

The influence of color on the quality of space, an architectural work looking at the house of Hossein Khodadad

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Abstract

Colors have always had a special and unique place in Iranian architecture, and Iranian buildings have always been a place to show the thoughts and feelings of Iranians through colors. Iranian architects used different and soothing colors in the interior of the room, using colors to create a better impression of space. Each color has diverse vitality and visual impacts, colors have perceptual weight, colors are shining strengths and energies that will have positive and negative impacts on us. Among the various architectural spaces, residential buildings are one of the most important places where people spend most of their lives. This is why seeing and choosing the right colors for a place has a huge impact on people's comfort. Color is one of the visual aspects that create space, and it has different meanings in different cultures. This situation is different from person to person. Color, like other visual aspects, has a physical and psychological effect on people, so it has become an important concept for architecture and space. This study uses available data to investigate the effect of color on the quality of architectural spaces. The results of this study show that the correct selection and combination of colors in buildings strengthens the ability to create feelings towards the environment and has a significant impact on man's living space.

Keywords: the influence of color on emotions, color and architecture, the role of color.

Introduction

The ears hear, the tongue speaks, the hands hear, the eyes see. We say we are blind whenever our eyes are closed, and sometimes we feel relief when our eyes are closed, because when the eyes are closed it compresses a group of muscles and nerves that includes the sight to rest. However, when we open our eyes, the colorful world hits our eye muscles in waves of light, and these muscles scream and excite, waking up their neighbors. Finally, they encourage the brain to move and put the responsibility of this whole

attack on it. You should also go out the door with each color and decorate your garden in your style. It has a great influence on our brain, so it has an indescribable power over our lives, every color stimulates us in one way or another. The psychological, mental and physical activities and influence of color on the nerves have been well proven, including many religions that are well aware of the concept of color that they created as an example and sign. Most painting schools arrange the colors in the tables according to the depth of emotions that each color has in people, in fact, many people have the same reactions when touched by each color. Correct. To the human soul and brain, color has the same effect as sound. Sound affects the muscles of the ear, color affects the muscles of the eye, and so on. And the difference between these two things is that when we open our eyes we see colors in each corner and not in the other, and when we open our eyes, a million colors can touch our nerves at the same time. And no color fills our entire vision and shows its special effects. But despite the weak sound, it stimulates our auditory muscles at the same time (Asadullahzadeh, 1974).

Background research

The background of this article can be found in research sources, including books and articles such as the relationship of color and architecture on culture and human perception. (Behzadpour, Shokoh Bin, Hosseinkhani) pointed out the importance of color in the urban space (Ferdowsi, Samiri, and Tabasi) and the following article deals with the energy of colors on the spatial quality of architectural work.

Research method

One of the most important parts of the research is determining the method and structure that will be used to carry out the research. Texts from the fields of architecture, class and culture were used to organize the different aspects of the research. The research method is based on library research and content analysis of the theoretical content of the desired study.

History of Colors

One of the first written accounts of the magical powers of colors can be found in the caves of Lascaux and Altamira. The painters of these paintings painted by hand, using simple light colors and many different colors on the cave

floor, such as red and yellow iron, magnesium and black (Albers and Sharveh, 2003). In 1666, the famous British scientist Isaac Newton discovered that white light passes through a prism and breaks into visible colors. Newton also discovered that each color has a unique wavelength that cannot be broken down into other colors. Later experiments showed that combining light can create different colors. For example, the combination of red and yellow light produces orange. A color that is created by combining two other colors is called a combination. Some colors, such as yellow and purple, when combined, neutralize each other and produce white light, these colors are also called complementary colors (Alipour, 2014).

Terminology

The word color is synonymous with hue , a physical phenomenon that appears before the eyes of the observer due to the radiation and reflection of light. And although it is an objective psychological phenomenon, the word color is the same as Pigment and Colorant, which means pigment and color, which refers to the physical and chemical properties of color molecules and examines the nature of color (Ostovar, 2011) .

Aesthetics of colors

Colors can have a huge impact on our lives in many ways, the most important being their impact on our emotions. The world in which people live has thousands of colors and shades that make creatures and objects very beautiful to us and deeply spiritual. Because of their chemical and psychological properties, they are considered a great source of energy to increase the health and well-being of the human spirit and mind. Contrast with you the monochrome world of small tones and the image on the side, imagine yourself as a resident of a city in black and white. Without change and emotions, the meaning of life changes, cold and death occur everywhere. A soulless space devoid of any vibrancy that is thirsty for a sip of color. Due to its important psychological effects, the question of color is considered such an important topic in the

category of urban and architectural spaces that it has been proposed as a specialty among artists under the name of urban spatial color classification and colorology.

The harmony of colors is like the harmony of notes and has a special meaning in creating a suitable and striking harmony as a piece of music .Achieving interior goals such as proper function, visual beauty, spatial harmony, and effective and positive environmental and psychological impact requires a harmonious, unified, meaningful, and beautiful use of interior design elements .In a good design, all elements and parts are closely related to each other in terms of quality and efficiency in space. Consequently, the success of any design depends entirely on the combination of spatial elements and three-dimensional patterns. Many years of experience working with color have shown that colors have different characteristics from each other, just like people, and our tastes can be similar or opposite to each other. Orange and red are often considered opposites, but sit well next to each other on the color wheel (John Panter and Matthew Carmona 1997).

The History of the Influence of Color on Architecture

The history of the influence of color on architecture is an important and interesting part of human history, spanning many periods and styles. Since ancient times, people have used color to decorate buildings and create a visual image. In ancient times, such as the time of Egypt where religious traditions flourished, color was used as an important symbol in buildings. For example, in Egyptian art white and blue were used to honor the gods and natural elements (Avaz Nejad, 2020).

In later periods, such as the Renaissance, the impact of color on architecture appeared as an artistic and technical tool. The works of famous

artists of this period showed the use of color and buildings and works of art. A concept was proposed for the combination of color and its effect in creating balance and beauty in architecture (Ghafurian Heydari, 2022). As science and industry developed in the 19th and 20th centuries, new color materials and technologies were developed. In recent decades, the use of pigments and chemical colors has given architectural designers the opportunity to create unique spaces with various color effects.

These important works allow designers to choose colors and their effects in the design and construction of buildings that reflect history and time, emotions and values of society (Ghiathvand, 2022). As the history of architecture continues, passing through the 20th century and entering the modern world, the use of color in architecture has led to new developments. Modern trends such as Bauhaus and maximalism allow designers to look more freely at color and use different colors in modern buildings and designs (Farshchian, 2015). Today, thanks to technological advances in color and lighting, architectural designers have more opportunities to create stunning visual experiences using dynamic and innovative colors. These spaces allow them to combine art and science to design environments that have the best impact on residents and visitors (Lynch, 2012).

Studying the color of a room and its effect on a person

Painting a room and using materials that satisfy the desired color and textural characteristics are very important and at the same time have the ability to influence the physical changes of the room. The coordination and division of colored walls can be considered to determine the physicality of the space and combine aesthetic criteria with design features. For example, lighting issues and the use of natural light are very important in room design. But how to manage the

light, and the choice of colors and materials that allow the light to pass, depends on the creativity of the designer and the ability to combine it with the lighting of the room and the need of the place.

Using the color wheel is a sure way to find the right colors for your desired color. The color wheel consists of twelve colors, three of which are red, yellow and blue, in which the primary colors and the colors between them are known as secondary colors. Each color in this cycle can be well combined with adjacent colors, which are colors in its family, and with the opposite color, which is its complementary color, for a beautiful and harmonious result. The use of so-called neighboring colors next to each other in the color circle of the same family creates a gentle and harmonious combination that easily directs the viewer's eye from one to the other.

Using a small complementary color, if done correctly and in the right proportions, creates a bright and impressive result and enhances the appeal of the existing color collection and prevents the color from completely dominating the room. (Hosseiniyon, Solmaz, 80). Color classification has two categories, warm and cool colors, which can be very effective in creating a sense of warmth and coolness in an urban landscape. Generally, warm colors appear before cool colors, so combinations of warm colors are better for wrapping, and combinations of warm colors with bright colors are also good for visual illusion (Bakhtiari Fard, 2008).

Here is a brief introduction of these two categories:

A) Warm colors: red, yellow, orange, pink, brown, wine, etc. are called warm colors. In fact, the wavelength of red light is very close to ultraviolet rays, which are the source of heat transfer. Warm colors are aggressive and attract attention. The presence of warm colors

will make the message move faster and focus on itself.

B)Cool colors: The spectrum from green to blue, including shades of blue and gray, are considered cool colors. These colors have the

same cooling effect. The result of these colors is a contrast of warm colors, which slow down the work and metabolism of the body, and are used in hospitals to calm the mind of patients, sometimes causing a feeling of white (Shi Ji Wa, 2017).



Picture number one, cool and warm color palette

Such factors create different approaches in design for choosing colors for buildings, interior decoration and space furniture. Color is one of the elements that determine mood and the way we communicate with our surroundings, and more than any other specific element, color can transform a dull and empty environment into an emotional

place. Changing the color of your walls can have more dramatic results than changing the furniture and layout of a room. Many houses are painted in beige, cream and other shades, but the standard color for new houses is magnolia. But we have to think about how these colors can be used in different social situations and climates. Others, the walls of

simple and sensible colors, such as bone, are perfect for living, but make a difference by choosing specific colors in the house accessories and ornaments and carpets that inhabit the space (Hosseinion, Solmaz, 80).

The meaning of color in architecture

Color in architecture is not only an aesthetic element, but also a meaningful language that has a significant impact on spatial experiences and the relationship between people and the environment. The philosophy of color in architecture, a hidden language, conducts research on the effect of color on emotions and feelings, and how the power of even to create people's feelings, energy and mind (Moradi Nasab, 2016).

An Important aspect of color perception is the emotional impact of color. Each color has a special place to change and reflect human emotions. For example, blue is a good color and you can relax in a good place, while red has energy and unique energy, which creates warmth and enthusiasm. The idea of color also takes into account the choice and combination of colors to determine the identity of places and buildings. Color plays an important role in creating the perception of a place and determining a place's identity. The choice of color, based on its relationship with the environment, culture and the function of the building in society, has a great impact on creating and creating a good identity for the place (Mehdinejad, 2022).

In color philosophy, the selection and combination of colors based on the principles of combination and interaction play an important role. Using these principles, architectural designers can create spaces with

balance and harmony in the use of color and provide useful experiences for residents. The sound and mechanical effects of color in space allow designers to focus on specific points and clearly display components. Aesthetic effects can also influence the visualization of space, including creating a fractional sense of architecture (Nazari, 2012).

The philosophy of color In architecture is about improving the space in artistic experience and knowledge by connecting theory and practice. This motif allows designers to consider scientific and artistic concepts to create spaces with emotions and feelings that go beyond typical architectural language (Wahdt Talab, 2020).

Color and architecture

It is not only the influence of the environment and where people live, but color is an important part of our life in the world to create a calm and happy environment. Our ancient peoples really understood the importance of color by observing the changes of natural colors according to the cycle of day and night, and the red bar during the day marks the end of the daily work.

And it showed that to escape the evil of the darkness of the dark night, one must enter a safe cave. It seems that the reason the ancients were able to use colors in nature is because they were inspired by nature and the nature of night and day and used colors like black and red as symbolic colors of life and death (Mahmoudi De De Bigelow, 2011). In most parts of Iran, many months of the year are dry and arid. In the spring, the fields are

suddenly decorated with flowers and the plants are covered with flowers.

And the bright symbolic flowers cover the valley floor. This heavenly dream influences every thought, every art and even every daily conversation. Many flowers and plants became sacred symbols of life and happiness and were used in various ways in all situations. Therefore, it is natural to find a way to sustainably maintain the temporary beauty of the garden, which also strengthened the desire of Iranians to reach nature (Pope, 2010). According to many scholars, few people were as aware and familiar with the properties of color and its effects as the Iranians.

Colors are judiciously used in Iranian art. And this use is related to understanding the symbolic meaning of each color and the magical and religious nature of color. And its most important created source is the sign of the world in the relationship between people and the relationship with the heavenly forces (Pope, 1986).

It cannot be denied that colors are directly related to architecture. In Iranian architecture in particular, this relationship and mutual influence is well reflected in the scale and simple appearance of the buildings, which inspire a spirit of peace and trust. In particular, the visuals combined with the restrained emotion created by the rich colors and large space to take the viewer on a wild journey are truly amazing.

This combination of pleasure and relaxation is one of the characteristics of the Iranian aesthetic experience. Ancient Iranian architecture has always been a form of

aesthetic history. This beautification can be attributed to several factors, which are:

Hierarchy, the need to use symbols and a great love of decoration go beyond fashion. And perhaps, in addition to the desire for decoration in Iranian architecture, the desire to use color is due to a love of color or texture. (Helen Brandt, 2007).

The choice of color In architectural design

When choosing the color of architectural design, one must pay attention to several key points to optimize the experience of the users of the place. The first thing to consider is the main purpose of the design. If the room is intended for rest and relaxation, it may be appropriate to choose neutral and calm colors such as blue or green. On the other hand, for rooms that aim to create a dynamic and energetic space, it is appropriate to choose bright and lively colors (Minai Tabrizi, 2020).

Another important factor is adaptation to the local culture and environment. In this case, color can play an important role in connecting people with the local culture. Here, we recommend making the right choice based on the specific values of colors in each culture. In addition, the lighting and additional lighting should be combined with the color selection. The effect of color depends on the lighting, so it is important to plan the lighting according to the chosen color to achieve the desired effect.

In general, the balance between the color, the theme of the design and the atmosphere of the area will help the visual design of the design to be better and more effective. To complete

your design, you can use color perspective to influence additional aspects of the space. For example, the use of warm colors and their variations can affect temperature and seasonal changes. In addition, in open spaces or public areas such as plazas and squares, the choice of open colors and natural colors can be directly connected with the surrounding environment, and show the form of freedom and nature to the public (Nasri, 2021).

To study the effect of color in architecture, case analysis and observation of the color effect of the building are important. These insights can help designers benefit from past experiences when choosing the optimal color for new projects. After all, the use of color in architectural design not only helps to organize beauty, but also has a profound effect on the spirit and emotions of people, and the connection with the living environment and local culture. According to these points, architectural designers have a great responsibility to choose and apply colors intelligently to create spaces that are both beautiful and functional (Nasiri, 2017).

Time Museum

The Cultural Museum is a museum of time with a rich collection of chronometric objects that tell the story of the past in every moment of people's lives. It is a place that will challenge the mind of every viewer. But what catches the attention of all visitors to this beautiful center are the unique displays of Iranian art and architecture. This is the result of more than 12 years of hard work by artists and experts.

Muqarnas' works, with unique designs of concrete and brick and small designs such as

leaves and flowers growing in the body and soul of the building, show a range of Iranian art. The mosaic work on the walls, the coexistence of pieces of colored tiles and the porcelain knots used in the windows and doors of this building, the reflection of the intertwined geometry of glass, wood and paint are proof of the influence of art. The brilliance of Iranian artists in the body of time.

The building of this center with about 700 square meters of infrastructure is located on an area of 5000 square meters. The history of this building dates back to the Qajar period. Iranian industrialist and entrepreneur Hossein Khodadad bought this property in 1963. This building was made of clay and mud and with a wooden frame about 80 years ago, but after some time it was renovated and became an iron frame. A floor was built on it and changes were made inside the building.

Engineer Ebtekar was the consultant engineer for the building and Ostad Kashi and Ramzan Abbasian also worked as architects in that building, then in 1966 AH they invited Navid Teherani to plaster the building. About 40 people worked with him on this job. The plastering work of this building lasted from 1964 to 1977 .

The stucco moldings of the time cultural center building are unique in terms of diversity. The richness of plaster art is added to this building by plant motifs and various enamel and rose-type flowers, cast iron and mesh plastics, and the unique Persian plasters of the room of the Rouhani brothers in Isfahan.

Other artistic features of this building include wooden porcelain knot art on the doors and windows, which are the work of artists such as Haj Mohammad Kashi and Mestari Hossein. On the walls around this building, there are beautiful brick works, Muqarnas' works and tile works that depict the taste and creativity of Iranian artists (Time Museum website). In Time Museum, the dominant colors of the spaces are blue and green, which are decorated with beautiful white plasters, here we will examine the characteristics of these three colors.

Blue color

The element of color is one of the special elements, knowing the properties, characteristics and effects on people is a way to create environments and spaces. And since visual perception is the most important type of perception of the environment and spaces, it is necessary to pay attention to a high visual perception ability and to reduce visual pressure, such as visual pollution, inappropriate color light, commitment to health. Color is a form of spatial harmony, and the three most important factors in choosing a color are the effect of color on distance, color composition, and color intensity. Just as knowing art is very different from people's artistic taste, choosing the right colors is more than personal preference.

The right choice of this color in your space depends on the desired spatial goals. In reality, the composition of colors, or the effect of each color, is determined by considering its position in relation to other colors. (Justice Tino Pishkhani, Mohammad Taghi, 2015). Colors are not only effective in our mental and emotional sense, they also play a significant role in our physical perception of the environment. They break the physical and architectural form of the place in a figurative way and encourage the viewer to experience the environment in a different way (Javadian Kutnai, Khodabakhsh. Rahmani, Ebrahim. 2013). Surprisingly, most agree that blue is the best color.

Seeing these colors may cause your body to release certain chemical hormones that promote relaxation. Blue is associated with emotions such as trust, confidence, loyalty, honesty, logic, calmness, stillness and stillness, care and attention (Alipour, Azadeh. 2014). Blue is a calming color, a color that captivates the viewer and symbolizes humility, faith, confidence and restraint. Bright blue is a symbol of spirituality and purity. Blue represents water and tranquility. Blue symbolizes knowledge, enlightenment and wisdom.



Picture number two, group view (photo source, author)

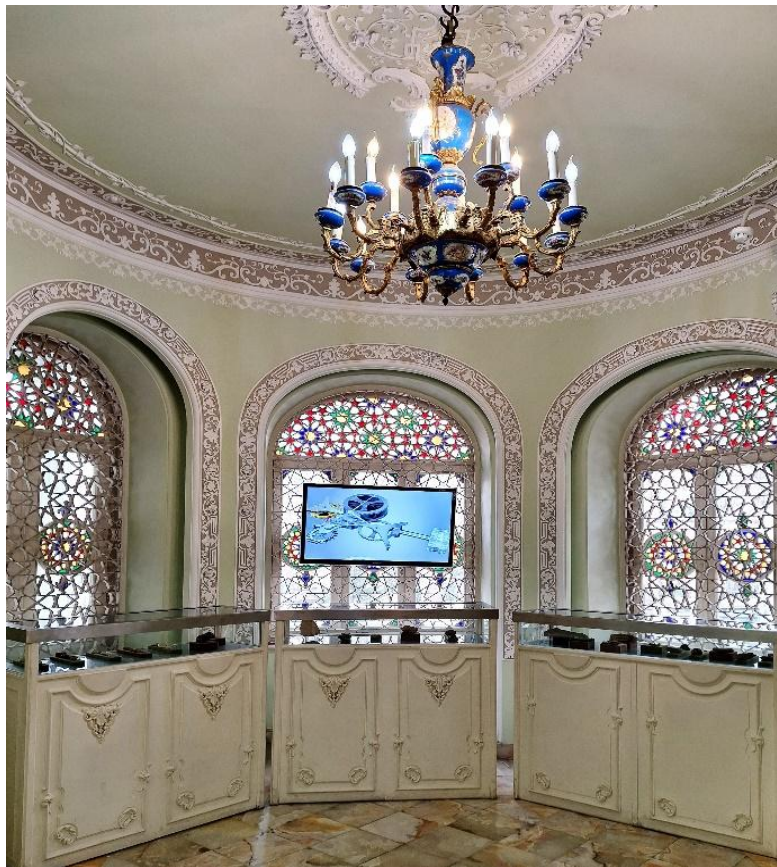
Green

Green is mainly used to represent symbolic elements and is the second most popular color among the public after blue. The shade of green evokes in people a feeling of freshness, coolness, renewal, balance, peace

and help. In general, green symbolizes concepts such as peace, pride, luck, prosperity and femininity. Green symbolizes the balance of spirit and soul, behavior and rationality of man, wisdom and peace, it brings love, peace, purity and hope in man



Picture number three, view of the main hall, ground floor (source, author)

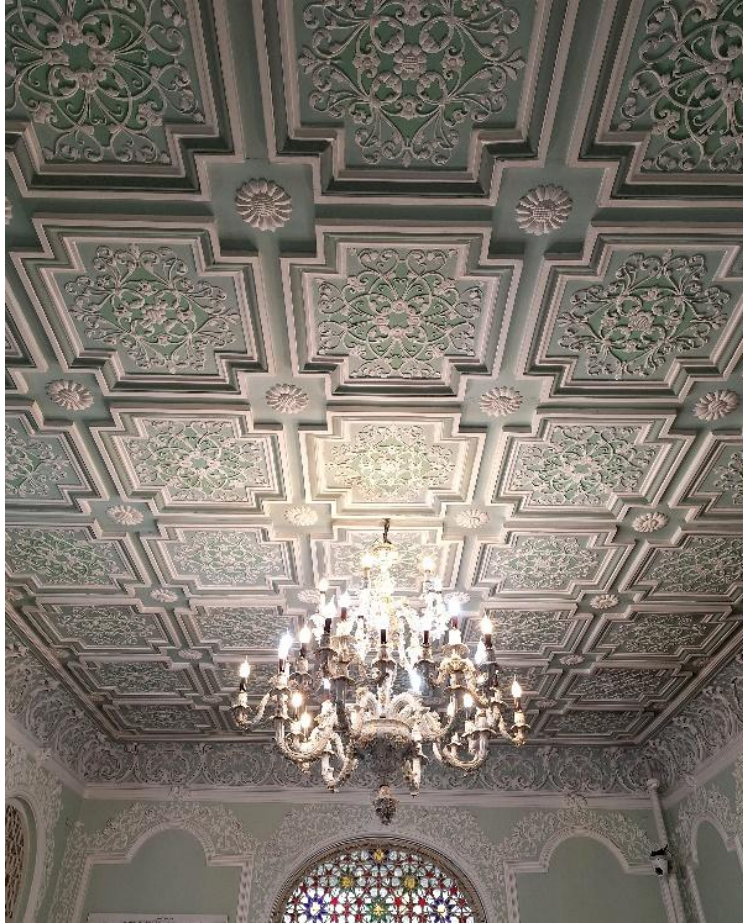


Picture number four, the view of the watch room, first floor (source, author)

White

White is the most significant color in the spiritual world, a color full of power and fear. It is a symbol of purity, holiness, calm and peace and is used to express aspects of

holiness, godliness and piety. It is a color that increases the sense of intelligence, human strength and potential, and is good for all base colors (Faridi, 2013)



Picture number five, view of the ceiling of the calendar room, first floor (source, author)

Colors in outdoor environments have a significant impact on how people interact with their surroundings. Some colors promote a sense of protection and security, while others may evoke comfort and ease. For example, the use of green colors in parks and public spaces can increase the feeling of relaxation and connection with nature (Esmailzadeh, 2017). Color, the most important element of interior space, not only

affects beauty, but has the ability to affect people's emotions and mood. Choosing the right colors for your interior can create a sense of peace, happiness and even energy (Kateb, 2019).

Conclusion

The colors we use in our environment affect our behavior directly and indirectly.

Color has a great influence on the life, personality and spirit of people. The

importance and place of colors in the historical architecture of Iran is undeniable.

Color plays a very important role in bringing to life and creating a sense of place and communicating with space, because colors evoke such deep thoughts and feelings that sometimes cannot even be seen with the eyes, but are only perceptible with the eye of the heart. Iranian architects have always used different and relaxing colors to create a better sense of space for people, because colors have a soul and live and speak like words, but not about nature, but about the human spirit and the mysterious world of man.

A deeper study of the influence of color in architecture can help architects make the best use of this powerful tool. and to create buildings that not only engage people's attention, intellect and mind, but also provide people with a unified experience and deeper

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learning by effectively interacting with the environment.

The study of color energy is one of the essential aspects of the field of architecture, which not only affects people's visual experience, but also allows architects to create spaces that improve people's quality of life and well-being.

In summary, this article has shown that the influence of colors on the spatial quality of architectural work is a difficult and important subject. Color choices in architectural design can lead to improvements in people's quality of life and changes in living spaces. The optimal use of color elements, in addition to their attention-grabbing effect, can effectively improve interpersonal communication, social interaction and mental health of people.

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