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THE ROLE OF STRUCTURAL ELEMENTS OF PERSIAN GARDEN IN MENTAL HEALTH

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ABSTRACT

Human beings have a direct and close relationship with their landscapes and environment. They, therefore, set their knowledge and beliefs based on their understanding of surroundings. Human beings are the only creatures who consciously change their environment to enjoy its beauty. That is why humans have focused their minds on organizing and arranging their observations and induction to make sense of the world around them and to change the landscape in aesthetic patterns. Landscape architecture has different architectural approaches. Geometry, symmetry, texture, and all other aesthetic values are seen in landscape design, like all other arts. In this regard, the functional approach of landscape elements can be examined from another perspective, i.e. the impact of landscapes on individuals' psyche and mentality. The relationship between landscape and human has always been of high importance in different sciences worldwide because the role of green spaces and a healthy nature in relaxation is axiomatic. It is a unique human characteristic to enjoy landscapes and nature because human is naturally interested in nature and becomes tranquil in it. As a result, landscape architecture is not applied only to make the environment beautiful but to design the natural elements in a way that they do have a good impact on the psyche of people. This study aimed to investigate the structural elements of Persian gardens and their positive impact on people's mental health. The clever combination of water, plants, and space in the Persian gardens attests to the fact that the original concept and legacy of the Persian gardens all root in human comfort and tranquility.

INTRODUCTION

Garden was presented as a kind of architectural interpretation over a few decades ago, but today it is regarded not only as a work of architecture but also as a substantive principle which plays a significant and influential role in shaping the natural environment. The remarkable effects of nature on humans' physical and mental health are so noticeable that they can relieve stress and tension, reduce anger and hatred, increase happiness and life expectancy, and also help humans brush aside 'the dark and disturbing thoughts'. Research shows that the clean nature and green spaces can be very effective in terms of human health so that they can reduce the level of stress hormones, hence low blood pressure, heart rate, and muscle tension [1].

The Persian garden is a place for inner peace and comfort as well as contemplation and reflection. It is a place to purify the tired soul of human, to make the human psyche fresh and smooth. Undoubtedly the impact of such gardens cannot be ignored [2]. Gardens and garden-cities can be viewed and interpreted from different aspects: a location and an outlook that dominates the city— a place which protects itself against the wrath of outer nature— the fixed geometric design of garden— or, the fragile architectural design of Kushks [1].

The Inner Concept of Persian Garden

Persian garden has been a symbol of paradise and one of the most outstanding architectural achievements since the Achaemenid Iran. Traditionally, Iranians would consider garden as the material and earthly manifestation of a spiritual reality; this concept has been mentioned in many philosophical books as "the shadow and reflection of the heavenly world in the universe". That is why the design and geometry of the garden are associated with cosmology and philosophy and they are not limited to the experience of the mundane world. A person who has spiritual talent and discernment and holds a belief in the truth of the heavenly world will have the ability to create such gardens and therefore this art is regarded as 'sacred'. This does not mean that heaven has been nothing but a memory or an image of beautiful earthly gardens in the minds of ancient people; on the contrary, it means that the earthly gardens in Iran have always been known as the shadow of Paradise [3].

Definition of Persian Garden

In Islamic Encyclopedia the term 'garden' has been defined as follows: "an often enclosed area made by humans which enjoys flowers, plants, trees, water, and special buildings that are based on the geometric rules and different beliefs. Generally, the Persian garden is a historical, cultural, and structural phenomenon in Iran, usually built in a limited area where water, plants, and buildings are combined based on a specified architectural system creating a favorable, comfortable, and safe environment for humans" [4].

KEY WORDS

Persian Garden, Mental health, Garden elements

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Fig.1: A view of a Persian garden (photo by: YusefSaeb)

Elements of Persian Garden

In order to come to a better understanding of the Persian garden, this paper introduces another aspect of this garden which needs a profound insight through which we move from the general form to elements that play the main role in the formation of the garden. The garden space is created by such elements as well as the steps and measures that are taken by its creators and builders. Taking an abstract look to the garden, one will find out the basic dimensions of human intervention in addition to relying on simple basic elements of water, air, soil, and sun as life-essence issues in forming the garden. In some areas, though, this human intervention often turns the lush normal nature to a man-made one. Human takes the fertility from the soil, the gentle breeze from the air, and the glorious brilliant sunshine from the sun. She then adds to them the element of water and gives serenity to her living environment. Each of these four elements, both separately and in combination, has its own special place in the formation of the Persian garden. Such elements and their final product, i.e. the garden, help us come up with the idea of creating a pleasant environment [5].

Not only are these four life-creating elements involved in creating the garden, they also affect the garden in regard with their intra-interaction they have together between themselves. The result of these observations is a set of components and elements which are regarded as the structural cornerstones of the garden construction. The first and most fundamental element of creating the garden is water which is vital and without which, of course, the concept of the garden is meaningless. The second element is plant without which the perception of the garden is impossible because the garden takes shape based on the shady and fruit trees, shrubs, and bushes. These architectural elements, then, create structures which give the garden a logical order and sturdiness through which a space like the Persian garden is formed. Finally, it is the soil that in its broad sense encompasses earth, origin, and (plant) beds. The Persian garden is formed from a combination of the basic elements within a systematic pattern. However, there are some side elements which should not be overlooked as they help achieve the final result [5].



Fig. 2: Plant and architectural elements in the Persian garden (geolocation.ws)



Fig. 3: Water and architectural elements in the Persian garden (orujtravel.com)

To make a more precise definition of the basic elements of the garden, we must take into account the importance and necessity of each and every one of these elements. So the basic elements, based on such definition, are the ones which a garden would never come into existence without their presence. These elements are water, plant, air (space), and soil (land). When they come together within the conceptual framework of a garden in an Iranian intellectual and architectural system, a Persian garden would be the result [6].

Tranquility and Comfort of Persian Garden

The relationship between human health and landscapes has always been of paramount importance in different cultures and societies. Natural and unnatural elements along with five senses all make it possible for human beings to explore the environment. The belief that the auditory, visual, olfactory, tactile, and gustatory senses such as hearing the sounds of birds and water, seeing the lush grass, green plants, and colorful flowers, smelling the pleasing scent of foliage, touching petals, and tasting flavors all affect the human senses, and result in reducing stress, has been studied in early Asia, especially in China, and also in Greek and Roman cultures [7].

Studies also reveal that too many factors, or variables, such as weather, light, and sound are effective in planning and decision-making in order to enhance mental health [8]. In fact, the Persian garden causes a healing effect in humans and reduces the stress of everyday life through the communication it establishes with different senses in humans. So, the healing Persian garden's secret of success is related to human inherent tendency to nature, peace, and a sense of life and living [9]. Human beings, naturally, react well to the environment and the green nature and this type of attraction to the environment is called 'soft fascination' [10]. The nature draws human attention or fascinates people. This directed fascination which is controlled by an operating system, makes human relax and causes the negative thoughts to be replaced with positive ones. The longer this situation, the more important issues, such as one's objectives, priorities stimulated to help find a new direction and a new sense in humans [11].

MATERIALS AND METHODS

This research applies a qualitative content description to introduce the structural elements of the Persian garden, i.e. water, plant, land, and space. Moreover, doing library and field research on the Persian garden, the aesthetic and functional elements and dimensions as well as the psychological impact of the Persian gardens on humans have been investigated.

Water, the Most Important Element in Persian Garden

Having been very cleverly and artfully employed, water has always been considered as the most vital and most crucial element in forming the Persian gardens. Not only is water regarded as the most fundamental element as

it is used for irrigation and watering of garden plants, it has been used to show the conceptual, poetic, and artistic dimension in order to adorn the garden space with its freshness, vitality, beauty, and dynamism [12].

The presence of water in the garden is based on specific concepts; its flow is also based on principles which are, on the one hand, dealing with the physical and technical characteristics of water and irrigation. On the other hand, they pay heed to aesthetics, conceptuality, landscaping, and architecture [13]. Indeed, the architecture of the Persian garden is the architecture of water. The togetherness of water and plants creates a unique poetic, musical, and glorious scene in the private life of trees. The water flows in a measured and thoughtful way and remains still in pools and around fountains. It paves its way through high fountains and makes the garden fresh with its movement, sound, and elegance. The inflow of water has a special system which is consistent with the geometry and structure of the garden and it takes various forms in different types of Persian gardens [14].

In general, the presence of water in Persian garden is a combination of two sensory and physical forms. More than anything, the story of the Persian garden is the tale of water flow and streams of life after surviving drought. Gardens in the deserts are somehow interpreted as 'flirting with the water'. The nature of water, either running or at rest, is very soothing and its musical caressing sound has always been pleasant for humans. No doubt the pleasing and relaxing sound of water gives everyone natural enthusiasm and a desire to live. Another influential factor of water is its visual dimension which plays a reflection-role, i.e. a mirror in the garden. The placid and still water in the pools reflects the image of elements, spaces, and even the sky. This reflection has its own beauty; so has the pleasant sound of the water as if the heavens are down on the earth and a celebration is being held [15].

Creating gardens on sloping beds and even step-like obstacles in the way of water current both make the gentle flow of water be faster and more resonant as it is running down the stairs on stairs. This is the most beautiful song of praise-whispering water which becomes even more dulcet as it moves up the fountains along its route. All these are to make this soothing sound and image be more heeded. Furthermore,

streams and small and large pools in the gardens play a key role in providing the green spaces the way water should flow in the gardens. They also create glorious splendor in the make-up of the gardens. In most cases, the construction of stone-made streams and pools manifests flow and movement in life, and the reflection of sun on the water of flowing streams and small waterfalls creates images of beauty as well as the pleasing sound which whispers tranquility for the residents [6].

Table 1: The role of water in Persian garden [16]

Presence of Water in Persian Garden	Function	Effects on the Garden
Primary and secondary streams	water supply, they transfer water to different plot levels and different gardens	forms mobility and dynamism in the garden
AbGardan ¹	circulates water in the garden	keeps the water flow at a limited level to highlight and display it more prominently
Small and large pools	saves water	creates a pause in water flow and mirrors the sky
Water squirt	a fountain in the water	it causes the water to squirt out and creates the splash sound
Partridge chest ²	forms waves on the water surface	shows the volume of water, makes the surface of water appear more beautiful, and creates a pleasing sound
Fountain	causes the water to move upwards	attracts attention, plays with water resulting in creating waves on the surface of the water, and makes a sweet sound
(camel throat) ShotorGalo ³	makes a difference in water pressure and causes the water to flow effortlessly	decks the water flow with its effects
Stepped fountain	is used in steep slopes	creates attractive small water fountains at different water levels

Plants, the Most Fundamental and Decorative Element of Persian Garden

Plants are the most important constituent elements, also known as the decorative elements, of the Persian garden [17]. Garden plants, in general, are used to bear fruit, to give leafy shade, or to decorate the area [18]. Green spaces can help reduce personal stress and social tensions. This feature can be seen as a balancing variable whose relationship with negative thoughts and forces will lead to an improvement in mental health [11].

Selecting plants in the Persian garden is based on emotional stimulation. There is foliage of trees and shrubs in the background of the Persian garden which are seen in colors and there are also aromatic plants that stimulate the sense of smell. Vast areas of beautiful green grass and mature trees with deep shades or the trees that define limits and somehow arouse our senses all provide us with relaxation, self-awareness, and a stress-free environment [19].

The coexistence of different plants together along with planting trees as filters for the dry climate outside the garden are among the goals of using plants in the Persian gardens [15]. Greenery planting minimizes the harshness of synthetic elements and creates a rich sensory environment which provides a pleasant individual perception and therefore it results in a good mental health [11]. Flowers and plants, enjoying their many colors, create various color combinations in different seasons. This feature makes a distinction between the Persian gardens and those from other lands. Moreover, different combinations of fine or

coarse textures are created which affect both the visual sense and the landscape, and also foster diversity in sense of touch [20].

The diversity of flowers in the Persian gardens remained from the Safavid era is more eye-catching because a large variety of flowers were brought in from the West [21]. In addition, the planting and growing of colorful flowers has a powerful effect in mind so that flowers with warm colors bring happiness, excitement, vitality, and dynamism and flowers with cool colors make the garden look larger. So, the type of color and the effect it produces on mind can be among factors which are decisive in how a garden should be used and also can lead to users' dynamism or even stability [18]. Understanding the shapes, forms, colors, and textures of flowers and plants results in regulating human senses; this roots in human sensory tendencies that guide a person to focus on his surroundings and also invite him to the natural environment [20].

Medicinal herbs are a part of nature and have been an inseparable side of the colorful world of plants since the beginning of creation. There is a medicinal herb for each disease in nature and as people move closer to nature, they become calmer [22]. Studies on medicinal plants have shown that the knowledge of medicinal plants and their use for the treatment of diseases roots in the Orient and has had a great influence on the history and evolution of research and scientific developments as well as on the treatment of diseases and identification of medicinal materials [23]. In addition to its own beauty, a landscape which contains plants is a wealth and a treasury for mankind because it is a supply of food and pharmaceutical products for human beings [24]. Not only do medicinal plants grow wild in nature, they are cultivated by human beings. Therefore, the fragrance of these plants and essential oils stimulates the nervous system and causes peace and psychological relief. Various species of medicinal flowers and herbs such as silk flowers and scented eglantine, depending on their aroma and health benefits, have a special place in the Persian garden [25]. The place these plants were usually cultivated in the Persian gardens included the middle parts of plots and Bonegahs (leafy shade rest areas) [20].

Animals and birds are directly attracted to the garden plants. The birdsong breaks the silence and along with the sound of the wind among the trees, they create a beautiful melody in the garden [22]. Flowers and plants attract birds and provide human beings with the opportunity to listen to the orchestra of the nature, i.e. to the sounds of rustling leaves, the mellifluous birdsong, and the dulcet tone of pleasing breeze in the trees. This natural orchestra sweeps away the daily stress and tension [19]. One of the most gratifying pleasures for Iranians is to walk in gardens listening to the song of nightingales [26].

Land

Land is also one of the major elements in forming the Persian gardens. In addition to its overall shape and position, land is affected by factors such as differences in level and slope, soil type, irrigation, and fertility. One of the reasons for creating a garden in steep terrain, for which there are many examples, is the possibility of water running through the garden naturally. Furthermore, the steep terrain determines the geometric orientation of the garden. "A sloping land is a necessary condition to water gardens so that the orientation of the garden is also shaped on this basis. The geometric system Iranians have employed for irrigation is the most accurate and provides the easiest way of watering [27]. If the garden is created on a steep land, it will make it possible to build water fountains and small waterfalls as the land is in various levels. The Persian garden is not an open area and is a land surrounded by walls so that no one can see it from outside [25]. This enclosure helps define the garden better. Inside these walls, everything is calm. The garden is a fixed point in a changing world. Designed by human, it is, however, a field with constant subtle changes and a precise balance [14]. Taking the specified garden limits into consideration, other defining elements in different orientations come to mind. These elements are tower-fortifications on all four sides of the garden while the sky plays the role of the roof on the garden. The sixth side is the ground which defines the look of a floor in the garden. The tower-fortifications have heavenly manifestations and convey the meaning that the garden is beyond the material and mundane world. The garden is a carved or relief-shaped image on the ground and plays a prominent role in presenting a heavenly image of the garden [6].

The land, as the garden floor, has the following forms:

1. the garden paths, including the main and minor pathways
2. the plot levels
3. the bed of water structures, including pools, streams, and creeks
4. the bed of garden indoor and outdoor spaces

Therefore, it is found that the land is a structural element in shaping the Persian garden and plays a leading role in defining the spaces and the formation of other elements of the garden. In fact, the overall shape of the garden can be traced in the land and the changes it has undergone because the land is a solid base for other elements of the garden; plants would grow in the plots, the water would flow in streams and would run into the pools, and the walls and towers would show their strength, all because they would proudly stand on the land to create a beautiful garden [6].

The way the garden has been situated shows that the land has been formed as a bed based on which the garden takes its favorable position. In order to enjoy the open air, light, water, and soil, the Persian garden

needs a place which is exposed to gentle wind, breeze, sun, fertile soil, and, of course, the vital factor, i.e. water. It is obvious that the land is inevitably involved in creating these conditions [5].

Garden Space

Persian garden is an area enclosed within walls or the so-called boundary between the world inside and the world outside. It has cool shade and high ambient humidity which eventually creates a pleasing milieu in the heart of a hot environment [28]. In a specific architectural system, plants, water, and environmental buildings are mingled together and provide human beings with a relaxed and comfortable environment [20]. All spaces have independence and identity in Iranian architectural design and are consistent and purposeful [21]. The shady tees, for example, are planted around gathering or rest places in the garden. Such places are called 'Bonegah' (leafy shade rest area) that is a sitting place in summer. In the Persian garden, texture (make-up), form, color, and function cause diversity. The lack of such diversity brings about monotony whereas its overuse leads to confusion. This 'multiple-space, diverse landscape' feature makes an individual exhibit a positive response to the environment [20].

The Persian garden enjoys: a combination of simple and harmonious elements, an exact and consistent relationship (between these elements), a specified geometrical system, perpendicular lines, a directed melodious water system which runs through indoor and outdoor spaces [16]. The artistic-structural system of the Persian garden is not used just to physically shape the garden, but also creates abstract imagery and shapes in human mind which should also be studied because geometry addresses very serious issues such as order, relationships, and landscapes; this, therefore, will establish the relationship between the garden and the mindset of people. When we stroll along the Persian garden, the farthest point in the garden would appear to be the closest. This is geometry, but the one which human mind is able to understand [29].

CONCLUSION

Having a healthy and peaceful environment would certainly bring human beings development and prosperity in the world and would help them foster their body and soul. Having a healthy body and soul is the product of our environment. Human inclination to the nature is axiomatic, so a healthy environment has a significant impact on the human spirit. Since Iran is a dry country, the psychological effects of water and plants, and the nature in general, are more remarkable on Iranians.

Challenges of urban life and industrialization lead to stress and stress-related diseases. According to studies, there are ways to reduce stress and enhance recovery using the natural landscape. Wherever there are trees and water, one can certainly hear the birds singing, hence a more pleasant environment. So planting trees, shrubs, and flowers would help birds enter the environment and would drive the monotony out. Hearing the birds singing, listening to the soft melodious rivers and springs, enjoying the green grass and groves, touching the breeze, watching the trees dancing and shadows and light playing, all have amazing impact on human life. Watching such a beautiful landscape brings joy, peace, security, and comfort for everyone.

This paper described the structural elements of the Persian garden and concluded that the architecture of the Persian garden was effective and influential in human mental health. Considering knowing human, his needs, his relationship with nature and role of nature on his mental health, there still remains a question: How can a landscape affect human mental health? And can this effect measured by Quantum

CONFLICT OF INTEREST

There is no conflict of interest

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