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The Effect Of Architectural Design And Its Dimensions On Human Psychology

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Abstract: This article discusses the results of much current research in psychology and architecture, their impact on the human mind, and the dimensional impact of architectural design on problem solving in social life, especially stress and depression.The earliest examples of architecture were formed as a means of protection in human life, as a refuge from the environment. Gradually, architecture became an art form, incorporating the concepts of subjectivity, creativity, and beauty. Today, we can see that architecture is developing all over the world.

Keywords: Architecture, psychology, psychoactive therapy, meditation, component, interior, volume, pattern, rhythm.

INTRODUCTION

The interaction between architectural design and human psychology is very important for today's level of social life, but its interaction has not been used or taken into account in the field of design before it. Moreover, the relationship between architecture and psychology is twofold, on the one hand, successful design has a clear psychological and physiological effect on people, on the other hand, psychology, human experience and neurological systems as a function and successful design plays an important role in things.

In general, the earliest examples of architecture were formed as a means of protection in people's lives, as a shelter from the environment. Gradually, architecture became an art form, incorporating the concepts of subjectivity, creativity, and beauty. Today, we can see that architecture is developing all over the world. The current level of development of architecture is not only related to the

art form, but also as a target area for psychological and psychological well-being. That is why it is very important to study the psychological impact of architecture and interior design on the development of this industry, as they have a great impact on the emotional and psychological state of people. [1, 2,3]

The concept of optimal perceptual value of space is associated not only with the presence of perceptible signs, but also with the mobilization of perception, spatial identification, activity of searching for messages in the environment, resisting the state of perceptual monotony that occurs when it exists there may be an overabundance of simplicity and a “lack of measurements”.

The advantages of the main architectural and spatial components, which have opposite qualities of subjectivity, are: sparse - dense, closed - open, vertical - horizontal, right plan - left plan, top plan - bottom plan.

Visual emotional evaluation of the environment in the human mind is determined by the degree of plasticity, level of convenience, level of complexity, level of corporatism, dynamism, lightness, superiority and monumentality.

In the process of perceiving the environment, people develop images of standards - environmental archetypes. That is, the image of a place for a person takes on typical characteristics. With this in mind, the conditions of the structure of the structures involved in the formation of the composition of the architectural and spatial environment include:

- three-dimensional spatial structure;

- architecture and art;

- Thematic location of the complex in the area.

Also in this process are the visual types of environmental composition: dominants; different levels of central accents; background elements; the large and small arrows of the composition can help to fully reflect the architectural complex in the human mind psychologically.[2,3]

In architecture, the main features of the composition: shape (configuration, geometry), size, color, orientation, location, dynamics also serve to combine these processes. Secondary features of the composition as a complement to the architectural complex are: the compositional center, visual points, contour, level of dynamism, level of statics, direction of dynamics, visual axes, visual groups, general scheme of visual mass-compositional structure.

METHODS

The architect who creates the architectural-spatial environment must understand the relationship between people and buildings, between buildings and the environment, as well as the need to connect buildings and the spaces between them with human needs and scale. The profession of an architect and his or her understanding serve to make project assignments look perfect, taking into account the roles in society, especially social factors.

Basic psychological concepts of architectural spatial environment: open and closed form, space, image, general source of information; dominance-flexibility, heavy-light, monumental-elegant, simple-complex, irological-rational, curved -right, significant-insignificant.

There are also examples of architectural compositions in architectural complexes that evoke emotions such as joy - sorrow, concentration - attention, curiosity - indifference, calm - tension. And of course there is also a subjectively assessed scale of architectural environments expressed in human

emotions: sadness, heaviness, weakness, pain, depression, discomfort, rejection, boredom, indifference, curiosity, acceptance to do, feelings of ease, joy, recovery, activity, relief, strength, happiness.

Depending on the characteristics of the information they receive and the habits they form, they choose or avoid certain features of the environment. These are large open area- or small closed area; light-saturated light - extreme darkness; natural naturalness - technologically artificial; ceremonial official (public) - a friendly, comfortable private living space environment.[5]

Architectural tools create the following psychological emotions:

• stability, tranquility, a certain specialization of the environment;

• mobility, variability, versatility of the environment;

• Infinite order of the environment - a recreational area of entertainment;

• efficiency, environmental friendliness - production.

Through the scale of architectural objects, human activity in a particular environment is psychologically determined, including:

- large-scale environment - labor, public space;

- small-sized environment - recreation, individual.

Many scientists in this field have identified three causes of emotions in humans. These are: - type of behavior; physiological condition; the aesthetic appearance of the environment.

There are many other reasons why emotions arise:

• Emotions that arise as a reaction to behavior - the functional organization of the architectural and spatial environment;

• Emotions as a reaction to the comfortable - uncomfortable state of the environment;

• Emotions as a reaction to the aesthetic expression of the environment;

• Emotions as an expression of attitude to “their” recognizable forms;

• Emotions as an activator of human vitality.

To understand how architecture and interior design affect people’s psychology, one must first understand the effect of at least some basic stimuli on the human brain.

One such factor is joy - a feeling of happiness, contentment and enjoyment. However, the ways to achieve these feelings are subjective and have evolved as human interests have changed and our available resources have changed.

An emotional reaction to an interaction with an architectural environment reflects a person’s attitude toward it. It is impossible to imagine all aspects of human life without emotional stimulation. [2,4]

Assessment of emotional qualities is a generalization of an individual’s attitude towards the environment, personal characteristics, and characteristics of environmental stimuli. These assessments include a synthesis of subjective-objective environmental factors and human reactions to these factors.

For example: A sense of confidence emerges in a known, predictable, clearly readable environment. A sense of uncertainty arises in an unfamiliar, ambiguous environment, in a multi-valued reading of characters, in a mixture of primary and secondary meanings, accents, characters. The sense of elevation occurs in the special tectonics of the object, the accents leading the eye from heavy lower forms to slightly higher forms. A feeling of depression occurs in weight. The higher forms of the object and the movement of the eye from top to bottom are characteristic of this feeling. A sense of balance is a sense of proportion, a balance of forms.

While the sense of power emerges in the completeness, stability, simplicity, robustness of forms, the monumentality of forms, the sense of nobility is the overall harmony of the image, without overloading the forms - themes, with the coordinated work of all principles of image formation and harmonization occurs. The following behavioral categories associated with aesthetically pleasing environments are: relaxation, contemplation, anticipation, thinking, communication. They correspond to pleasantness, joy, activity, peace, curiosity, mysterious feelings. In unattractive places, the main types of behaviors are transient, deviant behaviors.

The emotional background here is a combination of feelings of discomfort, anxiety, fear, as well as an increased sense of control, as well as a lack of control, loneliness, and disgust. The small size and limitation of space is reflected in behavioral factors such as the proximity of communication. They develop an emotional experience of serenity and space management.

Large open spaces are convenient for physical activity, sports, teen games, work activities. Interconnected experiences are the result of activity, discomfort, lack of control.

Today’s modern architectural environment is more about sports, economic affairs, it evokes activity and hope.

The historical environment is characterized by behavioral characteristics such as celebration, communication. It is often seen as pleasant, creating a sense of peace, control and interest.

In architectural design, the difference between environments where smooth and sharp angular lines predominate is reflected in the level of activity and anxiety. Smooth lines evoke calm feelings. Sharp corners - create feelings of anxiety and more worry.[5,6]

In today's era of rapid economic and social development, stress has become the most important factor in modern life, and the impact of these characteristics on health is now known, so strategies such as psychoactive therapy, meditation, medication, etc. are needed to combat it. will be used. While there are many conflicting opinions about which of the above methods is most effective, everyone agrees that stress can be reduced at least in part. For this reason, there is a lot of research being done on architecture and interior design as an effective means of coping with stress, as well as their positive psychological effects.

RESULTS

Gradually, the development of architectural style has changed the will of the general public, leading to the discovery of new materials and construction tools. While some of these styles emerged very quickly and quickly gave way to other styles in the field of architecture and interiors, others have stood the test of time in perfect style and have existed for centuries. , even styles that have influenced modern architecture and their patterns still serve for today’s design industry. [7,10]

The "Perfect and Beautiful" building, which serves the purposeful development of architecture, consists of three components: durability, convenience and beauty. While the word "beautiful" is radically subjective, the feeling associated with it is universal. Describing something as Beautiful brings great joy to the human mind. The feeling of joy is the result of the release of oxytocin and endorphins into our brains.

In addition, buildings that delight people are familiar from ancient times and have survived to this day, the properties of the three components with the appearance of "Beautiful", "Comfortable" and "Sturdy" helped to protect ancestors from external influences, as well as many more include buildings containing architectural elements that have retained their artistic aspects to this day. Thus, in order to form an architectural dimension in the minds of people and its psychological interdependence, it is very important to give a sense of being able to enjoy other distinctive features or patterns in a building in relation to each other in architecture and interior. [8,9]

The size or patterns of the building have long paved the way for people to broaden their horizons and reuse these tools for designers. The human brain recognizes and remembers the size and patterns of buildings in different ways. First of all, in the human mind, it breaks down the incoming information about the division of the brain, called adaptation of the properties of size and pattern, and then compares them one by one with the previously stored parts of size and pattern. Customizing patterns is like customizing features, except that the template that enters the human mind does not match the stored template, it tries to relate the incoming information to a specific size and pattern specificity. [10]

The importance of design in buildings depends not only on the ability to clearly see things in the example of a dwelling or other building, but also on an aesthetic approach to fine architecture. The pattern in architecture is usually called rhythm. This is what causes the eye to move from one center to another, which not only attracts attention, but also contributes to the beauty of the object (house or room). [5,6]

There are four types of rhythms in the world of architecture:

- exchange, repetition of opposite pairs;
- increase, increase or decrease of the element in the template;
- repetition, continuous repetition of a single element;
- Jump - use a line that constantly follows the eye from one point to another.

According to experts, buildings that contain aesthetically pleasing patterns or rhythms look more perfect, because according to the evolution of the human brain, these patterns intertwine feelings of security, serenity and joy.

As mentioned above, this combination of emotions leads to the release of oxytocin and endorphins in the body, which leads to a feeling of pleasure. And of course, this process helps to restore our body, the immune system, cellular telomeres, and so on, and the same process is good for both mental and physical health. [12,13]

The nature of the form, its dynamics are the carriers of the expressiveness of the architectural composition. Expressiveness is the characteristic features of the appearance of the form and its impact, on the basis of which it is possible to perceive the feelings, aspirations and thoughts conveyed by the

author through the architectural composition. The perception of expressiveness implies the activity of the forces contained in the architectural composition. The sensations of the work of forces, which are taken from the experience of memory, tend to evoke a reaction in other areas of consciousness. For the artist, the expressive properties of form are the means of communication. They attract attention, determine the form of the work, with their help a person understands and interprets his experience. At the same time, the properties of the composition do not appear as geometric qualities in themselves, but depending on the expression they convey, the dynamics of the “mood” of the composition.

Many of the most famous and acclaimed buildings are inspired by wildlife and adapted to the natural environment. An example of this is the Sagrada Familia, designed by Antoni Gaudi, an unusual cathedral in Barcelona, Spain. Construction began in 1882 and the building is expected to be completed by about 2026, as the overall design of the building is very delicate. [15]

Figure 1. Sagrada Familia-Barcelona. (Antoni Gaudi).

The inspiration for Gaudi Cathedral was the forest and the many trees that make it up. Upon entering the cathedral, you are greeted by hundreds of 78-meter-high pillars, which are joined together at the top, ceiling, and like the branches of crowns of trees tied together.

The Taiwan National Theater in Taiwan was designed by Toyo Ito and resembles a natural stone formation. The building's modern style, soft, round curves and neutral earthy tones are designed to show the stones in a natural setting.

Figure 2. Taijun Opera House-Taiwan (architect Toyo Ito).

One of the main reasons why we think of these buildings as perfect and beautiful is that our brains process the emotional information we receive from them and associate them with models that were previously evolutionarily useful in nature. However, because the recognition of size and pattern in this building is unconscious, most viewers are unaware of the neuropsychological and physiological basis of this sense of beauty.

The ability of architecture and design to influence people's emotions is more complex than architecture that mimics nature. The types of patterns used in design also play an important role in our perception. In particular, the buildings, which are considered by many to be beautiful, show a unique type of pattern called a nine-square fence.

The nine-square grid is not a new architectural phenomenon. Ancient Asian cultures used it because they considered it to have cosmological significance. In the Middle East, it represents an original and perfect form, and these patterns were widely used not only in the Renaissance but also in the period of Neoclassicism.

The root specimen of the nine-square grid is surrounded by a 3 x 3 centered hollow (middle square) outer zone (outer 8 squares). However, because people naturally see patterns in many things, there are many types of nine-square grids that have the same effect. This is because a nine-square grid is not the squares themselves, but the division of the space that creates the squares. [14,11]

The center of the nine-square grid was used in the Barcelona quarter plan, as well as in the Greek Parthenon, which used the center of the nine-square grid and the square, and the Pantheon in Rome and the Basilica of St. Petersburg. The Taj Mahal in India is another example of a nine-square grid. These buildings are important both physically and figuratively, because of their beauty and time-tested.

The Parthenon was located in Athens, Greece and was built between 447 and 432 BC, so it could only be seen from the outside, and spectators could only look inside through the outer pillars.

The Pantheon in Rome, Italy, was built in 120 AD and is 142 feet high and 142 feet in diameter. He uses a nine-square-meter fence at the entrance to the building, as well as a master plan of the building that can be seen from a bird's eye view.

Finally, the Taj Mahal, one of the Seven Wonders of the World, was built between 1628 and 1658. It also includes two patterns of nine squares: one on the 9 arches in front of the building and the other on the central arch of the facade. [18,19]

These examples illustrate the importance of the nine-square grid pattern as an important historical architectural concept. It also shows how well the buildings have survived over the centuries

and how strong the pattern is. An example of their well-known beauty is the psychological impact of the nine squares on the human brain.

DISCUSSION

Another important factor in the popularity of nine-square architecture is its resemblance to the structure of the human face.

Face detection is one of humanity's most important adaptations for survival. In fact, 65% of the neuronal structure of the newborn's brain is dedicated to facial recognition. Face recognition allowed us to distinguish between humans, animals, and inanimate objects. In addition, facial recognition has helped to identify important social signals that were once needed, such as personality, age, gender, and emotions. It should be noted that the vertical T-shape of the human face is very similar to a nine-square grid. The human face consists of two symmetrical eyes, with a nose and a mouth in the middle. With a nine-square grid on the face, the left eye is in the upper left square, the right eye is in the upper right square, the nose is in the central square, and the mouth is in the central square. located in the bottom row. The resemblance of a nine-square grid to a human face allows people to unconsciously see faces while observing certain forms of architecture and in these architectural patterns, which evokes physiological reactions and feelings of enjoyment of a particular architectural pattern. can make you feel. [17,20]

If we focus not only on the positive aspects of architecture, but also on its negative aspects, it is equally important to observe the negative effects of poorly designed buildings and spaces on human psychology and physiology in terms of generality and design.

While urban planning is necessary to protect the health of the population, the architecture of the individual buildings that make up the architectural environment of the city is also important. Studies have shown that destroyed homes and streets, as well as abandoned and dilapidated buildings, make us feel insecure, fearful, and anxious. These emotions activate our survival mechanism and control the sympathetic nervous system.

Psychologists have found that people live in an environment that encompasses shops, unique spaces, and buildings with many different architectural views, rather than the usual cement buildings and architecturally repetitive shops built within the mind. , also has a major impact on his psychological health. Thus, architecture and design can have a significant impact on human psychology and emotions.

Well-designed buildings that use successful patterns, such as a nine-square net, or evoke a sense of security, have a positive psychological effect and lead to the release of neurochemicals that make a person feel happy. Poorly maintained buildings, on the other hand, make them nervous and frightened, activating the sympathetic nervous system, which is detrimental to health. While many architecturally unique buildings stimulate our minds, boring monotonous buildings exhaust our minds, which has been proven in several studies to cause clinical stress. In addition, the constant monitoring of such negative features of the building can be detrimental to health, as they are also a source of chronic stress.

Even when extensive research has been conducted to show that architectural designs that are artistically and functionally perfect have clear psychological and physiological advantages, they have been found to have an aesthetically pleasing appearance. As a result of these studies, it is possible to better understand the evolutionary basis of people's psychological and physiological responses to design. Using the technological tools available in this knowledge and science, it is possible to create an architecture that is not only aesthetically beautiful, but, most importantly, psychologically useful.

It is now important to reconsider the solid structures in a society that has misinterpreted the field of architectural design as a simple art form, thereby separating it from decent legitimacy as an area with real public interest potential. If the positive psychological and restorative effects of architecture are seen not only by the general public, but also by psychologists and architects, then the psychological effects of ill-conceived architectural design will never be eliminated and the resources needed to improve the space will be lacking. In short, these problems must be recognized as a social problem that is relevant and important to society itself. [10,20]

Conclusion

From the above examples, it can be concluded that any inanimate object that surrounds us - the basic form of man-made architecture and interior design - is derived from the human body or living nature, and these aspects are intertwined through these features. we can see that it is related to, as well as a whole. This, in turn, can enhance the impact of size, patterns and even colors on the human mind in the architecture and interior design created by architects-designers, thereby increasing their sense of enjoyment of their social life and helping them to get rid of depression.

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