

Explaining the Experience of Spatial Quality of Jameh Mosques in East Azerbaijan Based on the Space Atmosphere Theory*

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ABSTRACT

Recreating the experienced spatial quality in the traditional architecture of Iran depends on the accurate and deep understanding of those spatial qualities and analyzing their elements, components, and spaces. One of the most significant factors in this regard is explaining the experience of the spatial quality in the space users' minds. It becomes more important in mosques that are for praying and the manifestation of the sacred affair. The present study aimed to analyze the compatibility of the spatial quality of Jameh mosques in East Azerbaijan with the components and indicators of the architectural space atmosphere theory to regenerate its spatial quality. The main research question is how the spatial quality of five Jameh mosques in East Azerbaijan can be analyzed based on the nine components of the space atmosphere theory. The research approach was qualitative, and the data analysis method was the hierarchal analysis and deductive-comparative method. The data collected from the library studies and field research, such as experiencing space and interviewing with users, were evaluated and weighted using Depth Map software and Expert Choice. The results showed that Tabriz Jameh Mosque (0.288) had the highest quality and strongest space atmosphere, and Sarab Jameh Mosque ranked the next. In static qualities, the body of architecture, proportions of the elements and components, and the solidity of the building (0.347) were the most important elements in creating space atmosphere. In dynamic criteria, light on things (0.412) were the most important elements, and temperature of space and levels of intimacy were the next influential factors. It can be concluded that Jameh Mosques of East Azerbaijan have heavy solidity, generally closed spaces, and warm colors due to the use of red bricks made from the red soil of Azerbaijan and solar radiation on their surface to create warm physical and sensory temperature and provide a pleasant quality for prayers in the religious ceremonies.

Keywords: Architectural Space Quality, Space Atmosphere, Architecture and Sensory Perceptions, Mosques of East Azerbaijan, The Architecture of Iranian Mosques.

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1. INTRODUCTION

The ability to recreate the experienced spatial quality in the traditional architecture of Iran, especially in the worship space and the architecture of the mosques, which has been one of the most important built bodies in the construction tradition of Iran, depends on the profound and precise understanding of spatial qualities and analyzing their elements and spaces. Despite the numerous studies on the architecture of mosques, defining the construction methods of the mosques and determining their spatial qualities and visual signs have been one of the challenges and fundamental problems in the construction and research of this land use. The mosques in Iran have been constructed in various ways in different periods, and have always met the quality of the spiritual space and the manifestation of the sacred affair while preserving the historical continuity with the previous period, as well as meeting the material and spiritual needs of the prayers. However, in the contemporary era, the construction of the mosque has experienced chaos both in terms of physical and functional components and the characteristics of the spatial qualities. Thus, research that could help deepen this recognition using the methods and being in compatibility with the practical theories is significant. On the other hand, the cold climate condition of the Azerbaijan region, its special and cultural-environmental features, and the possibility of cultural exchange with the neighboring nations have led the building tradition of mosques to have unique and different spatial and physical features than other regions of Iran. The current research aimed to achieve a profound understanding of the architecture of the mosque in terms of spatial quality and perceive it based on the compatibility of the spatial quality of Jameh mosques in East Azerbaijan with the components and indicators of the architectural space atmosphere. The current research attempts to, first, take the components of the space atmosphere theory, and then, analyze the influential factors on the perception of the built space using a comparative-deductive study on these components in five Jameh mosques for a deeper

recognition of the space quality in Azerbaijan mosques.

2. RESEARCH BACKGROUND

The research background can be investigated from two perspectives: First, the research on the architecture of the Iranian and Islamic mosques, and second, the research on the perception of the space quality and built space atmosphere. Given the importance of the mosque in the architecture of Iran, the main research in this regard can be classified based on three main approaches. The first approach analyzes the building of the mosques, spaces, elements, and the construction technologies and materials, proportions, and colors based on assuming the authenticity of the architectural work in understanding it (Haji Ghasemi, 2011, p. 13) from different aspects. In another approach, the architecture of mosques has been read by assuming the correctness of major categories, including regional stylistics (Pirmia, 2005). Also, it has been tried to recognize the developments of mosques within the changes and existing styles of each period. In this approach, some researchers agreed with the governmental classifications mainly done by orientalists, including Arthur Pope, Donald Wilber, and Robert Hillenbrand. Meanwhile, monographic studies include the main part of these studies. In the third approach, it is assumed that the evolutions of the mosques were more cultural rather than political and geographical, and the Iranians' wisdom and mystical discourses can be recognized. Among the above approaches, some research or prominent theories were selected due to the following reason and scrutinized in Table 1.

1. They must state a macro theoretical perspective.
2. The study reference must be the architecture of the mosques in Azerbaijan.
3. The researcher must have references to research in the construction and restoration techniques.
4. The researcher's perspective on the semantics of the elements and motifs of the mosques must present a fundamental approach.
5. The researcher must study the mosques in terms of environmental psychology.
6. The research must investigate the mosque in terms of the cultural continuity discourses.
7. The research must be influential on future studies.

Table 1. Analysis of the Major Studies on the Architecture of Mosques

Researcher	Approach	Research Area	Results	Authors' Analysis
Beheshti	Cultural	Features of the Iranian mosque	Analyzing the relationship between the interior and exterior in the architecture of the Iranian mosques, understanding the importance of culture in recognizing the architecture, the role of the religion and spirituality in the Iranian thought and reflection of Sheikh Lotfoallah mosque based on the Hajj rituals (Beheshti, 2011).	The stated approach emphasizes the difference and distinction of the mosque construction in the cultural zone of Iran from other parts of the Islamic world and considers its unique features the result of the Iranian culture.
Noghrekar	Cultural	The Islamic identity in Iranian architecture and urban planning	Studying the architectural buildings in Iran based on the components of the Iranian Islamic identity and understanding them in the wisdom system of the Islamic worldview.	The importance of the architectural identity, particularly in the mosque, in the state theory can be a dynamic solution in creating the space of the mosque based on Islamic wisdom.

Researcher	Approach	Research Area	Results	Authors' Analysis
Qayyoomi Bidhendi	Cultural	The temperament of Time: The Idea of Living Time	It is possible to understand the architectural works, especially mosques, based on recognizing the temperament of time and living time in each period of the history of Iran (Qayyoomi & Bidhendi, 2013)	The stated theory emphasizes the importance of style in the analysis of each building, providing a precise understanding of the architecture based on contextual terms.
Ajorlou	The authenticity of understanding of the work and style of the Iranian architecture	Historical stylistics of the architecture of Azerbaijan	Tracing the fundamental effects of the local schools of Azerbaijan and architects of Tabriz and Nakhjavan on the Ilkhanid and Timurid architectural styles and applying and classifying the indicators of those effects (Ajorlou, 2010).	The researcher's studies on the architecture of Azerbaijan mosques for an accurate understanding of the context have led to valid results and have well highlighted the regional characteristics.
Valibeig and Sartipi	The authenticity of understanding of the work	Geometry and motifs of mosques	The emergence of the visual techniques in the geometry of the brickwork motifs in the mosques and understanding them based on Gestalt theory (Sartipi & Valibeig, 2017).	Given that understanding a building often requires recognizing the construction methods, the broad studies of the researcher in this regard led to accurate results.
Yeganeh, Hashemi & SHahraki	The authenticity of understanding of the work	Analyzing the decorations and motifs of the Ilkhanid mosques	Ornament in Islamic art and architecture is a sacred affair and has symbolic concepts (Yeganeh, Hashemi, & Shahraki, 2017)	A semantic approach on the elements and components in the comprehensive research on the encoding of ornaments in understanding Iranian architecture is remarkable.
Golestani, Miri, & Motallebi	The authenticity of understanding of the work by the environmental psychology approach	Analyzing the elements of the mosques based on the behavioral settings	The mosque is one of the most significant buildings, which creates opportunities for urban behavior, as well as interior behavioral settings. It can be considered the factor of the urban physical and social organization (Golestani et al., 2016).	Given the broad range of the researcher's studies on environmental psychology, the obtained results of the mosque can be an effective strategy in understanding the spatial quality of the mosque.
Azad	The authenticity of understanding in the historical context	Tracing the historical continuity of construction tradition of the worship space in Iran	Comparative study of the elements and components of fire temples and mosques shows that the mosque architecture of Iran was the continuation of the construction of the Sassanid temples and fire temples (Azad, 2005).	Historical continuity is important in analyzing the similarities and differences between the mosques over consecutive centuries.
Golestani, Hojjat, Sa'dvandi	The authenticity of the work	Tracing the concept of the spatial continuity in the architecture of the mosques	The concept of spatial continuity can be achieved in three ways of visual, structural, and visual structural continuity constantly in the architecture of the Iranian mosques since 626 (5 th AH) (Golestani et al., 2017)	Analyzing the spatial continuity theory in the architecture of the mosques, especially since the fifth AH onward, as one of the basics to recognize the building.
Kabir Saber, Amjad Mohammadi	Cultural	Interaction between the nature, politics, and culture in the architecture of the Blue Mosque of Tabriz	In the architectural design of Blue Mosque, the interaction between the built environment and natural environment has been achieved based on an approach in which politics have dominated other components (Kabir Saber & Amjad Mohammadi, 2017).	The researchers could analyze the logical relationship between the architecture and environment by recognizing the architecture and culture of Azerbaijan.

The current research attempted to understand the past architecture of Iran and the historical experience of the worship space in East Azerbaijan with a different approach and considering the authenticity of the lived experience in the built space. In perceiving the quality

of space and the relationship between humans and the built environment, scholars in various fields, especially in environmental psychology, have addressed this issue. Table 2 analyzes the main theories in this regard.

Table 2. Analyzing the Prevailing Theories in the Perception and Production of the Quality of Space

Researcher	Academic Area	Research Area	The Results
Merleau Ponty	Phenomenologist philosopher	Phenomenology of perception	The most significant human tool to perceive the quality of the environment is the five senses and the emotional meaning of the environment is achieved when it is associated with human's all sensory perceptions (MeleauPonty, 2012, pp. 55-61)
James Gibson	Psychologist	Psychiatric of Visual perception	In the ecological theory of environmental perception, the environment is explored using five senses and being present in the environment. Perception of an environment is an experimental affair (Gibson, 1979)
John Lang	Architect and urban planner	Behavioral sciences and environmental design	Perception of the meaning based on an individual's mental schema (Lang, 2000, p. 108)
Juhani Pallasmaa	Architect and theorist	Architecture and sensory perceptions	Being of the human in the world occurs by the physical structure and sensory perceptions, and human's behaviors in the environment depend on the qualities of the sensory perceptions (Pallasmaa, 2013)
Peter Zumthor	Architect	Architecture based on the space atmosphere	Zumthor is committed to using the tactile, olfactory, and acoustic quality of the material. According to him, the effect of space on all human beings is when it can conquer the whole nature of human existence (Akbari, 2018). He believes that an architectural work can have the qualities of artwork only when the combination of forms and its content creates a powerful atmosphere that can impress the audience (Zumthor, 2019).
Gaston Bachelard	Philosopher	Phenomenology of space	Based on the phenomenology of the imagination and the originality of the memory in the unity with the environment, he claims the living space of the human being must enjoy the spatial quality in which residents would not feel the alienation from the space (Bachelard, 2013).
Kenneth Frampton	Architect and critic	Critical Historiography of Modern Architecture	The architecture must avoid visual qualities and turn into a spatialexperimental phenomenon.

3. THEORETICAL FOUNDATIONS AND FRAMEWORK OF THE RESEARCH

In the analysis of theories of space perception in the late twentieth century and with the rise of illustration processes after the digital technology revolution, the transition from imagism from various ontological, aesthetic, and biological aspects in various branches of science, the transition from the visual dominance and attention to all the senses and sensory perceptions of the human were raised. Jean-Paul Sartre criticizes the visual-orientation and argues that as we can imagine and create mental images, we are free in terms of anthropology; he believes that an analogy and comparison equivalent to the perception is required for the imaginary process of the human, and transition from the mere visual orientation and perception of the environment with all sensory perceptions is required for such an analogy (Sartre, 2004). Jay strongly criticized the visual orientation and the visual culture of the twentieth century in France (Jay, 1993). According to Heidegger, the main phenomenon of the modern era is the reduction of the world to the picture. The domination of the vision, which was first raised by glamorous images, has increasingly denied everything in the modern era (Heidegger, 1977, p. 134). With the increasing wave of criticism of the growing imagism, especially after the digital revolution, sensory-emotional approaches to the creation of spatial quality and atmosphere at the beginning of this century have

become important.

Jean-Paul Sartre believed that an analogy, comparison equivalent to the perception, is required for the imaginary process of the human, and transition from the mere visual orientation and perception of the environment with all sensory perceptions is required for such an analogy (Sartre, 2004). The introduction of ecological psychology by Gibson (1979), the definition of active perception based on situational experience according to the motion in space, began a new stream of thought. The richness of architectural space is manifested through movement in space. Movement causes new and diverse human emotions to reach the human sensory organs by stimuli to be processed in the brain. Sound flow, wind flow, movement of people in space, movement of human organs are also defined in addition to the concept of movement (Akbari & Niroumand, 2019, p. 65). Atmospheres are the existing emotions in the space (Schmitz, 2016, p. 3). Considering atmosphere originates from the critical reaction of the architects to the technology and industrial-oriented approaches of modern architecture, which is an emotional reaction to insensitive architecture (Borch, 2014, p. 43). The atmosphere is created by decorating the context in the space (Bohme, 2017, p. 150). The concept of the atmosphere is formed by the audience's understanding of an embodied image of the space, which occurs through momentary perceptions resulted from the individual's feelings about the situation or concerning the community (Pallasmaa, 2013, p.

550). The atmosphere varies by time, like the climate conditions. Unlike the place, the atmosphere is not a solid and independent state (Eliasson, 2016, p. 13). Although atmosphere has a non-material nature, its materiality can attract the audience's attention and improves its sensitivity to any particular atmosphere. All the materials have social-psychological content. The proper materials can provide an appropriate condition for emerging the atmosphere (Griffero, 2016, p. 67). The atmosphere is space based on emotional feelings. The emotions are not always an inner affair in the heart of the audience, but all the materials and spatial elements affecting the quality of the atmospheres become meaningful by an individual's experience of the space (Pallasmaa, 2012, p. 36). Atmospheres are the result of the human's feelings of the simultaneous presence of the subject and object (Bohne, 2016, p. 23). We perceive the atmosphere through emotional capabilities (Zumthor, 2019, p. 12). The human's innate capacity for a broad understanding of atmospheres and states is similar to his capacity for daydreaming when reading a novel, which implies emotions. The human being lives simultaneously in the material and mental world (Havik, Teerds, & Tielens, 2013, p. 98). Zumthor's notion is based on creating the atmosphere. He believes that the architectural world can enjoy the qualities of the artwork only when it creates a strong atmosphere by the combination of its forms and contents and can affect the audience. Such effectiveness is perfect when the work can capture all the human being's essence, including the five senses and his soul (Zumthor, 2019, p. 23). The atmosphere

becomes meaningful by the feeling of presence in the present time. The atmosphere of a building leads to the human's movement and recall, resulting in paying attention to the qualities of the architectural space (Zumthor, Binet, & Lending, 2018). Peter Zumthor describes nine points in defining and explaining the theory of the space atmosphere as follows:

1. The body of architecture, 2. Material compatibility, 3. Sound of Space; 4. The temperature of Space, 5. Surrounding objects; 6. Between composure and seduction; 7. The tension between interior and exterior; 8. Level of intimacy; 9. Light on things (Zumthor, 2017). Each of these features has been described as the constituent sub-criteria of the atmosphere theory in Table 3. The nine criteria can be classified into two groups of static and dynamic criteria in terms of the nature of the evaluation, assessment, comparability, and analysis approach. That said, the static components are stable over time, day and night, and various seasons of the year, and mental and sensory perceptions and environmental perceptions of them do not change, such as the height of the spaces or the materials of the buildings. Thus, they can be evaluated based on the software data. The dynamic components change during different hours of the day and night and different religious times and the seasons, and based on that, the spatial quality will change. They also can be evaluated based on individuals' perceptions and environmental perceptions. It includes both the processes of creating a place and the processes of reading historical monuments. The cognition process was set out in Figures 1 and 2.

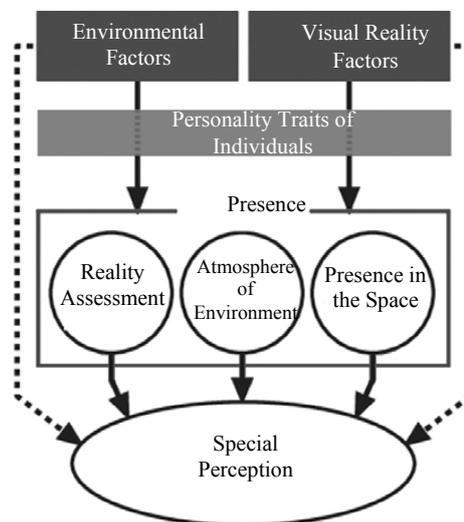


Fig. 1. The Role of Space Atmosphere in the Process of Experiencing the Environment

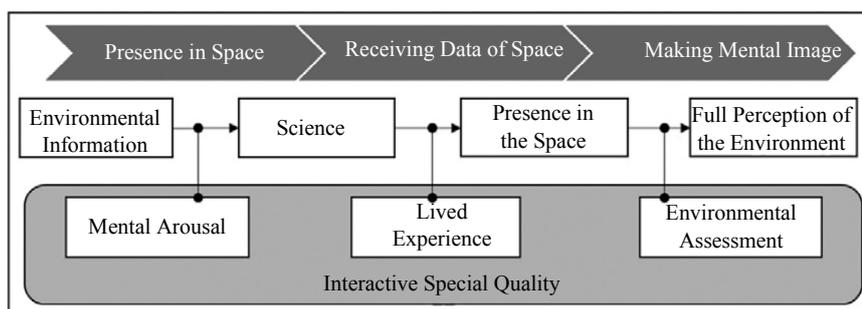


Fig. 2. Cognition Process of the Built Spaces Based on Experiencing the Place

Table 3. The Criteria and Components of the Atmosphere Theory Based on Peter Zumthor's Definition

Criteria and Components of the Space Atmosphere Theory		
Static Qualities	The body of architecture	The material presence of objects in the architecture a type of anatomy consisting of a material mass containing membrane, texture, tactile envelopment
	Material compatibility	The necessary adjacency between the materials is based on their essence.
	Surrounding objects	Objects that are preserved, maintained, and emotionally used in the space. Something that surrounds us.
	The tension between the exterior and interior	The tension between the interior and exterior spaces and the private and public realms.
	Level of intimacy	The ratio of the human dimension to the dimensions of the building mass.
Dynamic Qualities	Sound of Space	The auditory perception of all the sounds in the space.
	Temperature of Space	It is the mental and emotional temperature that is felt and touched by humans beyond the physical temperature of the environment.
	Between composure and seduction	The curve of creating movement in the architecture; experiencing space in the particular timeplace, a type of journey to explore.
	Light on things	The intensity and amount of solar radiation on the body and inside the space.

4. CONCEPTUAL MODEL, HYPOTHESIS, AND RESEARCH QUESTIONS

The relationship between the human and built space is a significant basis for recognizing the building and the fundamental principle in the design process of the required space, which is the most significant stated component in the current research. In the studies of the history of architecture of Iran, the building is often investigated regardless of the presence of the user. Also, in the cultural approach, which was previously studied, the researchers' approach is not based on the environmental data resulted from the field studies, or due to the uselessness of the building, data are often written and have a temporal distance from the research. However, since the Jameh mosques of East Azerbaijan are the case studies in the current research, the researchers could prepare them for evaluation and assessment while applying the components of the space atmosphere theory in the research. The research components, as the evaluation criteria, were classified into two groups, including the static qualities that are

the unchangeable components of the building and are its physical identity and the dynamic qualities that vary at different times. This classification has been presented in Table 3. In the present study, it is assumed that the spatial quality of the Jameh mosques of East Azerbaijan can be analyzed based on the nine points of the space atmosphere. Furthermore, it is assumed that the current approach can be a reliable tool for understanding the historical architecture of Iran and reproducing it in the current era. Finally, it is assumed that the applied criteria can be evaluated and scored in the statistical population by a comparative-deductive study, and the spatial quality of the mosques can be determined based thereon. Thus, the research questions corresponding to the hypotheses and research variables are as follows:

1. What are the architectural features and characteristics of the Jameh Mosque of East Azerbaijan province?
2. How can the spatial experience in each of the Jame Mosques of East Azerbaijan be analyzed based on the criteria of the space atmosphere theory?

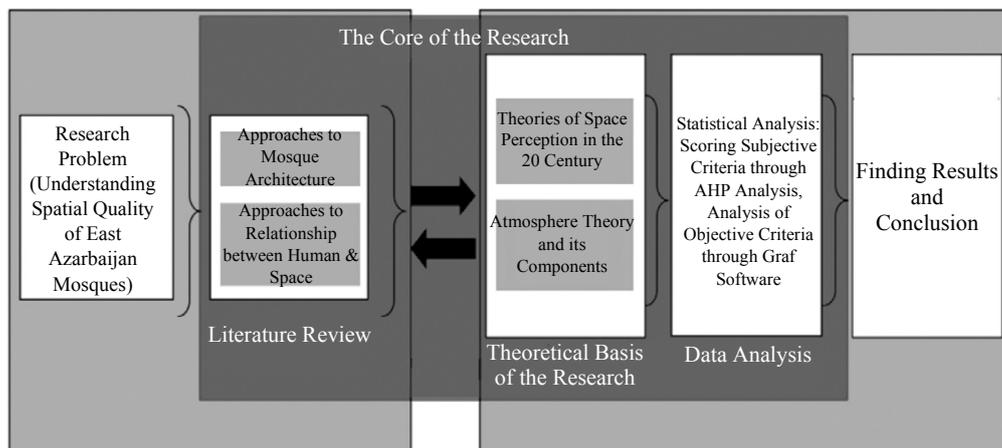


Fig. 3. Conceptual Model of the Research; the Relationship between Variables and Research Process

5. RESEARCH METHODOLOGY

In terms of ontology, reality depends on the human's experience and his/her perception in the current research. In terms of epistemology, the knowledge of the reality, which includes the historical affair in the current research, is built in the researcher's mind based on the data. Hence, the philosophical perspective of the research was inferential (Adcock, 2003), and the research approach was qualitative (Bazargan, 2010, p. 19). The present research aimed to study the various aspects and develop the knowledge in the architecture of the historical mosques, and hence was considered developmental research (Nobakht, 2018, p. 42). This study attempted to explain a novel approach to study the historical architecture based on international theory and provide a tool to create the desired space in line with the historical tradition of constructing the mosque. The research data were collected using library studies and field data. The statistical population was the five selected mosques among the fourteen Jameh mosques in East Azerbaijan province, including Tabriz Jameh Mosque, Sarab Jame Mosque, Marand Jameh Mosque, Bonab Jameh Mosque, Ajabshir Jameh Mosque. The researchers were constantly present in the all stated mosques in different seasons of the year, different ceremonies, including Friday prayer, iftar ceremony in Ramadan, mourning in Moharram and Safar, and used the semi-structured open-ended interview regarding the quality of the space and the prayers' experience of the mosque space while experiencing the space. Given that the majority of the users, especially in the small cities, were not comfortable writing in Persian and completing the forms, it was decided to conduct the open-ended interview at the beginning. The questions indirectly included one or several components of the nine criteria, such as memorable sounds, air temperature, elements and components in the space, ambiguity in the space, building, and elements of the building. Next, ten experts, including professors of the Architecture department and Ph.D. candidates of architecture, were

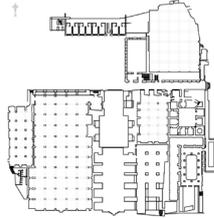
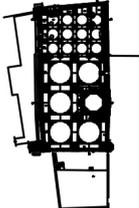
asked to categorize and code the collected data under the nine criteria extracted from atmosphere theory and determine the average weight of each criterion based on the weighing system provided in Table 6, and input each related number in the pairwise comparison of the mosques into the software. The mosques with no required criteria for comparison were excluded based on the users' opinions. Descriptive characteristics of users were presented in Table 7. After collecting data, to analyze the nine criteria, the plans of the buildings were analyzed and scored using DepthMap software to evaluate "tension between the exterior and interior" and "between composure and seduction" (Table 3). Then, all criteria (static and dynamic) were weighted using Expert Choice in a hierarchal comparison so that the spatial quality would be analyzed using a comparative-deductive approach.

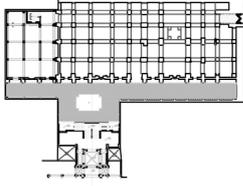
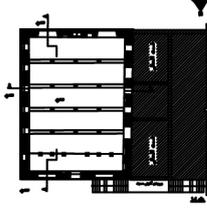
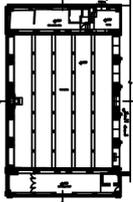
6. CASE STUDIES

The selected mosques are currently active while being historical and are among the significant centers for holding religious ceremonies in their located cities. The main space of the mosques in Azerbaijan is the covered Shabestan due to the cold climate and long, cold, and frost days. The body of the building is made of stone and brick, as the available materials, and the ceiling and the bearing columns of the ceilings are made of wood. Mosques in the Azerbaijan region have generally uniaxial main space (Ayorlou, 2010, p. 8). The main architectural features in Azerbaijan, which can be observed in the case studies, are as follows:

1. Emphasis on the exaltation and greatness and height of the building (especially in the socially important building).
 2. Institutionalizing the addition of the minarets to the architecture of the mosques;
 3. The construction of a high-drum dome;
 4. Development of the glazed tiles and altar with plasterwork;
 5. Using Thuluth in the inscriptions;
 6. Emphasis on the symmetric plan (Ayorlou, 2010, pp. 10-11).
- Table 4 presents the particular features of the case studies in detail.

Table 4. Describing the Particular Features of the Mosques Understudy

Period	Structure of the Building	Spatial Relations	Interior Space
Tabriz Jameh Mosque			
The initial core dating back to the Seljuk era	Vault ceiling, brick vault, stone column		
Marand Jameh Mosque			
Initial core dating back to the Ilkhanid era (1330)	Brick vault, stone column, plaster altar		

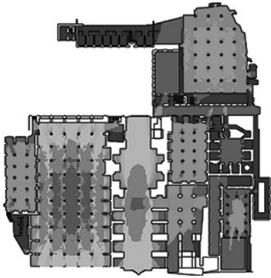
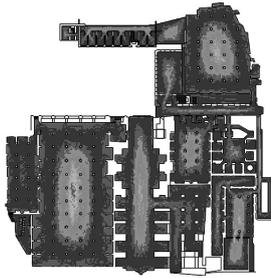
Period	Structure of the Building	Spatial Relations	Interior Space
Sarab Jameh Mosque			
Initial core dating back to (637)	60 columns, vault ceiling, brick arch, and pillar		
Bonab Jameh Mosque			
Safavid	Beam ceiling, wooden column, and beam painted capitals and beams		
Jameh Mosque of Ajabshir			
Safavid	Beam ceiling, wooden column, and beam painted capitals and beams		

7. DATA ANALYSIS

In addition to the field data and deductive-weight analysis to analyze 9 points, DepthMapX software can be applied to evaluate “tension between exterior and interior”, which refers to the depth of the space, and “between composure and seduction”, which requires the movement circulation and exploring the space. Then, these criteria were once analyzed based on the software and then evaluated based on the field data resulted from the interviews in a deductive analysis, results of which have been presented in Table 5. In Table 5, in the left column, the color spectrum from

cold to warm represents the space continuation. That said, the integrity of the space moves the graph toward red. In the right column, the circulation in space is displayed in red spectrum colors. The purpose of software analysis is to provide more accurate visual expression and increase the validity of the research. In the deductive analysis of the data using hierarchy, with the help of ten architectural elites, the data obtained from the interviews, which was the result of the lived experience of users and researchers, were implemented and then scored according to the criteria. Finally, the average score was inputted into the software.

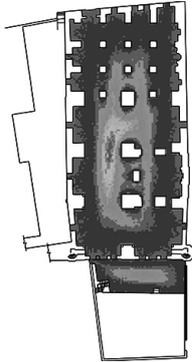
Table 5. Analysis of the “Tension between Exterior and Interior” and “between Composure and Seduction” in the Case Studies Using Depthmapx

Between Composure and Seduction (Circulation and Exploration of the Space)	The Tension between the Exterior and Interior (Depth and Integrity of Space)
Tabriz Jameh Mosque	
	

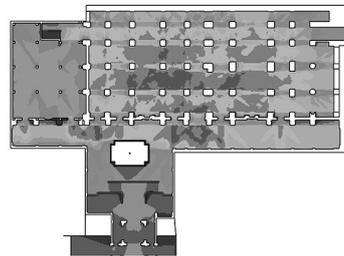
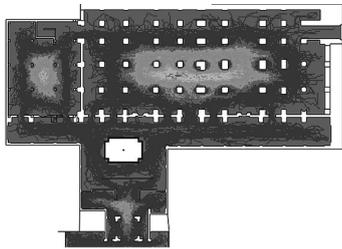
Between Composure and Seduction (Circulation and Exploration of the Space)

The Tension between the Exterior and Interior (Depth and Integrity of Space)

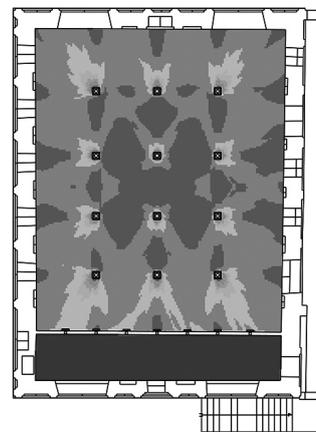
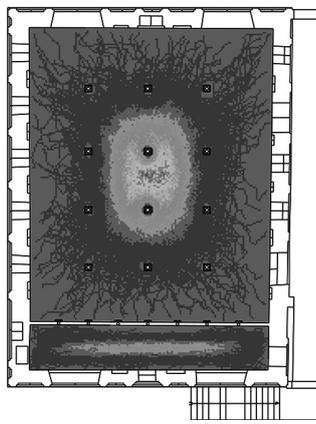
Marand Jameh Mosque



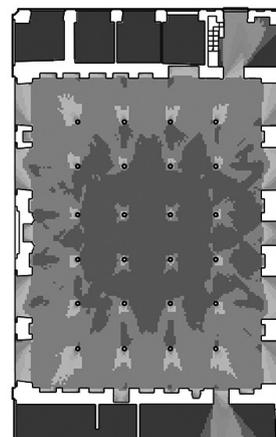
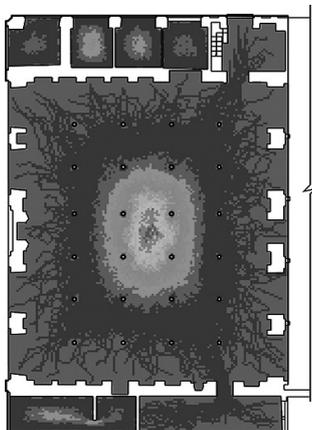
Sarab Jameh Mosque



Bonab Jameh Mosque



Ajabshir Jameh Mosque



Analyses showed that the integrity of the space in Ajabshir Jameh Mosque and Bonab Jameh Mosque is at the highest level, and the tension between the exterior and interior is at the lowest level, indicating that it provides the interior heating of the space by reducing the connection with the exterior. The main part of Shabestan in Tabriz Jameh Mosque ranked first in terms of spatial diversity and circulation in the space. However, Bonab Jameh Mosque and Ajabshir Jameh Mosque have had less exploration capability due to having an integrated space. Nevertheless, Ajabshir

Jameh Mosque provides the possibility for being in a more diverse space and various conditions in the ritual behavior by enjoying lateral spaces similar to Sarab Jameh Mosque.

In the second phase of the analyses, after creating the tree diagram of the criteria and subcriteria based on Figure 4, the data obtained from the interviews were scored by the elites, and the average score was calculated. The average score was inputted into Expert Choice, and the following results were obtained.

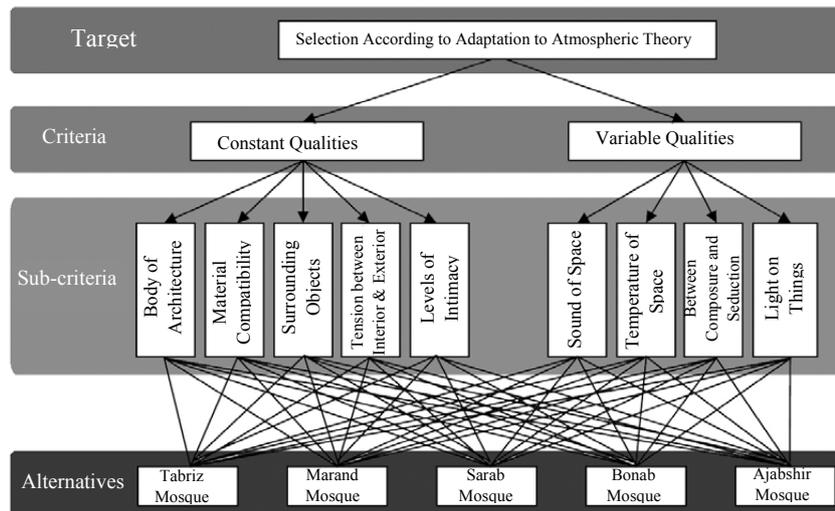


Fig. 4. Tree Diagram of the Hierarchical Analysis of the Sub-Criteria in the Case Studies

The results of scoring criteria were determined based on Figures 5 and 6. The features of the interviewed statistical population have been presented in Table 7.

The final weight of the sub-criteria was also described in Table 8.

Table 6. Weighing System of the Space Atmosphere Sub-Criteria

Priority and Importance	Numerical Value
Extremely Important (Totally Desirable)	9
Very strong Importance (Very Desirable)	7
Strong Importance (Desirable)	5
Moderate Importance (Somewhat Desirable)	3
Equally Important (Equally Desirable)	1
Intermediate Values	2, 4, 6, 8

Table 7. Descriptive Characteristics of the Interviewed Statistical Samples in Each Mosque

Characteristics	Tabriz Jameh Mosque	Marand Jameh Mosque	Sarab Jameh Mosque	Bonab Jameh Mosque	Ajabshir Jameh Mosque
Number	Female	80	40	35	30
	Male	80	40	35	30
Age Average	Female	34	36	34	37
	Male	42	45	44	45
Being Native	Female	86%	90%	94%	94%
	Male	76%	95%	94%	94%
Religion	Shia	100%	100%	100%	100%
	Sunni	0%	0%	0%	0%

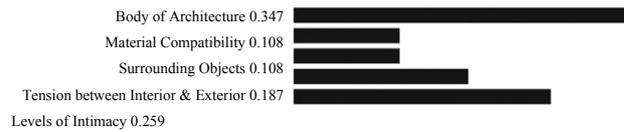


Fig. 5. The Bar Graph of the Final Weight of the Static Components in an Atmosphere Theory



Fig. 6. The Bar Graph of the Final Weight of the Dynamic Components in an Atmosphere Theory

Table 8. The Final Weight of the Static and Dynamic Criteria of the Space Atmosphere Theory

Criteria and Components of the Space Atmosphere Theory	Weight		Weight In Criterion	Normalized Weight
	Static Qualities	0.50	Body of Architecture	0.347
		Material Compatibility	0.108	0.054
		Surrounding Objects	0.108	0.054
		Tension between Exterior and Interior	0.178	0.089
		Levels of Intimacy	0.259	0.130
Dynamic Qualities	0.50	Sound of Space	0.141	0.07
		Temperature of Space	0.287	0.144
		Between Composure and Seduction	0.161	0.08
		Light on Things	0.412	0.206



Fig. 7. The Final Weight of the Mosques Understudy in Compatibility with the Atmosphere Theory

8. DISCUSSION AND CONCLUSION

The results showed that there are equal weights between the static criteria, i.e., the components that are the elements of the body of the building, and the dynamic criteria, i.e., the components that change over time and various hours of the day. That said, creating a spatial atmosphere can be realized not only in the solid and unchangeable elements but also in the dynamic elements, indicating its significance in the design process of the contemporary mosques. In the static qualities, the Body of the Architecture, the proportions of the elements and components, and the corporality of the building (0.347) had the maximum weight in creating the spatial atmosphere of the Jameh Mosques in East Azerbaijan Province. Levels of intimacy (0.259) and tension between interior and exterior (0.178), i.e.,

movement circulation, ranked next. The surrounding objects and material compatibility (0.108) had equal importance. In the dynamic criterial, the light on the things in the space (0.412) had the maximum significance in the spatial quality, which has more effect in creating the space atmosphere of the mosques in Azerbaijan that is considered a cold region. The temperature of the space (0.287) and between composure and seduction (0.161), and sound of the space (0.141) ranked next, respectively. In general, the weight of the components of the space atmosphere theory in the case studies, Tabriz Jameh Mosque (0.288) had the highest quality and strongest spatial atmosphere, and Sarab Jameh Mosque (0.213) ranked the second, which is due to the more diversity in the closed and open spaces of these mosques.

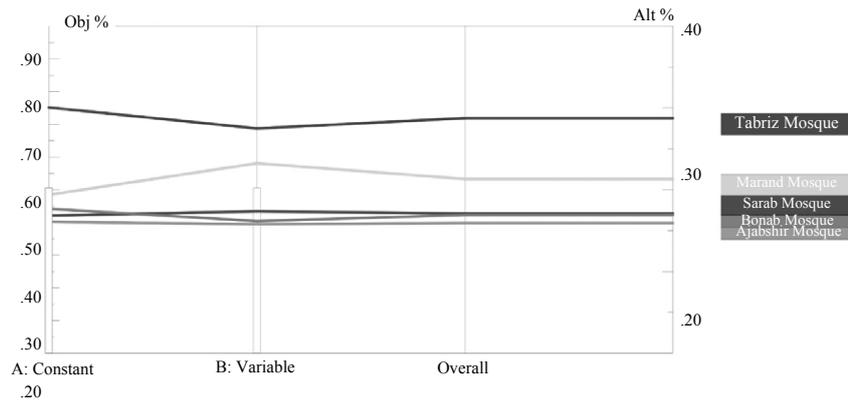


Fig. 8. A Final Comparison of Five Mosques Understudy, Indicating the Role of Each Mosque in Compatibility with the Components of the Space Atmosphere

As a result, it can be concluded that the Jameh Mosques of East Azerbaijan have heavy solidity, generally closed spaces, and warm colors, as a result of using red bricks made of the red soil of Azerbaijan, and the red carpets of Tabriz School along with the solar radiation on their surfaces, to create warm physical and emotional temperature and provide a pleasant quality for prayers in religious ceremonies. The ornamental elements are stone and wooden capitals and pedestals,

colored lattices of the windows, and the plasterwork in the altar, indicating the simplicity in the mosque construction. These elements have made a quality, which can be called the spatial atmosphere of East Azerbaijan Mosques. This quality can be preserved and continued by its proper recognition. The current research can be pursued in future studies to achieve the applied instruction in designing and creating a ritual space atmosphere in the Azerbaijan region.

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