

Evaluation of Customer Attraction Focusing on Biophilic Design Features in the Case Study of Saray-e-Moshir, Shiraz*

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ABSTRACT

Biophilia, in addition to its concepts in philosophy and psychology, has been rooted into man-made environments in recent decades. Biophilic architecture is a part of an innovative view that helps both people and the environment in the way to keep them healthy and promotes the physical performance for having better life. Commercial areas, as spaces for meetings, entertainment, leisure, relaxation, and interchange, are the most important domains that are considered nowadays; and the designers of these spaces should focus on providing diverse memorable sensorial, emotional, and behavioral experiences; and also be able to improve the offer conditions, their attractiveness, and their image by considering alternative or complementary factors. Examining biophilic design elements in architectural cases may lead us to find the impression of these elements on increasing customer attraction. It seems that finding common features of biophilic design and customer attraction, and different attributes, such as the design, management, and environment arrangement increase the number of visits. Despite the changes of the community's psychological needs in the last decades and increasing users of commercial spaces, these spaces receive less attention, and few practical studies on these areas in Iran, make this study more significant. The present study aims to investigate the impact of biophilic design elements on customer attraction in Saray-e-Moshir, Shiraz. For this purpose, based on mixed research methodology and library studies, common criteria of biophilic architecture and customer attraction are retrieved from related literature; then through field observations and questionnaire distribution among customers and visitors, the effects of factors on each other are analyzed, using SPSS software and correlation method. The results indicate that the components of biophilic architecture have a significant relationship with the factors of customer attraction, and the biophilic features not only help increase the attraction but also enhances people's spiritual, social and cultural health.

Keywords: Biophilic Design Elements, Commercial Spaces, Customer Attraction, Shiraz Saray-e-Moshir.

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1. INTRODUCTION

Shopping centers should improve the offer conditions, their attractiveness, and their image by considering different alternative or complementary factors.

People visit malls not only to buy the products they need but also to enjoy the atmosphere or environment of the shopping center. Based on the design and eco-natural environment, the purpose of this paper is to analyze the attraction factors of shopping centers (Cortázar & Vela, 2017).

Biophilia reflects benefits from the natural world which includes: attraction, reason, aversion, exploitation, affection, dominion, spirituality and symbolism (Kellert, 2012).

The aesthetic attraction to nature is fundamentally an act of curiosity and it is integral to many critical human attributes. Even in today's life which is full of knowledge and powerful electronic communication, the natural world is the most sensory-stimulating and information-rich environment that can even provoke, examine and explore some degree of interest.

Proportion, balance, harmony, symmetry, ordering, and organization are the aesthetic appeal of nature that can be found in many parts of natural world. Variation of a basic theme that occurs on different scales and aesthetically reflects a balance of complexity and organization, is also a sign of fractal geometry which is a feature of both natural and human-made objects.

Our recognition of ideal beauty in nature often reflects prominent features of the natural world, that have particularly contributed to our survival over time, such as potable water, food and fruits, strength and prowess, and even elegance and excellence (Ibid, 2012).

For this research two main questions will be recognized:

- Do biophilic design elements have an impact on customer attraction in Shiraz's Saray-e-Moshir?
- What are biophilic elements in Saray-e-Moshir that have an impact on customer attraction?

The research significance is to find different biophilic elements such as water, light, plant, colour, material, natural motifs etc., that have an impression on customer attraction and evaluate them in the case to use as different design factors in commercial spaces.

2. LITERATURE REVIEW

2.1. Biophilic Design

The term biophilic means 'the tendency to focus on life, and life-like processes'. Biophilic design incorporates the human psychological connection with the living world. Biophilic design is the combination of different theories from environmental psychology, evolutionary psychology, ecological psychology, neuroscience, which goes for humans and its relation with nature (Zari, 2009).

Biophilic design recognizes the inherent human need for nature together with sustainable and universal design strategies to create environments that truly

enhance life (Stewart-Pollack, 2006).

In "Building for Life", Stephan Kellert says that the goal of biophilic design is to "re-establish positive connections between people and nature in the built environment" (Kellert, Heerwagen, & Mador, 2008).

2.2. Biophilic Design Elements

In practice of biophilic design, Kellert has mentioned six different elements for biophilic design:

- Environmental features
- Natural shapes and forms
- Natural patterns and processes
- Light and space
- Place-based relationships
- Evolved human-nature relationships

Kellert's biophilic elements mentioned that different features such as color, water, air, sunlight, plants, animals, natural materials, views and vistas, façade greening, geology and landscape, habitats and ecosystems and fire are the first and most obvious elements of biophilic design (Kellert et al., 2008).

The natural shapes and forms include botanical motifs, tree and columnar supports, animal (mainly vertebrate) motifs, shells and spirals, egg, oval and tubular forms, arches, vaults and domes, shapes resisting straight lines and right angles, simulation of natural features, biomorphy, geomorphology and biomimicry often found on building facades and within interiors.

Natural patterns and processes are another elements of biophilic design and they are based on sensory variability, information richness, age, change and the patina of time, growth and efflorescence, central focal point, patterned wholes, bounded spaces, transitional spaces, linked series and chains, integration of parts to wholes, complementary contrasts, dynamic balance and tension, fractals and hierarchically organized ratios and scales. All the features given for natural patterns and processes emphasize the incorporation of properties found in nature for the built environment.

The fourth biophilic element, i.e. light and space, includes natural light, filtered and diffused light, light and shadow, reflected light, light pools, warm light, light as shape and form, spaciousness, spatial variability, space as shape and form, spatial harmony, inside-outside spaces. All these attributes focus on qualities of light and spatial relationships.

The place-based relationships based on geographic connection, historic connection, ecological connection, cultural connection to place and indigenous materials, landscape orientation, landscape features that define building form, landscape ecology, integration of culture and ecology, spirit of place, avoiding placelessness, all refer to suitable connection of culture with ecology in a geographic context.

The last element called as evolved human-nature relationship, contains prospect and refuge, order and complexity, curiosity and enticement, change and metamorphosis, security and protection, mastery and control, affection and attachment, attraction and beauty, exploration and discovery, information and

cognition, fear and awe, reverence and spirituality, all of them focus on fundamental aspects of the inherent

human relationship to nature (Kellert et al., 2008).



Fig. 1. Saraye Moshir (Vakil Bazaar) Biophilic Design Elements

2.3. Persian Bazaars

A major communication way within old Iranian cities was considered as Bazaars. Most of the activities and traffic took place in bazaar complexes within urban areas. It was the major communication channel between citizens (Bahmani Kazerooni & Pourjafar, 2014).

Iranian bazaars indicate gathering economic, social, religious and cultural centers. Apparently, the bazaar has been considered as the symbol of urbanization since the creation of social life, task division and

necessity of exchanges. Different climates, in addition to cultural and historical factors, make different types of bazaars' development all over the country. This has made fundamental differences in the structural format of bazaars (Karimi, Ghotb, Bahari, & Golizadeh Sarvehaei, 2015).

Bazaar can be seen as a symbol of collective solidarity, conformity, and sympathy. Formation of guild, politic, and social entities was one of the most important properties within the bazaar complex which may be considered as the founder of civil entities in society (Bahmani Kazerooni & Pourjafar, 2014).

Table 1. Bazaar Functions

Functions	Frame work Fit to Function	Way of Functioning
Social	Passage and hall Square Bath	Mourning ceremony Connection line and a place for counteractions and transactions
Economic	Chamber hall	Sale and purchase along with other function has been grown
Political	Rows	News and objection announcement
Religious	Mosque School Tekyeh	The main row of bazaar follows the mosque gate.
Relational	Passage Gate	Bazaar is a passage with stores on its both sides Near the main gate of town

(Bahmani Kazerooni & Pourjafar, 2014)

Iranian bazaars have several framework elements of which Sara or Tim can be mentioned. Sara means a circle and broad location in Persian glossary and is indeed like a caravansary (KARVANSARA) including a yard with open area in middle and surrounded by a lot of chambers.

The yard is served as a warehouse and the whole area is dedicated to the supply of certain goods. It's sometimes called the center of some similar firms meaning compact, circle and vast place that is served for office works and whole trading. It is a place for the dealer's activities (Bahmani Kazerooni & Pourjafar, 2014).

Assari et al. has explained bazaars as a place in which mass and open spaces were properly mixed together and central courtyards with green spaces circulate air in interior spaces. Skylights also provided natural light penetration and airflow through interior spaces. To construct the roof, a combination of dome and vault was the typical construction approach. For materials, adobe and sun-dried brick were applied. According to the application of vernacular and environment-friendly

materials, air, land and water pollution were minimized (Sadafi & Sharifi, 2018).

2.4. Customer Attraction

Attraction is the noun to the verb attract, which basically means "to cause interest or pleasure and to pull someone towards you by the qualities you have, especially positive and admirable ones" (Cambridge Dictionaries). The basic argument is that by introducing and expanding the knowledge of this concept, the mall's investments try potentially to increase customer attraction. Social attraction is and has been one of the most dominant concepts in the social psychology and social exchange literature (Ellegaard & Ritter, 2006). One of the most important targets for the investor in any architectural space is to increase the user satisfaction. Commercial spaces are places in which customer attraction plays an important role in its success. There are many reasons for improving customer attraction in these places.



Fig. 2. Saraye Moshir (Vakil Bazaar), Natural Colors and Materials

Shopping centers should improve the offer conditions, their attractiveness, and their image by considering other alternative or complementary factors.

Shopping areas and bazaars are spaces for meetings, entertainment, leisure, relaxation, and interchange. Some believe that commercial areas should focus on providing diverse memorable sensorial, emotional, and behavioral experiences.

Micu (2013) found that various attraction factors of the shopping center are mainly oriented toward the geographical and cultural features.

The environment is attractive whenever and only if it has a capability to be perceived in a way that induces positive emotions, a positive cognitive appraisal as well as encourages people to approach or to get inside (Debek, 2015).

Ng (2003) argued that shopping malls are attractive not only because they handle utilitarian shopping needs, which most of us naturally have, but also because they have great leisure and hedonic potential. According to his ideas, shopping mall attractiveness can emerge from their ability to fulfill a shopper's cognitive, physiological and social needs, varying across shoppers' individual characteristics and situational factors. Shopping malls and shopping environments face this challenge in providing shoppers with a unique aesthetic experience, special auditory, olfactory, and tactile stimulation, a functional layout, pleasant architecture, navigational aids, seating, tenant variety, and general complexity, as well as attracting other people (Debek, 2015).

Table 2. Relationship between People and Shopping Center as a people-place Relationship

Relationship	Process
Biographical	The process that happens because of the involvement of people and shopping center, as a place, as part of their past lives
Iconic	The process that happens because of an iconic place
Functional	The process that happens because of transactional needs
Experiential	The process that happens because people like the environment of a place that provides new and unique experience
Social	The process that happens because there are activity and social relationship in the place
Dependent	The process that happens because people are forced to be in the place

(Kusumowidagdo, Sachari, & Widodo, 2014)

Tandon Ashish et.al has mentioned that tenant management, facilities management, atmospherics and entertainment potential are the factors that attract shoppers to malls (Tandon, Gupta, & Tripathi, 2016).

The atmosphere can be the first and the most important driver of the way a shopping mall is perceived. It may affect shopper's perceptions and behavior as well as make the shopping environment unique (Debek, 2015).

Table 3. Own Development

Researcher	Year	Attraction Factors of Shopping Centers
1 Cortazar and Vela	2017	Physical environment, maintenance and security, Design and eco-natural environment, Mobility and access, Additional services and entertainment, Product variety, quality and status, Intention to visit.
2 Tandol et al.	2016	management, facilities management, atmospherics and entertainment potential.
3 Debek	2015	unique aesthetic experience, special auditory, olfactory, and tactile stimulation, a functional layout, pleasant architecture, navigational aids, seating, tenant variety, and general complexity.
4 Micu	2013	Environment, access, physical environment, offer management, and security.
5 Banerjee	2012	Establishment image, entertainment, access and convenience, physical environment, security, visitors' lifestyle, time-saving, architecture, and commercial rewards.
6 Sujo and Bharati	2012	Attractiveness, environment comfort, service staff, shopping easiness, and convenience.
7 Hira and Mehvish	2012	Inner environment, establishment image, and access easiness.
8 Rajagopal	2009	The shopping center offer, excitement level, promotions, purchase volume, distance traveled inside the establishment, time employed in the establishment, and preference for traditional stores.
9 Teller and Reutterer	2008	Access, location, visitors, and environment perception.
10 Ahmad	2012	Environment aesthetics, access, and comfort, offer variety, entertainment, and service quality.
11 El-Adly	2007	Comfort, entertainment, offer variety, shopping center features (range, services, and prices), convenience and access, and luxury perception.
12 Khei et al.	2001	Access easiness, offer quality and variety, offer popularity and luxury, shopping center facilities and environment, and the presence of diverse commercial incentives.
13 Ruiz	1999	Commercial environment and variety, parking and shopping scene, and staff professionalism.
14 Bodkin and Lord	1997	Convenience, existence of a particular store in the shopping center, services provided, and prices.

(Cortázar & Vela, 2017)

By reviewing the mentioned attraction factors of of biophilic design are accumulated in Table (4). shopping centers, the features which are also the factors

Table 4. Shopping Center Attraction Factor

Shopping Center Attraction Factors with a Focus on Biophilic Design Features
Eco Natural Environment
Atmospherics and Entertainment Potentials
Unique Aesthetic Experiences
Pleasant Architecture
Environment Perception and Aesthetic

The attraction factors written in Table (4) can be retrieved in the six main characteristics of biophilic design which Kellert posed in 2008 and will be measured in the following statistical research.

3. CASE STUDY

Saraye Moshir or Golshan Sara is traditional and one of the oldest bazaars in Shiraz, a Southern city of Iran and was built in the Qajar period.

It was founded more than 250 years ago under the order of government general of Fars province in Shiraz named Mirza Abolhassan MoshirMolk. It is located in the southeast corner at the end of Vakil Bazaar.

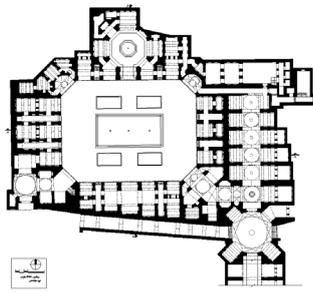
It was made as a bazaar in the first days of its

establishment. During times, its function changed several times but overall, it is a place for making and selling handicrafts and artful goods.

Saraye Moshir has the scheme and plan of an octagon. It has a big wooden door at the entrance. The Architecture of this place is almost the same as Vakil Bazaar.

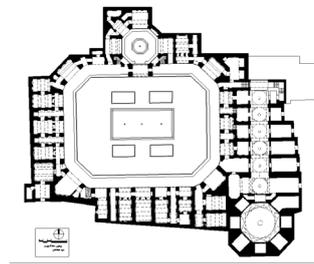
It has two stories, which by standing at the second story's balcony the whole view of Sara with its delightful courtyard can be seen. There is a beautiful and large pool in the middle of the courtyard that attracts the visitor.

This courtyard with its beautiful orthodox trees creates a delightful space within the Bazaar (Saraye Moshir-Untold Persia, 2018).



**Fig. 3. Saraye Moshir (Vakil Bazaar),
First Floor Plan**

(Center of Cultural Heritage)

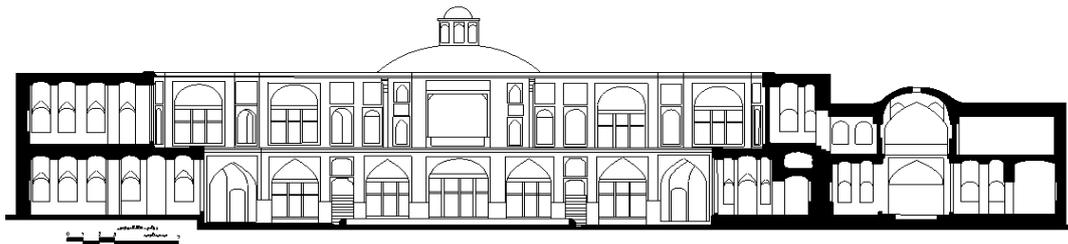


**Fig. 4. Saraye Moshir (Vakil Bazaar),
Second Floor Plan**

(Center of Cultural Heritage)



Fig. 5. Saraye Moshir (Vakil Bazaar)



**Fig. 6. Saraye Moshir (Vakil Bazaar)
(Center of Cultural Heritage)**

The biophilic variables in Saray-e-Moshir are presented in the table below.

Table 5. Biophilic Features in Saray-e-Moshir, Based on Authors' Observations, (by Author with a Focus on Kellert's Biophilic Elements

Main Biophilic Features in Saray-e-Moshir		
Environmental Features	<ul style="list-style-type: none"> - Plants Trees, bushes and flower pots - Natural Sunlight Both in open areas and shops - Water A large pool in the middle of open area and small pools in closed interaction parts -Animal Birds both in open and semi open areas, fishes in ponds 	
Natural Shapes & Forms	<ul style="list-style-type: none"> Botanical motifs In tiles -Arches In gateways and windows and doors -Domes On most covered areas -Natural materials Stones and bricks both for floors and walls, woods for windows 	
Natural Patterns & Processes	<ul style="list-style-type: none"> -Age, change and the patina of time In plants growing in most floor, ceiling and wall wholes, the old look appearance of material and designs -Dynamic, balance, symmetry In plan, section and any small elements 	
Spatial Relationship	<ul style="list-style-type: none"> - Natural Sunlight Both in open areas and shops -Shadows and light Shadows in open are-as in the case of shiraz straight sunshine -Filtered and defused lights In mostly indoor are-as -Space connections Connection between outdoor and indoor spaces, connection between upper and lower floors 	
Place-Based Relationship	<ul style="list-style-type: none"> -Geographic connection The design is suitable for Shiraz climate and topography and... -Historic connection Harmonious with historic architecture -Ecological and cultural connection -Spirit of place People will get a special sense using this space -Avoiding placelessness -There is no place with having no positive feeling 	
Evolved Human-Nature Relationship	<ul style="list-style-type: none"> -Prospect and refuge full of scenes -Order and complexity In design, circulation, diagrams -Attraction and beauty Harmony with great views in different parts -Exploration and discovery closed and open areas coming after each other to have a mysterious place 	

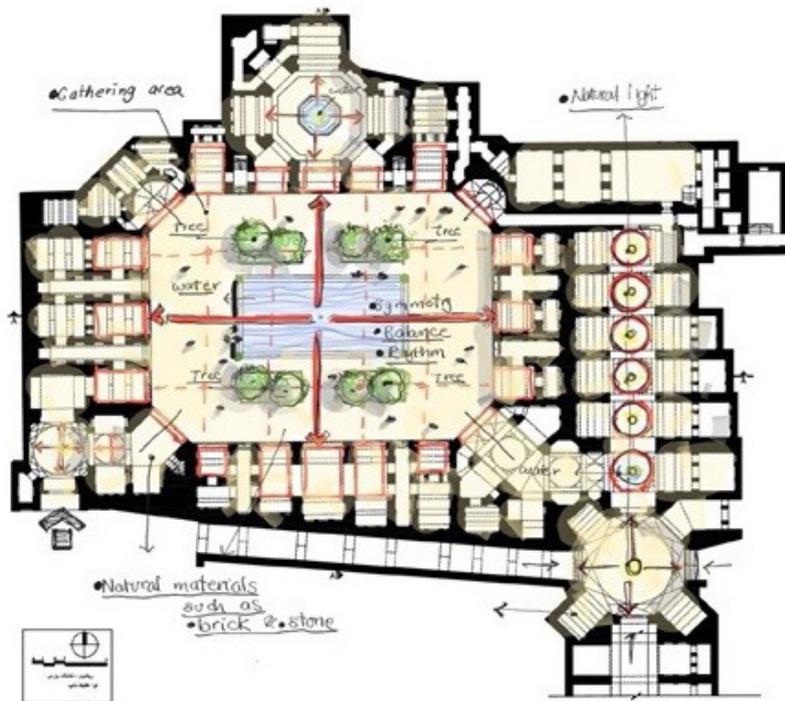


Fig. 7. Biophilic Features in Saray-e-Moshir

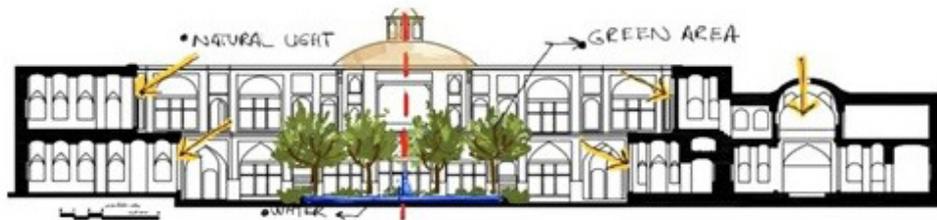


Fig. 8. Biophilic Features in Saray-e-Moshir

4. METHODOLOGY

This research is applied research and aims to find biophilic design elements having an impact on customer attraction. For this purpose, this research has 2 main aspects: qualitative and quantitative. Firstly, in the qualitative stage, we have extracted six principles from corresponding texts in order to develop the contents of the questionnaire. And also in the qualitative stage, studying specific environmental psychology perspectives on biophilic design and interactions between people and their physical (natural and built) environment was done by observation and interviews with customers.

In the quantitative stage, a questionnaire was developed based on the items arising from the qualitative stage and we had interviews with a group of people in Saray-e-Moshir. The questionnaire includes the following sections: (1) the information on people's characteristics, including their age, education and (2) gender, and (3) comprised questions on their satisfaction with natural items in the case study.

Respondents were asked to express their satisfaction

with these items on a 5-point scale (One representing "very low" and five "too much"). Then, benefiting from the results obtained at the previous stage, data has been analyzed using SPSS24 software.

4.1. The Contents of Questionnaire & Research Reliability

The main goal of this paper is to identify architectural elements that are in harmony with nature in nature-oriented built environment. In order to test the research hypothesis, fifteen multiple-choice questions have been drawn up under six variables. Professors and experts in the field of theory and practice of architecture and environmental psychology confirmed the reliability of this questionnaire. Then, by distributing 30 questionnaires, the initial validity coefficients have been confirmed to distribute among all samples.

Finally, as mentioned, the results have been analyzed using SPSS24 software. Cronbach's alpha coefficient for the research variables and for the total questionnaire show that the research tool has acceptable reliability and the results can be cited.

Table 6. Research Variables

Biophilic Variables	Main Characteristics of Biophilic Architecture	Cronbach's Alpha
1 Environmental Features	Light, Air, Water, Plants, Animals, Fire, Natural Materials, etc.	0.803
2 Natural Shapes & Forms	Images of Nature , Natural Colors, Animal and Plant Motifs, Arches, Domes, Simulation of Natural Features, Biomimicry, etc.	0.746
3 Natural Patterns & Processes	Sensory Variability, Age, Change, Patina of Time, Growth, Transitional Spaces, Dynamic, Balance, Fractals Connection of Properties in Nature With the Built Environment , etc.	0.771
4 Natural Spatial Relationships	Spaciousness, Spatial Variability, Space And Shapes And Form, Spatial Harmony, Inside-Outside Spaces, etc.	0.705
5 Place-Based Connections	Geographic Connections, Historic Connection, Ecological and Cultural Connections to Place and Local Materials, Landscape Ecology, No Placelessness, Suitable for Geographic Context	0.750
6 Human- Nature Connections	Prospect and Refuge, Order and Complexity, Affection and Attachment, Attraction and Beauty, Focus on Aspects of the Inherent Human Relationship to Nature, etc.	0.729

4.2. Participants in Research (Statistical and Sample Population)

Considering the subject of research, the respective statistical population consists of all people who visit Saray-e-Moshir in Shiraz. The sample is a part of the research population through which one may obtain

certain information about the entire population. The sample size was estimated 167 according to the Cochran formula.

Out of 167 distributed questionnaires among people, 3 were excluded due to defects in completing, and 164 were included. Their information can be understood in Table (7): Demographic Data.

Table 7. Demographic Data

		Percent
Gender	Female	73.2
	Male	26.8
Age	Below 17	0.6
	18-35	78.0
	36-50	14.6
	51-70	6.7
Education	Diploma	7.3
	Associate Degree	6.7
	Bachelor	67.7
	Master	15.9
	Ph.D. and Higher	2.4

4.3. Finding and Discussion

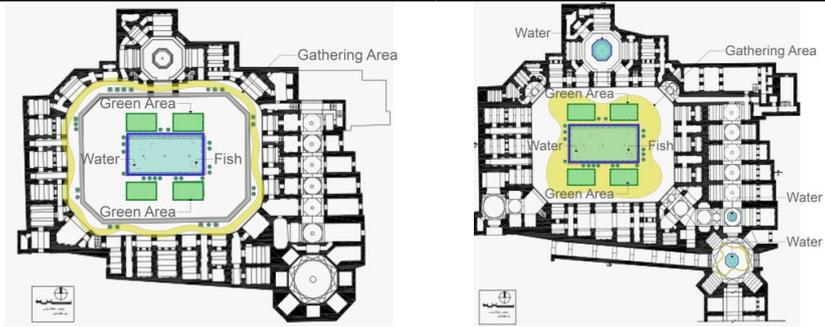
As mentioned earlier, we apply a kind of mixed method with both qualitative and quantitative aspects. For the

qualitative stage, we had interviewed with customers of different genders and ages in Saray-E-Moshir, in addition to self-observations (Table 8).

Table 8. Demographic Data

Biophilic Features	Architectural Design Diagrams from Psychological Point
Environmental Features	

Biophilic Features Architectural Design Diagrams from Psychological Point



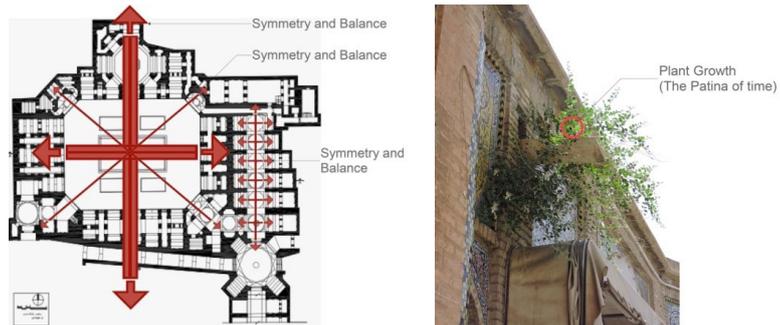
- Most gathering areas seem to be around natural environmental features

Natural Shapes and Forms



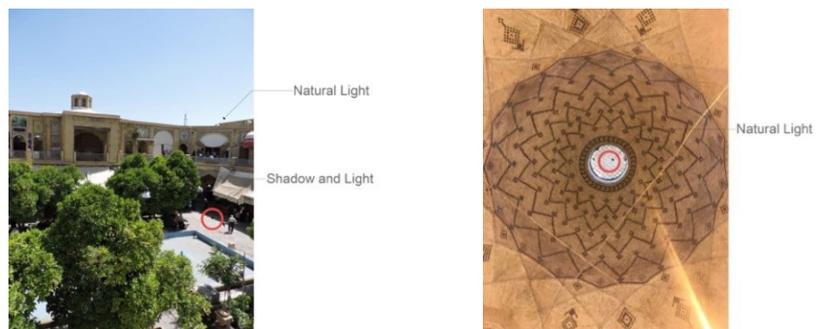
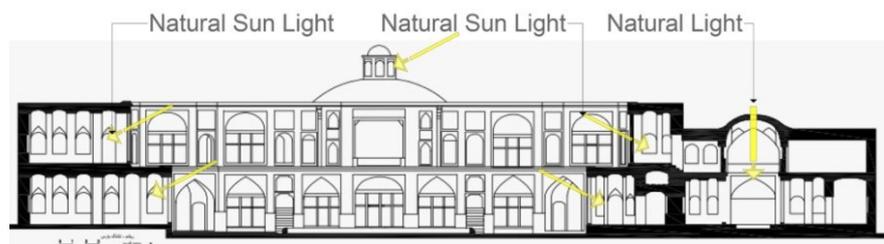
- Natural materials, Natural colors and Natural forms.

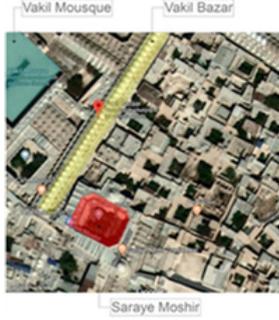
Natural Patterns and Processes



Spatial Relationships

- Natural light in most areas, connection between outdoor and indoor spaces .Natural light makes the place more attractive.The straight connection between outdoor and indoor areas makes the customer to have better moods



Biophilic Features	Architectural design diagrams from psychological point
Place –based Relationships	<p>The design is suitable for Shiraz climate and topography, etc.</p> <ul style="list-style-type: none"> -Being harmonious with historic architecture -People will get a special sense using this space <p>There is no place with having no positive feeling</p> 
Human-Nature Realations	<ul style="list-style-type: none"> -Full of scenes -In design, circulation, diagrams -Harmony with great views in different parts -Closed and open areas coming after each other to have a mysterious place   

By observing the architectural space in Saray-e-Moshir beside traditional goods and crafts, in this case, the natural environmental features have the most power to

attract customers to visit this area.

Not only tourists but also many Shiraz citizens try to visit this place AR special times of the year .

Table 9. Correlation between User Attraction and Research Variables

	Attraction	
	Pearson Correlation	Sig. (2-tailed)
Human-Nature Connections	.866**	.000
Place-Based Connections	.809**	.000
Spatial Relationships	.800**	.000
Natural Patterns & Processes	.890**	.000
Natural Shapes & Forms	.854**	.000
Environmental Features	.887**	.000

The results of the t-test and the status of the sample in the study indicate that place-based connections and natural shapes and forms have had a more successful

and satisfactory performance in the architecture product, in Saray-e-Moshir.

Table 10. T-test Result in Case Study

	Mean	Std. Deviation	t	df	Sig.	Mean Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Environmental Features	4.096	.66036	21.25	163	.000	1.09572	.9939	1.1975
Natural Shapes & Forms	4.214	.66726	23.30	163	.000	1.21383	1.1109	1.3167
Natural Patterns Processes	3.953	.64293	18.99	163	.000	.95340	.8543	1.0525
Natural Spatial Relationships	3.770	.75240	13.11	163	.000	.77019	.6542	.8862
Place-Based Connections	4.285	.65885	24.97	163	.000	1.28464	1.1831	1.3862
Human-Nature Connections	4.126	.65669	21.97	163	.000	1.12645	1.0252	1.2277

Friedman's results prove that research variables do not have the same importance and priority in our case study, and some of them are more effective and have a powerful effect (Table 11 and Fig. 9). According to this

test, place-based connections are the most important factor, and natural spatial relationships have been reported as the least important factor.

Table 11. Prioritization of User Satisfaction with Research Variables in Case Study

	Mean Rank	Chi-Square	df	Asymp. Sig.
Natural Spatial Relationships	2.26	162.950	5	0.000
Natural Patterns and Processes	2.98			
Environmental Features	3.53			
Human-Nature Connections	3.64			
Natural Shapes and Forms	4.15			
Place-Based Connections	4.44			

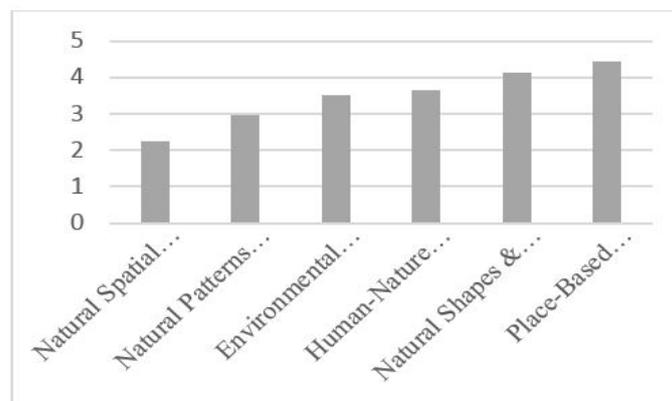


Fig. 9. Prioritization of User Satisfaction with Research Variables in Case Study

Additionally, it's obvious that the combination of nature and the human environment made up of the various structures of items, principles, tools, and strategies that combined with each other, can be a stronger predictor of the achievement of biophilic design goals for reconciliation and a stronger bond between man-made environments, nature, and human.

In this regard, this research will continue to provide the most suitable strategy for applying variables and show how they affect customer attraction based on the regression model.

4.6. Second Research Hypothesis

Regression test has been used to explain the cause and effect relationship among the research variables and to determine the values of dependent variables through the independent variable. To this end, the significance of the whole regression model has been tested using variance analysis. The result of the analysis of variance with a significant coefficient of 0.000 confirms the regression model. In other words, the F-statistic has a suitable fit for regression analysis. The result of the regression test shows that the rate of change in the customer attraction variable in relation to natural patterns and processes is 0.89. In other words, for the increase of the quality and quantity of natural patterns and processes by a unit, customer attraction

will increase by 0.89. This degree of dependency with the presence of the environmental features, equals to 0.53 for natural patterns and processes and 0.52 for environmental features. As the correlation of customer attraction with natural patterns and processes and environmental features was higher than the remaining variables, this variable has the greatest impact on customer attraction variability.

To better understand how each variable impacts customer attraction, the Beta coefficient in Table 7 should be considered. As it is known, adding each variable to the regression model will reduce the contribution of other variables. But their priorities and impact are still in line with the priority and importance of their correlation. Therefore, natural patterns and processes, environmental features, and human-nature connections, are always the most influential and decisive factors in achieving a higher level of customer attraction. The results of statistical analyses of customers' opinions on our case study, illustrate that involving multiple senses of users with nature, responding to environmental needs, such as light supply, and improving the quality of vision and landscape, aesthetic principles, etc., using natural way and responsive nature-friendly approaches, can be effective in creating a nature-oriented environment and improving customer satisfaction and attraction.

Table 12. Summary of Regression Model

Model	Anova		Model Summary				
	Df.	F	Sig.	R	R Square	Adjusted R Square	Std. Error of the
a	1	616.027	.000 ^a	.890 ^a	0.792	0.790	0.26303
b	2	1212.765	.000 ^b	.968 ^b	0.938	0.937	0.14426
c	3	4609.147	.000 ^c	.994 ^c	0.989	0.988	0.06203
d	4	4888.018	.000 ^d	.9960 ^d	0.992	0.992	0.05225
e	5	5002.488	.000 ^e	.997 ^e	0.994	0.994	0.04624
f	6	4301.135	.000 ^f	.997 ^f	0.94	0.994	0.04553

a. Predictors: Natural Patterns and Processes.

b. Predictors: Natural Patterns and Processes, Environmental Features.

c. Predictors: Natural Patterns and Processes, Environmental Features, Human-Nature Connections.

d. Predictors: Natural Patterns and Processes, Environmental Features, Human-Nature Connections, Natural Shapes and Forms.

e. Predictors: Natural Patterns and Processes, Environmental Features, Human-Nature Connections, Natural Shapes and Forms, Place-Based Connections.

f. Predictors: Natural Patterns and Processes, Environmental Features, Human-Nature Connections, Natural Shapes and Forms, Place-Based Connections, Natural Spatial Relationships.

Table 13. Summary of Regression Model

	Model	B	Beta	t	Sig.
a	Natural Patterns and Processes		.890	24.820	.000
b	Natural Patterns and Processes	.475	.532	19.729	.000
	Environmental Features	.456	.524	19.431	.000
c	Natural Patterns and Processes	.338	.378	29.185	.000
	Environmental Features	.356	.409	33.122	.000
	Human-Nature Connections	.292	.334	26.658	.000
d	Natural Patterns and Processes	.394	.441	32.991	.000
	Environmental Features	.412	.473	36.340	.000
	Human-Nature Connections	.298	.340	32.137	.000
	Natural Shapes and Forms	-.115	-.134	-8.153	.000
e	Natural Patterns and Processes	.381	.427	35.529	.000
	Environmental Features	.407	.468	40.499	.000
	Human-Nature Connections	.242	.276	20.706	.000
	Natural Shapes and Forms	-.109	-.126	-8.663	.000
	Place-Based Connections	.073	.084	6.711	.000
f	Natural Patterns and Processes	.346	.387	19.300	.000
	Environmental Features	.401	.461	39.394	.000
	Human-Nature Connections	.238	.272	20.482	.000
	Natural Shapes and Forms	-.084	-.098	-5.327	.000
	Place-Based Connections	.062	.071	5.257	.000
	Natural Spatial Relationships	.031	.040	2.445	.016

5. CONCLUSION

The focus and investment of biophysical designs in infrastructure and principles, is based on the friendship with nature. In other words, the biophilic design is looking for the application of natural elements and principles in response to the needs of users in the built environment. The purpose of this study was to identify the elements of biophilic design that affect customer attraction. To this end, different dimensions and policies of biophilic design were identified in the theoretical framework. Then, by analyzing 164 questionnaires distributed among customers in the Saray-e-Moshir, suitable strategies were developed to increase customer attraction through biophilic design. The results of the analysis illustrate that environmental

features, natural patterns and processes, and human-nature connections have the greatest impact on customer attraction. In other words, the dynamism and flexibility of space, in combination with natural elements, can provide an acceptable invitation for customers. The analytical result of regression shows that the rate of change in the customer attraction variable is more affected in relation to natural patterns and processes, followed by environmental features. Adding other variables to the regression model, environmental features gradually become more decisive and finally, in a 6-variable model, environmental features will be the most important factor for predicting customer attraction.

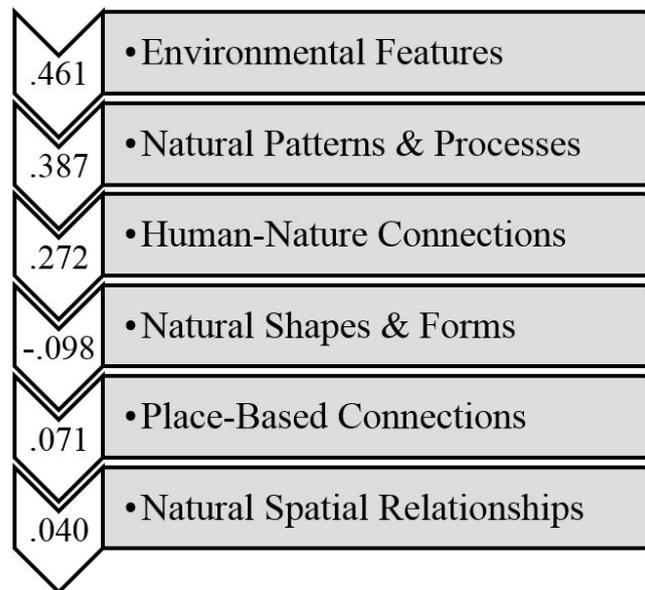


Fig. 10. Six-Variable Regression Model and Beta Coefficient

Investigating the status of the case study shows that Saray-e-Moshir has been able to greatly captivate customers in the dimensions of natural shapes and forms, place-based connections and human-nature connections, and the adherence to the texture and context features (socio-cultural-environmental). Finally, it can be said that biophilic design is a suitable way to increase the attraction of customers. For this purpose, design policies are suggested as follows:

- Attention to texture and context (environmental, climatical, cultural and social) in the design process;
- Extending the level of green spaces and applying more natural elements in the environment;
- Design patterns based on the flexibility, dynamics and

space sequences;

- Involving multiple senses of users;
- Providing the context for customers' interaction with the natural environment (the applicability of natural and green spaces);
- Maximum use of natural light, ventilation, and landscapes;
- The use of natural elements, materials, and traditional patterns.

In conclusion, the use of biophilic design elements can help improve customer attraction in Saray-e-Moshir and in addition, this fact can be expanded in other commercial spaces to extend customer attraction.

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