

Transmitting Architectures: Analysis of the Projects of Iranian Architectures in Foreign Countries

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ABSTRACT: Building and Architecting are complex tasks that are affected by many things. Architecting abroad and for people of different cultures requires special patterns. The environment is one of the affecting factors on design. Architecting in the environment puts special orientation in front of the architecture. This article is from a research that discusses the projects of Iranian architectures living abroad. The key questions here are that "What is the common orientation of these architectures in design?", "Why they tend to design in these manners?", "What are the effects of the Iranian Nationality and Iranian-Islamic Culture and Patterns on these architectures design?", "Have these architectures and designers got some attempts on introducing the Iranian Architecture to the world?", "Where have the Iranian Architecture Patterns manifested in these architectures projects?" To answer the preceding questions, gathering many opuses of Iranian architectures living abroad, we are about to find out the reasons of success of these architectures, their design orientations and inspirations, the effect of the environment on their design and the manner of using archetypes and Iranian-Islamic culture and traditional architecture in their projects. Data gathering has been done through archive studies and by combined methods in data classification and conclusion in various levels. Comparison of these projects in various classes and sub-classes was very helpful in analysis of gathered data and made it easier to reach an accurate way of analysis and architectural criticism. So, using the percentage charts, we could have accurate conclusions of the derived results in this article. All the affecting factors on design procedure have been studied in this article and the most important factors of durability of these projects has mentioned and according to this, the projects of each architect has analyzed and criticized.

Keywords: Globalization, Regionalism, Iranian Architecture, Cultural Diffusion, Iranian Identity

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INTRODUCTION

Architecture is a cultural characteristic. Architecting for people is proportional to their culture and society. In fact, culture is what people live with, a complicated collection of knowledge, beliefs, arts, rules, morality, customs and anything that individual learns from their society. Therefore each cultural system grows in a natural habitat, so undoubtedly the environment influences the culture.

Regardless of historical, social, technological and geographical conditions, human always needs place, because owning a place and its identification is part of human's being and personality. Kevin Lynch, who stated the word phantasm for the first time in 1979, believed that the identity of the environment is the reason of a clear phantasm. Norberg-Schulz equalled "Place Loosing" in modern age with "De-Identification". Learning of traditions and cultures of the Place Architecture in native architecture and appropriate use of them could solve the problems of modern architecture (Norberg-Schulz, 1988).

Therefore considering environmental conditions for design is of importance in architectural design respected to the cultural conditions of the society. In this research, using random data gathering from famous Iranian abroad-living architectures and classifying them into five basic

architectural contents; Concept, Construction Technology, Materials, Shape and Form and Environment-Building Relationship and other subgroups, we tried to answer this question that "Why are these projects Successful?" and "Which of these contents has the most influence on this success?".

As it mentioned, the approach of the research is based on learning and analysis of data in architectural contents. Gathering almost 120 architectural opus beyond borders and study and analyze them and then classify them in groups and draw percentage diagrams for each specific content, it has been show that what the most important orientation of each architect was. Later, it will be discussed that which factors are the causes of architecture forming and what the most important determinant parameters in these orientations are.

Theoretical Foundations

Effective Factors on Design: In all ages, architecture has had a great importance on making peace and inter-cultural and rational evolution. Architecture could improve multi-cultural co-ordination and coexistence; in addition, it could benefit from the multi-culture-ness in a society. The reason for learning the multi-culture-ness in architecture is the Passion; architects

have, and use it in studying the history during the evolution of their manner-discipline (Antoniades, 2007).

Alienation has got bilateral nature that it could be useful for anyone studies it. They could learn directly from the Alienation phenomena, or enrich their understanding of the culture. Beside this, they reach levels of creativeness, they become glad and pleased of what they have learned and they prepare for their private life and making new creations for their people and country. In our opinion, studying the Alienation seriously could help us to reach our destination in our cultural recognition. So, it blows us a soul of nirvana in our creative efforts in this task (Antoniades, 2007).

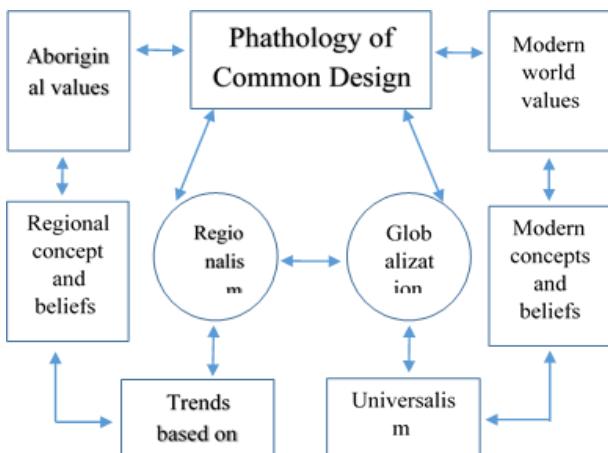


Figure1. Research model and inference mechanism

According to Dr. Darioush Burbur, a Britain-resident Iranian architecture who has been living in Europe since he was 12 and has done his education in well-known European universities and is founder of the Iranology society, being abroad could be a strong motivation for designers to use Iranian concepts and patterns in design, study and research, as it is evident in most projects of abroad-living Iranian designers like Hossein Amanat that most of his projects has studied in this research and the use of Iranian patterns are very conventional in these projects.

On the other hand, studying Alienation has not been always likely for all architects. Most deceived by the architectural alienation, were not strictly bound to architectural rules and discipline. Some was even well-known architects who became notorious because of the failure of the projects they severely wanted to construct abroad, and they have become as examples of failed projects for many years in those countries. They have never spent their time to learn and understand people, climate, material and construction techniques of alien lands. Maybe the major reason of their failure was to be inconsistent and their belief that dreaming and design of a project is enough to construct it, and it does not require to spend time studying and thinking about anything that somehow relates the specific place (Antoniades, 2007).

Even today, we can notice present alien subjects and by this, we can find an approach to architectural creativeness. In this case, Alienation and multi-culture-ness are of educational, scientific and creative importance.

Liberalism and the interest to research and dynamism and the on-going projects in other countries, except those who architecture faculties are concerned with, are the main factors of this creative approach. Naturally alien and multi-cultural projects have always been noticed and concerned by professors and creative architects. There are faculties that even have selected their name according to their respect to liberal beliefs to alienation and multi-culture-ness. Multi-cultural experience could improve the design education quality by two specific advantages; first includes behavioral accomplishments, and second one includes of Imagination Reinforcement elements (Antoniades, 2007).

Other effective factor on design is the environment. Not only in reality, but even in our memory architecture is closely related to the environment. Thus, it is clear that the environment plays an important role in formation of architectural understanding and considering the environment is inevitable in design. Also Mario Boutho described about the relationship between building and environment. The relationship between architecture and its fundamentals is consequences of a mutual impressibility. In fact, the fundamentals and their architecture are always in a bilateral and continuous contact and always relate each other. In these cases architect tries to implement Regionalism approach to create an opus. Regionalism is an approach in architecture in which, architect uses cultural, regional, and geographical characteristics of the area in design and so the opus would possess the place's sense and the belonging to place would be recoverable. On the other hand, the global approach has been extensively concerned in recent years in which the construction would not belong to the place and meta-place characteristics are used in design. But it should be considered that how these two approaches oppose or interact together; regional approach had been concerned in different countries or global approach had been in priority? (Mahdavinejad, 2011)

So, the fundamental question here is that "What were the preferences and priorities of each designer in their design?", "Have the designer been successful in projects making these priorities?" In this article we will give a brief comment on each subject according to the classifications done to clarify the viewpoint of each architect.

Five Basic Architectural Contents: Concept or the Design Method; A Method, as some people think, is not a set of rules and restrictions. Method is a mood in that architect gets motivated to work; it is a jumping ramp help architect to fly. You can hardly name the "Method Creation for each building", Liberalism. Method is a set of

all considered visual and esthetic scales which even a rage of unprofessional people to critics acknowledge it (Gruter, 1987).

Method variation extremely depends on the environment and place; for instant, this variation had been very fast in westernized countries but very slow in eastern countries like Japan and China. By the way, orientation to a specific method or following a specific concept for design is really depends on the place, environment, personal interests, and designer's viewpoint.

Construction Technology; according to growing facilities in construction technology and easier availability to these technologies in foreign countries, the designer would be more comfortable using them so new creations in design would be more possible. Also designer could do their design task with more confidence.

For example, one of the most attention-attracting fields that were very easy to find in studied projects is Sustainable Energies or Green Architecture Fields. According to the growing need for energy and termination of existing sources, considering the energy problem in construction projects is one of the recent architecture issues. Eco-tech Architecture is an architectural solution to these environmental crises and green movements worldwide that supplying essential needs, improvement of public life level, better securing of ecosystem and making a more safe and delighting future, are its main purposes (Bani Mas'ud, 2009).

Shape and Form; is the first message received from the opus by observer and impacts them very much. But if we want to order this extremely vast world of forms, we should first classify these forms into two groups; "Regular Forms" and "Irregular Forms". Regular forms obey geometrical rules. The message of these forms is very redundant because they are very predictable. Human mind can easily, and with a little information, complete and reconstruct these forms. Regular forms have got frame and structure; rules of forms have determined the relationships between different components (Gruter, 1987).

There are lots of restrictions in shape and form design and it depends on architect's expertise to make the building permanent and significant with their creativeness, because shape and form are most effective factors of a building especially on public and the sent message from it is of great importance. Thus, considering aesthetic rules, making visual attraction etc. have degrees of importance in shape and form.

In Architectural Understanding, after vision, touch is the most important sense. By sense of touch, we contact directly with the material's surface and can realize them. Materials always have had symbolic values beyond their technical characteristics (Gruter, 1987).

Goethe has stated in an article about "Building Art" in 1795: "To judge architecture, material is a more important factor than building application or the aesthetic

effects of it. Materials determining the space have got an important effect on the space's overall effect on human understanding, which frequently has undermined.

Relationship of building with environment has got three states; first is the homogeneity: what should be constructed, receives environment's language by form, technique and material. The second one is the conflict: it means that everything has constructed, intentionally has separated itself from environment and shows itself as a distinction. The third one is contrast: means what has constructed is not even separated from environment but also opposes it.

In all three types, both in artificial environment and natural environment, these two components, building and environment, affect each other. Each subject is only understandable in relation with its environment and since environment affects the understanding. The greater distinction between the building and environment, is the greater this effect. In the first type relationship, homogeneity, environment plays the main role and that is the building that obeys the environment. In second one, environment and building conflict each other but they go on alongside. In the third type, environment and building oppose each other. Here the effect is more extensive than the second type.

Review of literature

Studying some of the related articles and researches done in this subject, we could direct our research procedure and do their unfinished task. Some of these researches have been briefly reviewed here.

1. Mahdavinejad, Ja'fari; Interaction and Opposition of Localization and Globalization in Modern Architecture (2013); this research, using the theories of localization and globalization, studies their effect on architecture and urbanization of developing countries. Studying some examples of the architectural and urban projects in Persian-gulf Arabian states in architectural concept classifications and representing accurate statistics and using acceptable statistical software, this article has aimed to find out the most effective factors in architectural formation in this region. According to the growing tendency to globalization theories and international architecture worldwide, global changes in the region have been studied and the results have been represented in combined diagrams.

2. Mahdavinejad, Talebe Hashemi; The Effect of Design and Construction Quality in the Realization of Identity Concept in Modern Architecture in Iran (2011); this research according to effective factors such as design, climate, clarity, form, concept and material, aims to find the most important effect on form creation and its adoption with Iranian old architecture to find how modern architecture has secured the inheritance of Iranian traditional architecture. According to the study and comparison of two aspects of Iranian architecture,

proposed questions has had a great contribution in this article and were very helpful in studying the modern applications of Iranian traditional architecture.

3. Kenneth Frampton, in "Prospects for a Critical Regionalism", has severely criticized the globalization and states that the modern architecture is oppose the tradition. Frampton says that a paradox forms in this transition period and asks the question "How can be Modern and return to origin of Tradition at the same time?", "How can be Old and New at the same time? And, transform the mute civilization into a global one?", "How can claim to be traditional while considering technology, developed up-to-date science and modern political rationality are the tools of modernism?" Frampton illustrates the modern society with skyscrapers and complicated roads and consider them as products of technology. He sees the International-Type buildings opposing the culture of society.

4. Ronald Neizen, the professor of law department in Mac Gill University, in his book "A World Beyond Difference, Regional Identity at the Age of Globalization" speaks about the contest between two intellectual currents attempting to define a global identity, one sometimes referred to as cultural universalism and the other cultural particularism; but unlike most accounts of stark dualism, it is also about the paradoxes that lead each to occasionally overlap or draw inspiration from the other. One is mainly on outgrowth of the rationalist Enlightenment, approaching the challenges of world integration with the tools of science, commerce, and bureaucracy. On the surface, it is pedestrian and instrumental, but at a deeper level tends to be inspired by an ideal of universal peace, democracy, and prosperity. The burgeoning literature on globalization now represents a conceptual microcosm in with this major intellectual struggle. He says about one of the consequences of globalization that has not been adequately discussed is the paradoxical stimulus of social convergence on the rearticulating distinct cultures.

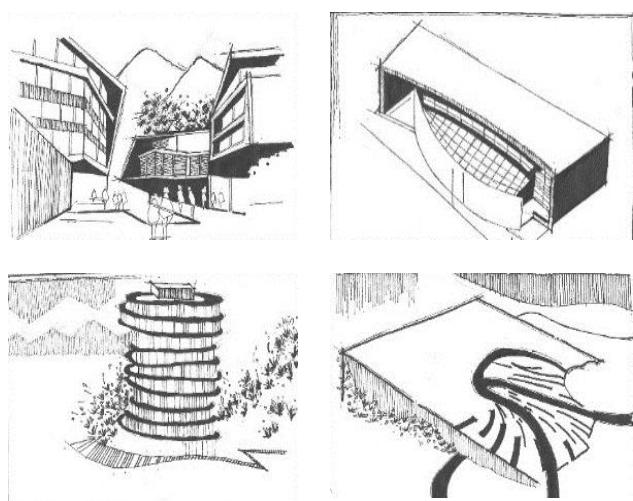


Figure 2. Sternbrauerei, Salzburg

Architecture had faced with developing the universalism and the modernism ideologies. The consequence of this was prevalence with the equal architecture in the entire world, without the attention to climate, culture and environment.

MATERIAL AND METHODS

Introducing Research Technique

One of the best methods to do such researches is The Correlation Method. In two researches mentioned in the previous part correlation equations have used to demonstrate the relationship between different concepts and their mutual effect. In first example, by Mahdavinejad and Nagahani, it has shown that using correlation to study aesthetic realization; we can interrelate between different groups and classifications (Mahdavinejad and Nagahani, 2011). In this research to study the esthetic realization by different groups, twenty examples of Iranian architectural opuses have been analyzed. The first group was top-rated by the professionals and the second group was popular. The test has been taken by three groups; architecture students, non-architecture students and architecture professors. The resulted data analyzed by correlation method, has shown a significant difference between the selected buildings by each group (Mahdavinejad and Ja'fari, 2013).

Second research, by Mahdavinejad and Ja'fari, classifies the examples in five basic architectural contents and by the means of correlation finds the relationship between the contents and the percentage of effectiveness of each one on interaction and opposition of localization and globalization in modern architecture. The matter is localization and globalization, so selected examples are from developing countries. Ja'fari has realized the effect of various architectural contents and the design ideas of architects and percentage of effectiveness on localization and international method with obtaining the correlation factor. They have made questions for architectural content by assigning values for each project from 50 building samples chosen from Persian-Gulf States and by calculating the mean values of graded scales for all buildings and quantitative conclusion of these scales for each country, aimed to analyze data qualitatively and determine their correlation.

Correlation

Correlation states the relationship between two or more variables and calculates its coefficient. Correlation between variables could be a positive value or a negative one. If the variation of both variables is in the same direction (either positive or negative), correlation between them is positive. Positive correlation fluctuates between 0 and +1; it means that the complete positive correlation factor equals +1. If variation of two variables is in the

opposite direction (one is positive and one is negative), correlation between them is negative and varies between -1 and 0; it means the complete negative correlation factor is -1. Because used data are of nominal, qualitative, quantitative types, phi (ϕ) correlation factor has been used. First, it determines the correlation between two or many variables or values by drawing table and calculating squared kappa (κ) of random probability.

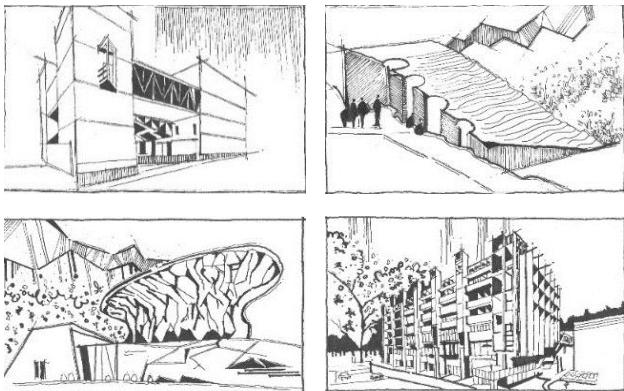


Figure 3. Iranian Embassy in South Korea

For measured the correlation can use from the four coefficient; Pearson coefficient, Sperman coefficient, Kruskal coefficient and Goodman coefficient (Groat and Wang). The randomization of relation that got on correlation will be evaluating with significance test, if the answer near to "1" show the relation is randomize and if the answer near to "0" shows that's not randomize (Mahdavinejad and Ja'fari, 2013).

Sampling Method

In researches using correlation, vast methods of data gathering are used. In professional literature, sampling is probable and improbable. The purpose of probable

sampling is to make a sample that it can properly introduce the larger society. The practical way to do this is the Random Sampling.

In this method every single member of the society has the equal chance to be studied (Groat and Wang, 2002). In this lecture for analyze the statistics had used the Factor Analysis method, the goal of the Factor Analysis's method is using the main structure between the variables instead on using the key variable for estimating the consequences of other variables. For instance, Factor Analysis makes the researcher able to determine the group of variables subjects as the factors. Every factor made from the variables that resembles in the answers structure (Groat and Wang, 2002). According to research subject, selected samples are some projects of Iranian architectures abroad, includes projects in different places in Europe, U.S., Asia, Australia etc. Some samples are constructed and some are the design plans have not been constructed. Studied samples have classified into groups; first groups are Iranian natives who live abroad, educated abroad and work there. Second group are architects living in Iran, working in Iran and have got some projects abroad or their designs have won awards and accepted there. Some distinctions must be considered according to different conditions such as environment, facilities and education to study these two groups. There are many factors are used to draw distinction in design. Iranian lifestyle experience and utilizing Iranian architecture patterns in group works introduces the Iranian architecture to the world. Also, combination and up-to-dating these patterns in different projects had been glorious ideas made attraction. These ideas have not been shown in many other ideas and designers has strongly influenced by environment, facilities and modern methods they have designed only considering the place.

Table 1.

Dubai gallery	Neue rabenstrasse	Yokohama port	Trace of the shrine	house in Amman
14th street building	The house of gagenau	A.M humboldthafen	Visitor center	house in Egypt
science, literature center	The house of gagenau	Car & driver	prime minister lodge	House in Manhattan
broadcasting institute	Swiss re munchen	Deichtor center	Art museum	Pret restaurant
Canda embassy China	Central square	Dokland	BBC music box	Iran pavilion, Expo
Hossein Amanat office	Zeyed university	Ehrung fur ganzheitliches	Carabanchel Housing	engineering building
Central library	Wilton poolhouse	Fernahnhof flughafen	Jardins de la lironde	Nara convention hall
Horizons tower	Viertel zwei plus	Harvestehuder weg	Forum in Turkey	Iranian embassy Germany
enttner tower	New Rochelle armory	Kranhauser residential	Parc dels Auditorisfoa	Baha'i house
Legacy tower	XI'AN luxury residential	Mipim award, cannes	South east costal park	Information center
Iranian embassy	Shaft house	DAMAQ headquarters	Ocean breez apartment	Masterplanning
special research center	Rumi dome	Pisces luxury towers	Plaza las fuentes	Semiahmoo town center
Iranian embassy	Long island cinema comp	The intelligent tower	Shahidi house	Various residential
Consulate office of Iran	National university library	Thomas Lee office suite	Green square library	Iranian embassy
Bayside tower	Paper production plant	Iranian pavilion in Expo	AIM competition	Iranian embassy
Villa	House of Iran	Iranian pavilion Expo	Arc house	Monticello of Tyson's
kranhauser residential	Hinman research building	museum of art proposal	Container studio	Simon's villa
roma 16	Iranian embassy	UCSD price center east	ADMAOPCO headquarters	Swimming pools
techno park	Iranian embassy	Gates vascular institute	centerof genetic engineer	Villa Spartina
ch2 design	Iranian embassy	Shopping center	Citizen's bank	Game in de haus

Work procedure and Research Method

In the first step, one hundred selected samples classified in five different groups of architectural contents; concept, material, construction technologies, the relationship with environment and form, to make an accurate analysis and critique of design methods and determine the priorities of architects in design and orientation.

Samples are gathered by librarian method and the accurate web addresses has been mentioned in the article. Then, required details obtained by studying journals, books, authorized web pages, making interviews, using social networks.

Tables were drawn for each building and their characteristics were filled in. Then, data were inserted in a general table and analyzed by SPSS. Then considering of project's goal calculated the relation and the efficient of the data with Spearman correlation and then extracted the Significance Coefficients.

Introduction of Samples

In this research, studying more than one hundred and twenty samples of Iranian architect's projects in foreign countries, one hundred samples are selected and the statistics are based on them. Samples are from different countries and different architects (Table 1, figures 1, 2, 3 and 4)

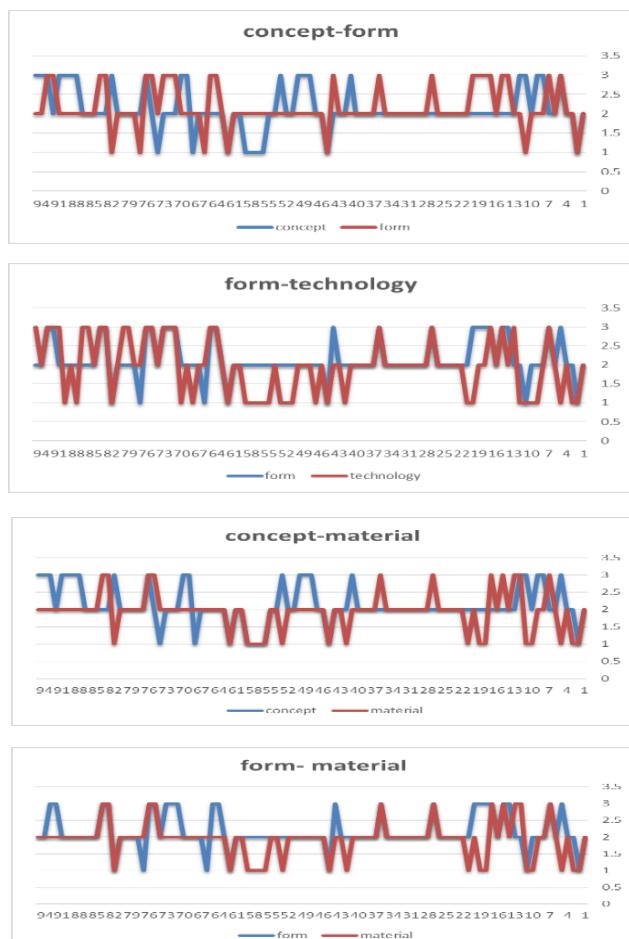


Figure 4. Correlation between Factors

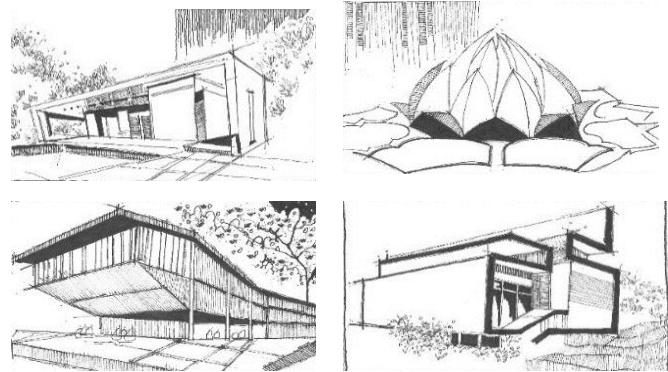


Figure 5. Villa in Vienna

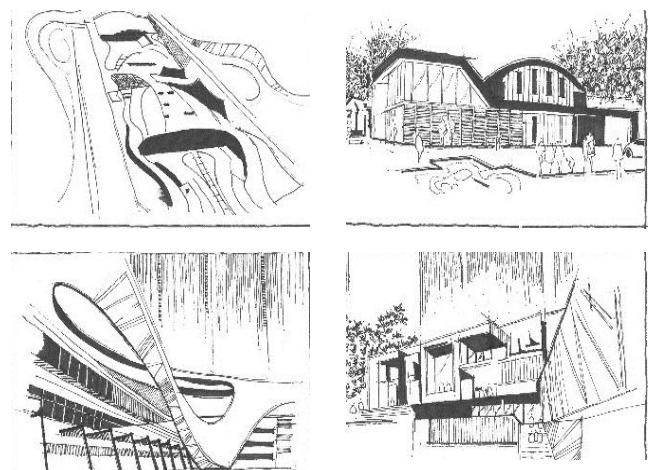


Figure 6. Youkohama Airport in Japan

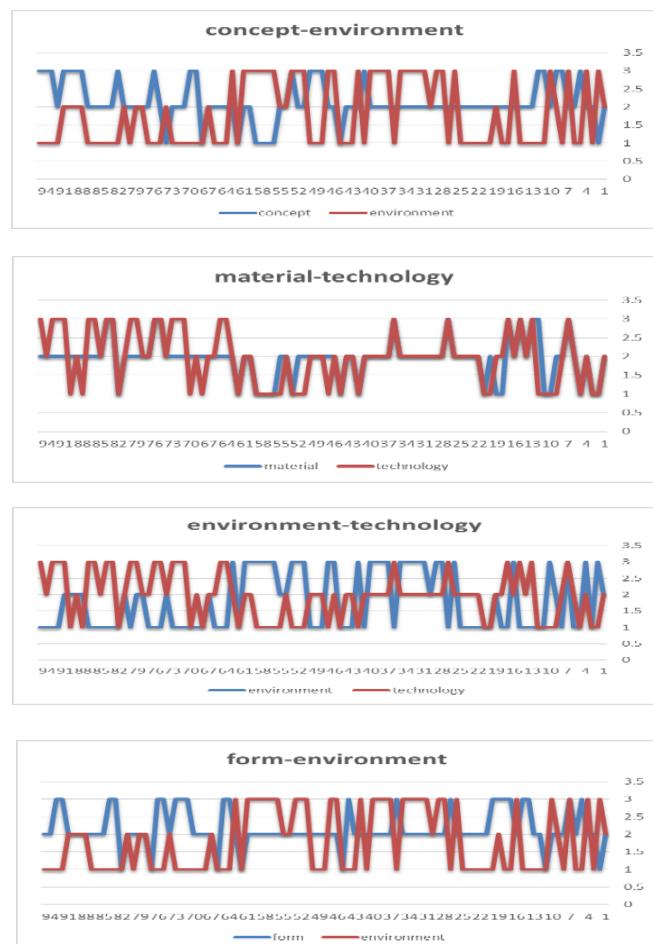


Figure 7. Correlation between Factors

RESULTS AND DISCUSSION

Qualitative Analysis

After asking people about the every building and tested data with Likert scale, calculated the correlations and the mean of every group:

Table 2. Mean of research's factor

color	energy	environment	form	material	technology	concept
2	1	1.5	2	2	2	2

Analyzing all gathered samples in SPSS, the results shows that, Concept in architecture, has got the most tendency to modern architecture and international style. Subsequently, Globalization and Design for all worldwide, was the most popular for architects.

Also, it is clear to see the effect of other characteristics of modern and international style on material, construction techniques, shape and form and even the relationship with environment.

Correlation Analysis

The correlation analysis for the architectural concept, construction technology, material, form, relation with environment, energy and the color calculated with the SPSS 22, and Spearman coefficient. Then the conclusion of correlation between every two parameters shows in the table and to knowing better, in the pictures shows the relations on graphic. Considering the consequences we can see the high correlation between the color and energy using parameters, the material and construction technology and then form and material. So the method of the construction technology has an important effect to choosing material and the final form. Today developing of the building construction technologies and having new knowledge help the architects and designers to use the new methods and tends to creative forms and structures.

Modern designing approach could be seen in most studied samples, so we can see the significant relation between the concept and construction technology and material parameters. Tendency to special concept in designing tends to use the special materials and construction technologies.

Table 3. Correlation Results

color	energy	environment	form	material	technology	concept		
* -0.235	-0.37	* -0.224	0.057	* 0.271	0.092	1	correlation coefficient	concept
0.021	0.724	0.028	0.584	0.034	0.371	0	sig(2-tailed)	
100	100	100	100	100	100	100	n	
-0.186	** -0.505	** -0.358	** 0.538	** 0.658	1	0.92	correlation coefficient	
0.07	0	0	0	0	0	0.371	sig(2-tailed)	technology
100	100	100	100	100	100	100	n	
* -0.261	** -0.424	* -0.227	** 0.424	1	** 0.658	* 0.217	correlation coefficient	
0.01	0	0.026	0	0	0	0.034	sig(2-tailed)	
100	100	100	100	100	100	100	n	material
0.007	** -0.298	** -0.286	1	** 0.424	** 0.538	0.057	correlation coefficient	
0.949	0.003	0.005	0	0	0	0.584	sig(2-tailed)	
100	100	100	100	100	100	100	n	
** 0.268	0.107	1	** -0.286	* -0.227	** -0.358	* -0.224	correlation coefficient	environment
0.008	0.301	0	0.005	0.026	0	0.028	sig(2-tailed)	
100	100	100	100	100	100	100	n	
-0.009	1	0.107	** -0.298	** -0.424	** -0.505	-0.037	correlation coefficient	
0.932	0	0.301	0.003	0	0	0.724	sig(2-tailed)	energy
100	100	100	100	100	100	100	n	
1	-0.009	** 0.268	0.007	* -0.261	-0.186	* -0.235	correlation coefficient	
0	0.9332	0.008	0.949	0.01	0.07	0.021	sig(2-tailed)	color
100	100	100	100	100	100	100	n	

CONCLUSION

This research has studied and gathered the statistics of Iranian designers' projects in foreign countries by

collecting different projects, classification on this collection and studying the projects in these classes. According to resulted statistics, statistical variation and especial orientations have been seen in different classes.

For example, the greatest orientation in ideation is in modern architecture and then, for post-modern architecture. In some cases Iranian post-modern samples are established to spread Iranian architecture ideas in foreign countries. Studying structure and form, buildings are mostly consisted of simple volumes and in some new projects parametric volumes and more complex volumetric calculations have been seen. Nativism of this new idea and using parametric design in Iranian architecture must seriously be considered and developed.

In most designs energy considerations, optimum and minimized consumption of fossil fuels and less pollutant emission in building has desirably seen. In this case, modern construction technologies and modern materials has facilitated architect's task. Presence of plants in buildings strongly helps architects in design and improves the quality and variety of designed spaces and visual attraction. Finally, using new technologies and facilities in construction and following of modern styles and ideologies were frequently found that emphasizes on effectiveness of environment on ideas of designers especially young ones. Usage of Iranian architectural patterns and Iranian post-modern concepts is seen in some samples of experienced Iranian architects.

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