



The Role of Light and Color in Urban Beautification and its Impact on the Perception of Citizens

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ABSTRACT

Today in terms of visual and general view, there are a lot of disturbances and disorders in cities. And with a little care, these disorders can be felt in all parts of the face of the city, So that the dominant urban centers has been colored or lighted without purpose and without coloring and lighting has been abandoned, In other words, the lighting and the coloring did not follow a specific design that causes confusion and Visual disturbances itself and missing a sense of calm, style and vitality in cities and caused to the rise of gray cities; so in present study by descriptive-comparative survey and using of the library studies and field observations, We tried up due to ability and general knowledge of Hamedan, to identify the needs of city's Chromatic and luminance and by considering the role of light and color in urban beautification and its impact on the perception of citizens and by qualifying of urban areas and visual perception and mental strengthening of citizens, design patterns are laid appropriate to the mood, climate, culture and urban style, so as to be provided in the necessity of date and mental well-being of citizens.

Keywords: Light and Color, Urban Beautification, Perception of Citizens, design patterns, Hamedan.

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1. INTRODUCTION

Maintaining and improving legibility and identity in the city and all of its centers has always been the most important issues and goals which Independent of center's type or location city or area, must be about design and city manager. There are many tools to achieve this goal according to any one of them can lead us to the desired result (Mahmoodi and Shakibamanesh, 2005). Color and light are one of the most important element that can be easily helped us create legibility and a sense of unity and create the sense of place and cost less than the construction of defined centers (Soleimani kooshki, 2012: 1). The colorful history of the city, or to be more precise, color palette, helps us until it can be maintained or defined a special color palette for every city which constituent elements are the same color or in a variety of colors used in combination with each other to define face color of urban areas (Mohammad beige, 2009: 71). Even now our cities are strongly colored with confusion and lack of identity, all of us by naming specific areas, specific color comes to mind. That is the same expectations that we have of the city's identity and its role and designers must work in order to improve it (Grater, 2009: 449-498). On the one hand most of the things that are received by the visual sense come from the help of light. Light reflected forms, and makes enhanced visual perception and clear mental picture, legible and desirable from the presence in the public area in the minds of observers

(Richard. G. Elinger, 2002: 5). So the concept of color is lost without light, as color and light can give the area integrity and the variety of color and light to fit and calculated, and makes it distinctive, lively and identifiable, In other words, with signification of urban areas, increases address variability and legibility of areas and causes the form of feelings such as belonging to the place, the sense of identity and legibility and can be achieved promotion of persistent growth and environmental quality(Ayvazian, 2005). Because in today's cities, urban areas have been colored or lighted without any goal and have been abandoned without of them, citizens have no memory in their minds from different neighborhoods and areas (Ghassemi, 2005), the lack of coloring and lighting without purpose in urban locations are as major issues in the field of urban management and this has been turned to one of the most essential factors of unknown identity and its application in the city. Hamedan is among the towns in terms of public and visually have abounded disturbances and irregularities, and with a little care these irregularities can be felt in all parts of the face of the city. There are several factors like readability and beauty violation of the environment, the unprincipled coloring and taste and also traffic urban elements involved in creating these disturbances. So in this article is tried according to the capabilities and knowledge of the city, needs of city's Chromatic and luminance identified and considered the role of light and color in urban beautification and its impact on the perception of citizens, and by qualifying of urban areas and visual perception and mental strengthening of citizens, design patterns are laid appropriate to the mood, climate, culture and urban style and identity of historical city like Hamedan as capital of history and civilization of Iran, Therefore, it is no doubt that the use of colors in the City beautification and the city environmental in

according to the cases considered about psychology of colors should be done in the best form of mental and spiritual well-being of citizens.

2. Methodology

so in present study by descriptive-comparative survey and using of the library studies and field observations, We tried up due to ability and general knowledge of Hamedan, to identify the needs of city's Chromatic and luminance and by considering the role of light and color in urban beautification and its impact on the perception of citizens and by qualifying of urban areas and visual perception and mental strengthening of citizens, design patterns are laid appropriate to the mood, climate, culture and urban style, so as to be provided in the necessity of date and mental well-being of citizens.

3. Theoretical Basics

3.1. Color

Color is one of the important aspects of urban life. Color is one of the features that among the shape, size, sex and texture of each object, indicate us volume or space of any object. In most cases, the first thing the viewer will identify with a Figure is color. Imagine a world without color is not possible for any of us. In the urban environment colors can be seen everywhere in the body and building facades, roofing, flooring, furniture of urban, green spaces, cars and even city's sky and also color of clothing that all of them have major role in determining city's color. For example, in our society opaque and black colors, are the dominant color that certainly make our cities different from cities that people want to paint light and happy. Colors, not just in terms of beauty up to the world around us, but the in emotional effects - strong psychological influence on individuals are important. Colors have different psychological interpretations so that the characteristics of individuals or society can be detected from the colors that they use and love. Color is therefore important tool in guiding and induction of specific mental states to individuals and communities. Dark and heterogeneous areas, make people suffer from depression and unwanted stress, while their people are not aware of the actual reasons. Abundant use of color can be used in the design area (Ferdosy and Firoozjah, 2014). Color helps to reduce eye boredom and stimulate it. Colors created areas (contrast) various at different times of day and at any hour make new lighting and create a diverse and lively area. In addition, using color can give the area integrity and unity or its distinctive and identifiable. Interestingly, this use is usually not impose certain fee to manufacturers and users. For example, cyan and blue colors reminiscent of religious buildings and mosques and by seeing intense and happy colors, remind us children. Different colors can evoke ideals, their meanings and special events. For example, dark green and black colors for Ashura and yellow, red, orange reminiscent of autumn and the beginning of school each one give a different face to the city (Brid M, 1999).

3.2. light

Light is an extremely fine particle stream called Forton that it is radiated at the speed of 300 thousand kilometers of per second from light source? Light that parking centers use, are two kinds: natural light is essential for plant growth and provide room lighting during the day and make decreasing and increasing shades and artificial light use for lighting the area at night sometimes to emphasize and intensify the properties of some place or made provision of shade and light elements. In general, the psychological effect of light is divided into two categories: hot and cold: cold light, are fluorescent lights that evoke cold physical and causing mental depression. Fluorescent lamps that do not have a sunny tendency are of this type. Lights with a

diverse range of seven colors are warm light. Like sunlight, fire, lights burning, south that have a focus on red, orange and yellow. Chrome of color face increases in warm light and decreases in cool light (Mirmoghtadaei, 1998: 119-137).

That beauty is in the eye of light and brightness otherwise in the dark beauty is meaningless. true Light is understanding by consciousness and aesthetic can be seen with our dearest sense of vision. Light either is apparent or mystical caused to make in the eye and sounded other beauty and color of object. So light and dealing with it can be discussed in the discussion of aesthetics and have a special place in art. Including science and arts that can be referred to the role of light is art of Architecture that a detailed discussion accounts on the use of natural light. And lighting devices are raised as well as the factors that are the source of artificial light. In architecture, light is one of the elements that comes besides components and other concepts such as structure, space systems, materials, colors etc. and in the designing must play its role as a separate element. One of the most important features of natural light is its sequence and transformation during the day which move and change at different times of the day. On the history of drawing attention to light is seen in the course of Impressionists. When artists left their studios, and were painting in bright sunlight with natural light. The characteristics of this style was attention to the color of light at different times of day and reflection of the various colors objects in another and the influence of surrounding colors and applying special and pure color (Nadeen, 2006). From prehistoric times luminous objects is always a representation of a live object that were woken in the human mind by the admiration and respect of the it. And they enthusiastically celebrated, and worshiped and served them. This excessive attention to the basic element of light also be viewed over time in most human cultures and in societies with different customs and religious beliefs. Some communities use the sunlight for their ritual and some of them considered lights shine as the cause of the mysterious interactions for access to areas beyond the terrestrial world. Even today in the many Eastern schools who are teaching yoga for mental focus use luminous objects such as lamps, sun, moon, crystal light and fire. In most religions, light is symbolizing of the divine wisdom and the source of all purity and goodness and getting out of the darkness of ignorance and twisting light on soul of wisdom is always the ultimate goal of human. In effect of shining divine light into the body of material, namely the human soul that man achieve spiritual growth and development as a result of showing this allegory in the architecture of religious buildings often light used to be as a typical element, independent of other elements and concepts used in the building in such a way that its beam is clearly visible within the body and the dark material volume. Deep and dark areas of medieval churches and Islamic mosques have been decorated with light element to be well able to convey a sense of the spiritual. And this is a form of trance that the result is a sense gets up in him close to the source of existence (Mirmoghtadaei, 1998: 119-137).

4. Research Findings

4.1. Color in ancient cities

In the old buildings and centers, natural colors were building materials made by them, give City harmonious and standardize face and also have more matches to mood, climate and culture of the people so the color of each city was established and it was considered as an aspect of identity. Thus, despite the difference in scale and performance, a general unity dominated over the city. Each city have the identity of special color. In these cities, urban monuments, especially religious buildings decorated with turquoise tiles and shone on its earth and were distinctive. In the desert, with blue sky, green trees and buildings of soil and

turquoise domes, was an eye-catching image engraved in mind of every viewer. Move experience in such urban areas because of its unity, relaxing and because of the variety of accounted colors were lively and varied (Hosseini, 2005).

4.2. Color in modern Cities

In our modern cities, the use of color become an unresponsive problem that has brought Builders, architects and designers and ordinary people into mindless and indiscriminate use of Color. Our cities are a colorful, faceless and confused canvas that only cause depression, psychosis and nervousness on people of society. In our society susceptibility into space has been gone and people are without integrated perspective on how the areas appear. As a result, areas were behaved reactively and allowed the pace of everyday life that follow us into events and daily life! We behave to important issues of our areas such as the Color like cross-sectional and case. We have no codified principles in cities for urban areas. Until the environment, climate and our culture led based on the principles of color design and designers and managers and even people can choose appropriate colors for their living environment (Hosseini, 2005). Today we need a comprehensive approach to the issue of color in the city until besides other things, Color designed and organized. As a result, urban areas are faced with a confusion of color. Colors neither complement each other nor obey the law of a particular color. Color is a tool for showing off. According to the functional and physical aspects of color regardless of size and psychological effects of it, is causing the spike of colors used in the environment. Managers use non-specialist persons in the designing and equipping their urban areas and then, despite high energy and costs look surprisingly with the results came into existence. Also in architecture of the buildings non-specialists and sometimes even expert just for showing off, and distinguishing the effects of other adjacent buildings use heterogeneous and incongruous color with the field, function and character of the surrounding landscape which by passing time, the wrong choices becomes apparent.

4.3. Urban design perspective on Color

Color which itself is an identity element and factor to enhance readability, today is used in cities and neighborhoods randomly and tastily that The newer parts of the city in the desert or a city on the Caspian, have not much different to Tehran. This lack of identity, confusion and disorder is same everywhere and only for this reason can be found between the cities of congruence and similarity! However, each city, depending on the climate, local materials, technology and resources to taste and culture color of facades, windows and doors, street furniture, flooring, roofing essentially all urban elements is limited to certain colors that somehow are the Identification of City's color. Putting together the samples of color can design the palette of city. The color palette of desirable town are on the predefined and coordinated outskirts and they are mostly on color proportions. One of the elements that besides the light color, texture, form affects the visual perception of people from the environment is color. But perhaps more than any other issue in the design, treated with it randomly. Colors have perceptual weight: light colors are lighter, dark colors are heavier. The black color in this case is the exception and adds the empty feeling. Different colors are inducers of distance. Warm colors are feeling closer and tighter the space, while cool colors show farther and wider space. It should be noted that the form of color appearance together and the background color also affect these dimensions (Hosseini, 2001).

4.4. The effect of color on the perception of city and the citizens

Color perception in general, depends on three factors:

1. Circumstances that color can be seen;
2. The characteristics of reflector surface such as texture and its ability to absorb or reflect light;
3. The ability to perceive colors.

Many studies on the psychology of color and light on our understanding of space and time have done. Everyone are aware of the impact of color on weight (light and heavy), temperature (hot or cold), distance (far and near) and size (large and small). Even the time scale areas in with different colors are different (Tehran Urban Planning & Research Center, 2012). For example, listeners to lectures in a blue hall, find it long and dull, while the same lecture in a red hall evaluated exciting and shorter. The combination of these factors makes up regardless of other environmental and spatial characteristics, the same space with different color combinations have very different effects on the human perception.

4.5. The effect of color in legibility and identity of the city

Preserve and enhance of Legibility and identity of individual areas in a city is always an important objective that independent of the type of area or place city should be in terms of designer and urban management. Color is one of the important elements that can be effective easily and at a cost less than the construction for defining areas, creating Legibility, a sense of unity and sense of place. Use of the relevant and correct color map can strengthen the sense of unity that leads to a sense of place and identity to center (Grater, 2002). In the city of Hamedan urban areas are painted without purpose or are abandoned unpainted. The lack of coloring without a purpose in urban areas is one of the main factors of unknown identity in the city (Atashin bar, 2010). Color identification can help clear up space to urban planners. Color designing in the city from the psychologist's point of view and their effects on humans can affect the identification of areas. For example, the use of red in places such as the Amusement Park can enhance the excitement of area.

4.6. effect of color in variations and vitality

Color helps to reduce eye fatigue and stimulate it. Colors created various contrast (contrast) at different times of the day and at any time create a new shadow and make area varied and lively. The lack of variety and vitality, preventing presence of persons in area and their participation in civil life (Milkellodes & Tom Portet, 1997). According to this article, creating diversity and happiness in an appropriate space can be easily calculated and thought out. The most notable example is Commercial streets and game centers for children that their various color for creating happy centers has become obvious. Even special occasions are also reminiscent of various color that are different from other times of year. Celebrations and festivities on everyone's mind are synonymous with varied coloring on day and night.

4.7. The use of natural color in urban

As home furniture and space of residential environment must be given harmony and order in choice of colors, Component parts of the city as well as adherence to principles of colors mixing and matching will make relaxing and favorable atmosphere for citizens. Urban green spaces are the most important supplier's ingredient of variety of colors and play a major role in shaping color image of the city (Seyed Sadr, 2001). 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. One of the duties of landscape designers are knowledge of color combinations, color psychology and knowing its suppliers of plant species. Trees and shrubs and vegetation can be found in nature. That changes color in different seasons, cause of the diversity in the urban

landscape. Combination of Plant colors in any area can be followed by two general methods:

The first method is a combination of colors that are adjacent colors of the whole cycle, for example, combining of red - purple and purple. In this case of combination of color, any size environment to be broader, there are more choice of color range and adjacent colors. Contrary by minimizing environment, the chosen color will be limited.

Second, the combination of colors is the opposite of the first method. In this way, the complementary and contrast colors used against each other, for example, the designer of plants use yellow-violet or red- green color in adjacent with one another. This method is mainly used in cases that designer's intention is attraction of attention and viewers' idea into perspective (Tehran Urban Planning & Research Center, 2012).

4.8. The emotional effect of light on city spatial perception

Light through objective and subjective images of the world around are formed in our mind and Perceptual space only achieve by receiving qualities of the real image. It is noteworthy that perceptual space is different with real space and image space is the end result created in result of perception (Heller, 1989). Environmental quality is the form of area that have a certain emotional effect on people and these quality is resulting of potential features of it that by the coming of light are made active, Daylight is a combination of sunlight and skylight (Bahadori, 2001). In nature, sunlight is the major or dominant light. Its color is hot and create shade and brightness areas. Skylight is the second or minor light. Its color is cold and fall for on the subjects softly. Without skylight function, shadows sound dark and details become invisible. Light effects on qualitative features of area's elements and affected characteristics of it. But an atmosphere that is filled with even lighting is totally neutral and generally there is no space in darkness. Unlike these two, the space that is full of contrasts shades, full of visual power and is tangible physically and visually. Light effects on the physical properties of space and also on subject properties and forms the perceptual context. Light quality is changing by time, in fact light is the fourth dimension of atmosphere in the perception (Etemadi far, 2013).

4.9. Visual management of Hamedan

Since the development of lack of identity, identities and existing visual quality of cities are collapsing. Development of strategic document and construction management of protection from a macro perspective and the visual quality of the city, extraction of visual analytical techniques in large-scale of city, identification of potentials and visual issues seem necessary for city. The following map of the city of Hamedan has been associated with visual management.

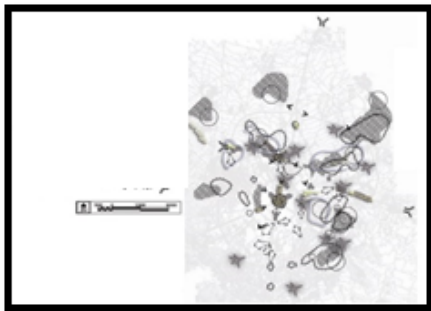


Fig 1- Visual communication issues in Hamedan

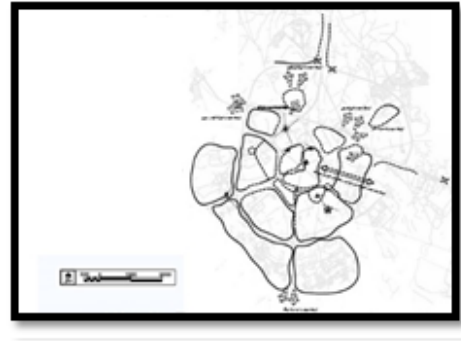


Fig 2- Intuitive and visual problems within the Hamedan



Fig 3- Visual issues paths and streets in the city of Hamedan

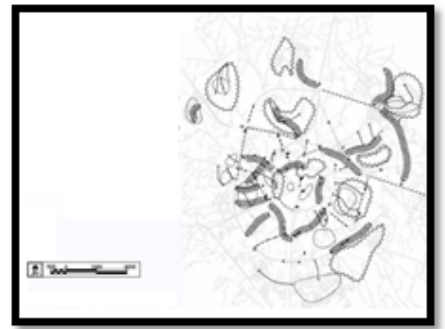


Fig 4- The referral of civilians in mental map Lynch elements of Hamedan

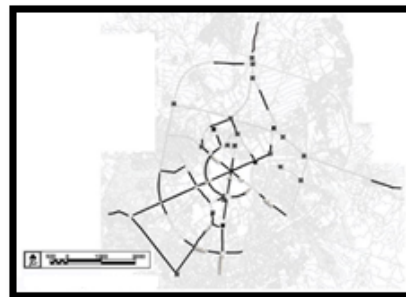


Fig 5- Visual communication structure moving in Hamadan

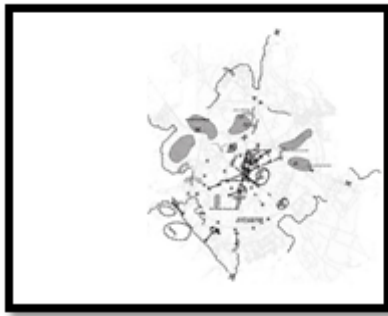


Fig 6- Visual potential of Hamedan



Fig 7- SWOT integrated public arena and visual organization of Hamedan



Fig 8- Colored asphalt Hamadan



Fig 9- Color zoning map of the city of Hamedan

5. Conclusions and suggestions

Aesthetic in all of the human condition is an important part of perception and action and human life and combination of elements of man-made and natural is just manifestation of the aspirations and thought of society. The beauty of city is not only affected by buildings but the form their relation to each other, walled city, public centers and visual qualities are also important. Social cohesion is town's main function, so the city should belong to the public, Physical environmental is integrity that I am a part of it, our perceptions followed of this integrity and make a beautiful appearance. Beautiful city induced beauty to human and by understanding the beauty, human moves towards perfection. If the city inspire beauty to citizens, they achieve calmness, happiness and balance. Whatever city physical beauty be based on residents' culture and worldview its effect becomes more stable and more effective. We live in cities that steeped in light and color and influenced by the psychological effects of it. The colors and lighting are all like a big painting drawn in front of our eyes and each one catch the eye to one side. A large painting that seems to be never complete and new color and design will be added every time but alas, these colors are without the previous plan and instead of conducting color scheme in a purposeful way, it has suffered confusion and Of course, psychological effects of this undesirable confusion should not be ignored because people from morning to night are crossing and working and leisure the city and they are under the influence of these factors and various effects get such as excitement, relaxation, confinement, fear, power, boredom, creative etc. by proper, appropriate and scientific coloring and lighting can create suitable and beautiful visual with a favorable psychological effects. In conclusion, it is suggested that Instead of coloring and lighting tastily, by using the opinion of experts and specialists focused on to the preparation of master plan about color and light. In order to city come out from the chaos of color and light and go purposely. It is also suggested for Hamadan that city's master plan has been prepared for light and colors and by using the city's master plan is targeted to paint and lighting city. On the other hand, according to the climate of Hamedan, combination of deciduous trees can use for natural coloring city or by distributing questionnaires, favorite color of people with expertise opinion used more in the city and for up urban spaces it is suggested that by using this plan should be colored. It is suggested to paint streets wall as drivers can see just a few large color spots and on the eyes of observers who are walking on sidewalk observe the details of painting beautifully, In this case, the suitable visual is created for drivers and pedestrian's curiosity is aroused. walls and furniture of city and around of Streets can be painted and lighted up with colors of orange, yellow, green, and blue Since the set of different shades of magenta cause muscle relaxation

and elimination of their congestion and fatigue. "Orange" is warm color and joyful radiation emits that would be refreshment and areas painted with yellow tones are energize and causes refreshment in visitors. The brighter colors are yellow family, the lower energy give us. By combining warmth of yellow to the comforting blue, the color "green" gives us energy and life. This relaxing color, get anxiety away us and relax tension and muscle cramps. Green is an ideal color for areas that need concentration and relaxation. "Blue" is the color of peace, power and health, and it can be said that has the proper features unlike red. This color reduces the heart rate and sweating and also decreases blood pressure. The light Blues clearly points out the sky and are colors of peace and entrances of the city can be colored by focusing on blue and green. Because in these places need to be more relaxed. Due to the climate, its mountainous, snowy and foggy climate, it is recommended that Instead of using the fog lights that cusses tediousness and lack of encouraging for citizens to present in the places and centers, use the white non-dazzling lamps that addition to inviting citizens into urban areas, lighting of buildings and elements become also more visible. Since, concerns and tensions of urban life cannot be completely eliminated, It is suggested using the seven colors of the rainbow by strengthen the chakra of body and to balance the positive and negative energy on levels of the left and right of body, Considering that all diseases have their roots in the human's unconscious, significantly and dramatically reduce the tensions and stresses of everyday urban life. And thus to improve the quality of urban areas to promote citizens' perceptions and the final word can be attended to climate and tastes of the people and expert's opinion on master plan of color and light for the city of Hamedan that Painting and lighting updated due to conditions and act Palmystic and generally enhance presence of people in the community, creating lively, vibrant and beautiful city; increase reflection of the city's identity, prevent contamination of color and visual disturbances, increase efficiency performance and activities of the city and urban living, and provide safe and dynamic city.

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