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RESEARCH PAPER

Architectural History

Investigating Sacred Architectural Values of Traditional Mosques Based on the Improvement of Spiritual Design Quality in the Architecture of Modern Mosques
(Case Study: Traditional Mosques in Iran)

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Abstract

In the history of Iranian architecture, mosques have always been the apex of Islamic art and architecture. The architecture of mosques seeks inspiration from the concepts of divine words to provide a space connecting the heavens and the material world and create a single spiritual environment. It is so important to identify the transcendental values of the past and choose the most essential values for considering the criteria adapted to the time and local conditions of today's society. Seeking an applied purpose, this had used a qualitative and quantitative approach based on descriptive-survey research methodology. To this end, 16 valuable mosques of the traditional Iranian-Islamic architecture were initially investigated and their values and indicators were identified and confirmed by 8 experts to achieve architectural transcendence. The statistical population included architecture students of all technical faculties throughout Iran. 5 universities were selected through random cluster sampling and the sample size was 190 people; hence, 175 questionnaires were approved by eliminating the incomplete questionnaires. The reliability of the questionnaire was assessed in terms of content validity through a survey of experts and scholars and tests (calculation of the Cronbach's alpha coefficient for the whole questionnaire and factors). At the end of the study, 50 questionnaires were distributed among faculty members of 4 state universities in Iran as the control sample and the results of both statistical populations were analyzed. The collected data were analyzed using SPSS software and the results of hypotheses and strategies were presented both descriptively and inferentially at the end of the research. According to the studies, 4 indicators were prioritized as spiritual aesthetics, environment, facilities and regularity, with each having other sub-indicators in priority order.

Keywords: *Spiritual architecture, Sacred values, Architecture of mosques, Improvement of design quality.*

1. INTRODUCTION

Iran is a country with a long and valuable architecture. For years, the issues of conservation, restoration and rehabilitation of the values of the past have been flowing among us and all of the experts agree that the preservation of social and cultural values creates national identity [1]. However, on the other hand, understanding and refining the values of the past, and selecting the best of them and adapting them to current conditions is also an issue that must be considered [2].

A mosque is a sacred place for daily worship, a symbol of sacred and spiritual space [3]. Architects throughout the history of Islam have always been trying in a variety of approaches to induce this concept, i.e. sacredness to their audience and prayers [4]. When we speak of architecture in Iran, architecture is created as a container and platform for human life that the spirit of God has blown in him (Holy Quran), his existence is not limited to material needs, but he is an existent with various existential levels, from the health-related needs such as eating and sleeping and the need for shelter that is raised from the material order of human existence to the psychological needs that encompasses a wide range of needs including security to engagement as well as spiritual levels of human existence with his own characteristics and needs, in which the essence and main nature of humanity lies within. In Islamic Iranian architecture, it can be said that, firstly, due to human dignity and in accordance with his creation "the human who is potentially the successor of God on earth (Quran)", the needs of various levels of his existence are met and based on the doctrine stated on the purpose of

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human creation and the need for motion and human effort for development in the spiritual hierarchy, the field of excellence and his growth and development is provided on the path to the perfect man [5].

In fact, Iran is one of the richest territories in terms of enjoyment of heritage and cultural achievements and one of its manifestations is special and globally-known urban planning and architecture. Due to the fact that how we want our life today and how we think of tomorrow and how we benefit from our past, building cities and production of architectural elements is of particular sensitivity; hence, we need to recognize and reinforce the importance of past and present [6-7].

1.1. Significance of the study

Without doubt, art has always been a place for the manifestation of people's ideas and the artist, inspired by the beliefs. Pouring this matter in the form of music, calligraphy, painting and architecture gives it objectivity, at the meantime architecture as the most philosophical art, has an important issue. Architecture can be considered as the most objective manifestation of thought because it is mixed with humans more than other kinds of art. There may be some people that for some reasons, are less exposed to the arts such as calligraphy, painting and so on. But architecture is something that has a powerful presence in the context of human life and man in any way cannot separate himself from the environment which he lives in. Islamic city should maintain its Iranian Islamic image in every aspect; Islam in Iran has deep intellectual roots and performance; hence to preserve the rich and excellent culture, we should do evaluation and assessment in all aspects. Unfortunately, today unique architecture of Iran is being forgotten. However, this type of architecture has always enjoyed a special glory and beauty in the world [8-10].

It can be said that paying attention to the sacred values in the Islamic architecture and using them in the contemporary buildings, such as meaning and sacred concepts related to the particular culture and content of the society will make the modern architecture valuable and will give an Iranian-Islamic identity to the unknown body of our contemporary architecture [11].

1.2. Background of the Study

By reviewing desk studies and library document and surfing internet resources, many information has been obtained on the introduction of Islamic architecture, anonymous architecture, problems facing modern architecture: necessity and importance of valuing the past architecture, meaning and implications of past architecture in terms of location and space, sacred arts, and in general, information needed for introducing and reviewing the rich past architecture and the importance and value of Iranian-Islamic architecture by students and professors; that many articles, books and treatises can be found that show the high importance and urgency of this issue, whose vacancy is felt in architecture today. Perhaps numerous congresses and conferences have been performed in this area that have sought solutions to fill this great gap.

1.3. Research questions

In this study, it was attempted to answer the following questions about the subject, including:

1. Which values provide the architecture with divine emanation or sanctity and transcend it?
2. How these values are prioritized?

2. REVIEW ON THE RELATED LITERATURE

2.1. Iranian-Islamic architecture

The Iranian architecture, which is one of the richest instances of traditional forms of architecture with significant formal and benedictory achievements in the world has turned to a successful conceptual, spiritual and meaning-based architecture throughout the Islamic era. Meanwhile, the effect of architectural forms and physics as the container of society culture is very effective in the representation of these concepts and meanings [12].

The most important feature of Islamic-Iranian architecture is evolving on the axis of unity and monotheism because in the Islamic mysticism the whole universe returns to one origin [13-14].

Since early Islamic centuries, Islamic art has been inspired by the valuable learning and thoughts of Islam in different dimensions; both in the early works which represent the simplicity and unadorned forms, and the contemporary works, which have a stronger multitude of decorations [15]. However, among all of these works, the integrity and principle of unity are observed representing itself as the spirit of art [16].

Iran is one of the richest native architectural examples of form and structure achievements notable in the world. In the course of the Islamic era, it has changed into one of the successful examples of conceptual, meaning-oriented and mystical architectures while the impact of physical and architectural form as the spatial container which is the effect of social culture, is effective in the representation of these concepts and meanings [17]. The outstanding characteristics of Islamic architecture is that it is full of decoration and ornaments; but the motifs used in Islamic architecture has been transformed from real to abstract state; that is, on the one hand, the world with all its belongings is beautiful and on the other hand, one is in love with them, but it secretly and symbolically tells man that he should love the eternal truth without transforming its nature [18-20]. The most important feature of Islamic architecture is that it is based on unity because, in Islamic mysticism, all existence turns back to a single source. Islamic sacred and mystical architecture, over everything, is manifested in the existence of the mosque which is the manifestation of recreation and repetition of harmony, order and calm in nature and Lord has determined it as the permanent home of Muslims to worship. In Safavid period, with raising the Shia thought in society and recognizing Shi'ism and with specific thoughts of the time, we are faced with a different course scientifically,

philosophically and politically which had a direct effect on the art and architecture. Following the idea of illumination and mystical insights, all forms of Iranian arts are affected and architecture and painting, although are in the form of time – place and hence are two-dimensional and three-dimensional, in this era, they have seen many new spaces. Iranian Islamic art and architecture of this period is a symbolic manifestation of the movement from the multiplicity of the outside world to unity before God, which can be well followed in Mulla Sadra views [21]. Mulla Sadra has classified the existence in three sensible, reasonable and imaginary classes [22]. The first house of the human soul is the degree of senses and journey in the worlds of objects and materials after the class of feeling, the imagination and imaginative perception is highlighted and the third place belongs to the ranks of superstition [23]. In traditional Iranian architecture, the presence of a hierarchy in architecture occurs in the transverse privacy with a geometry of straight and curved lines and two-dimensional shapes and three-dimensional volumes and in a linear hierarchy with empty shapeless spaces which are formed within geometric spaces and give the imagination an opportunity for excellence [21].

In the artworks in this course of Iranian culture, we not only witness the extent of mystical ideas in the art, but also witness the diversity of its forms. In Shiite thought in the traditional world, there is no distinction between the natural and supernatural matter, and considers all the levels of existence connected to each other in an intertwined chain-like engagement, so all the traditional worldviews in a way have been founded on the fundamental truth that the truth is hierarchical and the world is not limited to its physical and material ring [24]. From the results of the Unity of Being Theory that was written by Ibn Arabi and his disciples, the hierarchy of being topics in the history of Islamic-Iranian traditional philosophy and wisdom has been considered by many scholars and philosophers [25-26].

2.2. The concept of identity in Islamic architecture

If we assume this saying as correct that architecture is the container of life and life is how one lives and communicates in the context of community; hence he has an identity which firstly demonstrates the dominant values of his society and secondly contains the values to which the society is inclined, and thirdly indicates the cultural elements of its owner's identity [27-28].

Identity is the reality of the object or person which includes his substantial attributes: character, nature, existence. It defines the word identity, Oxford dictionary defines parity in the quality or characteristics of natural conditions, homogeneity and unity, the similarity of someone or something at all times and in all circumstances, a condition that causes distinguishing one from the other, the individuality of personality, personal existence and the same thing [29].

The first time the concept of identity has been introduced, dates back to the publication of a book called the “lonely congregation” in 1591 and another book in 1591 called (identity and anxiety). The concept was first raised for the access of blacks, Jews and religious minorities to a matter that can understand their own history and their resistance against those who were offensive to them [30]. Identity in the minds of different people - even with common culture- is seen different and part of it is due to their experience in the social context [31-32]. However, the concept of identity in urbanization or urban identity is studied from the perspective of researchers. Walter Boron has stated that “Identity is the small and large differences which results in the recognition of one place (readability of environment), and creates a sense of attachment and sensitivity to the environment” [6,33]. Lynch has defined identity as place; identity means the extent to which one can identify a location as a place distinct from the other places, in a way that it has a unique and distinctive character [34]. Cullen has defined identity as considering the individual character of each environment and avoiding uniformity and similarity in urban areas, through manifesting the specific characteristics of each environment [35]. Rappaport has defined identify as a characteristic of the environment which does not change in different situations or a characteristic that causes the distinction of an element from another element and recognizes urban elements from each other [36].

2.3. The concept of architectural value in studying the components of the physical body

Value semantically and in Moein dictionary, has three definitions: 1. money, currency, price, value, 2. magnitude, fitness, and competence, aesthetic, ability, merit, 3. validity of a document or good or money written in the document. According to these definitions and with a look at philosophical approaches, two philosophical and logical types can be considered for this expression. Philosophical approach to this concept distinguishes it as part of the perfection (what should be) from current reality (what it is) and logical approach considers the value as the relationship or the topic of willing of individuals. In this sense, it is not a question of mentality and value is the basis for the subject which is the purpose and has no instrumental function; accordingly, it can be concluded that the value is an abstract concept considered as the criteria of measuring the utility of every phenomenon [37].

3. MATERIALS AND METHODOLOGY

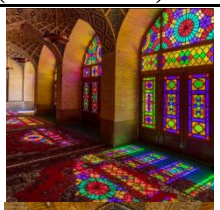
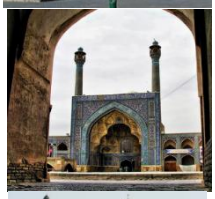
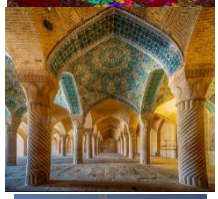
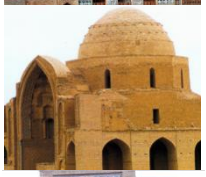
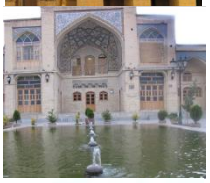
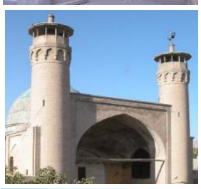
At first, 16 valuable traditional mosques were analyzed by the field investigations and extracting valuable patterns of the traditional Iranian-Islamic architecture; the questionnaire was then developed based on the extracted patterns and confirmed by 8 experts. The collected data were analyzed using the statistical method and SPSS software and the results of the statistical population of students (subjects) were assessed and compared with those of the statistical population of professors (control sample); therefore, the study had adopted a qualitative and quantitative approach in which a descriptive-survey research methodology was used and a fundamental aim was pursued.

3.1. Statistical population

The statistical population of architecture students included all technical faculties throughout Iran , to which using random cluster sampling in 5 universities, a sample size of 190 people was selected. The control sample was also selected from the professors of 4 state universities in Iran; then, 50 questionnaires were distributed and the data were analyzed in comparison with the statistical population of students (subjects).

Chart 1 shows the traditional Iranian mosques explored through the field investigations to extract their components:

Table 1 Traditional mosques studied to extract their components and make a research model (Source: authors)

Sheikh Lotfollah Mosque		Nasir-ol-Molk Mosque	
Jameh Mosque of Isfahan		Vakil Mosque, Shiraz	
Shah Mosque (Imam Mosque), Ishafan		Jameh Mosque of Kerman	
Jameh Mosque of Yazd		Goharshad Mosque, Mashhad	
Jameh Mosque of Ardestan		Jameh Mosque of Varamin	
Jameh Mosque of Tabriz		Emadodoleh Mosque, Kermanshah	
Jameh Mosque of Borujerd		Jameh Mosque of Saveh	
Jameh Mosque of Zanjan		Jameh Mosque of Hamedan	

3.2. Semantic relationships between structural elements in providing design goals

Meaning, aesthetics, form and structure in Islamic architecture are four basic factors that traditional architecture can express a world of meaning in the material

world with an appropriate combination of them. Presence of a logical and coherent relationship among these factors in the Islamic era puts the Iranian architecture in a privileged position. One of the biggest challenges of architecture today is the lack of a coherent correlation between its key components. The main reason for this shortcoming is being away from the teachings and roots of traditional architecture to separate the various stages of design and construction process as well as changes in the architecture, which results in the separation of various stages of design and construction, change in the process of training architects and acceleration and speed of construction. A space in the architecture is beautiful when the special properties are coordinated with spatial functions (harmony of form and function) and this is completely evident in traditional and old architecture. Meaning of the coordination and consistency of form and function in architecture is based on the overall philosophical impression of harmony of "form and content" in knowing and in any artistic expression. To understand the traditional concepts of architecture and urbanism, specific views of culture should be well understood that these concepts are created within it. A monument before being known as a structural body reflects a series of thoughts and the way of life of the people of its era.

Table 2 Semantic examples of value lies in the rich Iranian-Islamic architecture (Source: authors)

(Divinity or fine nature of architecture)	Qazi Saeed Qomi, in an analysis of the Kaaba and its geometry, has complied the perfect man or the Muhammadiyah truth that is the first divine grace, with the geometry of the Kaaba. He believed that a logical relation is established between the sides of the Kaaba and Shia belief among the twelve Imams. He considered the geometry of Kaaba as a symbolic expression of belief in the Imamate of the twelve Shiite Imams, so that the number twelve that is one of the most fundamental mathematical numbers in Imamiyah Shia culture, is tied with geometry in Islamic architecture. In his opinion: " Kaaba`s form is the form of Throne and temple of the universe and also the form of leadership of the kingdom of this world and it is the inner meaning and its sensible beyond aspect" [38]. In this way, the divine architecture is created. Circular motion and circumambulation of the Kaaba, as the symbol of heaven and square shape of Kaaba to the earth, recounts the relationship between earth and sky (From the carpet to the throne).
(Pure and clean nature of architecture)	Many religious doctrines can be transferred and trained through training and expressing their own concepts. What is not transferrable is the sacred basis of the religion; that can only be raised and holy places and holy shrines include places where the sense of attaching to sacredness and spirituality in it is raised in different ways. Awe and repulsion of the sacred matter and its appeal as a priori category is portrayed by the means of posterior and rational concepts of justice and moral will and rejecting whatever is contrary to morality and concepts such as goodness, mercy and love [39-40].
(Environmental nature of architecture)	Many theorists and philosophers are looking for a view to nature that is led to a respectful behavior towards nature; where Alexander considers ecologic as the knowledge of togetherness of objects, elements and environment of human and Norberg-Schulz seeks to give meaning to the built environment through nature [41]. Protection of ecological health and resiliency has a profound effect on human being and welfare, it is essential for planners to incorporate ecological considerations into landscape and urban planning in order to realize wiser management of the future changes in harmony with sustainable developmental goals [42].
(Faith-creating nature of Architecture)	High quality of sustainable design plays a key role in creating these sustainable living environments. In this regard, learning from culture and history, and searching together for new ways of designing is an obligatory issue [43]. The role of the central courtyard and protecting the house from heat and desert storms in the traditional architecture can be considered as an example of the faith-creating nature of architecture. Considering the peace of mind in benefiting from many different aspects of the courtyard during different seasons was considered by traditional architects.
(Enjoyment of facilities in architecture)	Zevi believed that good architecture is one that attracts people, trains him and make him spiritually tame [41]. Desert native houses fulfil a wide range of human needs through the central open space that acts as a heartbeat for houses. In the past traditional architecture, the presence of some principles made architectures eligible for facilities and they can be used as principles: 1. Energy conservation: The building was constructed so that has minimized the building`s need for fossil fuels. 2. Harmony with the climate: The building was constructed so that it was in harmony with the environment and site climate. Natural ventilation as a green energy source could be useful in providing human comfort requirements in a nature-friendly manner [44]. 3. Reducing the use of new sources of materials: The building was constructed in such a way that the use of new resources was reduced as much as possible so that at the end of its beneficial life, it was used as a new source for building new buildings.
(Dignity and honorability of architecture)	Hanry Corbin, who is famous in considering the Islamic culture and art, and is among the Orientalists who have understood the Shia`s intellectual and artistic foundations and made Iranian scholars to notice their culture. Muslim artist, along with material objects, observes another aspect of the universe, i.e. the supernatural or immaterial world and represents it in his work. In fact, imagination has caused the traditional artist to create works of art in relation to it and reflect what is beyond the material world in the material world (Shaygan et al.).
(Technical and principled nature of architecture)	Islam has presented a comprehensive and helpful program not only in personal life but also in various fields. Referring to the architecture and urban planning objectives based on the guidance of Islam and Quran to achieve Islamic architecture and urbanism, he considers creating pure life, providing welfare and justice, morality and ethics among these goals; presence of rules in Iranian - Islamic architecture is another manifestation of the fact

(Proudness of architecture)	that modern architecture has extracted some criteria based on the old valuable system: • Harmony with the natural, cultural and historic environment and attention to the specific merits of city and village • Observing the principle of confidentiality in various degrees, according to the urban and rural cultural and natural features and usage One of the most effective and precious species that can be useful in showing the divine power is the art related to architecture and asking help from this magnificent element resulting in the proudness of the architecture. Islamic art is originated from inner realities of Qur'an which has reserved the world truths in it and the prophetic spiritual truth and the Mohammedia blessings are manifested in it. Quran speaks about monotheism and Prophet Muhammad (PBUH) was the manifestation of this unity in diversity [45]. In this regard, Islamic art was based on the understanding of divine truth and the true meaning of the Holy Qur'an and of course familiarity with other Islamic sources including Mohammedia truth and spirituality of the Imams (AS) who were strong ropes. Islamic art for the people of thought is a very precious support for spiritual life and an invaluable opportunity to remind the divine truth [46].

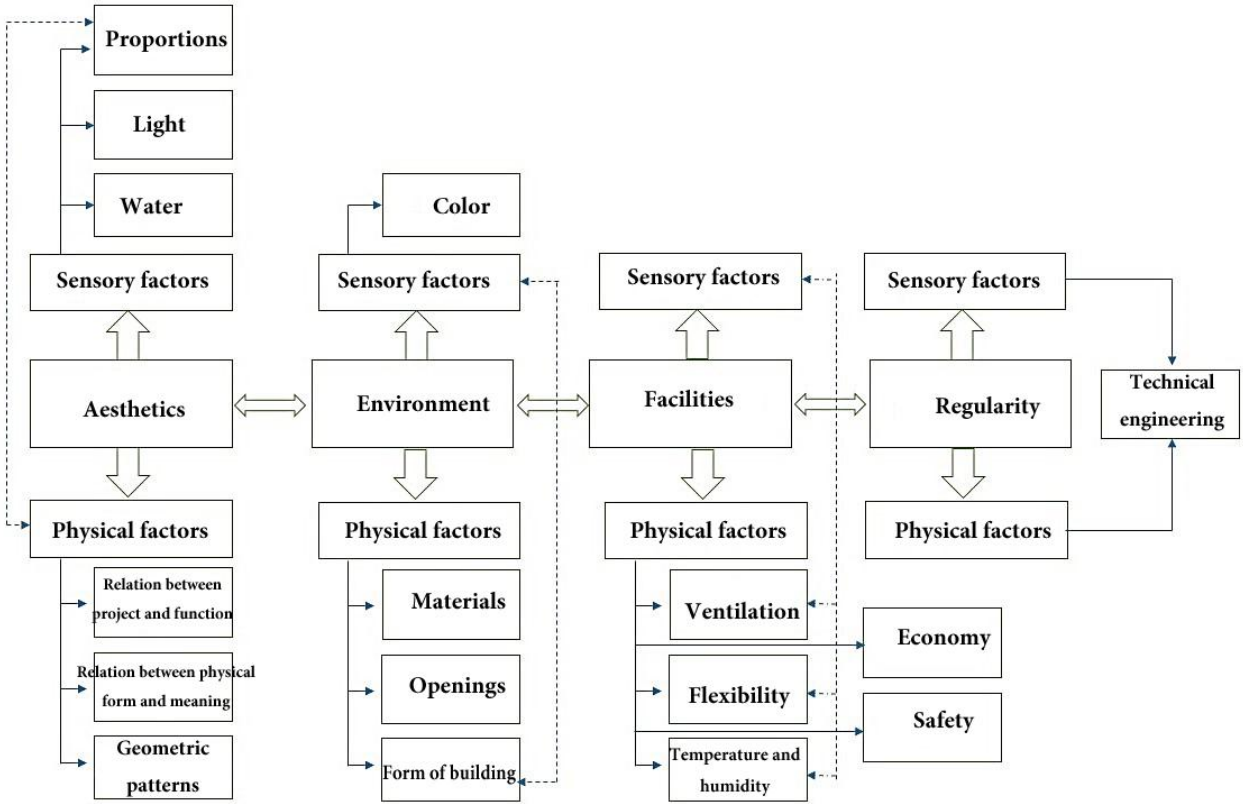


Fig. 1 Components and factors extracted from the past values of the Iranian-Islamic architecture, by reviewing 18 traditional buildings (Source: authors**)**

3.3. Data collection tools and questionnaires

In this study, a questionnaire with 63 questions was taken advantage to collect data and the questions were answered by a five-point-Likert scale:

5 = Very low, 4 = Low 3 = Average 2 = High 1 = Very high

The questionnaire has examined according to four components of aesthetics, environmental, facilities and equipment and finally technical and regulated that the four factors had 4, 4 and 4, and 1 sub-categories, respectively.

3.4. Validation of measurement tools

In this study, using Cronbach's alpha, the reliability coefficient of the whole test was obtained 0.72 for aesthetics, 0.73 for environmental, 0.77 for facilities and equipment and finally for technical and regulated 0.71 and it was found that the reliability coefficient increased by eliminating some of the questions.

Finally, the questionnaire with 63 questions was used with a 5-point Likert scale. The following table shows the obtained results.

Table 3 Cronbach's alpha test for the reliability of the questionnaire

Main components	Components	Questions	Cronbach's alpha coefficient
• Aesthetics	Divinity or pride of architecture	8-1	0.75
	Clean and pure nature of architecture	18-10	0.76
• Environmental	Environmental nature of architecture	28-20	0.73
	Faith-creating nature of architecture	38-30	0.79
• Facilities and Equipment	Enjoyment of facilities in architecture	48-40	0.81
	Honor and proud of architecture	58-50	0.74
• Technical and principled	Technical and regulated nature of architecture Proud of architecture	62-60	0.71
	• Aesthetics Current situation	18-1	0.72
	• Environmental Current situation	38-20	0.73
	• Facilities and Equipment Current situation	58-40	0.77
	• Technical and regulated Current situation	62-60	0.71

According to the table above, the components' of reliability and validity were acceptable and appropriate.

3.5. Data analysis

To achieve the research objectives, hypotheses and questions have used two descriptive and inferential statistical methods.

1. **Descriptive statistics**: It is a method which helps to classify, summarize, describe and interpret the collected data and establish communication through them [47].
2. **Inferential statistics**: A set of methods that use data from the sample to infer the features and characteristics of a large group or society is called inferential statistics [47-48]. The following tests have been used in inferential statistics:

- SPSS, version 21, software was used to analyze the data.
- 95% confidence level and 5% measurement error was considered.
- Kolmogorov - Smirnov test was used to check the normality or abnormality of data
- Chi-square test was used to determine the abnormal components
- Friedman test was used for determining the priority of indices

3.6. Individual`s frequency distribution in terms of education place (university)

Table 4 Frequency distribution of participants in terms of education place

College	Frequency	Percent
Shahid Montazeri Technical College, Mashhad	26	14.85%
Shahid Sadoughi Technical College, Yazd	28	16%
Shahid Bahonar Technical College, Shiraz	24	13.71%
Shariati Technical College, Tehran	67	38.28%
Enghelāb Technical College, Tehran	30	17.14%
Total	175	100%

According to Table 4, 13.71% of the respondents were from Shahid Bahonar Technical College in Shiraz (the least frequency) and 38.28% of the respondents were from Shariati Technical College in Tehran (most frequency).

4. RESULT

4.1. Aesthetic aspects with regard to control population

Table 5 Description of research variables (aesthetic aspects according to control population)

Variables	**Component parameters**	**Components of aesthetic**				
		Proportions	Project and performance relationship	Motifs	Light	
Professors	Average answers	4.10	4.21	3.86	4.29	4.12

Description

According to Table 5, the highest mean responses in terms of description of aesthetics aspects in the community of instructors corresponded to the light parameter with an average response of 4.29 and the least mean was related to motif parameters with an average of 3.86. Since the range of questionnaire scoring was 1 to 5, the theoretical mean was 3 and the obtained means from all the aesthetics

components were more than theoretical average, indicating the confirmation of aesthetic components from the viewpoint of instructors.

4.2. Environmental aspects with regard to control population

Table 6: Description of variables (environmental aspects according to control population)

Variables	Component of parameters	Environmental component				
		Materials	Openings	Building color	Building form	
Professors	Mean answers	4.84	4.17	4.41	4.69	4.52

Description

According to Table 6, the highest average responses in terms of description in the environmental aspects in the community of professors were related to material parameters with an average response of 4.84 and the least was related to the parameter openings with an average of 4.17. Since the questionnaire scoring range was from 1 to 5, the theoretical mean was 3, and the obtained mean from all the environmental components were more than the theoretical average, indicating the confirmation of environmental factors in the viewpoints of professors.

4.3. Dimensions of facilities and equipment according to control population

Table 7 Description of variables (dimensions of facilities and equipment according to control population)

Variables	Component of parameters	Facilities and equipment components				
		flexibility	Temperature and humidity	Safety	Economy	
Professors	Mean answers	4.16	4.47	4.81	4.72	4.54

Description

According to Table 7, the highest average responses in terms of description in the facilities and equipment aspects in the community of professors were related to economy parameters with an average response of 4.72 and the least was related to the parameter flexibility with an average of 4.16. Since the questionnaire scoring range was from 1 to 5, the theoretical mean was 3 and the obtained mean from all the components of facilities and equipment were more than the theoretical average, indicating the confirmation of components of facilities and equipment in the viewpoints of professors.

4.4. Technical and regulated aspects according to control population

Table 8 Description of variables (technical and regulated aspects according to control population)

Variables	Component of parameters	Technical and regulated components	
		Engineering techniques	
Professors	Mean answers	4. 63	4. 63

Description

According to Table 8, since the questionnaire scoring range was from 1 to 5, the theoretical mean was 3. Therefore, the obtained mean from technical and regulated component was more than the theoretical means, indicating the approval of this component from the perspective of professors.

4.5. Kolmogorov-Smirnov test

To evaluate the normality and abnormality of variables in this study, the Kolmogorov - Smirnov test was used and to evaluate the normal variable, parameter test (one-sample T-test) and non-parametric tests were used for abnormal variables.

Table 9 Names of variables in Kolmogorov-Smirnov test

Variables	P-Value	Z Test	Test Result
Proportions	0.002	1.82	Abnormal
Project and performance communication	0.019	1.53	Abnormal
Motifs	0.011	1.69	Abnormal
Light	0.001	1.98	Abnormal
Material	0.003	1.79	Abnormal
Openings	0.002	1.83	Abnormal
Building colors	0.004	1.77	Abnormal
Building form	0.000	2.33	Abnormal
Flexibility	0.004	1.78	Abnormal

Temperature and humidity	0.000	2.34	Abnormal
Safety	0.007	1.73	Abnormal
Economy	0.001	1.99	Abnormal
Engineering Techniques	0.057	1.27	Normal
Aesthetics	0.038	1.26	Abnormal
Environmental	0.019	1.48	Abnormal
Facilities and Equipment	0.021	1.45	Abnormal
Technical and regulated	0.083	0.837	Normal

According to Table 9, since in the parameters of technical, regulated and engineering techniques, the p-value was more than the significance level 0.05, it could be concluded that these parameters were normal. Hence, one-sample t- parametric tests were used to assess the normal variables.

The results also showed that in the proportion parameters, project and performance relation, motifs, light, materials, openings, building color, building form, flexibility, temperature and humidity, safety, economy, aesthetics, environmental, facilities and equipment, the p-value was less than the significance level 0.05, hence it could be concluded that the variables were abnormal. So to assess these abnormal variables, chi-square non-parametric tests were used.

4.6. Prioritization of the components and examining each of them with the status quo among the students' statistical population

According to Table 11, calculated chi-square coefficient "121.412 = $_{c}\chi^{2}$" at 95 percent confidence level "α = 0.05" and the degree of freedom fd = 5 was larger than X^2 critical table "$_{ج}\chi^{2}$ = 11.057". Therefore, the research hypothesis was confirmed and the null hypothesis was rejected, also the probability of p-value was less than α = 0.05. Therefore, the final result was that the aesthetics components in relation to the quality of architecture students' design was different according to the values of the past and proportions component had the highest score and light had the least score.

Table 10 Friedman test to assess the priority of aesthetic parameter

Aesthetic components	Average rating	Priorities
Proportions	3.89	1
Project and performance communication	3.21	2
Motifs	3.05	3
Light	2.40	4

Table 11 Chi-square test

Index variable	Number of questions and answers	$_{c}\chi^{2}$	Degrees of freedom	Critical table	P-Value	α
Assessing the significance of difference between the priorities	175	121.412	5	11.057	0.000	0.05

According to Table 13, calculated chi-square coefficient "$_{c}\chi^{2}$ = 119.159" at 95 percent confidence level "α = 0.05" and the degree of freedom fd = 4 was larger than X^2 critical table "$_{ج}\chi^{2}$ = 9.681". Therefore, the research hypothesis was confirmed and the null hypothesis was rejected, also the probability of p-value was less than α = 0.05. Therefore, the final result was that the environmental components in relation to the quality of architecture students' design was different according to the past values and building form component had the highest score and openings had the least score.

Table 12 Friedman test to assess the priorities of environmental parameter

Environmental parameter	Average rating	Priorities
Material	2.74	2
Openings	2.11	4
Building colors	2.38	3
Building form	2.91	1

Table 13 Chi-square test

Index variable	Number of questions and answers	χ^2	Degrees of freedom	Critical table	P-Value	α
Assessing the significance of difference between the priorities	175	119.159	4	9.681	0.000	0.05

According to Table 15, calculated chi-square coefficient "χ^2 = 63.267" at 95 percent confidence level "α = 0.05" and the degree of freedom fd = 3 was larger than X^2 critical table "χ^2 = 7.715". Therefore, the research hypothesis was confirmed and the null hypothesis was rejected, also the probability of p-value was less than α = 0.05. Therefore, the final result was that the components of facilities and equipment in relation to the quality of architecture students' design were different according to the past values and flexibility component had the highest score and temperature and humidity component had the least score.

Table 14 Friedman test to assess the priority of facilities and equipment parameters

Components of facilities and equipment	Average rating	Priorities
Flexibility	2.86	1
Temperature and humidity	1.87	4
Safety	2.43	3
Economy	2.69	2

Table 15 Chi-square test

Index variable	Number of questions and answers	χ^2	Degrees of freedom	Critical table	p-value	α
Assessing the significance difference between the priorities	175	63.267	3	7.715	0.000	0.05

According to the results of testing data, tables and charts presented in the previous section, it was evident that each of the components had priorities (Fig. 2) which presumably considering all of them improved the result of architectural design and also considering the priority of each component approached the architectural design. Table 16 explains each of the research components and provides solutions for them:

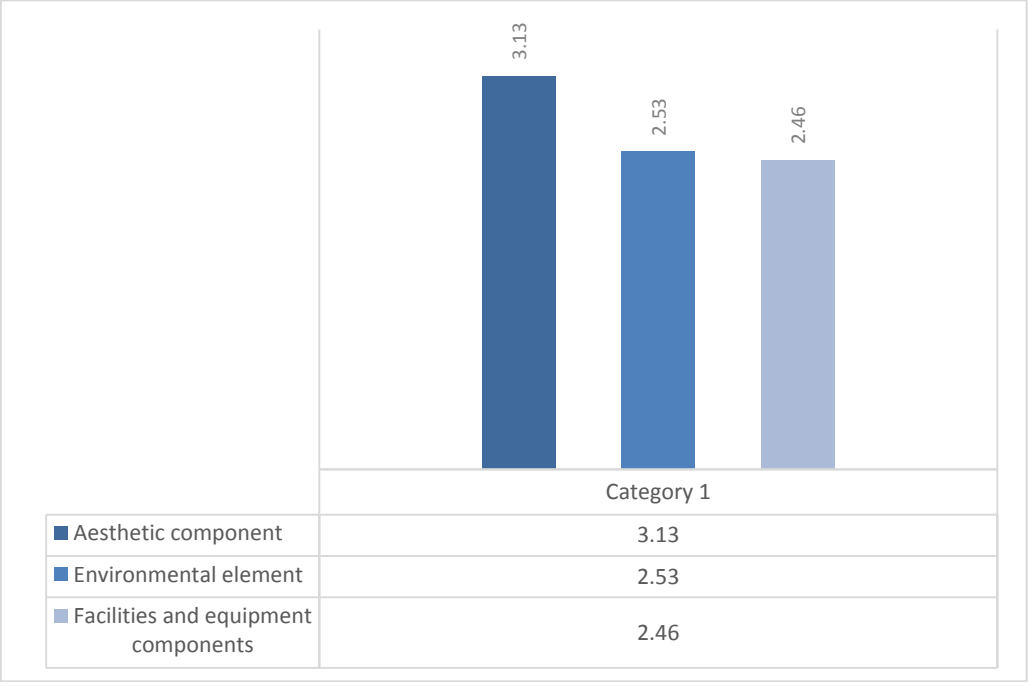


Fig. 2 Prioritization of the main characteristic of the research

Table 16 Providing solutions for four characteristics of research (Source: authors)

Main components	Sub-components	Solutions
First priority: Aesthetics	First priority: Proportions	Special attention to the proportions in terms of environmental psychology and proper understanding of the size for each project
	Second priority: Project and performance relation	Considering the design and form in accordance with the project`s objective and attention to the culture of the region
	Third priority: Motifs	Attention to decorations and geometry particularly Iranian-Islamic origin and the prominent geometries in the design
	Fourth priority: Light	Special attention to the ambient light and adjusting it for any part of the architectural space in accordance with the function and meaning of the space
Second priority: Environmental	Second priority: Material	Special attention to the choice of materials according to regional climate and design, attention to color, texture, the strength of materials, according to the climate in which it was designed.
	Fourth priority: Openings	Considering the design and layout of the openings with respect to building placement front and considering the climate of the region in terms of the prevailing wind and sunshine
	Third priority: Building color	Considering the color used for the project in general and details of the plan according to regional climate
	First priority: Building form	Special and fundamental attention to architectural design form considering the climate of the region in terms of its compression or expansion
Third priority: Facilities and Equipment	First priority: Flexibility	Considering the type of plan and map design to meet the audience`s needs and spatial flexibility and changes in spatial features in accordance with the audience`s goals
	Fourth priority: Temperature and humidity	Considering temperature and humidity of space with the use of efficient facilities and equipment
	Third priority: Safety	Considering the safety of architecture and design for audiences
	Second priority: Economy	Considering the cost of the project and considering the issue in kind and method of selecting the architectural design

Considering the structural goals (technical and engineering achievements) in today's architecture and focusing on all technical, engineering and logical criteria obtained from the achievements of experimental science in construction, optimization and retrofitting, the necessity of learning and consultation with experts, observing the principle of thrift and economy in job at the same time proper meeting of all the material and natural human requirements, and finally trying to meet the functions using the modern knowledge is a necessary issue. In the following, the key and effective points to achieve engineering techniques in accordance with the traditional architecture are referred:

1. Lightering building 2. Beauty of structure`s form 3. Compliance of structure with the spatial organization, 4. Relationship between materials and structure 5. Understanding the forces in elements, and 6. Relationship between geometry and structure.

5. CONCLUSION

Regarding the provided points, it can be said that contemporary architecture needs special attention from architects to the issue of art in the constructions. Today, buildings have lost their identity and value without art and have turned into soulless creatures. The existence of art in the architecture (with respect to the history of Iranian-Islamic architecture) replaces values and gives the architecture an independent and valuable identity. If architects and students of this field pay attention to the artistic aspect of buildings, the Islamic-Iranian identity will return to the contemporary constructions and the crisis of identity in the modern world will be distanced. It is a pity to have all these values and replace them with valueless.

The following activities are suggested to improve beauty in the architecture:

a. Giving significance and providing the appropriate definition of the subject of architecture, purposeful and correct extraction of spatial needs; in fact, we should consider what the subject expects from us and what do we expect from the space.
b. Paying attention to the values and concepts underlying the forms, as well as their effect on the architectural space; every form should be selected according to the meaning required for the spaces.
c. Particular attention be paid to the similarity and harmony of ornaments and the architecture of the building; ornaments and principles should be complementary.

CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest regarding the publication of this manuscript.

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