiful to bring citizens joy and happiness. Mankind likes beautiful spaces and these spaces become memorable for them. Colors as one of the main physical elements of the cities, have an important role in beautifying the spaces. Color gives perfection to form and gives it life.

All the urban elements, temporary or permanent, in addition to particular function which they have in the city, their specific coloring is the part of urban landscape of the city. But the crucial point is how to arrange these elements to create a beautiful scene. Beautifulness is created when there is a harmony between the elements. So, the elements have to be beautiful as a whole and not part by part. Harmony and beauty is valuable when they create pleasure for the citizens and become memorable for them. No one would forget the spaces which are beautiful and they felt happy for being there.

Natural elements are the important factor of the city to improve the quality of the spaces and create beautiful areas. It is crucial to preserve them in order to create pleasant areas in the city.

3.1.2. Color and Identity

Colors can give an identity to the area and make them memorable for the people. Based on what is discussed in the first chapter [1.2.5. Color, Identity and Culture] with the component of color each culture can get a meaning which is reflected in the identity and history of each city. Therefore, native colors of each city are based on tradition, culture and history of the society. It is important to preserve and expand the native color of the cities to create a unique vision of the cities in citizen's and visitor's mind.

The identity of a city depends on the identity of its citizens, and vice versa. So, the identity of the color is not just seen in the urban furniture, but also in the way which the citizens are clothing.

3.1.3. Color and Function

Color also is effected by the functions and landuses of each spaces. In the other word, each spaces should have appropriate color and form to be meaningful.

Dependency of color palette and as result the urban landscape, on the functions and the general vision of the city, increase the legibility of the city and by indicating the character and identity of the city, make it easier to communicate, know and percept the area. Therefore, increasing the sense of belonging which depends on the function is crucial. For example, in the zones that offices are located using cold colors in order to prevent the interruption of employee’s attention and creating calm atmosphere is recommended . On the other hand, in the places which recreational activities are located it is important to use vivid and attractive colors.

3.1.4. Color and Behavior

Base on the first chapter [1.1.11. Psychological Aspect] colors can change people’s behavior and social interactions. It can change the path and speed of moving in the area especially when there are more alternatives to move. For example, it is possible to define roads, pedestrian paths and cycle paths by coloring the surface of the roads in order to prevent the interruption by each other.

Colors also influence the places that people make pauses. For example, attractive and colorful windows of the shops can stop the costumers or the parks with colorful plants can attract the people to relax in these spaces.

On the other hand, they can change people’s emotions which can affect the way of interacting with other people. Even daily conversations can be effected with colors by the space users. It can make them think about warm feelings and vice versa cold, depression and impatient feeling.

Lighting as an important factor of influencing the color, make people feel safe in the area. This factor can change people’s behavior. It can create relaxation or stress. No one likes to be in place which they don’t feel safe.

So, it is possible to conclude that colors give a meaning to the city and effect the way of experiencing the area by current and future inhabitants and visitors.

Colors make the city beautiful, give an identity to the area, define the function of each spaces and effect the people’s behavior. These parameters are connected to each other and with the specific and distinct native color palette can increase the sense of place and belonging for the society in order to create sustainable spaces.

Therefore, beauty, identity and function of the area should be in a way that effect the people’s behavior in a positive way and make them happy from being in this area.

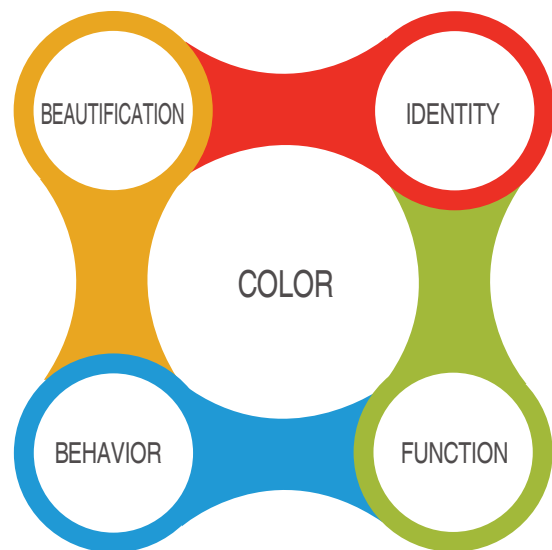


Figure 74: The relation of color parameters (Self Elaboration)

3.2. Colorscape Planning and Management General Goals

Based on previous parts mentioned parameters, the following general goals have been suggested in order to increase the sense of place:

- 1) Sustainable development to increase sense of place and identity
 - Developing specific characteristic and identity based on native roots of the city
 - Arranging the urban landscape with emphasis on the country's identity
 - Integrating the culture, nature and society in developing the urban landscape
- 2) Developing sustainable society in order to improve the quality of life
 - Improving the psychological health of the citizens
 - Stimulating the sense of place and participation
- 3) Sustainable development based on economic growth and proper functions
 - Increasing the economic growth based on the function and identity of the city
 - Improving the job opportunities based on the participation of citizens
 - Attracting some investors in order to improve the quality of urban landscape
 - Developing a tourism industry based on attractive landscapes

3.3. Colorscape Planning and Management General Principles

The following principles have to be considered based on concepts and goals which mentioned before in order to increase the sense of place for the citizens:

3.3.1. Natural Aesthetics Principles

All of the colors in the city should be based on the dominant natural colors. Natural colors include non-asphalt roads, rocks, grasses, trees, rivers, mountains, beaches, sky and etc. These natural colors can be dynamic or static. Dynamic colors are like sunset and seasonal factors which effects the color of the space. Static colors are like rocks and plants which their color is stable.

These Natural colors indicates the differences between desert cities and forest ones. Therefore, it is important to preserve them as a background color of our cities because not only they beautify the city, but also they give an identity to the area and they become an elements which the cities are known by them. [1.2.4. Objective and Subjective Factors]

3.3.2. Historical Color of The City Principles

According to the natural and social status, each city in the growing process, use specific colors related to the native materials or the culture of the society. These cities are known by these color palettes and these historical colors become an identity of them. Preserving these cultural and historical colors is a crucial point for the livability of the cities. [1.2.5. Color, Identity and Culture]

3.3.3. City Function Principles

Color palette of the urban landscape have to follow the function and the vision of the city; in a way that the colors used for a historical city with the vision of tourism have to be different form the color palette of a commercial, administrative and cultural cities. The reason is each city has some goals and visions and the urban landscape indicates the image which the city is following based on its own goals.

3.3.4. Harmonic Color Composition Principles

The aim of harmony in the city is creating unity in the image of the city increase the legibility of the city. This color composition includes all the colorful factors of the city like natural, artificial, permanent, temporary, stable and changeable colors.

In a designing a harmonic space we have to consider that the colors are impressing by each other and environment and are effecting each other. [1.1.8. Color Harmony and Disharmony] Therefore, any colorful spot in the space have a crucial role in designing.

3.3.5. Sustainable Development Principles

Based on the first chapte [1.2.6. Sustainable Development] for preserving the natural environment, color landscape of the city should follow the sustainable development principles. For this reason, climate changes, geographical location, pollution, recycling and resumption and other factors should be considered as a crucial aspect of designing the color landscape of the city. Used materials are the important elements for planning a sustainable development. Sustainable materials are those materials that provide environmental, social and economic benefits for the city. Sustainable construction is construction that is based on sustainable materials and satisfies the demands of sustainable development. Therefore, it is important to use sustainable materials for the constructing the colorful landscape of the city because it would be easier to recycle these kind of materials for restoration and beautification of the city.

3.3.6. Respecting Cultural and Religious Principles

Color do not mean the same thing in every culture and religion. Even it has different meaning in same culture and religious in different time period or even in same country and different states. Considering cultural and religious identity of the city in designing the color landscape of the city is an important aspect because it is a traditional character of the city and people get same information from the colored element. [1.1.13. Color and Symbolism]

3.3.7. People-oriented Principles

People-oriented means considering people as an important part of the city. Planners and designers have to consider that at the end people have to live in the city and the design of the space should be in a way that provide their needs and increase their sense of belonging to the space. In this sense,

public spaces are strategic areas to design in a way that people like to pass their time there. Colors are the important elements in designing the public spaces. [2.1.1. Color Palette of Oslo-Norway] On the other hand, it is important to give the citizens an opportunity to personalize their living environment in order to improve their sense of belonging.

In order to determine the executive position of the mentioned principles, they are divided into substantial and procedural principles:

	System	Principles of colorscape planning and management by emphasising on sense of place
SUBSTANTIAL ASPECTS	Landuse System	<ul style="list-style-type: none"> - Variety: Variety in landuses and functions is followed by presence of people and variety of colors. - Structure and Function: Any changes in ecological structure of lanscape can change the functions. - Flexibility: Reviving or changing the functions can preserve the livability and presence of people.
	Accessibility and Movement System	<ul style="list-style-type: none"> - Movement Perception: Pay attention to the amount of perception of details and colors when moving. - Global Standards: Pay attention to the standards of color concept in transportation.
	Physical Form System	<ul style="list-style-type: none"> - Protect and Strengthen the Natural and Native forms: Protecting the native urban texture which give an identity to the city landscape.
	Public Spaces System	<ul style="list-style-type: none"> - Consistency and Relationships: Designing the public spaces from coarse to fine in a harmonic way. - Integrated Structure: Spatial integration between existing public and green spaces in order to develop the urban colorscape and give an identity to the area.
	Urban Landscape System	<ul style="list-style-type: none"> - Readability and Identity: Emphasis on the elements which give an identity to the area. - Visual Discipline: Create a rich visual experience through creation of attractive and memorable spaces.
	Ecological System	<ul style="list-style-type: none"> - Protect and Strengthen the Natural and Ecological Features: Protecting the natural features which make the area specific and it is a part of native identity. - Persistence and Recycling: Using materials with high quality which it is possible to recycle.
PROCEDURAL ASPECTS	Partnership and Realization	<ul style="list-style-type: none"> - Aduating and informing the citizens about the coloscape of the city. - Using urban design specialists and landscape designers for the decisions about coloscape of the city. - Creating strong relationship between designers, city authorities and citizens - Using all the financial and legal instruments in order to improve the coloscape of the city and the sense of place. - Get a financial support from the ones who get the most benefits from developing the coloscape of the area.

Table 2: Principles of colorscape planning and management (Self Elaboration)

3.4. Role of Planners and Designers

Planning and design has always been about creating and maintaining the quality of the built environment and making it meaningful to its users. Today most of the people in the world are living in the cities; therefore, cities are the places which effect a lot of people and their lifestyle. For this reason, quality of the cities has a huge importance in people's life and their behavior.

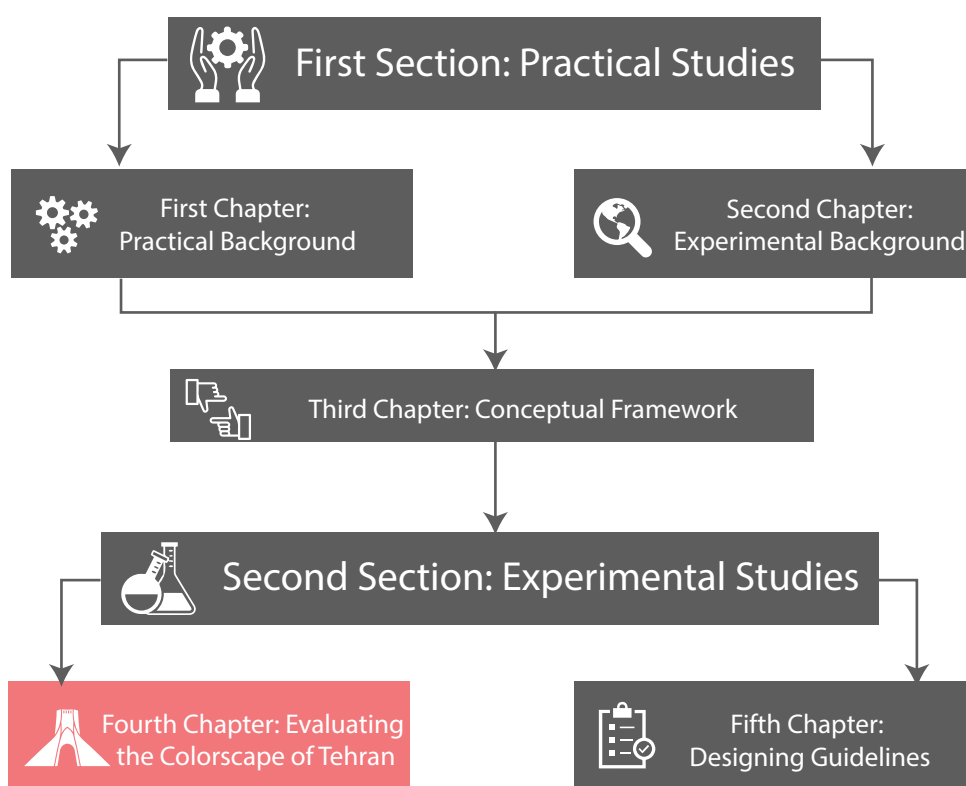
The issue of sense of place and giving an identity to the urban spaces, is an issue which is not considered enough by executive bodies and for this reason today the urban spaces are experiencing spaces without identity.

Color is the most important part of urban beauty and can be seen as an element for improving the sense of place. It is one of the important factors in quality of resident's life. Planners and designers have to use color consistently for beautifying the city and also giving a meaning to the areas. Colors can deepen the space and also create spaces. They can make the building perceptible and legible and also show the function of the building. For designing the color of the building, connection between the building with surrounding, should be considered. Colors can help the designers to create feelings of unity, identity, continuity and regularity. The colors can be used to indicate important buildings and city landmarks. Routs, squares and important streets can be legible with color codes. On the other hand, by using specific color palette, unified pattern for the whole city can be defined.

What it has to be regarded is using colors in the urban spaces is completely different from the use of color in drawing. Quality of color, from city to city, season to season and from morning to night is changing. Therefore, for each city it has to be considered specific regulation. The regulation for one city cannot be applied in others.

Each physical part of the city has a form and create harmony and unity in the city. Therefore, each component of the city can be designed. Although form and construction of traditional cities were gradually and without designing and planning, but they were growing based on specific patterns. In today's cities also the design should be unique in a way that creates permanent imagination in people's mind. But the reality is completely different.

The context of the today's cities is one of the reason for psychological problems and color has an important role in formation of this context. Designers have to know that each color has a meaning and using colors properly, creates meaningful places. On the contrary, improper use of color make the cities annoying and boring. Proper color palette, has to be considered not only for the single building, but also for the whole community, harmony is a crucial point. It has a strong and deep effect on the space. For this reason, designers have to pay attention to the colors used in the context of the city; not only as an aesthetic element but also as a psychological element.



4. Evaluating the Colorscape of Tehran

Based on the Conceptual framework which is presented in previous chapters, it is time to examine the previous information. Therefore, the city of Tehran has been chosen in order to study.

First of all, some brief information about Tehran and the role of squares in the cities of Iran have been described and after introducing the main squares which are the focus of this project, the process of achieving the color palette have been done in four phases:

- First Phase: Collecting the primary color palette based on photographing the area and identifying all the elements and factors which influence the color palette
- Second Phase: Pathology of colors in the urban landscape and defining the SWOT analysis
- Third Phase: Coding the defined colors by using the NCS color system [2. Experimental Background]
- Fourth Phase: Suggesting some policies in order to reach to the desirable color palette (Fifth Chapter)

4.1. Tehran and The Role of Squares

To many people, Tehran is a city which is lost in the smoke and in the first sight may not seem interesting to visit. Tehran reminds everyone traffic and crowd and perhaps most of the people never put it on the list of places they should visit. But this crowded and always awakened capital has many sights and places for its residents and guests to spend their sweet moments.

Tehran as a capital of Iran, always has been the symbol of modern city and also today is exposed to increasingly accelerated changes. The alienation of Tehran from its traditional character, has led this city to the sort of confusion and lack of readability. Although there are many modern elements in Tehran which lead the city to eliminate traditional elements, however traditional elements and their components still exist and continue their life in conflict and interaction with the modern ones. Passing through tradition to modernity, in Tehran, the components transformed to the current form. Urban squares as a joint and an important social connection element, has undergone a transformation following these changes. In traditional city of Tehran, they were located at the intersection of roads and in addition to their body and function they had meanings. These spaces were one of the most prominent areas of manifestation of urban identity and culture. They were the place of gathering and social interactions. However contemporary squares in Tehran, changed in to a type of traffic roundabout which is formed by crossing streets and usually has some greeneries, water fountains, etc. in the middle. These squares have lost their functional identity and significance as urban spaces. They only belong to vehicles and give a few attentions to pedestrian and their attendance in these spaces. The gradual domination of vehicles on the pedestrian movements reduce the vitality and social interactions which followed by reduction in sense of place.

In Iran even today, squares are one the most effective urban spaces in citizen's mind; in a way that the residents recognize the different urban spaces based on the squares. Squares are the easiest way to give an address to a person which never have been in the space.

Square with a variety of semantic, functional and physical aspects can play an important role in improving the quality of the spaces of today's cities. Considering the factors affecting people's attachment to urban squares can play an important role in the identity and desirability of them.

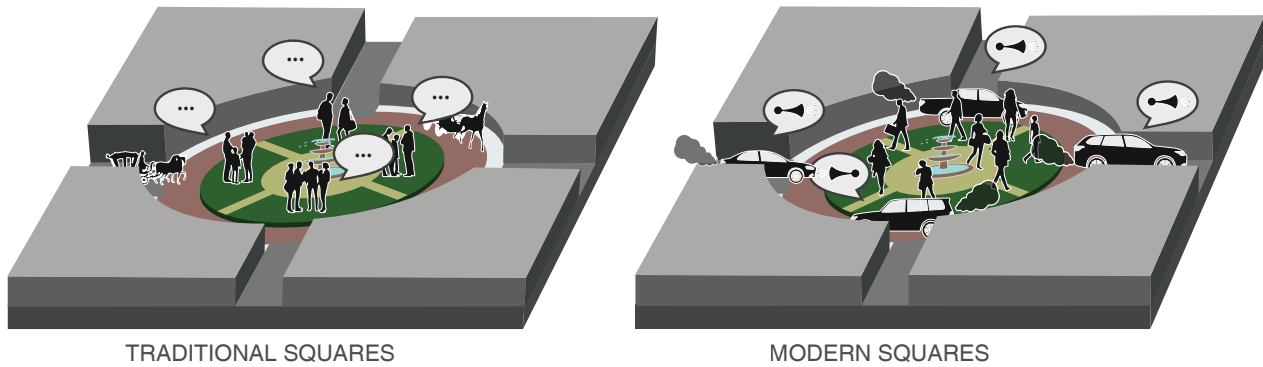



Figure 75: Role of squares in traditional and modern cities (Self Elaboration)


Mostly, activities and functions which are located around the squares, give an opportunity to people for gathering and pausing in the space. This factor makes the people to stay more in the area which lead them to communicate better with surrounding area. Therefore, squares have an important role in the sense of the place. For this reason two squares have been chosen as case studies with two different characteristics. In these squares some historical elements are located which today they lost their importance for different reasons. Therefore, these historical elements can be used in order to improve the sense of place in these spaces. [2.2. Piano Del Colore (The Color Plan)]


In following parts, the color palette of these squares have been studied in order to investigate the physical and psychological problems of the city about issue of color.

4.1.1. Hassan Abad Square

The reason of choosing this square:

- 

1. Historical records of the square as part of Tehran's urban identity.
- 

2. Valuable architecture as a part of historical color palette of old Tehran.
- 

3. Being as a limited number of squares which is restored.

4.1.1.1. History

Hassan Abad Square is one the of designed urban spaces in old Tehran. It is located in the intersection of two main streets of Hafez and Sepah in between district 11 and 12 in city of Tehran.

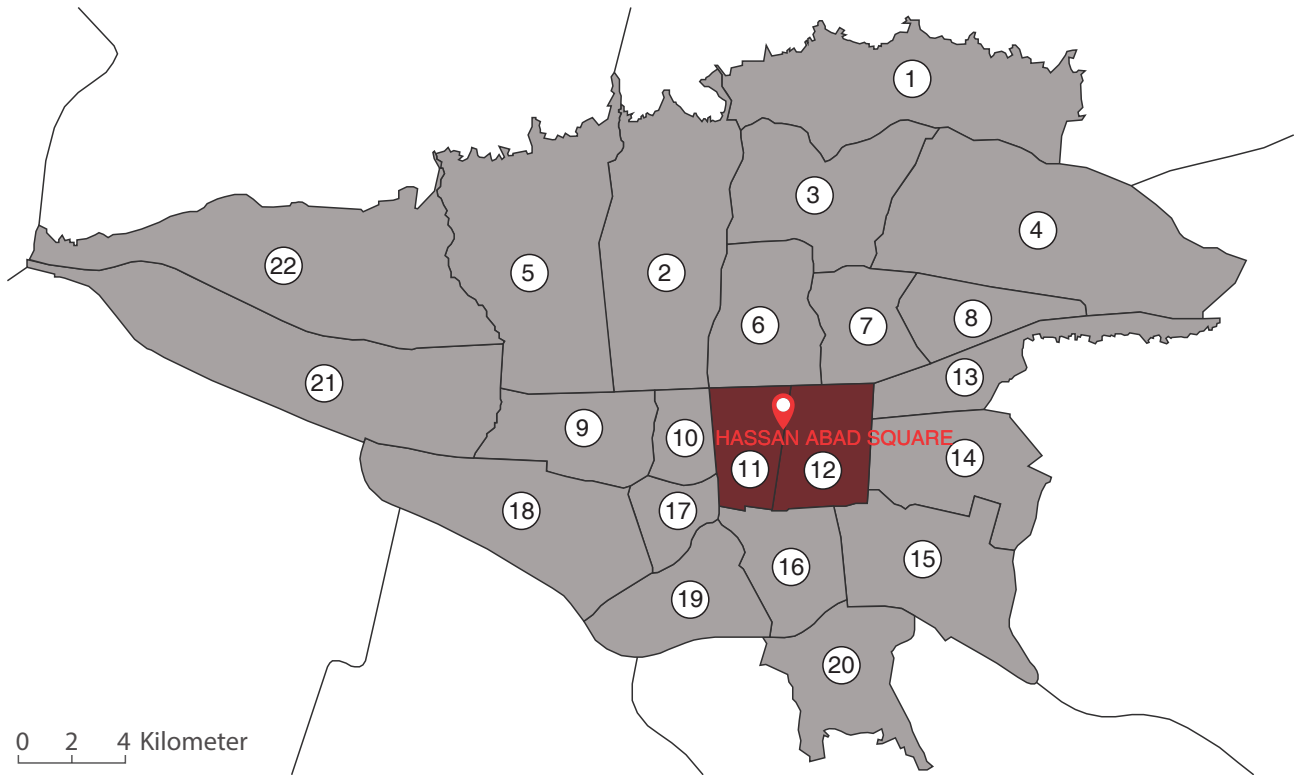


Figure 76: Hassan Abad Square’s Location in Tehran (Self Elaboration)

Hassan Abad Square’s design is unique but it is a copy from the concepts of Palladio, the famous Italian architecture of Renaissance. It has no original form of Persian architecture. Structurally, Hassan Abad Square was built in the 1930s on an intersection along one of the passageways of the main structure of Tehran. Hassan Abad Square is one of the five famous Squares in the central part of old Tehran. (Tavassoli, 2016: p.189)

Its four corners were originally occupied by identical buildings, but in 1963 the southeast segment was demolished to make way for a bank.



Figure 77: Internation bank of Hassan Abad Square in 1950’s (www.karnaval.ir)

(Mehan, 2016: p.491) In 1990s the Municipality of Tehran decided to change the feature of the modern building and harmonize it with other buildings. In 1995, a design was accepted and carried out. The basis of it was to repeat the old forms in front of the modern building and change the remaining upper part to glass architecture. (Tavassoli, 2016: p.189) Despite of all these changes today, one of the most important features of this square is its symmetry and this square is famous for having this feature.



Figure 78: Internation Bank of Hassan Abad Square Today (Self Elaboration)

On the other hand, there were some elements in the middle of the square which it is possible to see in the old photos of the area and have been eliminated with no sign from the past. In 1950’s there was a statue in the middle of the square, 1960’s there was just greenery and 1970’s combination of greenery and water; which today there is not any sign from these elements.



Figure 79: Hassan Abad Square in1950’s (www.karnaval.ir)



Figure 80: Hassan Abad Square in1960’s (www.karnaval.ir)



Figure 81: Hassan Abad Square in1970’s (www.karnaval.ir)



Figure 82: Hassan Abad Square Today (Self Elaboration)

Few years ago by designing an underpass large number of car flows have been controlled and also pedestrian paths with suitable and different pavement have been created.



Figure 83: Hassan Abad Square underpass (Self Elaboration)



Figure 84: Hassan Abad Square pavement (Self Elaboration)

The presence of the metro station inside the square is one of the positive features of this area. This feature gives an opportunity to the citizens to access to the area easily. Today most of the functions of this square are commercial. Economically, this area is the most concentrated center of hardware store and knitting wool. (Tavassoli, 2016: p.189)



Figure 85: Hassan Abad Square metro station (Self Elaboration)



Figure 86: Hassan Abad Square as a concentration of hardware store and knitting wool (Self Elaboration)

Unfortunately, there are not many activities about preservation and restoration of historical texture in Iran. But restoring of Hassan Abad Square is one of the limited numbers of restoration of an urban space in Iran. In the restoration of this square, authorities tried to pay attention to the presence of pedestrian movements as well as vehicular movements.

4.1.1.2. Color Investigating

Hassan Abad Square is one of the historical squares in Tehran and as it has been restored just few years ago, in general, fundamental essentials of color harmony have been considered and it seem that there is a good color status in this area.

4.1.1.2.1. Facade

Historical buildings and also exhibitve building which have constructed in 1990s have a great color harmony. Beauty and identity is in the core of these buildings. As it is possible to see in the table of NCS color system, there is a spectrum of warm colors of cream, dark and bright brick dust color and wooden color of the window frames and there is a great harmony between them. Although the building of the International Bank at the back of exhibitve building have destroyed the sky line of the square, but the material of building which is chnged in to a glass is the best choice to make the building invisible.



Figure 87: Color harmony of historical buildings of Hassan Abad Square (Self Elaboration)



Figure 88: Hassan Abad Square building facade (Self Elaboration)

NCS COLOR SYSTEM	THE COLOR
NCS S 0603-Y60R	
NCS S 2005-Y30R	
NCS S 2005-Y20R	
NCS S 4010-Y90R	

Table 3: Hassan Abad Square building facade color analysing (Self Elaboration)

Apart from the square which have been restored, the streets leading to the square have modern texture with no identity. These streets don't have any harmony with the historical character of the square. There is not any order between them while these buildings have to prepare the visitor's eye and mind for entering to a historical and valuable area. The transfer from modern to traditional texture should be softly. Some of these elements could be beautiful as a single elements but as whole they destroy the historical identity of the area.



Figure 89: Disproportion of the buildings of the leading streets to the square (Self Elaboration)

Although there is not possible to see the façade of the underpass from the square, it is possible to see the façade of the leading street to the underpass which is in a great harmony with the historical character of the area as form and color. The beautiful images which are created by tiles are in the shape of traditional Persian designs and their color don't effect the coloscape of the area in a negative way. The facade of this underpass give the people the sense of being in a historical place.



Figure 90: Facade of the underpass (Self Elaboration)

4.1.1.2.2. Pavement

The material of the pavements and the roads is cobblestone which have a great harmony with the historical buildings. The form and material of the pavement is in a way that extend the identity of the area.

Although the pedestrian pathway is in a good condition, most of people which are in this square have to do compulsory activities because people don't have any other reason to be in this square to spend their time there or enjoy the area.



Figure 91: Hassan Abad Square pavement (Self Elaboration)

NCS COLOR SYSTEM	THE COLOR
NCS S 1502-Y	
NCS S 0540-Y80R	

Table 4: Hassan Abad Square pavement color analysing (Self Elaboration)

4.1.1.2.3. Extensions

Apart from the extensions on the historical buildings of the square which is in harmony with the historical buildings, one of the few problems which Hassan Abad Square has is the extensions. Not only, as a quality are not as better as some parts of the city, but also as an appearance they don't have any harmony with the historical texture of this area because too much vivid colors have been used in the design of them. As a single elements some of them are beautiful but their existence in the historical area, disturb the character of the space.



Figure 92: Extensions in harmony with the surroundings (Self Elaboration)



Figure 93: Extensions in no harmony with the surroundings (Self Elaboration)

4.1.1.2.4. Urban Furniture

The Existing urban furniture of this area are telephone booth, trash cans, urban facility kiosks like phone and electricity and also some urban elements. The color of the most of these furniture are vivid colors which is not harmonic with the historical texture of the area. These elements have been designed in a way that they are the first thing that attract the viewer's attention. The design of them are the same as modern part of the city and it is essential to change them with the elements that have harmony with this area as a shape and color. In the other word, the color and the shape of the urban furniture in this area should be in a way that to be in in harmony with the historical atmosphere and also not too attractive for the viewer as a first thing. They don't have to be in competition with the historical buildings.

Some of the elements like urban facility kiosks are colored in gray which makes them invisible in the atmosphere of the area. These elements have to be in this way because they are not considered as an important elements to be seen.



Figure 94: Lack of Harmony between the telephone box and the surrounding (Self Elaboration)



Figure 95: Using neutral colors for the urban facility kiosks (Self Elaboration)



Figure 96: Disarranged trash cans according to the historical atmosphere of the area (Self Elaboration)

On the other hand, there are some statues which give a meaning to the space. There is a statue of a sitting old man which is in harmony with the historical atmosphere as a material and colors. Also, there is a statue in the northern part of the square, in front of a fire station and it is in harmony with an existence of the fire station and gives meaning to it.



Figure 97: The statue of the old man in front of the historical buildings (Self Elaboration)



Figure 98: The statue of the firefighters in front of the fire station (Self Elaboration)

4.1.1.2.5. Natural Environment

Although there is a city park close to the square, except few trees around sidewalks there are not any other natural elements which can soften the colorscape of the area. The park is covered by different kind of plants which even in the cold weather they don't lose their color. Therefore, it would be nice to continue these green spaces to the square in order create pleasant space in harmony with the historical atmosphere.

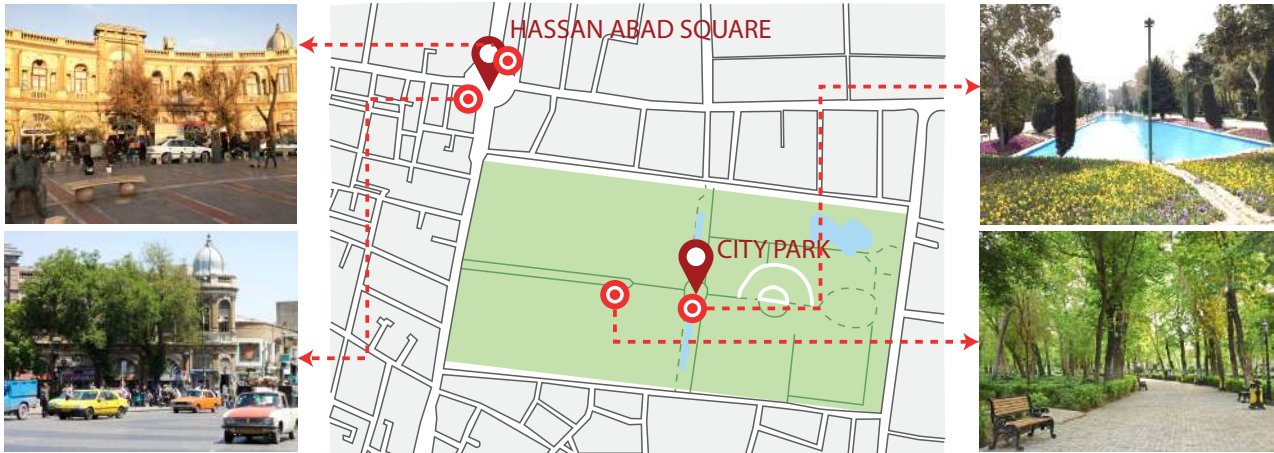


Figure 99: Existence of few trees in the square in compare to the potential location (Self Elaboration)

4.1.1.2.6. Activities

Around the square and under the domes, there are different shops. Residents do not know the history of the formation of them, but each side of the square has become the center of activities for different businesses. For example, the south-west side of the street is the place of wool and yarn. The colorful wools in the window of the shops attract the people who are interested in weaving.

On the other hand, in the south-east and north-west side of the square there are banks which because of neutral color are not that much effective on the colorscape of the area. In the north-east part there are different shops of hardware and ironware which from different part of the city attract people to buy required things.

Also there is a fire station in the northern part of the square which it is the first fire station of Tehran.



Figure 100: Activities located in Hassan Abad Square (Self Elaboration)

Also in the different parts of the area, there are different retail sellers which their existence and their colorful goods are effective in the colorscape of the area.



Figure 101: Retail sellers as a part of colorscape of Hassan Abad Square (Self Elaboration)

4.1.1.2.7. Lighting

Since this area attract the authority's attention in last years as a historical and valuable square, in order to stimulate the sense of place and to be memorable for the visitors, desirable place have been created also dark at night. The experience of being in this area is different at night. The combination of light and shadow with the historical buildings creates visually appealing visions. The ideal lighting is one of the most vital factors in the night activities of this space. This feature has an important role in attracting people. People have enough vision which makes them feel more safe for being in this space.



Figure 102: Hassan Abad Square at night (Self Elaboration)

4.1.1.3. SWOT Analysis

Based on the foresaid information about the history and coloscape of the area, it is possible to arrange a SWOT analysis for Hassan Abad Square in order to improve the quality of the colorscape and increase a harmony between the elements which are located in the area.

SWOT analysis will help us to follow strategic plan in order to reach to the area which the historical elements and the new ones exist aligned to each other and there is not any conflict between them.





The SWOT analysis of the Hassan Abad Square is arranged in following table:



Table 5: Hassan Abad Square SWOT analysis (Self Elaboration)

4.1.2. Tajrish Square

The reason of choosing this square:

- 
• 1. Existence of commercial centers.
- 
• 2. Importance of the area because of tomb of Imamzadeh Saleh and Bazaar.
- 
• 3. Existence of the rivers.
- 
• 4. Strategic view to the mountains.

4.1.2.1. History

Tajrish Square was an important place from old times to now. It is located in district 1 in city of Tehran. This square is one of the important historical centers in the district, which historically and functionally is valuable. This site has been always known as a place which held high standards of life including natural significance.

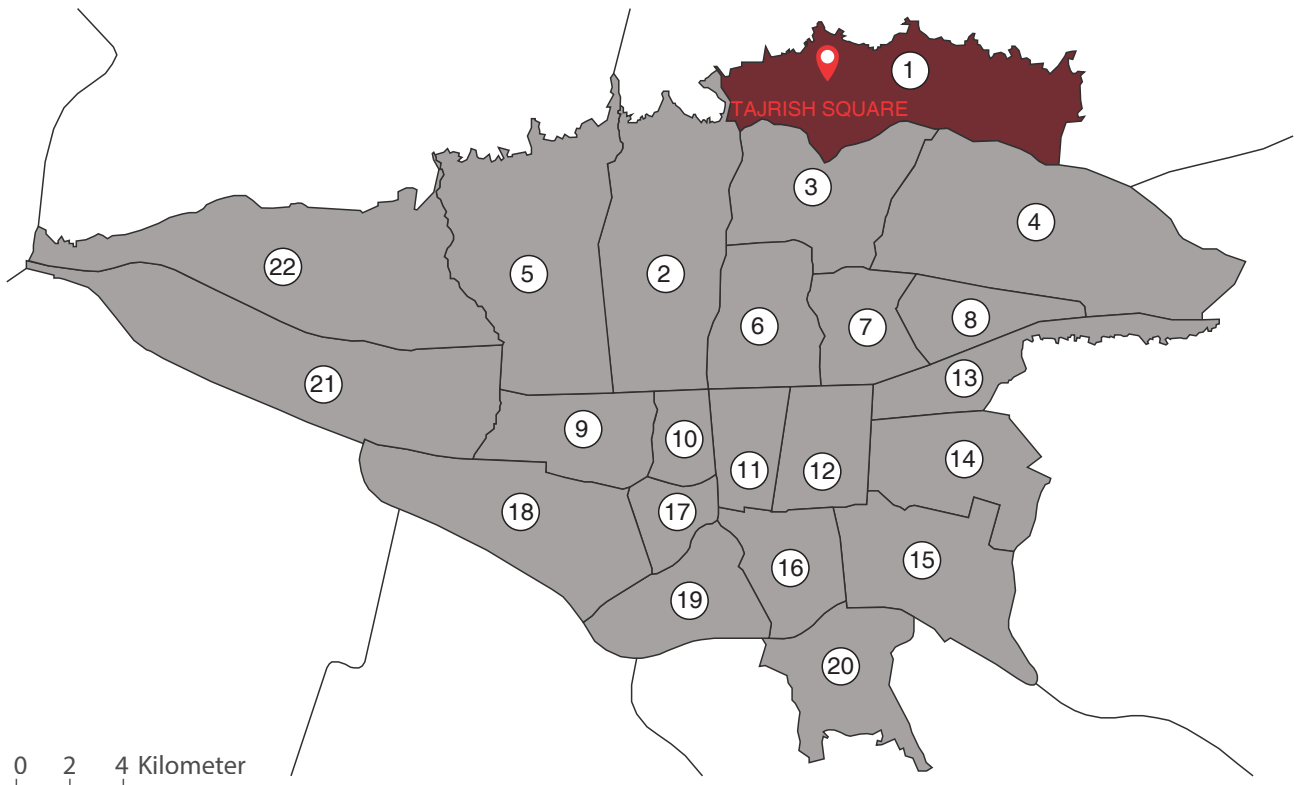


Figure 103: Tajrish Square’s Location in Tehran (Self Elaboration)

From past to today, this district experienced too many changes. There was too many gardens and green space in the area which changed into tall buildings and commercial centers. Recreational activities changed in to commercial activities and today this area is known by the commercial centers the most.



Figure 104: Tajrish Square in 1920’s (www.bartarinha.ir)



Figure 105: Tajrish Square in 1930’s (www.bartarinha.ir)



Figure 106: Tajrish Square Today (Self Elaboration)

Today Tajrish Square is an important trade affair center in the northern part of Tehran. It holds the important and old Tajrish traditional bazaar, which has been the core of the area from the past and probably one of the main factor of forming Tajrish district. Tajrish traditional bazaar in addition of different economical and service functions, play an important role in promotion of socio-cultural values. So, this element has a commercial, historical and religious role in the area. For this reason, it attracts too many citizens from different part of the city and in a way it is an identity of the area.



Figure 107: Tajrish Bazaar (Self Elaboration)

In Iranian ideology, specialized attention devoted to holy places. Tradition of existence of religious places and mosques close to the bazaar was always in the culture of Iran. The tomb of Imamzadeh Saleh is located in western extreme of old bazaar and it is one of the elements which gives an identity to the area. This religious space has visitors from whole city of Tehran and also adjacent cities to Tehran during the day especially on special religious occasions. For this reason, it is one of the spaces which people have collective memories.



Figure 108: Tomb of Imamzadeh Saleh and Great Mosque (Self Elaboration)

Traditional bazaar sits near three modern shopping centers known as the most stylish and modern shopping centers in Tehran which are called: Ghaem, Tandis and Arg shopping centers. In this zone the two different modern and traditional atmospheres stand aside with a notable coexistence. Ghaem shopping center and Tajrish traditional Bazaar are located together, in the same place which indicate the combination of tradition and modernity.



Figure 109: Ghaem shopping center (Self Elaboration)



Figure 110: Tandis shopping center (Self Elaboration)



Figure 111: Arg shopping center (Self Elaboration)

The existence of different kind of activities, make this area as one of the most crowded parts of the city. For this reason, it is impossible to go to this area by car in peak times of the day. Therefore, the construction of metro station in 2012, make it easier to reach to this area without the car.

4.1.2.2. Color Investigating

Tajrish is the area with contradiction of historical and modern elements. In general, it seems that there is a chaos in the colorscape of the area; the identity of the area is lost in this chaos.



Figure 112: Tajrish metro station (Self Elaboration)

4.1.2.2.1. Facade

The first point about the Façade is the contradiction of colors, materials, forms and height of the buildings. The form and the color of the historical buildings don't have any connection to each other. For this reason, this area is turned into space which are beautiful as a single elemnt. They have no harmony with each other. This feature disturbs the identity of the area.

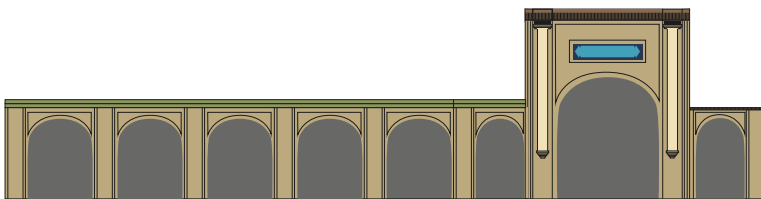


Figure 113: Facade of Tajrish Bazaar (Self Elaboration)

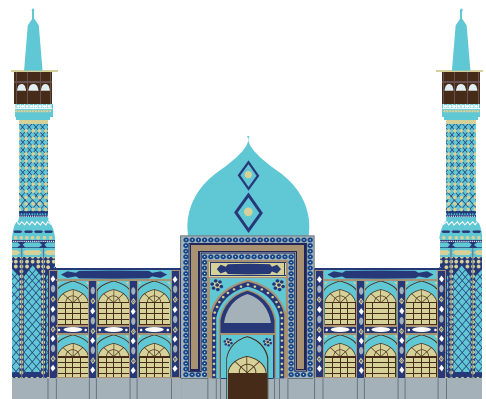


Figure 114: Facade of tomb of Imamzadeh Saleh (Self Elaboration)

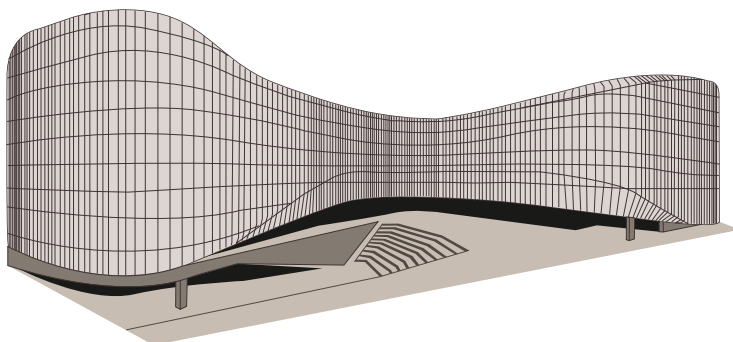


Figure 115: Facade of Arg shopping center (Self Elaboration)

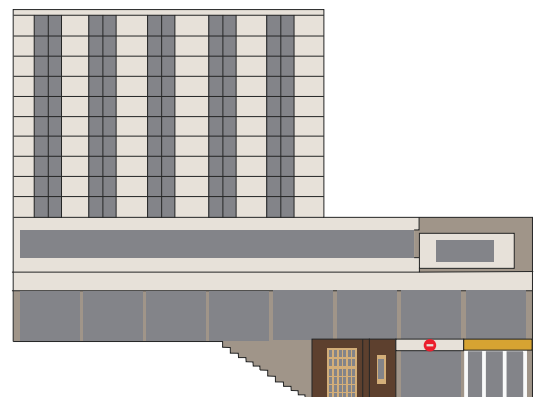


Figure 116: Facade of Tandis shopping center (Self Elaboration)

In the architecture of the old buildings of this square, red sloping roofs have been used. This kind of buildings which still some of them exist is one of the identity elements of the square. But the form of new buildings has no harmony with the old texture of the area and eliminate the sloping roofs from the square. The colors of this buildings of the area are gray spectrum which creates a depressing vision. On the other hand, the dust on the façade of the buildings and lack of the maintenance, exacerbate the sense of the depression of the area.

The new buildings like the shopping centers, are not in harmony with the historcial character of the area. Existence of this kind of buildings create a conflict between traditional and modern elements.



Figure 117: Sloping roofs of Tajrish Square buildings (Self Elaboration)

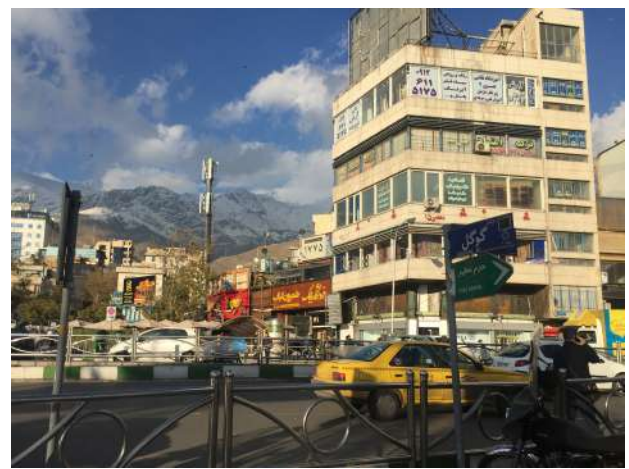


Figure 118: Depressing vision of dirty buildings (Self Elaboration)

However, it is possible to see some effective elements as an identity of the area. The azure color tiles of the minarets of Imamzadeh Saleh is adding color to the space. On the other hand, azure color has an important role in holy spaces in Islam. These minarets as a childhood memory for the people and as a religious value for the prayers, improve the poor sense of the place of the area.



Figure 119: Tomb of Imamzadeh Saleh building facade (Self Elaboration)



NCS COLOR SYSTEM	THE COLOR
NCS S 1050-R90B	
NCS S 4550-R70B	

Table 6: Tomb of Imamzadeh Saleh building facade color analysing (Self Elaboration)

On the other hand, the existence of Tajrish Bazaar and the façade made of bricks remind us the old architecture of Iran. This building has an important role in keeping the historical character of the area.



Figure 120: Tajrish Bazaar building facade (Self Elaboration)




NCS COLOR SYSTEM	THE COLOR
NCS S 1010-Y10R	
NCS S 3010-Y40R	
NCS S 4020-Y60R	

Table 7: Tajrish Bazaar building facade color analysing (Self Elaboration)

4.1.2.2.2. Pavement

The pavements of the pedestrian paths of the square is mostly tile and the street flooring is asphalt. The asphalt of the area is in a good condition but the pedestrian paths in some parts are not suitable for everyone to pass and also disrupt the general view of the area. The existence of attracting landuses such as commercial activities, traditional bazaar, services, administrative, educational and religious uses make this area to face vast presence of pedestrians. It is possible to say that this area is multi-functional and it is open to all social groups all day long. For this reason, Tajrish Square is one of the most crowded part of the city also due to the suitable transportation access. Thus improving and developing the pedestrian environments to facilitate the passage and attendance of pedestrians is crucial.



Figure 121: The asphalt of the Tajrish Square (Self Elaboration)

On the other hand, because of existence of the modern and traditional elements it is important to use the suitable color and materials according to the existing activity but also in harmony with eachother.

Currently, in the coloring of the pavements the neutral colors have been used which don't disturb the general colorscape of the area.



Figure 122: Tiles in a good condition around Tajrish Square (Self Elaboration)



Figure 123: Tiles in a good condition in a leading street to Tajrish Square (Self Elaboration)



Figure 124: Tiles in a bad condition in a leading street to Tajrish Square (Self Elaboration)

4.1.2.2.3. Extensions

Apart from religious activities in the square, this area is one of the centers of recreational and commercial activities. Therefore, because of increasing number of the shops which are in competition with each other for attracting the costumer’s attention, we are facing with visional confusion because of the billboards with vivid colors; as it is possible to see in the tables of NCS color system. In fact, the reason of this confusion is not only because of the color variation of the billboards with high saturation, but also its because of no general rules for the size, form, font of writing and location of these billboards. These billboards are large, vivid and eye catching in a way that make people forget the actual character and identity of the area.



Figure 125: Large billboard in Tajrish Square (Self Elaboration)





NCS COLOR SYSTEM	THE COLOR
NCS S 4050-R80B	
NCS S 0560-Y70R	
NCS S 1050-B10G	
NCS S 1060-R30B	

Table 8: Large billboard in Tajrish Square color analysing (Self Elaboration)



Figure 126: Billboards of the shops in Tajrish Square (Self Elaboration)





NCS COLOR SYSTEM	THE COLOR
NCS S 4050-R80B	
NCS S 0560-Y70R	
NCS S 1050-B10G	
NCS S 1060-R30B	

Table 9: Billboards of the shops in Tajrish Square color analysing (Self Elaboration)

4.1.2.2.4. Urban Furniture

Most of the urban furniture of the Tajrish Square are like other parts of the city and they are not specified for the area. On the other hand, in this square there is a color confusion because of the varied and vivid colors of the elements. Therefore, it is important to use neutral colors for the elements which are not important to be eye catching. For example, for the coloring of the fences a neutral color has been used which helps not to increase the confusion of the area.

It is also important to consider the role of the taxi and bus stations as effective elements on the colorscape of the area. Yellow and green taxis on one hand and red, blue and green buses on the other hand, can be seen in different times of the day which have been parked in the station or are moving as colorful spots.



Figure 127: Neutral color fences in Tajrish Square (Self Elaboration)



Figure 128: Taxi Station in northern part of Tajrish Square (Self Elaboration)



Figure 129: Bus Station in southern part of Tajrish Square (Self Elaboration)

4.1.2.2.5. Natural Environment

The other effective elements on the colorscape of the area are natural and ecological elements. Extensive view of the northern mountains has an important role in skyline of the area. This element as a native color of the area, attracts the visitor’s attention. Therefore, using colors in harmony with the background color of the natural environment and also preventing to block the visual corridors of this element not only increase the sense of place but also enrich the color palette of the area.

Tehran has always been in challenge with lack of sufficient water, therefore a place like Tajrish which had many rivers and underground water sources was very pleasant for Tehran citizens all the time.

Other ecological element of the area is the river which it was visible before from the square but it has been eliminated from the surface of the area.

Bring back the element of water to the area for reflecting light and color and also softening the space is effective. It can soften not only the vision of the area, but also the sound of water can soften the sound pollution made by the traffic.

Water can increase the sense of place and improve the colorscape of the area. It can create a pleasant spaces when it is combined with green spaces and colors.



Figure 130: Strategic view to the mountains from Tajrish Square (Self Elaboration)



Figure 131: Darband river passing through Tajrish Square (Self Elaboration)

Although in some parts of the northern and southern parts of the square the river is visible but it is not well-maintained and not in the good condition. Golab Darreh River and Darband Rivers are the opportunity for designing the surrounding for the recreational activities.

Especially, Darband River which is surrounded by green spaces, with a view of mountains is a good opportunity for the area to be designed. Already, some sport facilities with vivid color, are located along the river. This area could be a great space for the people for doing sport; because there are sound of the water and green spaces.

Tajrish square is in the beginning of the Valiasr Street with beautiful tall trees along the street which are effective in colorscape of the area. In different seasons these trees have different colors and they are one of the important elements in the sense of place of the area.



Figure 132: Darband and Golab Darreh River's Location (Self Elaboration)



Figure 133: Sport Facilities along Darband River (Self Elaboration)



Figure 134: Valiasr Street with tall trees (Self Elaboration)

4.1.2.2.6. Activities

The primary activity of the area is the Imamzadeh Saleh which mostly the women with black hijab from different part of the city are coming to this area are effective in the colorscape of the area.

In different occasions, different religious events are held in this area which are effective in increasing the sense of place. Also as it is mentioned before the azure color of the Imamzadeh Saleh building which can be seen from different parts of the square, creates beautiful scene in the area.



Figure 135: Prayers in Tomb of Imamzadeh Saleh (Self Elaboration)

The other effective activity of the area is the bazaar. Different kind of goods and their way of arranging them in the bazaar especially fruits and vegetables creates colorful sight for the people which are passing through it.

In Tajrish bazaar many shops are located and the interesting thing is that the name of the shop is carved with tile over it. These tiles have given a special beauty to the market and it is in harmony with historical character of the area.

In the bazaar, you will find a variety of handicrafts such as cashmere and Yazd copper dishes and Lalejin pottery, as well as nuts, sweets, saffron, spices, pickles, fruits and vegetables.



Figure136: Tiles of the name of the shops in Tajrish Bazaar (Self Elaboration)

Every day, a large number of people and native and foreign tourists visit this market.

Food, home appliances and all the products needed by the residents of Tajrish are found inside this market. This marketplace is always crowded and despite being old, is competing with shopping centers around Tajrish Square.



Figure 137: Fruits and vegetables in Tajrish Bazaar (Self Elaboration)



Figure 138: Cashmere handcrafts in Tajrish Bazaar (Self Elaboration)



Figure 139: Copper dishes in Tajrish Bazaar (Self Elaboration)

On the other hand, the existence of the shopping centers is the other reason to be in this area. This shopping centers are known by presence of famous brands. This is the criterion which turns them to one of the special ones in the city.

Also there are varied restaurants and coffee shops in the area which different people go there to spend their time.

These activities are the main reason of the crowd in this area. There are different people which come to this area for different reasons, by car or on foot. Therefore, it is important to improve the quality of the area especially for the pedestrians because they are mostly the people which are coming for selective activities and they spend more time in the area.

4.1.2.2.7. Lighting

When the sun sets and the sky gets darker, most of the shops in the city bring down the shutters and close early but the life in Tajrish Square continues and most of the shops and restaurants are open until late at night. Existence of colorful lights of shops and restaurants are very effective for attracting people.

The Facade of Arg Shopping Center which during the day is just simplifying and creating a smooth and neutral surface to counteract the chaos of the neighborhood, is made of glass and reflects old trees of the surrounding and highlighting the mountains located in the north; but during the night, when the sky is dark, colorful images have been represented by indirect lighting. This atmosphere is created to have joyful space by the controlled lights which are played as an images which are designed before. These dancing colorful lights are also smooth to have harmony with the façade. It is possible to see these colorful lights by standing in any parts of the square.

On the other hand, it is possible to see the green lights of the Imamzadeh Saleh during the night. As it is mentioned before green is an important color in Islam and it is possible to see this color in most of the holy places. This green light creates a beautiful scene which give an identity to the area and indicates the important function of the Tomb.

In general, it is possible to say that the lighting of the square like most of the other parts of the city, has no planning. We are facing with disordered lighting mostly for commercial competitions for attracting customer's attention which disturb the identity of the area.

4.1.2.3. SWOT Analysis

Based on the foresaid information there is a conflict between traditional and modern elements in Tajrish Square. Creating harmony between modern and traditional atmosphere of the square is the most important aspect which colors can help us.

As it mentioned before the main activities of the square are changing, Therefore, it is important to use the color in a way that previous and current activities of the square exist align to eachother. Creating a great color harmony between these elements is crucial.

Foresaid information about the history and colorscape of Tajrish Square, lead us to arrange a SWOT analysis. Following the strategic plan of the SWOT analysis will help us to reduce the conflicts between the existing elements of the square; The conflicts between modern and traditional and between current and previous activities. If the current conflicts are resolved, it is possible to create an area with unique identity.

It is intended to specify the objectives that identified by the internal and external factors which are favorable and unfavorable to achieve those objectives.

SWOT analysis give us a framework for arranging a policies for the colorscape of the area and similar areas in order to creat harmony between the elements.

The SWOT analysis of the Tajrish Square is arranged in following table:



Figure 140: Arg Shopping Center during the night (Self Elaboration)



Figure 141: Tomb of Imamzadeh Saleh during the night (Self Elaboration)

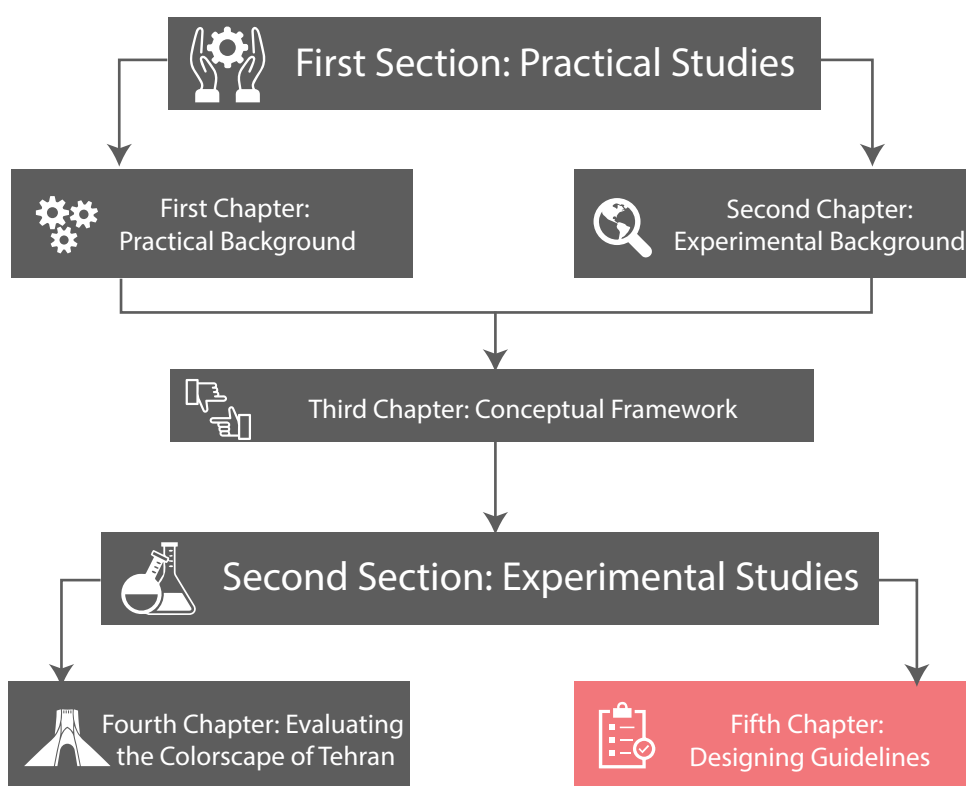
<div style="text-align: center; font-size: 2em; font-weight: bold;">S</div> <div style="text-align: center; font-weight: bold;">STRENGTHS</div>	<div style="text-align: center; font-size: 2em; font-weight: bold;">W</div> <div style="text-align: center; font-weight: bold;">WEAKNESSES</div>	<div style="text-align: center; font-size: 2em; font-weight: bold;">O</div> <div style="text-align: center; font-weight: bold;">OPPORTUNITIES</div>	<div style="text-align: center; font-size: 2em; font-weight: bold;">T</div> <div style="text-align: center; font-weight: bold;">THREATS</div>
<ol style="list-style-type: none"> 1, Creating livable spaces by alocating different kind of landuses 2. Desirability of the space because of the presence of adequate green spaces 3. Existance of natural elements like rivers and also mountains as a background 4. Presence of important historical elements like bazaar and tomb of Imamzadeh Saleh 	<ol style="list-style-type: none"> 1. Perceptual confusion of inappropriate forms and disharmonious scales 2. Lack of harmony and visual connection between old and new buildings 3. Lack of presence of the historical areas as a highlighted elements in citizen's mind 4. Lack of attention to the maintenance and protection of natural elements 	<ol style="list-style-type: none"> 1. There are several kind of recreational and sporting areas close to this area 2. Existance of historical, natural and cultural buildings, gardens and urban fabric close to this area 3. Effective use of high-rise towers as urban signs for facilitating navigation 4. Existance of metro station for a better accessibility 	<ol style="list-style-type: none"> 1. Frequent crowds in the access paths to this area 2. The disappearance of old gardens, destroyed the sense of place 3. The disappearance of the old landmarks and disability to create new landmarks 4. Disability of historical elements to attract people

Table 10: Tajrish Square SWOT analysis (Self Elaboration)

4.3. Comparing Hassan Abad and Tajrish Square

Hassan Abad and Tajrish Squares are two squares with historical backgrounds. One day they were places with strong sense of place which by replacement of the modernity they lost their identity in different ways. Hassan Abad Square is still known as a historical square but it lost its identity and importance through the time and it is lost in modern surrounding of the area. But Tajrish Square is completely changed and it is known as a recreational and commercial area. The historic background of the area become invisible in the density of the recreational and commercial activities.

The role of color in bringing back the sense of place in these areas is very crucial. In Hassan Abad Square there are no elements which can attract people to be there for selective activities. Therefore, it is possible to manage the color harmony in the area by changing the conflicting colors of the space and adding some elements in harmony with the historical background of the city in order to improve the identity and sense of place. In Tajrish Square there is a chaos in the issue of the color. There is no regulation for managing the colorscape of the area and decreasing the traditional and modern conflicts. Therefore, it is important to manage the colorscape of the area in order to make the historical parts more visible to bring back identity and sense of place.



5. Designing Guidelines

In the following part, based on the studies in previous chapters, it is possible to represent the composition of vision and in order to reach to this vision some macro and micro goals have been developed based on the parameters of beautification, identity, function and behavior. Finally, some substantial and procedural guidelines and policies are suggested in order to achieve the goals.

5.1. Composition of Vision



Figure 142: Composition of vision (Self Elaboration)

- Where We Are?

Today's landscape of the city of Tehran because of environmental pollution, no regulation for coloring urban elements, unconventional construction and competition of commercial companies, change it to a saturated city from varied colors and forms. In general, Tehran is changed in to a monochrome city with the spectrum of gray. This situation makes Tehran a depressed and soulless city. On the other hand, in some parts of the city, it is possible to see colors but mostly in a disordered way; instead of beautifying the city, it is more confusing and disturb the identity of the city.

- Where We Are Going?

If the situation continues like this and no strategy and plan thought for improving the urban landscape and also the quality of life in Tehran, the city will become gray and soulless with no quality of life and identity. The city which doesn't have any indication from past and urban furniture and colors are not familiar and memorable for the citizens. People don't have sense of belonging to the city; for this reason, they don't feel any responsibility for preserving and improving the urban landscape.

- Where We Want to Go?

Based on represented vision for city of Tehran, this city not only will preserve all cultural, social and religious values, but also will have all the international standards of living and people feel themselves as a part of the city. On the other hand, based on harmonic color palette following with attractive urban landscape, can compete with big and touristic cities for attracting tourists and improving sense of place for the citizens.

- How Can We Reach?

For reaching to a city with mentioned features, after evaluating the current urban landscape and sense of place, some urban methodologies have been defined in order to increase the quality of life:



Figure 143: How can we reach? (Self Elaboration)

- 1) Improving the legibility of urban landscape
 - Using colors as an indication of route
 - Specifying color identity of each district different from other districts
 - Appropriate coloring of urban furniture and facades
 - Ability to recognizing the function of the space based on the used color spectrum
- 2) Improving social health
 - Improving the psychological health of the citizens
 - Improving the sense of belonging and responsibility to the city
 - Promoting the contribution of people to improve the colorful landscape of the city
- 3) Improving the visualization and the quality of urban landscape
 - Merging natural elements with urban elements
 - Improving the quality and coloring harmony of facades and pavements of the urban spaces
 - Creating harmonic coloring landscape in a whole city
- 4) Improving the quality of public spaces
 - Flexibility and vitality of public open spaces
 - Increase the citizen's presence
- 5) Preserving and strengthening the areas with identity
 - Preserving the elements and colors of historical areas
 - Improving memorability, sense of place and vitality of the open spaces
- 6) Improving the economic growth
 - Creating spaces with identity and vitality to attract tourists
 - Creating job opportunities

5.2. Designing Guidelines

What is presented as a designing guideline for the colorscape management of city of Tehran, is based on mentioned theoretical studies and macro and micro goals which tries to improve the colorscape of the city and sense of place. In fact, these substantial and procedural designing guidelines, aim to encourage designers, planners and also citizens to care about the colorscape of the city to upgrade the quality of life and sense of place.

5.2.1. Substantial Designing Policies

5.2.1.1. Landuse System

- Establishment of various landuses in urban spaces to create color variation is recommended but in a way that they are related to each other.

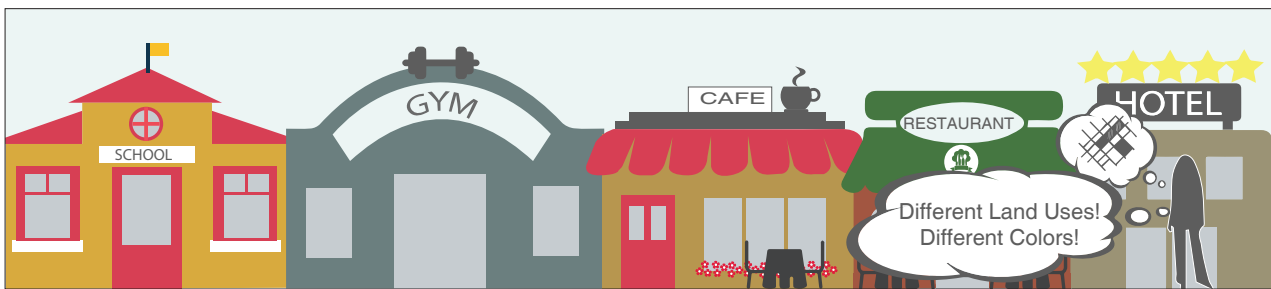


Figure 144: Various landuses (Self Elaboration)

- Encourage to design buildings and urban spaces based on surroundings to create harmony; not only in form, but also in color.

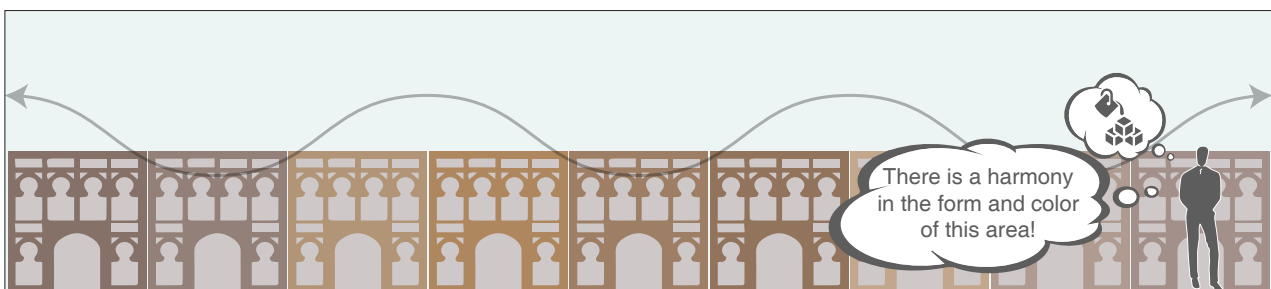


Figure 145: Harmony in the form and color (Self Elaboration)

- Using colors which is different from background for the buildings with specific function to create legibility in way that not disturbing the urban landscape.

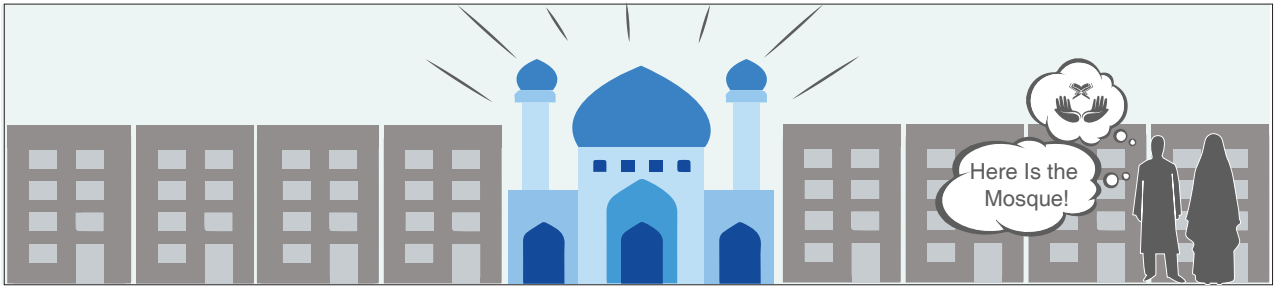


Figure 146: Building with specific function (Self Elaboration)

- In commercial areas according to the functional essence, using attractive, bright and various colors, in a way that not creating visual confusion is suggested.



Figure 147: Commercial areas with attractive colors (Self Elaboration)

- In residential areas in order to create calm and friendly spaces, using light and warm colors with low saturation is recommended.

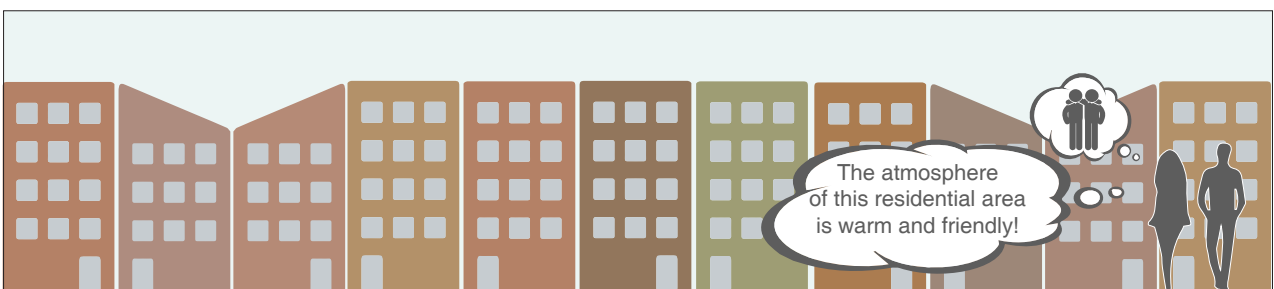


Figure 148: Light and warm colors in residential areas (Self Elaboration)

- In spaces which offices are established, it is better to use neutral and cold colors which is not disturbing functionality of the area.

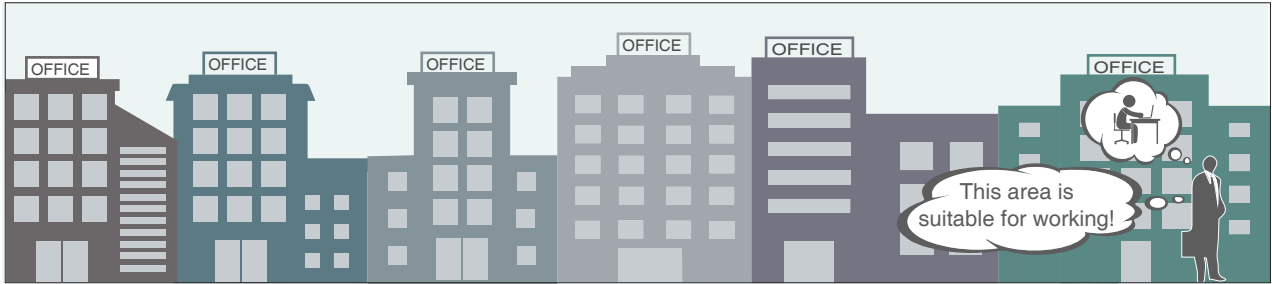


Figure 149: Offices zone with neutral and cold colors (Self Elaboration)

- For the places which are used by children it is better to use vivid and attractive colors which children spend nice hours in the area.

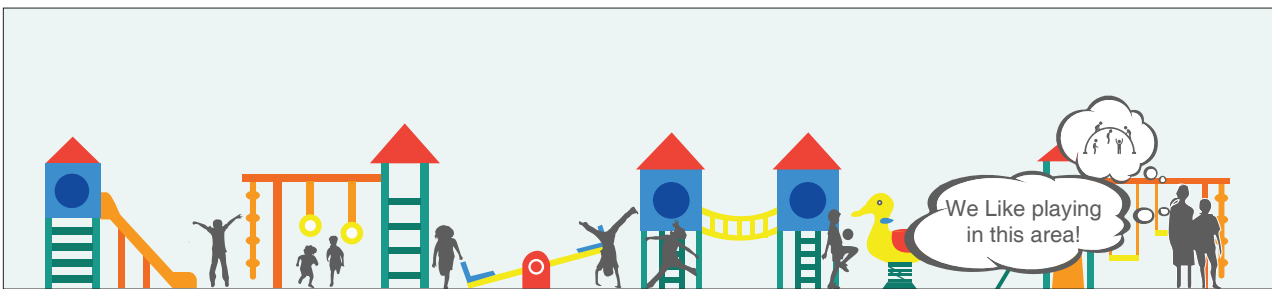


Figure 150: Children's colorful playground (Self Elaboration)

- Use colorful palette in the parks because the harmony between green of the plants and vivid colors creates pleasant spaces for the citizens.



Figure 151: Vivid colors and green areas (Self Elaboration)

5.2.1.2. Accessibility and Movement System

- It is recommended to use colors in the form of big spots for guiding drivers in highways and

primary roads which the speed of movement is high. These colors should be in a way that not to distract the driver's attention



Figure 152: Traffic signs in high speed roads (Self Elaboration)

- Consider details and various colors in pedestrian and low-speed streets to create attractive areas.



Figure 153: Attractive details in pedestrian paths (Self Elaboration)

- Not to use colors like yellow with high saturation in high-speed streets because it can cause distraction for the driver.

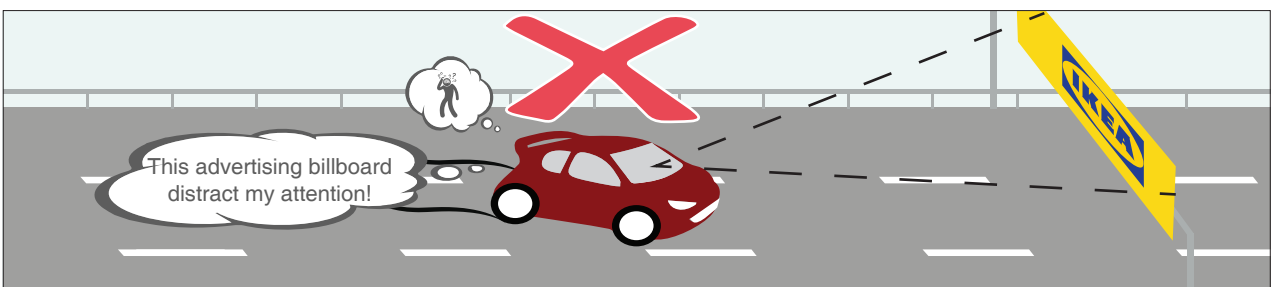


Figure 154: Distracting vivid colors (Self Elaboration)

- Use warning colors like red to indicate spaces which drivers and pedestrians should have caution, like schools and shopping centers that in some hours of the day are crowded.

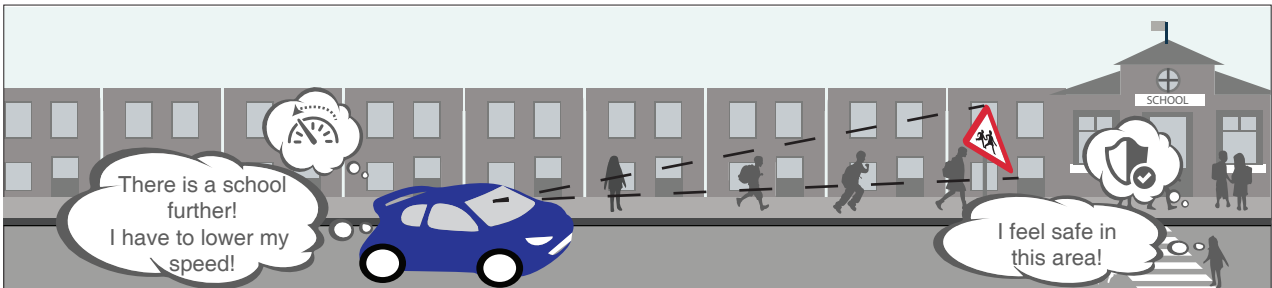


Figure 155: Warning colors for lowering the speed (Self Elaboration)

5.2.1.3. Physical Form System

- Designing physical details, especially on the way of the pedestrians to create visual richness according to the visibility to the viewer.

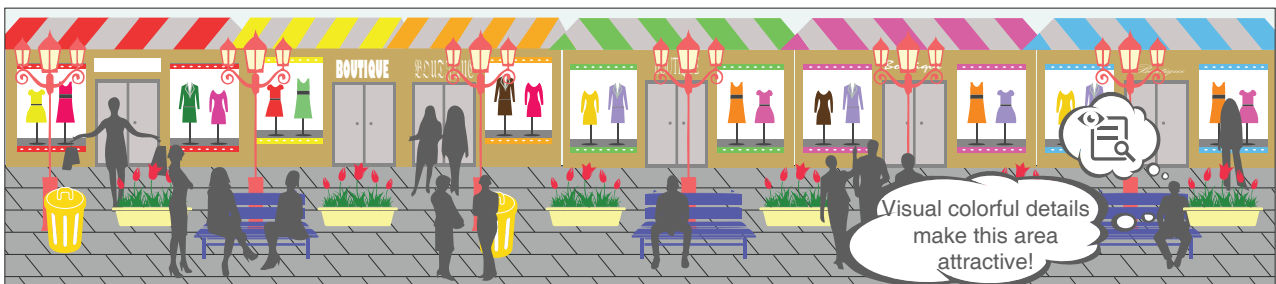


Figure 156: Visual richness in pedestrian paths (Self Elaboration)

- In the historical areas restoration or construction should be allowed just in the case that have harmony with the character and color palette of the area.

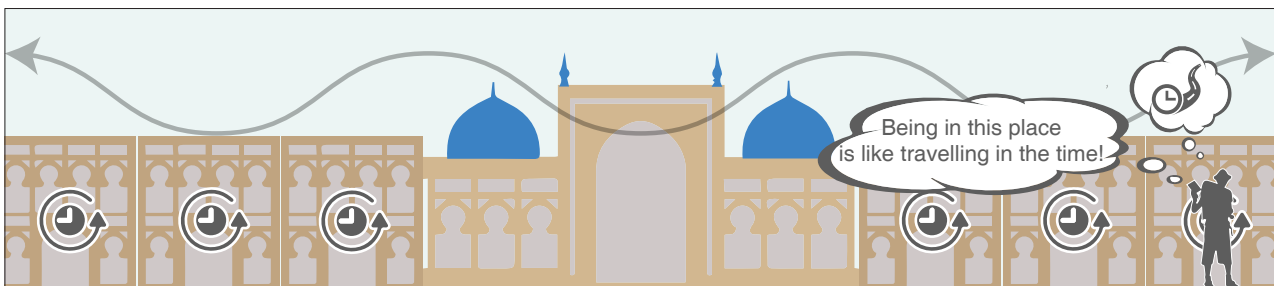


Figure 157: Restoration and construction in harmony with the historical area (Self Elaboration)

- Approving some regulations for using specified color codes for building facades to create uniform and harmonic space.

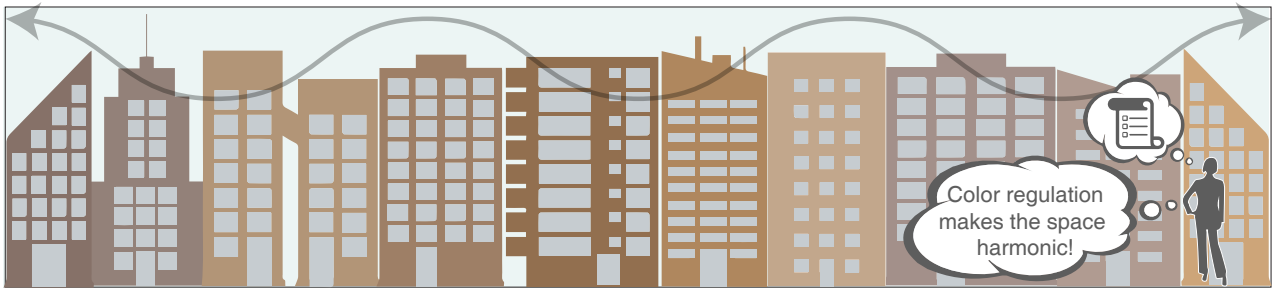


Figure 158: Color regulation to create harmony (Self Elaboration)

- Preservation and restoration of historical buildings which have the sense of native and olden colors of the area.

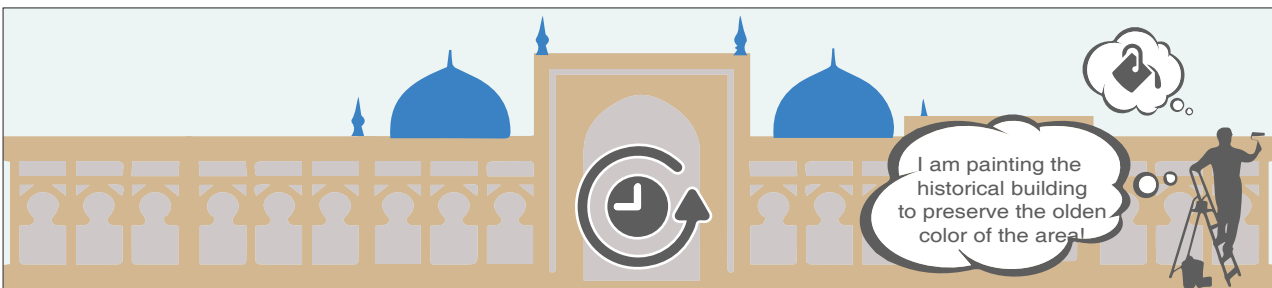


Figure 159: Preservation and restoration of historical buildings (Self Elaboration)

5.2.1.4. Public Spaces System

- Considering some parts of the public spaces to show public arts which creates opportunity for the artists and also gather people to create lively and colorful spaces.



Figure 160: Colorful events (Self Elaboration)

- Considering some parts of city facades for graffiti drawings to create colorful atmosphere in the area.

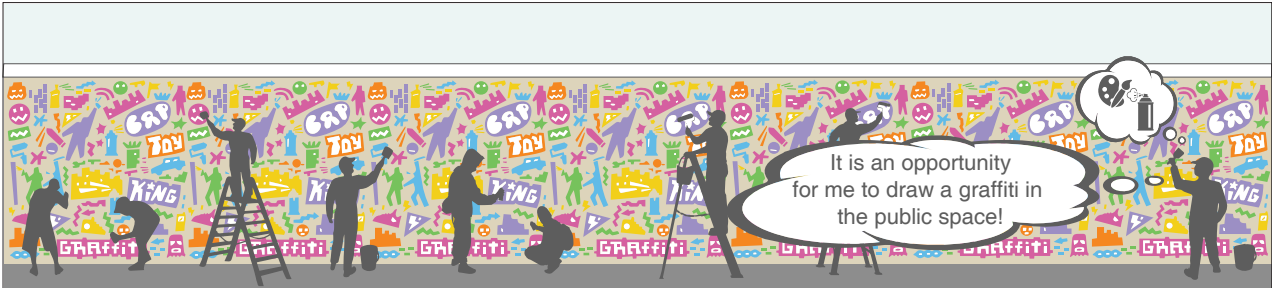


Figure 161: Specific spaces for graffiti drawings (Self Elaboration)

- Holding some colorful activities and festivals like kite, balloons and color throwing festival to gather people in a colorful atmosphere.



Figure 162: Balloon festival (Self Elaboration)

- Allocating temporary, domestic and homemade markets in public spaces. Although these spaces are temporary, but they can create colorful and pleasant spaces for gathering in public spaces.



Figure 163: Temporary markets (Self Elaboration)

- Providing necessary facilities for longer presence of more people in the public spaces to involve colors in the area and by improving the quality of the area, increase the sense of belonging in the citizens.



Figure 164: Presence of people in public spaces (Self Elaboration)

- Form and the color of the urban elements should match the general urban landscape of the area.



Figure 165: Mismatching urban elements (Self Elaboration)

- Designing the edge of the river with colorful elements and colorful drawings to improve the quality of the space and indicate the presence of the water in the area.

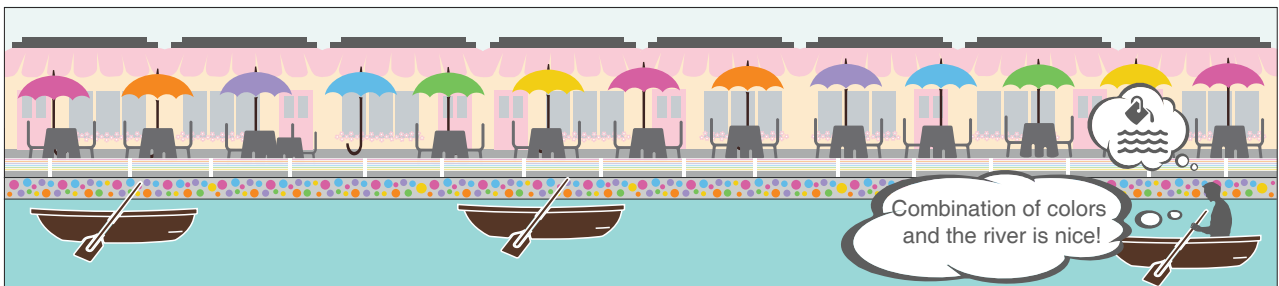


Figure 166: Designing the edge of the river with colorful elements (Self Elaboration)

- Designing the surrounding of the waterfalls and fountains with colorful elements to create peaceful spaces.

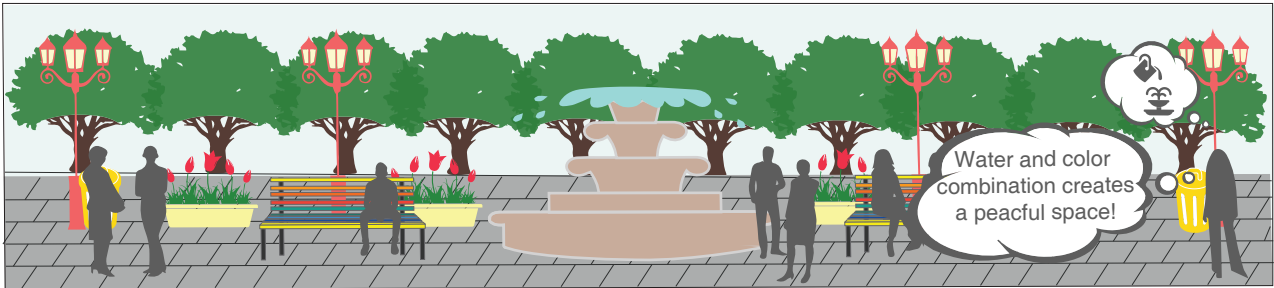


Figure 167: Designing the surrounding of the fountains with colorful elements (Self Elaboration)

- Using colorful lights with same saturation in the places which doesn't have enough attraction to create sense of security is recommended. But these colors don't have to disturb the character of the space.



Figure 168: Colorful lights in places without attraction (Self Elaboration)

5.4.1.5. Urban Landscape System

- Using long-lasting materials, suitable for the climate changes for the color of urban elements in the city.

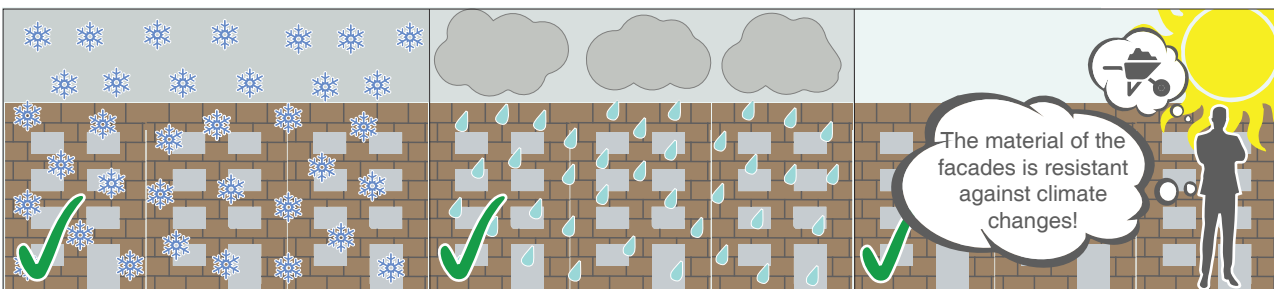


Figure 169: Resistant materials (Self Elaboration)

- Using different kind of materials for the flooring of the intersections and open spaces for improving the quality of sense of the place and perception of the people from the space.

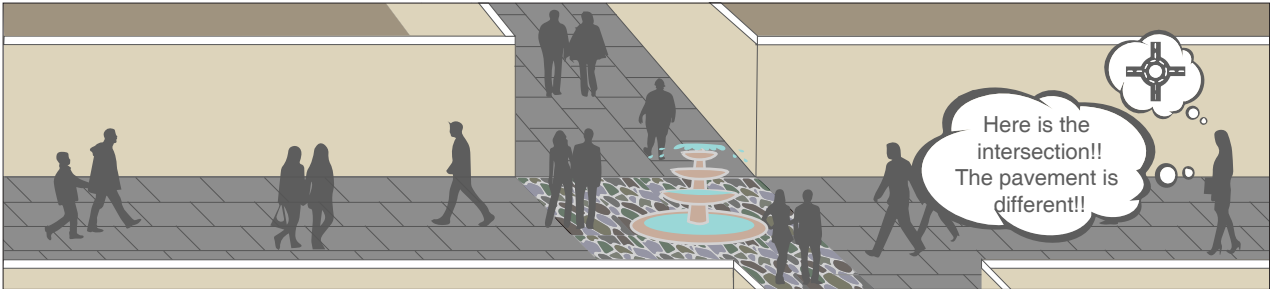


Figure 170: Different materials in the intersections (Self Elaboration)

- Using colors and form on the flooring of the places which guide us to the specific places to create the sense of movement.



Figure 171: Colors as an elements for guiding (Self Elaboration)

- Colorful advertisements are suitable elements for reviving the dead and depressed spaces but they have to be based on some regulations in order to not to disturb the character of the area.

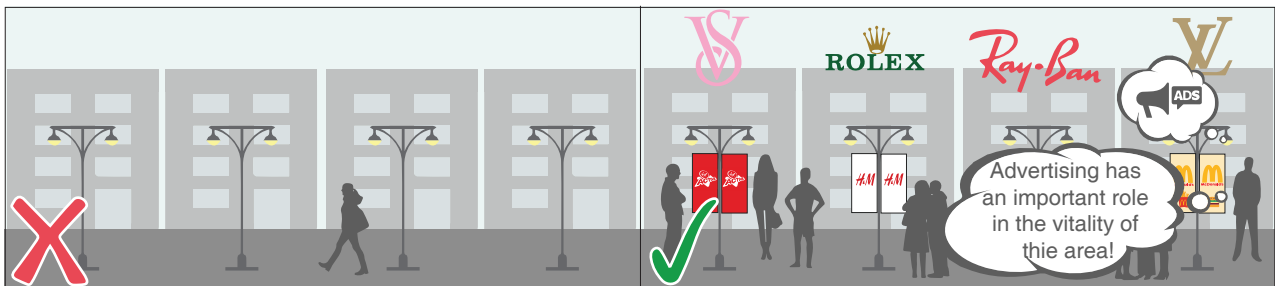


Figure 172: Reviving the area by advertisement (Self Elaboration)

- Colorful lights can be used as important elements for indicating important buildings or elements as a landmark.

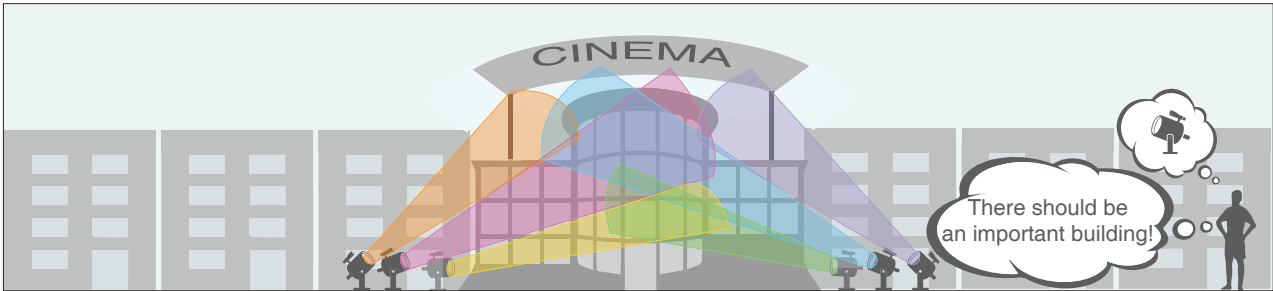


Figure 173: Colorful lights for indicating the important building (Self Elaboration)

- Using street arts and graffiti drawing according to the character of the area.

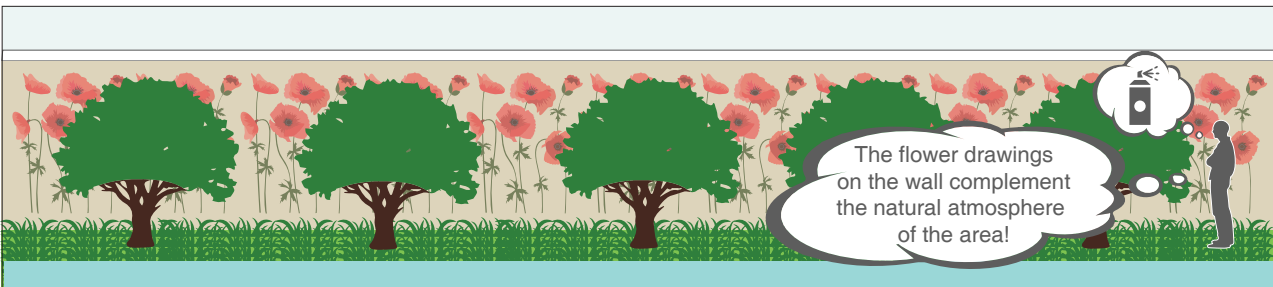


Figure 174: Street art according to the character of the area (Self Elaboration)

- Street arts and graffiti drawings can be used to decorate building facades which are disturbing the urban landscape of the area.

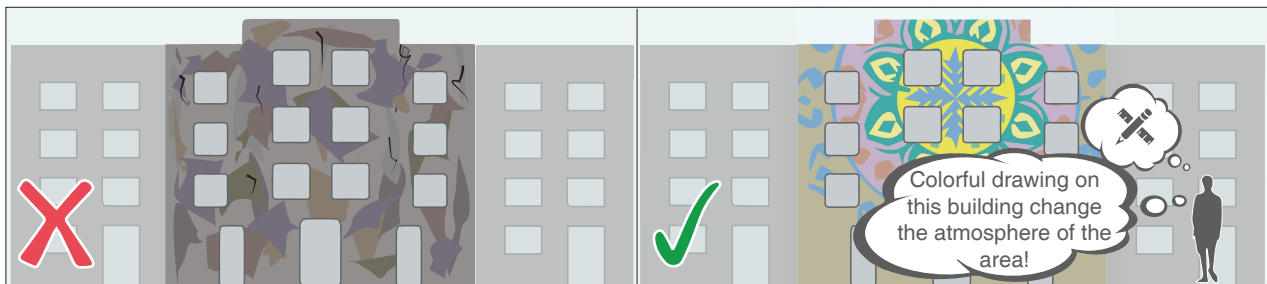


Figure 175: Reviving the area by decorating the disturbing buildings (Self Elaboration)

- Designed colorful tiles is a method to beautifying the city and also they are lasting more than drawings.

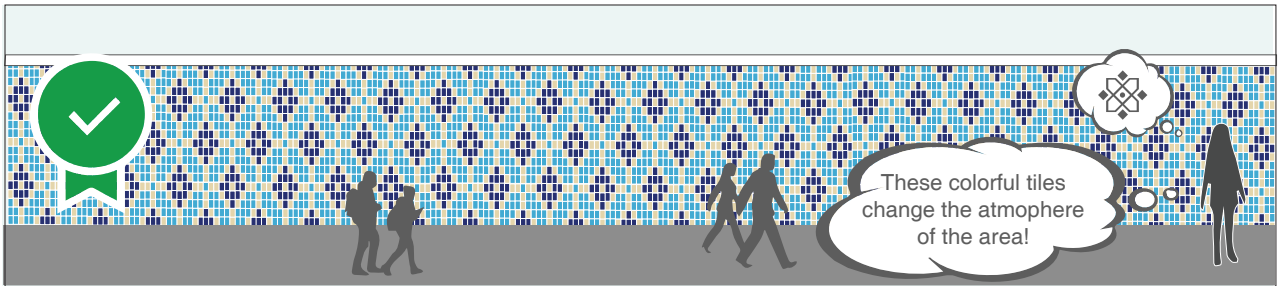


Figure 176: Colorful tiles for beautifying the city (Self Elaboration)

- Color and form of canopies and shutters for the shops should be in a harmony with the character and color palette of the area.

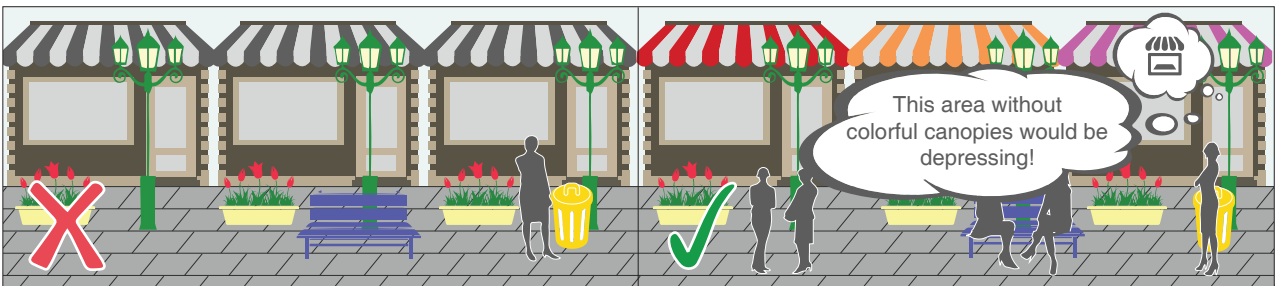


Figure 177: Colorful canopies (Self Elaboration)

- It is recommended to use warm and vivid colors for advertisement billboards in cold and colorless seasons to bring color to the area.

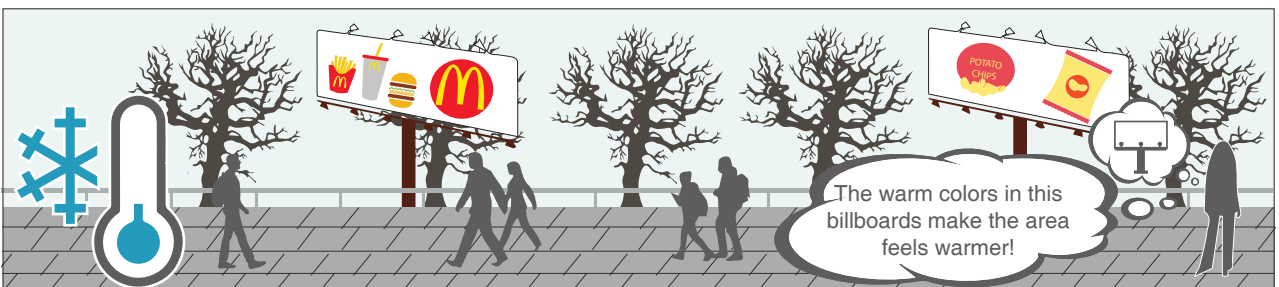


Figure 178: Warm and vivid colors in cold and colorless seasons (Self Elaboration)

- Using exaggerated colors in advertisements with big dimensions, can be the reason of confusion and chaos in way that everything else in the area become invisible for the viewer.



Figure 179: Big dimension advertisements (Self Elaboration)

- In a places which there is a historic element or important building, using vivid colors with high saturation is not suggested, because the element or building will lose its importance.



Figure 180: Elements with high saturation close to the historical buildings (Self Elaboration)

- Using vivid colors in crowded places which they are busy and too many people are commuting at the same time, using vivid colors with high saturation in designing the area will increase the confusion.



Figure 181: Vivid colors in crowded places increase the confusion (Self Elaboration)

- Intensity and color of the lighting of the big shopping centers, should increase the quality of the area.



Figure 182: Lighting of shopping centers for increasing the quality of the area (Self Elaboration)

- Using fountains with colorful lighting create attractive open spaces for spending time.



Figure 183: Fountains with colorful lighting (Self Elaboration)

- Lighting have an important role in the darkness of night and they can be an important element to create pleasant spaces by using integration of light and shadow.

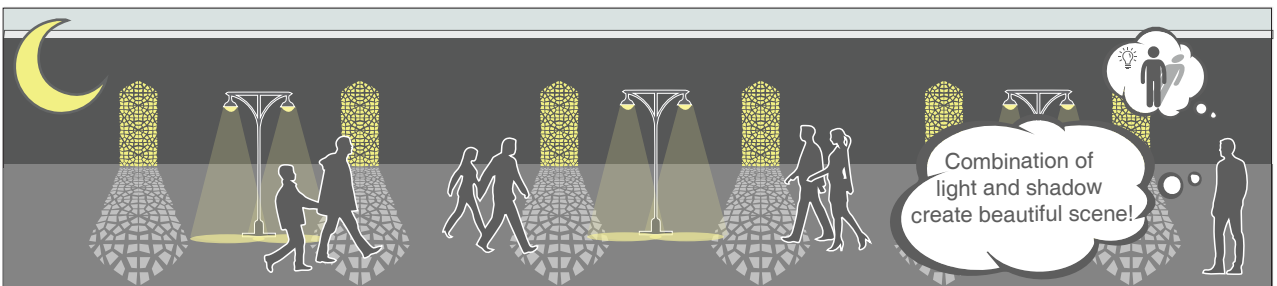


Figure 184: Combination of light and shadow (Self Elaboration)

5.4.1.6. Ecological System

Ensuring for the sustainable and equitable use of resources, without damaging the environment or endangering health and safety in order to keep the native color of the environment is recommended.



Figure 185: Using renewable energies to keep the native color of environment (Self Elaboration)

- It is imperative to prevent and control the destruction of ecosystem in order to keep the natural color of the area.



Figure 186: Prevent and control the destruction of ecosystem (Self Elaboration)

- Using long lasting and recyclable materials is recommended in order to reduce the ecological pollution.



Figure 187: Using recyclable materials (Self Elaboration)

5.4.2. Procedural Designing Policies



It is imperative to develop a colorscape planning of the city in conjunction with comprehensive urban plan.



Presenting encouraging policies from the government in order to persuade the citizens to buy colorful cars is recommended.



It is recommended to provide encouraging policies for using colorful uniforms for the students and employees.



Holding meetings and conferences by designers and city authorities in order to raise the knowledge of the citizens about the features of a good city which lead them to take part in urban affairs and increase their sense of place is recommended.



Collaborating with urban designers for the decisions and issues about landscape designing is crucial.



It is critical to provide some rules for the native colors of the city to increase the sense of place.



It is recommended to approve certain regulations for the issuance of a manufacturing license in the field of matching the color of the new building facade with the color palette of the whole area.



Washing and maintaining the façade of the buildings in order to clean the dust from the original color of the buildings is recommended.

Specific programming for the washing and maintaining the urban furniture by the municipality is necessary.



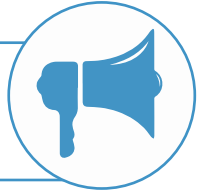
Specifying each zone of the city with particular main colorscape is recommended.



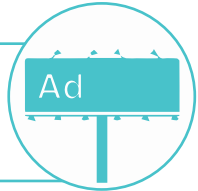
It is recommended to encourage the people to plant colorful flowers in front of their houses in order to contribute in beautifying the city.



It is essential to formulate terms and conditions for the commercial companies which are in competition with each other to use appropriate colors for their advertising.



It is imperative to formulate some rules and guidelines for the size, location and the allowable colors for the commercial billboards by the municipality.



It is crucial to investigate all the natural and artificial colorscape of the city in the planning of the urban landscape.



Holding some meetings and inviting the citizens to encourage them how to get involved in the designing the colorscape of the city, is recommended.



Presenting some guidelines for the decorating the buildings based on the color harmony of the area is recommended.



5.3. Conclusion

The constitutive colors of urban spaces are much extended and encompass a wide range of materials, buildings, green spaces and generally all urban equipment from lighting and bus station to trash cans in a city. Achieving a suitable coloring urban landscape not only guarantee psychological health of the society, but also because of improving the urban quality of life, helps to economic growth of the city. Therefore, quality of the city depends on color types, the way of using colors, history of colors and psychological effect of colors on people. Colors make the area memorable, creates the feeling of familiarity and unity with the space and sense of belonging and responsibility for the citizens. Appreciation of aesthetic role of color and its effect on quality of environment is growing consequently. Materials, light and good color design is an essential factor in the communication of people and the environment.

But unfortunately, it seems that today's modern cities have a poorer sense of place in comparison to the traditional ones. Cities like Tehran are growing haphazardly without regarding to the components that makes them human places. They turn in to places just for living in a shelter. Quick and cheap places turn into standard of living. There is a minimum regarding to the aesthetic aspects. Based on the survey that have been done, it is possible to conclude that there are several reasons for undesirability of urban landscape of Tehran which followed by weakening sense of place:

- Lack of planning for the color palette of urban furniture
- Lack of regulation for the color spectrum of the building facades and flooring
- Lack of attention to the type and functionality of the spaces in choosing a color spectrum
- Lack of visibility to the ecological elements of the city like mountains, rivers and green spaces as a result of no control on the construction of buildings and air pollution
- Lack of regulation for the placement, form, dimension, quality and color spectrum of the advertising billboards according to the character of the area
- Lack of contribution of people in activities about beautification and improving the quality of life
- Lack of planning for the cleaning, washing and maintaining the facades, urban furniture and other elements

In general, lack of harmony between the building forms, materials and urban elements with the historical context of the city. The identity of the city become invisible. Therefore, sense of belonging is reduced and the city landscape become undesirable.

Regarding to the performed investigation, current state color of the city of Tehran is based on various types of achromatic spectrum. If grays used in such extension, vivacity will be highly reduced in the city. On the other hand, unconscious use of colors breaks the harmony of the city and increase disorderliness and confusion of the space. For these reasons, today's image of the city is suffering from uniformity and anarchy.

A sustainable and developed city, during growth and development of urban spaces, should logically try to establish a link between the new and old spaces which today they are completely segregated. They are existing in the same place but in conflict with each other. Colors can be used as an element which can connect segregated parts to each other.

Therefore, it is important to redesign the color palette of the cities like Tehran based on developed policies and guidelines in order to bring back the culture and history to city and create memorable places for the citizens.

Colors instead of being a weakening element for the city can be an opportunity to create unity. They can beautify the city, create identity landscape and dynamic economic. In general, they can create sustainable places with strong sense of place.

Hope for the day that we could bring back color to the cities, especially Tehran which became invisible in dust and achromatic colors in order to bring back sense of place and belonging.



Figure 188: Tehran (Self Elaboration)

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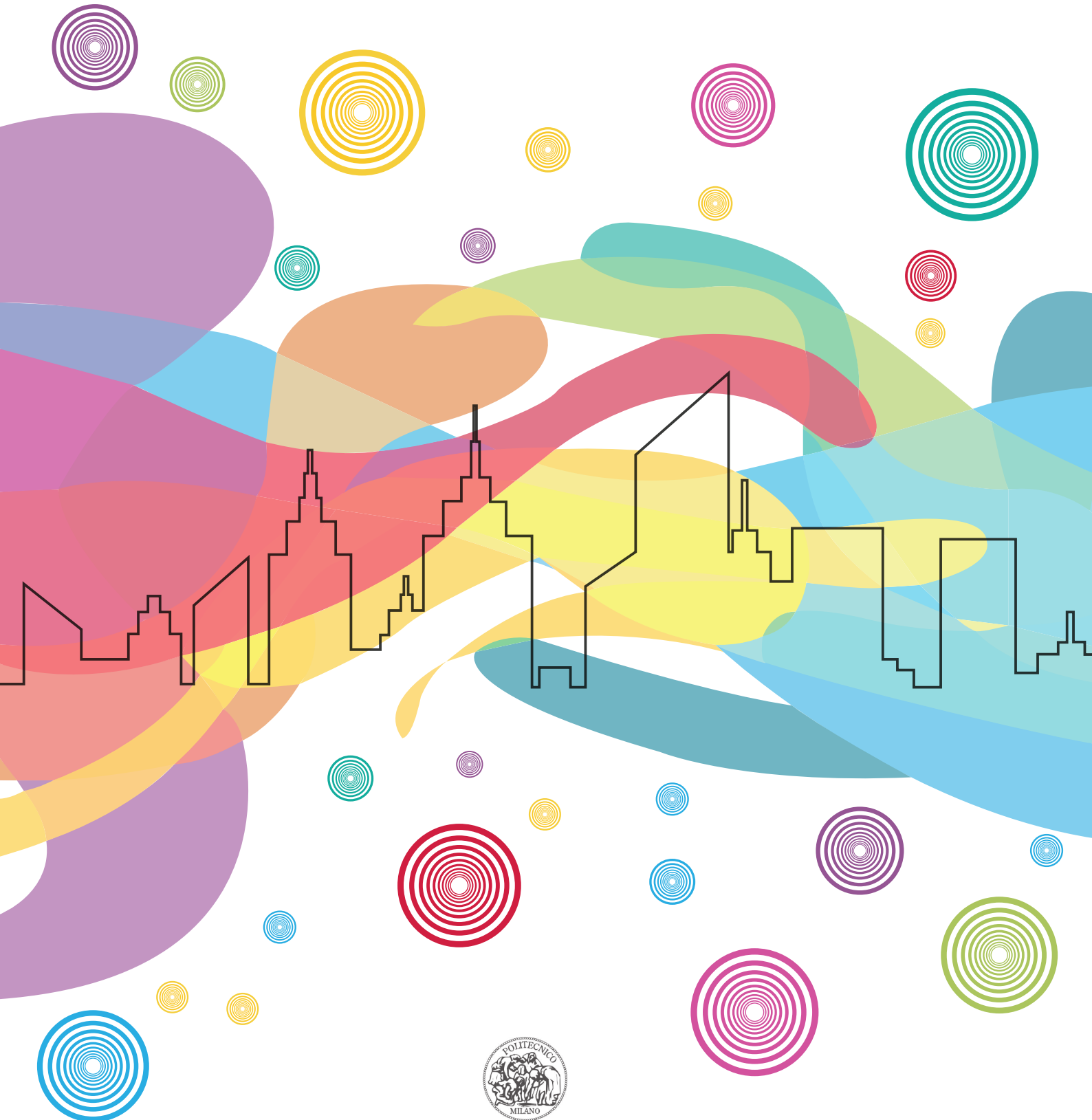
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