RESEARCH PAPER

General Architecture

Exploring the Relationship between the Historical Persian Garden and the Philosophy of Quadruple Paradigm

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Abstract

Persian garden have deep roots in paradigms and beliefs in Iranian culture, from arts and crafts to architecture and landscape and from literature to philosophy and wisdom in particular. The current study was done based on a qualitative methodology. To understand the latent concepts of the quadruple paradigm, those engaged have aimed at testing in practice and analyzing new concepts through the latent directive content analysis. This helped us through the objectives of this article for developing the quadruple paradigm and a new classification of quadruple Persian gardens. In this regard, this study sought the relationship between archetypal and historical Persian gardens and four fold plans as the key factor for finding the secret meanings and symbolic concepts. For the analysis, seven case studies on the Safavied dynasty were selected. This is the first study investigating focused on the quadruple in Persian gardens to the extent of believing and art history as a philosophy of paradigm could be categorized into three main groups and the themes were identified as a major classification: 1) Sacred-Archetypal gardens as an interpretation of supernatural beliefs and paradigms, which might be manifested through a spiritual landscape, carpets, paintings, or architectural façades; 2) governmental and authority gardens, which could be seen in the fields of architecture, landscape, and many Iranian arts and crafts; and 3) orchards as the blessing gardens representing birth and growth, thus bringing spiritual blessing and genius loci for human comfort.

Keywords: Persian garden, Quadruple paradigm, Latent concepts, Holy believe, Power and authority, Blessing.

1. INTRODUCTION

1.1. Historical roots of quadruple and Persian gardens

The four fold wisdom related to one of the most important ingredient of historical approach. In Iranian history and cultural heritage, number four stands as a basis in the creation: 1) Four features of the nature (heat, moisture, coldness, and dryness); 2) Four elements of the nature (fire, wind, water, and soil; 3) Four temperaments (blood, yellow bile, black bile, and phlegm); 4) Four seasons (spring, summer, autumn, and winter); 5) Four winds (north, south, west, and east winds); and 6) Four dispositions (mine, plant, animal, and human). The Four fold gardens have been established in the same way. Thus, it can be seen that most natural things have been classified

into four parts [1].

Achaemenians (553-330 BC) as the greatest gardeners of the ancient world initiated Persian gardens and Persian history in general. During the Safavid dynasty (1502-1736 AD) [2], the tradition of Persian garden manifestation and Iranian-Islamic Cha har Bagh (four fold garden) reached its climax. Like Mandala, a Persian garden was an imitation of the Eden, which was generated around the civic center. The term "Paradise" was originally derived from the old Persian word "Pair-daeza" meaning surrounded by walls: Pairi means perimeter and daeza means limiting or molding. After transliteration of pairidaêza (cf. Median paridaiza) as an Avestan word meaning a walled enclosure into paradeisos as a Greek word, it was rendered into paradises as a Latin word to finally enter European languages, such as French (paradise), German (paradies), and English (paradise) [3].

According to the experts' attitudes, there have been many studies about the technical issues of Persian gardens (Iranian-Islamic gardening), but the serious and important influence of the original four fold context on them has

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been seldom observed. The classification of Persian gardens has been only based on the relevant documents, plans, and functions. However, it seems that there is a need to deeply scrutinize this issue or another related key concept like "earthly paradise"[4] and "evergreen secret" [5]. In other words, it seems the previous classifications have ignored the inner and hidden structures that have caused the rise of Persian gardens. Quadruple paradigm helps find the cornerstone of this phenomenon. Thus, achieving the relation and influence of the four fold aspect with and on such an earthly and crystallized paradise is essential. What is the meaning of behind quadruple Persian garden? And what is the role of the quadruple paradigm to physical and spiritual aspect on Persian garden? For this purpose, this paper strived to scrutinize and elaborate the meaning behind this issue. Also, the study of the relationship between Persian gardens and four fold was the most important issue leading to understanding the concept of paradise in gardening and landscape. Therefore, aim of this paper classified the results of helped generate a new arrangement of a Persian garden based on the four fold concept.

Some numbers, including four, seven, eight, and twelve have shown a very functional and mysterious role in a tradition and wisdom based approach in Iran [6]. A repetition of the mentioned numbers can be seen in many different cultures; however, number four has originally come from Iran [7]. Based on the Iranian cultural heritage and Iranian-Islamic architecture and landscaping, in particular, the four fold architecture element is rooted in the vital four aforementioned elements. Almost in all parts of the historical architecture, four constructs are observed, such as the four sections in Persian gardens, four platforms in Iranian houses, four porticos in Persian mosques, the house of four seasons in Arg e Bam Castle located in Kerman, and cross vaults as a symbolic archetype. The four fold geometry known an archetype and has been remembered deep relationship to ancient dynasty [8].

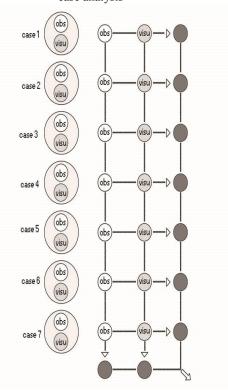
2. METHODOLOGY

In the current research, to analyse the secret meaning of a quadruple Persian garden, could be certainly answered through the qualitative content analysis, which was capable of systematically describing the meanings of materials [9]. Thus, understanding the latent concepts of the quadruple paradigm led to finding the objectives of this article for developing the meaning four fold [10]. To subjectively interpret the data content of a text, a qualitative content analysis [11]can be a research method capable of identifying the themes or patterns and systematically describing the meanings of qualitative materials and classifying the coding processes by defining the main features and reducing the qualitative data to remain close to the given data[12]. Sometimes, a researcher keeps a latent content of his/her text by encoding the underlying meaning [13] and thus a qualitative content analysis is a suitable approach to data interpretation to some extent when needed since it tries to extract categories from the data [14].

2.1. Selection of case studies

To select proper samples, we paid attention to the internal consistency of the relevant case studies that could lead us to find and discover their inner values. The Safavid period and its cultural context is one of the most creative periods of art and Islamic architecture, metaphysics, and philosophy. Thus, in this research, seven case studies were chosen from the period of the Safavid dynasty (Table 1), during which not only the ordinary history of Persian gardens was assigned in the holy architecture and landscape, but also the huge meanings of many parts of fine arts were conveyed. Three case studies were selected from the architecture, landscape and the others were instances of fine arts. From this point of view, the shape of a Persian garden was affiliated to many of the four above mentioned shapes, which were found to exist on Persian carpets, earthenware, and graphs, as well as in poems. All the case studies were found to be performed on the Safavid dynasty period [15]. The amounts of the data for the analysis were not based on availability but rather on data saturation. The case studies used in this article were selected via a visual observation and the study of text documents (Fig.1).

Figure 1. Data analysis procedure of within and crosscase analysis



Note: *Obs* means observation, and *vis* means visual material reviews.

Source: Drawn by authors

A garden's unique placement reflects its tangible

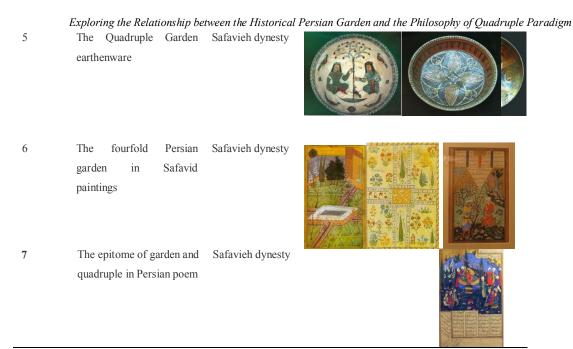
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presence in the first instance meaning that no other gardens can share its existence. All gardens have an initial different defining point integral to their natures. Also, every Persian garden is particularly located in a site based on one of its dominating elements, such as the underlying ground, which is essential to the other elements, including the plant life, water flow, and trails or walking paths. Furthermore, the plan may be increasingly guided through more temporal or transitory qualities, such as an emergence, process, time span, flow, intensity, and

complexity [16]. These are some palpable features that can be observed but not all the things visualized for a garden. These can be the hidden and mysterious meanings reflecting the backbone of beliefs in the organizational structures of Persian gardens addressed in this article. A landscape visual analysis, as well as its concepts and elements can be developed through its textual and structural approach. In the present visual study, image was onsidered as an extraction and induction tool [17].

Table 1. Features and summary of selected samples for contend analysis

No	Title of Quadruple Persian	period	Documents
	Garden		
	(selected samples)		
1	Fin garden	Safavieh dynesty	
2	'Charbagh Abbasi' (Collaboration between Persian garden and street)	Safavieh dynesty	
3	The growth of the earthly paradise in the body of Iranian architecture and landscape architecture	Safavieh dynesty	
4	The Quadruple Garden carpets	Safavieh dynesty	



Source: Authors. All figures and pictures of table are used authors photography archives.

2.2. Data Analysis

In latent content analysis method, it based on the quadruple paradigm was studied by picking up seven case studies on quadruple Persian gardens, from arts and crafts to architecture and landscape and from literature to philosophy and wisdom. Our data analysis involved a systematic coding process. By focusing on the selected aspects of the data, this type of analysis would entail coding, categories, and theme(s) through a data reduction process, which could be achieved by limiting the analysis to those aspects relevant with any research questions [18]. In this process of analysis, the analysis unit was selected and the themes were categorized. To interpret and recode the new concepts, the implicit and explicit concepts were investigated. In the meantime, it was attempted to obtain the largest number of new concepts. In the next step, the concepts derived from the studies were categorized through a constant comparison analysis. The themes and subthemes were developed based on the similarities and differences of the concepts [19]. Being materialized, these achievements depended on a unifying creation process, in which every component usually underwent some transformations under the influence of the general contexts.

3. FINDINGS

The main themes of Sacred-archetypal gardens, governmental and authority gardens and blessing gardens were derived by the analysis. Each theme will be described together with its sub themes and concepts in detail below. The meanings of the sub themes will be also explained (Table 2).

Table 2. Themes, subthemes and concepts using a Qualitative Content Analysis for new classification of Persian Garden

Themes	Sub-Themes	Concepts
Sacred-Archetypal	Earthly paradise	The interpretation of Holy believe in paradise
Gardens		The epitome of holy characteristic
		Heavenly garden
		Renew of world
		The symbol of cosmos
		Timeless figure and plaseness in Persian garden
		Place of Removal devil
		The place coming down angels
		Equilibrium in paradise space
	Participation four and	Partnership between the four elements and spatial
	Persian Garden	Persian garden
		the numerical order of "THE FOUR"
Governmental	As a renew of the cosmos	Resurrection
& Authority Gardens	authority	The symbol of sovereignty
		cosmos authority
		Authority by numerical order of "the four

	The place of ancient ceremony	As a place of the celebrate the harvest ancient ceremony
		Happiness
		The quality of vivacity in urbanism
Blessing Gardens	Blessing	Growth
		Birth
		Alchemy
	Magnitude the quadruple	To come quadruple garden in scale of carpet
		To measure the quadruple
		Re-birth
		Numerical order of "THE FOUR

Source: Authors

3.1. Sacred-Archetypal Gardens

3.1.1. Earthly paradise

The hidden dimensions behind the context of Iranian architecture and landscaping and crafts in particular, provided the underlying meanings and mysteries. In other words, these were defined in the world of symbols. The different aspects of a garden as a sacred-archetype are embraced by its motif. The primordial nature of the Garden of Eden as a symbol of cosmic order with all its royal managements and timeless myth provides one of the widespread themes of a garden [20]. Therefore, the relationship between the symbols of Iranian landscaping and self-definition of the four fold aspect was considered in this article. A participation in some sacred values and concepts and attributes (an interpretation of holy beliefs in paradise) was accordingly discovered. Also, the symbol of paradise used in Iranian-Islamic art and crafts was found to be presented with no time as the paradise itself is timeless though incorporating all the seasons had found in body of Iranian architecture and landscape architecture, garden and quadruple garden carpets of Iran, Minatur (a kind of Persian painting and illuminated manuscript), earthenware and etc. By the meanings of the symbols used in the four fold drawings, the memory of paradise could be flourished into human's mind, thus creating a fine example of a latent meaning of Persian gardens. The most important role of an earthly paradise was manifesting a paradigm, Form, sacred place and archetype; it might be a 'spiritual landscape'. For example, "Mandala" as a spiritual garden generated around the civic center is a most well-known example imitated from the Eden [21]. Samples of Earthly paradises in Iran have been often constructed in the forms of the four fold structures with a hidden wisdom and hidden infrastructures or geometry in particular. Meanwhile, A mathematical method for expression Mandala by which all the shapes can be projected together is linked with the unbroken thread of an effective process to signify the intelligence in a visible form. The cube and the square are the symbols of a great manifestation that are present in the sense of the earth. The sphere and the circle make the symbols of an unusual manifestation such as the sky and man's spirit as the most perfect heavenly aspects. Finally, the hidden meaning behind the sacred geometry provides a key factor for this finding, such as what has been portrayed through "FINgarden" as a classic sample of Persian garden and earthly paradise and interpretation of the belief in number four. To know the knowledge of wisdom, understanding the meaning of four as the original essence and its combined use with the other numbers in portraying paradises is necessary. In this regard, a close relationship was found between these meanings and the thought and wisdom behind a Persian garden, which held the mystery of eternity and holiness in it. Carpets, Miniature and paintings, or architectural façades as Iranian-Islamic art and crafts could be all a spiritual manifestation.

3.1.2. Participation four and Persian Garden

The essence of the partnership of the four major natural elements and "As a Heavenly Wisdom" [22] with the creation of Persian gardens (during the Islamic period in particular) could be interpreted as follows: Soil leads to birth, production, growth, blessing, and a place in particular to make a special setting in the earthly paradise; water with its four streams leads to a settling-down and a setting depicting the shapes of a spring, stream, pool, pond, spout, and fountain. The wind enclosed by walls leads to the formation of microclimatic comfort, especially in harsh climates and a deep understanding of the four seasons and their vital values. Moreover, the numerical order of number four was found to provide some of its self-definitions. For instance, a single source radiated out into four rivers is indicative of the idea of a center connected to its cardinal points [23].

3.2. Governmental and Authority Gardens

3.2.1. As a renew of the cosmos authority

One of the great functions of Persian Garden $(b\bar{a}gh)$, [in royal gardens in particular], was to create a spatial setting, in which a king's power dominated over the territory [24], thus working as a kind of setting for governmental purposes and authority. This function could be seen in the field of architecture, providing a landscape and many other manifestations of Iranian cultural beliefs and paradigms in art. Authority via the numerical order of fore made some of the self-definitions founded in all of the governmental Persian gardens. In addition, the royal garden was divided into four parts called charbagh as a quadripartite pattern, which was the characteristic of Persian gardens [25]. For instance Charbagh had a main structural function in the Safavid government and its other role made a new function. This type of garden was known as a symbol for the mentioned governmental and authority gardens in the urban spaces, while it never existed before, thus showing cooperation between a Persian garden and streets. One of the important elements in Persian quadruple gardens is what had emerged during the Safavid dynasty in Isfahan, manifesting a most famous and important element of urbanism. It was called "Charbagh Abbasi" for the first time, in which there was extraversion in paradise unlike any other Persian gardens. Charbagh had an important role in organizing the urban atmosphere as if it joined the two sides of *Zayanderod* with a linear pattern like a spine for a garden, which formed an extraordinary urban landscape [26].

3.2.2. The place of ancient ceremony

Governmental and authority gardens caused the unity of various social groups. On festive days, different groups of people gathered in them. Also, a symbol of governmental authority can be found in the gardens among many built spiritual places where the ancient rites of worshiping and serving gods were held through the long history of elaborate ritual and religious ceremonies. In this respect a new street (Charbagh Abbasi) was formed with its different functional, physical, and spatial aspects. A place in which to sit and have leisure time added to it some other functions that later proved to be more and more important [27].

3.3. Blessing Gardens

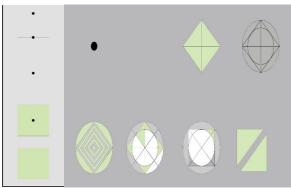
3.3.1. Blessing

Another most important function was manifested through orchards or blessing gardens. In this category, the two elements of water and soil that it causes fertility and also more influence than the other two on this type of garden. The symbols of these elements flourished into Charbagh, in which many fruit trees descended their blessing through the birth of the soil. Hence, it thanks to the alchemy creating lush gardens.

3.3.2. Magnitude the quadruple

The square is a symbol of the four fold, in Iranian cosmology, the square is the symbol of the global world and quantity, while the circle is the symbol of an open world and quality. To measure the quadruple (four fold) aspect in a good sense, there are the wise signs of a cyclic return and rebirth in the resurrection of cosmos on the basis of geometry reflected in a garden pavilion (Figure 2).

Figure 2.Transformation of basic forms and their impacts on formation of a quadruple.



Source: Drawn by authors.

4. DISCUSSION

The authors focused on the hidden meanings of the studies performed on Persian gardens (Iranian gardening). Some concepts were associated with high levels of abstraction, but their subcategories had not been described. In such cases, it was difficult to analyse the implicit and explicit interpretations of the concepts. The architectural and landscape architectural achievements could not have occurred only in a logical combination of elements pointed out in the theoretical analyses of the available meanings. In the qualitative studies, a Persian garden had occurred in a complex context as a socially and culturally sensitive phenomenon. For instance, most archeologists believed the earthenware utensils to be mentioned in the first universal books in ancient times. The concepts were presented in a tacit book of earthenware. The senses and ideas were expressed in a mystery language. One of the important functions of the four elements is exhibited in alchemy. The earthenware had not only the alchemical characteristics of the four elements, but also increased qualities extracted from each element. The mysterious designs of earthenware were related to them. The mysteries with quartet divisions were used to show fertility and blessing and paintings were as the most appropriate documents for scrutinizing some specifications of Persian gardens though there had existed not enough evidence of some of their aspects through paintings already. Although some elements and dimentions of nature manifestations were clearer in the artworks, they were not deeply shown. Throughout the history, further attention has been paid to landscape specifications and plant forms and colors. Some examples are as follows: 1) application of larger designs of trees, flowers, and bushes in the sketches and flat paints to show sadness; 2) paying attention to details on the trees and plants and displaying less cliffs than those of the previous periods; and 3) portraying of cypress trees as an example in most panels in the Safavid era. Also, in this era, a type of painting was created under the name of "GOL & MORGH" (flower& bird). The definition of garden drawing in the Iranian architecture was comparable with the definition of eternal gardens in the minds of Iranian artists. In other words, an embroidered body with the picture of an Iranian garden is a part of virtuous and pure art. Even the association of these drawings and the four fold drawings recalled the four gardens on a building. Flower was a special symbol in these drawings with a specific meaning; a flower could

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relate human's soul to the holy world and lead his thoughts to the world of the spiritual art. Based on the surveys of this research from the seven case studies in the field of architecture and landscape, carpet, earthenware, painting (Miniature in particular), and poetry, we extracted twenty seven concepts affecting the four fold aspect on these arts. Understanding the appropriate measures and proportions of the four fold notion and a combination of two, three or four of four elements of the nature had led to the appreciation of Persian gardens both on the earthly and heavenly levels. The quality of paradise could change from a physical to a spiritual aspect. Therefore, the concept obtained from the quality of a Persian garden could create different functions and characteristics related to the effects of the four fold idea on Persian gardens. Thus, the four fold effects had direct relations with the typical functions of a Persian garden. As a mentioned major classification, Persian gardens could be categorized into three main groups.

5. CONCLUSION

This study aimed at exploring the mythic association between Persian gardens and four fold icons and between Iranian historical landscape patterns and art and crafts in the Safavid dynasty based on the historical texts and observations. Findings indicated to identify a classification for Persian gardens based on the quadruple paradigm and explore how it had influenced on the Persian garden visualization. The results of this research suggested that the mentioned paradigm development provides a way for identifying and expressing the key ideas concerning the essence of quadruple Persian gardens. The concepts, themes, and sub-themes argued and defined the relationship between the quadruple paradigm and classification of quadruple Persian gardens. Moreover, development of the underlying meanings of Persian gardens as a practice discipline can lead to finding new classifications and meanings of quadruple Persian gardens. Based on the beliefs and sacred arts, the quadruple paradigm consists of the conceptual frameworks defining broad perspectives for the present new classification of quadruple gardens and the ways of looking at Persian gardens based on these perspectives. Also, a less abstract level of the quadruple paradigm encompassing the beliefs and sacred arts has emerged to fill the gaps between this paradigm and the new classification of them. This classification of quadruple Persian gardens is a fundamental model of the practice-oriented paradigm. Thus, to maintain Persian garden archetype identity, a deep understanding of quadruple paradigms was provided in this study by attaining the relevant themes and sub

The implications obtained in this investigation can be fundamental meaning for countinue future researches. This classification focusing on the meaning of historical Iranian gardens for purposeful development appeared in the beliefs and sacred art contexts in a delimited way. This paradigm may help grow and enrich our understanding of what practice is and what it can be. Finally, a well-developed paradigm not only organizes the existing

knowledge, but also aids for making new and important innovations to advance practice in this field.

It is recommended to further develop and elaborate the studies based on the intrinsic value of the quadruple paradigm in all historical Persian garden not only Safavid dynasty also in different layer of historical period.

Author Contributions

This research is drawn from the first author's Master thesis under the supervision of Prof. Hadi Nadimi and Dr. Seyed-Hassan Taghvaei. Therefore, the authors thank Prof. Nadimi for his helpful suggestions and encouragement. In addition, Sima Mansoori and Seyed-Hassan Taghvaei contributed to the design of the study. Sima Mansoori conducted the research and wrote the first draft of the manuscript. Seyed-Hassan Taghvaei reviewed the data search and revised the manuscript. All authors read and approved the final manuscript.

Disclosure statement

No potential conflict of interest was reported by the authors.

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