

Analysis of Bazaars and Shopping Centers as Urban Spaces Via Space Syntax Software (Case Studies: Iranian Bazaars and Tehran Shopping Centers)

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ABSTRACT: The aim of this paper is to investigate the bazaars and shopping centers as public spaces. Given the weakness of public places and consequently the weakness of social interactions, today's societies are in dire need of social spaces to increase social interactions. Therefore, the review of these two as then and now's urban spaces could help solve some problems. Bazaars are among the oldest Iranian urban spaces, which are deemed to be the palpitating heart of the Iranian cities, playing different social, economic, and other roles. Shopping centers are adopted from the 20th Century's models and are considered as an appropriate alternative for Bazaars for the modern human of the 21st Century. Descriptive-Analytical research method is of the case study model, and Space Syntax Software was used for collection of data by library method and analysis. The results show that shopping centers cannot be appropriate alternatives for Bazaars and can be considered as centers for meeting economic needs. Therefore, these centers could not be considered as appropriate collective spaces and as appropriate places for meeting social and recreational needs.

Keywords: Public spaces, Social interaction, Markets, Axial maps

INTRODUCTION

In the modern era, public spaces have lost their importance, have been transferred to city margins and are no longer considered as important spaces (Madanipour, 2010, 222). As a result, people's presence has faded away in these places. Therefore, the dynamicity and liveliness used to be seen is not observed there (Burden & RuediRay, 2008, 216). This has caused reduction of social interactions.

Durkheim, the theoretician of the 19th and 20th centuries, talked about a devastating emotional experience which he called anomie. Anomie means the sense of non-affiliation and inability to establish a collective relation and to share emotions (Bounds, 2011,12).

In Iran, one of the most important collective spaces is bazaar that together with the Arg¹ and The Great Mosque² are considered three points of the city. Bazaars acted as the connection channel among the city elements. Bazaar is a place for gatherings,

political gatherings, demonstrations, buying and selling, economic transactions, punishments, news announcements and other activities. This space was frequented by different people from different political, religious, economic, and other classes (Madanipour, 2010, 246). Iranian bazaars have been dynamic spaces of the city where social, cultural, political, and economic activities have been conducted, thus, have absorbed people (Burden & RuediRay, 2008, 222). After the modern era, the spaces became more specialized and public and private arenas were developed. In this regard, shopping centers replaced bazaars, and with the growth and development of the cities, bazaars were dragged to suburbs and outskirts, or were degraded. Because of the importance of bazaars in the life of the today's man, they are studied as the collective space patterns in Iran's yesterday, and shopping centers as their today's substitute, making use of Space Syntax Software. This research, first, reviews bazaars, shopping centers and case studies and then, it studies the selected case studies with Space Syntax Software. Finally the data obtained from space syntax software will be analyzed.

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MATERIALS AND METHODS

Research Method

Descriptive-Analytical Research Method is of case study type. Data-gathering method depends on the nature of the subject being studied and may be carried out through several information gleaned methods (E.stek, 2000,19). First of all, Information from the past about bazaars gathered and analyzed. Noticeable is that the goal of the study is not to summarize through reviewing past information, but rather to create a new knowledge (Haj Bagheri et al.,2011,80).Then, some limited cases were studied in depth with Space Syntax Software. In the end, the data obtained from Space Syntax Software were compared and analysed (Ibid,210).

Iranian Bazaars

Throughout history, urban spaces were places to communicate with the whole world, like bazaars in Iran (Shoaie et al., 2013,31).

Iranian bazaar with different economic, social and religious functions is one of the symbols of civic structures with pivotal roles. Home of all public activities, bazaars were the heartbeat of cities. Different productive actions, wholesale and retail trades, place for open markets, money exchange, import and export, religious, social, political, educational and cultural activities all were carried out in bazar (Mir Salim, 1996, 389). Experts have different definitions for Bazaar; what follows is some of them:

Wirth believes: "Bazaar is one of the greatest achievements of Islamic Civilization"(Raeesolmohadesin & Alipoor, 2012, 25). Krotis Bach asserts: "Bazaar in Islamic and eastern countries is the place of business, settling down political challenges and forming religious movements. As it extends its cover above the city, main events in the city happen in bazaar. In addition, citizens share their knowledge and receive news in bazaar."

Mohammad Mansour Falamaki argued that: "Bazaar is actually a group of stores under a roofed structure. Virtually it bears a wide range of concepts from credit to power and merit to success."

George Klark wrote: "Bazaar is the highest and most functional business center ever built by the hand of human. Nowadays, developed countries establish shopping centers and business centers. In general term, bazaar is the center for producing and distributing goods; it is a decent system for social and economic activities and plays a significant role in urban structure" (Shafaghi,2001,39).

In his definition of Bazar, Kamran Adl writes: "Bazaar is a group of public facilities such as bath, mosque, school, Tekye³, Saghkhane⁴, and Zorkhaneh⁵, to form a complete and uniform texture in order to host different social, religious and political activities of people."

Bazaars were generally built along with the main passages in cities and were extended to the central parts. Thus, they acted as one of the main access ways in ancient cities.

Bazaar supplies the demands of all social classes through

providing a wide range of products with different qualities (Rajabi, 2007, 18).

Although Bazaar is surrounded with residential areas, there are no facilities in markets to stay overnight. Therefore, Bazaar is empty during nights and Gheisarieh⁶ may take more security measures by locking the entrance gates. Probably, security is one of the reasons that bazaar and residential areas are separated.

Different jobs are placed at different spaces, and jobs of a section are either like or very similar to one another and this issue helps the buyer to compare the goods of different shops in terms of price and quality, so as to easily purchase their intended goods (Bakhtiar, 1974, 324).

Bazaars in different cities have different forms, though the major form is the extension in length. Some of them have been developed organically while others have been developed based on careful planning.

In fact, Bazaar is an important civic spatial and skeletal structure for carrying out business. However, social, leisure, and political activities are common in Bazaar.

Bazaar in Islamic cities is also like home of mosques, civic and governmental buildings. Surrounded by residential neighborhoods, the economy and the government develop alongside with each other.

During the Safavid⁷,Iran's economy experienced another thriving age following reassurance of security and order. This era was featured with emergence of guild unions and formation of Bazaars, Saras⁸, Timches⁹, and Gheisariehs which were laid in a compound structure. In addition, extra facilities such as bath, schools, Tekieh and Saghkhane were added to the structure. This age surly can be known as the age of maturity in Iranian bazaar.

However, after the Safavid¹⁰, no significant event took place regarding the development of bazaars and the only noticeable case was the construction of Grand Bazaar of Vakil in Shiraz. In fact, Iran's economy followed a destructive path after the Safavid dynasty (Soltanzadeh, 2001, 23).

Bazaar remained the center of commercial activities in Iran. However the traditional structure of the Iranian economy and society began to be deeply affected by Iran's increasing involvement in the international market so that by the end of the century, there had been nearly a twelvefold increase in the volume of Iran's foreign trade.

The Qajar dynasty brought about many changes to bazaars. In this era, bazaars were still the center of all economic activities (Neshat, 1981, 53).

Effective role of foreign powers in the Iranian government encompassed all the commercial transactions overseas and the introduction of some new products caused considerable damages to Iran's economy (Soltanzadeh, 2001, 27).

The Pahlavies¹¹, followed the same path and Iran's market was opened to foreign products.

On the other hand, the newly urban-development practice and the formation of streets, as a step towards European version

of modernization, significantly changed unity of bazaar's structure and some parts were isolated from the main body of the market.

All the developments forced bazaars to change into an old, deserted and historical texture following by deprecation. However, survival of some bazaars such as the Isfahan Bazaar against these changes is remarkable. At any rate, deprecation of structure in bazaars of smaller cities is undeniable.

The same way of destruction continued after Iran's Revolution and urban development plans continued to damage the old structure of bazaars.

Bazaars selected for the study in this paper are Bazaar of Tabriz (Fig.1), Bazaar of Tehran and Bazaar of Isfahan (Fig.2). They are bazaars that have survived despite all these changes and still are playing a remarkable role in their cities.

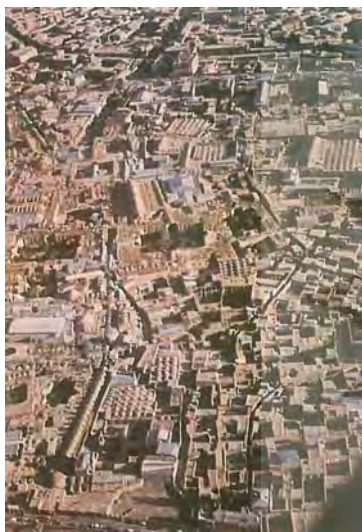


Fig.1: Bazaar of Tabriz

(Source: Ministry of Housing and Urban Development, 2009, 47)

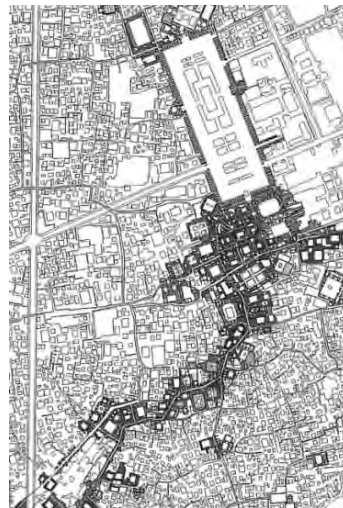


Fig.2: Bazaar of Isfahan

(Source: Ministry of Housing and Urban Development, 2009, 126)

essential factor of shopping centers is a complex of shops in a roofed/unroofed space. According to this definition, shopping centers have been constructed in Iran in different shapes following the western style. The case studies of this research have been selected from different types of shopping centers. One of these shopping centers is the Paytakht Shopping Center that was built in 1995 (Fig.3), which is a specialized center for selling laptops, mobile phones, etc. Another is the Eskin Shopping Center that was built during 1972 to 1977 (Fig.4), designed with an approach different from those of other shopping centers. Finally, the Plasco Shopping Center is the second modern building in Iran. This 16-storey building was built in 1962 and is considered as one of the important centers for clothing.

These three market places, likewise any other market places in Iran include Sarahs, Timches, mosque and schools. Although some of their spaces, have been abandoned.

They have been made of Rastehs¹², formed by passages and stores across from each other.

General Introduction to Shopping Centers

Shopping center (also called shopping mall or shopping plaza) is the 20th century version of Bazaar and is the offspring of industrialization and modern architecture. Shopping centers are comprised of groups of stores in a roofed/unroofed space. These centers also provide services such as restaurant, parking, recreation, hair dressing, etc. Services, to some extent, depend on the size of the facilities (Asadi, 2000, 17).

Stores on the street do not constitute a shopping center even if they may be considered as a shopping neighborhood. An



Fig.3: Paytakht shopping center



Fig.4: Eskandar shopping center

Data Analysis with Space Syntax

Space Syntax is an analytical tool in architecture and urbanism introduced first by Hillier and Hanson colleagues at The Bartlett, University of London in the late 1970s to early 1980s as a tool to help architects simulate the likely social effects of their designs. Space syntax theory was published by Hillier and Hanson in the book "The Social Logic of Space" in 1984 but the analytical method was developed in the book "Space Is the Machine" in 1996.

By using Space Syntax method, analysis of urban spaces and interaction with other spaces and public use of urban spaces are feasible. This method can predict the effects of urban changes in urban spaces.

Therefore, it can help designers and urban planners to design optimally. (Abbas Zadegan & Azari, 2009, 26)

Theoreticians of this method believe that the role of each single space separately has a less important role than its combination with other elements and urban spaces. So in this method, each element achieves importance in connection with the whole complex. (Ibid, 27)

This software analyzes the relation between spaces with the new designed space in the city. It displays the results as graphical data. It has been only a few decades that this software has assisted architects and urban designers even famous designers like Norman Foster and Richard Rogers. (Yazdanfar et al., 2009, 59)

Space Syntax includes different analytical parts like Visibility Graph Analysis, Convex Map Analysis, Axial Map Analysis and Segment Map Analysis that may be used individually or all together simultaneously, depending on the research objectives. In this research, the axial map was used for analysis of bazaars and shopping malls as urban spaces. The axial maps are simple maps of the urban areas as the basis of city's analysis. (Abbas Zadegan, 2002, 68)

Parameters obtained from analysis of axial maps in space

syntax program are connectivity, integration and depth that will be explained in the following:

Connectivity: As its name implies, it means space communication. That means if the amount is larger, the relation with other spaces will be greater and its number determines the number of access points leading to the desired space.

Integration: This means spatial coherence. The spaces that have a higher degree of integration are the main access points of the city that have the greatest access. The higher level of integration shows more integrity between the intended space and other spaces.

Depth: This means how many spaces should be crossed to reach the intended space. The spaces have the greatest depth called the segregated spaces in Spaces Syntax Analysis. (Yazdanfar et al., 2009, 60)

In space syntax maps, spaces with the highest integration are displayed in red and spaces with the greatest depth are shown in blue that have the lowest integration.

RESULTS AND DISCUSSION Bazaar of Tehran

Analyzed axial map of bazaar of Tehran (Fig. 5 & Table 1) shows that Haj Abolfazl axis that includes some small rastehs and shopping centers has the highest amount of integration among the spaces, lines of which are highlighted in red, and also¹⁵ Khordad St. and Kafash bazaar (bazaar of shoes) have a high integration and this indicates that density and activity of these spaces are greater. These spaces are the main spaces of bazaar of Tehran that include the most activities. Spaces such as Najjar bazaar (carpenters' market), Golshansara, Masoudsara and other spaces highlighted in blue have the highest depth which indicates their separation and isolation of these spaces from the unity of the spaces. These spaces are used for passing through and reaching other spaces with higher integration and there are lower activities in them. This is not considered a negative characteristic for the halls with service activities or the carpenters' bazaars since the carpenters' bazaars have noisy performance and they are better off being separated from other spaces. The service spaces do not need any high activity rate.

Bazaar of Tabriz

Studying bazaar of Tabriz (Fig.6 and Table 2) indicates that Jadid Abbasi Rasteh has the highest amount of integration among the spaces which implies the highest activity rate in this part of the bazaar and Panbe-foroshan (cotton-ball market) Rasteh and Mashhadi Ghanbar-e-Hosseini bazaar, Meschi bazaar are at a lower level comparing to Jadid Abbasi Rasteh. Seyed Esmael Sara, Haj Mohamad Gholi Sara and Dalalezane Kochak Rasteh and the paths going towards the outside of bazaar have such a high amount of depth that shows their separation from the bazaar. It should be noted that the high depth is not a negative point for the Saras since they are dedicated to storing goods and to carrying out activities which do not cause high mobility and association.

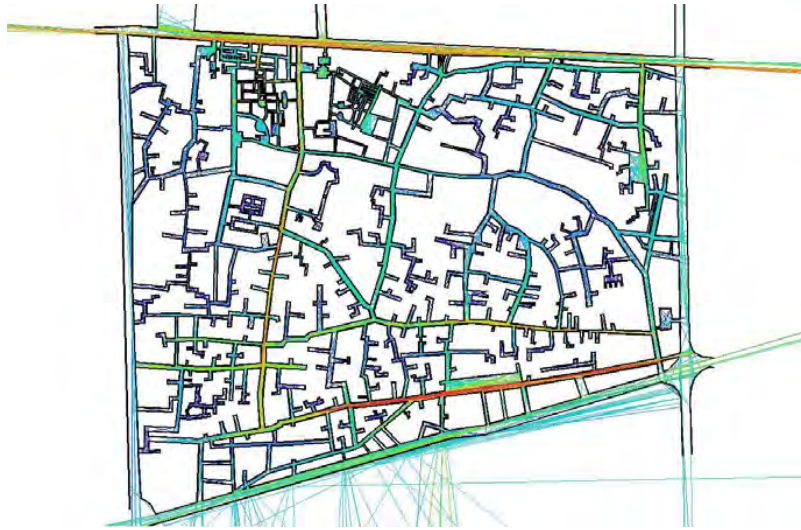


Fig.5: Axial maps of bazaar of Tehran13

Table 1: Bazaar of Tehran14

bazaar of Tehran	Minimum	Average	maximum
connectivity	1	3.8973	20
integration	0.594296	1.21187	2.03798
Depth	1	6.03158	11.0247



Fig.6: Axial maps of bazaar of Tabriz

Table 2: Bazaar of Tabriz

bazaar of Tabriz	Minimum	Average	maximum
connectivity	1	3.55346	18
integration	0.551748	1.8522	2.07061
Depth	1	5.09572	9.61936

Bazaar of Isfahan

The studies (Fig.7&Table 3) show that comparing to the other bazaars investigated in the present research, there are more numbers of Rastehs and axes in Isfahan bazaar with high integration, such as Emamzade-ie-Harone Velayat, Sadr school, Shah bazaar, bazaar and Chaharsouq15Gheisarieh. This shows that in Isfahan bazaar, there are more spaces with high

activity. Similar to other bazaars, Saras in Isfahan bazaar have high depth, such as Kafasha Rasteh (for shoes) and Sabaghha bazaar. Comparing to the other studied bazaars, Isfahan bazaar has the lowest variance between the highest and the lowest integration which shows the higher integrity and unity between the spaces in Isfahan bazaar.



Fig.7: Axial maps of Bazaar of Isfahan

Table 3: Bazaar of Isfahan

Bazaar of Isfahan	Minimum	Average	maximum
connectivity	1	3.00251	14
integration	0.302494	0.57475	0.86829
Depth	8.00251	12.1115	21.103

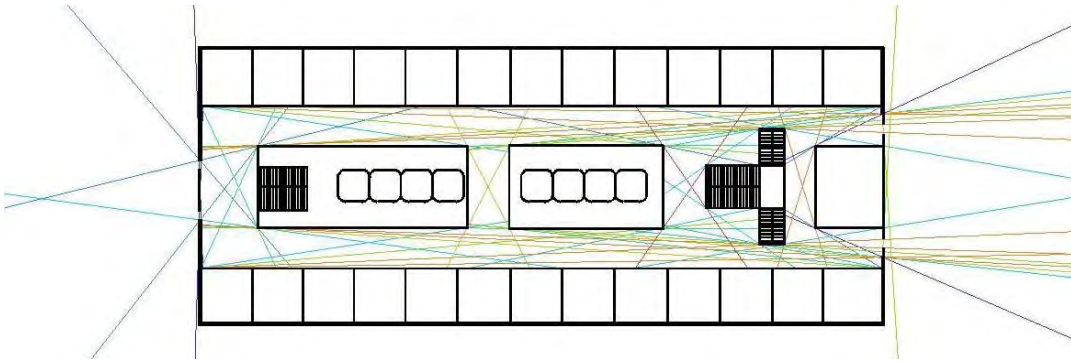


Fig. 8: Axial maps of Plasco shopping center

Table 4: Plasco shopping center

Plasco shopping center	Minimum	Average	maximum
connectivity	2	3.14286	5
integration	1.27368	2.18346	5.09474
Depth	1.16667	1.47619	1.66667

Plasco Shopping Center

Studying the map of Plasco Shopping Center (Fig.8 & Table.4) indicates that its two main axes have almost the same integration and the spaces between the voids and side of the stairs have high depths. The difference between the lowest and the highest integration, the same as Paytakht Shopping Center, is big and shows that this center also induces the sense of isolation.

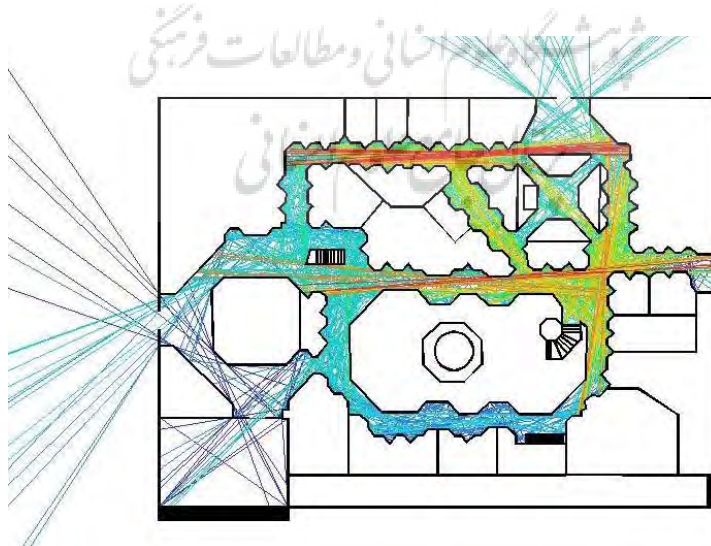


Fig. 9: Axial maps of Eskin shopping center

Table 5: Eskan shopping center

Eskan shopping center	Minimum	Average	maximum
connectivity	2	3.84615	6
integration	0.957109	1.70114	3.03084
Depth	1.5	1.96154	2.5833

Eskan Shopping Center

Studying the map of Eskan Shopping Center (Fig.9 & Table 5) indicates the spaces with high activity and high integration and also some deep spaces. All these show the inappropriate designing of this building.

In the above map, one could see that even certain axes of the

shopping center are in blue. This implies the high depth of these spaces while they are the main axes and should enjoy the high integrity. The study of this map shows that the connections between the spaces and their spatial order have not been met well.

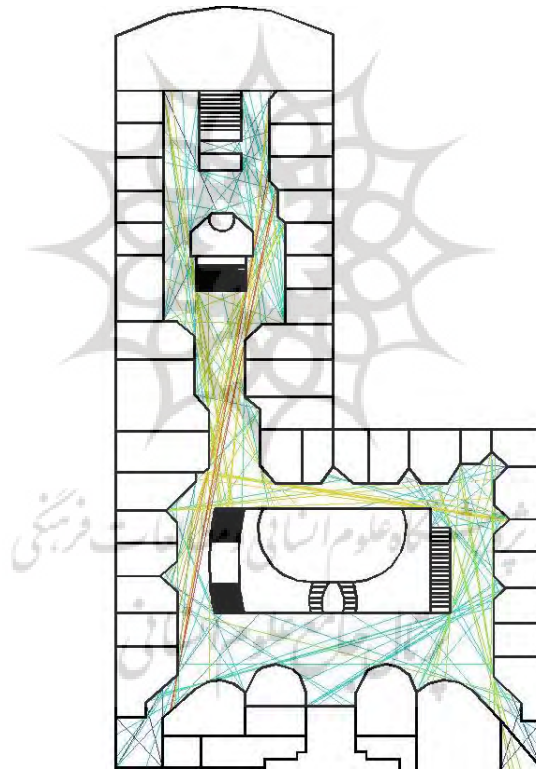


Fig.10:Axial maps of Paytakht shopping center

Table 6: Paytakht shopping center

Paytakht shopping center	Minimum	Average	maximum
connectivity	2	3.5	6
integration	1.14929	2.42787	6.89572
Depth	1.14286	1.53571	1.85714

Table 7: Comparison between bazaars and shopping malls

	Average of connectivity	Average of integration	Average of Depth	Max of integration-Min of integration	Max of connectivity -min of connectivity	Max of connectivity -min of depth
Bazaar of Tehran	3.8973	1.21187	6.03158	1.4436	10.0241	19
Bazaar of Tabriz	3.55346	1.8522	5.09572	1.5188	8.61936	17
Bazaar of Isfahan	3.00251	0.57475	12.1115	0.565796	13.10049	13
Eskan shopping center	3.84615	1.70114	1.96154	2.0737	1.0833	4
Paytakht shopping center	3.5	2.42787	1.53571	5.74643	0.71428	4
plasco shopping center	3.14286	2.18346	1.66667	3.8210	0.50003	3

Paytakht Shopping Center

Analyzed axial map of Paytakht Shopping Center (Fig.10 & Table 6) shows that the main axes have different amount of depth and integration and the great difference between the lowest and the highest of integration shows that some spaces are separated and somehow the sense of isolation is imposed on them.

Comparison between Bazaars and Shopping Malls Based on Space Syntax

Looking at the Table 7 and reviewing the connection parameter, one may say that the connectivity rates of the six samples are almost close. Of course, it should be noted that in case of considering the difference between the lowest and the highest connectivity rate, it can be seen that this number is 17, 19, and 13 for bazaars. And this is because of the existence of different markets in the market and the need of hierarchical passages for them such as halls, schools, etc. which requires different connection rates with other spaces so as to meet the connection priorities. Yet, this number is about 3 or 4 for shopping centers. This shows less spatial priority from the viewpoint of connection rate. This rate depends on the function of spaces and the connection with other spaces has to be low or high. The next parameter is integrity, which shows spatial integration. In the analysis of space setting, the difference between the least and the most integrity rate is considered as an index. The higher the difference, the more heterogeneous are the spaces' characteristics, and this implies that some parts of this space are isolated (Abbas Zadegan&Azari, 2009, 28). In the comparative survey, there is a difference between the least and the most integrity rates and the difference is lower for bazaars compared with the shopping centers and this implies more unity between the spaces in bazaars and their higher integrity. It should be noted that, generally, the integrity rate of organic textures like bazaars is lower than inorganic textures (Ibid). The 3rd and the last parameter is the space depth. The study of the figures obtained shows that the space depths are equal and the difference between the least and the most depth in bazaars is higher than that of shopping centers. First, it seems to be

a negative characteristic, but if the analyzed maps of bazaars and shopping centers are reviewed, it becomes obvious that the blue spaces with high depths are the spaces like halls, schools, etc., which are not in need of a high density and activity rate, and their separation from the main parts is not a negative characteristic. Yet, the changes in the bazaars and streets have caused some of these spaces to move towards suburbs. They have become isolated and are considered as spaces with a high depth while it did not use to be like this from the beginning. But the analyzed maps of shopping centers show that such a high depth is observed in the areas of high integrity and high density as it is observed in the main axes and this is a very negative characteristic.

CONCLUSION

Volumetric spaces, that is to say, the spaces in which urban life is formed and social interactions occurs, are among the important spaces of a city, since we; men, are inherently social creatures and the spaces providing opportunities for social interactions play a crucial role in our lives.

Due to the reasons stated about the importance of the volumetric spaces in the urban life, here, bazaars and shopping centers were studied as a sample of urban social spaces. This study has depicted bazaar as the most important social center in Iran, and shopping centers are viewed as alternatives of high importance for bazaars. At first, bazaars and shopping centers were generally studied and were analyzed in six case studies by Space Syntax software.

The findings show that the shopping centers are inappropriate alternatives for bazaars as the city's collective spaces. Some items confirming what has been stated above are as below:

Bazaars acted as public spaces where people frequented at different times and for different reasons. Yet, their alternatives, that is, shopping centers, are the only places for meeting economic needs.

Absence of non-economic spaces in shopping centers has decreased people's presence in them, which has resulted in the decreased social interactions and a decrease in people's interrelations and lack of liveliness and dynamicity in these

spaces

The analysis of case studies with Space Syntax show:

The analysis of the connection parameter in Table 7 shows that bazaars have higher connection hierarchy, and the different spaces have different connection rates. But in shopping centers, such a difference dwindles and the figure obtained for this parameter is very close to one another.

The difference between the least and the most integrity is lower for bazaars which implies a higher unity and a higher spatial integration. Yet, the figures obtained for shopping centers imply the heterogeneity of the space and the isolation of some parts thereof.

The study of the depth parameter for shopping center, which implies that some main axes are of high depth implying inappropriate design and low activity density in these areas.

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ENDNOTES

1. Political Center
2. Religious Center
3. A small religious theater in the neighborhood
4. A place for drinking water and a source for keeping water
5. A place for a traditional Iranian sport
6. A part of bazaar and a center of more valuable goods with two lines of shops across from each other
7. The monarchy in Iran 1591-1722 A.D.
8. Commercial complexes including warehouses and some lounges for merchants' short stays
9. A roofed place for trading highly-priced goods
10. The monarchy in Iran 1796-1925 A.D.
11. The last monarchy in Iran 1925-1979 A.D.
12. The main passage of bazaar
13. All the axial maps in these article (fig.5 to fig.10) extracted from space syntax software
14. All the data in the tables (Table.1 to Table.7) extracted from space syntax software.
15. The intersection of two major Rastehs of bazaar

REFERENCES

Abbas zadegan, M.(2002). Space syntax methods in urban

design, with a look to Yazd. *Urban management*, 9,64-75.

Abbas Zadegan, M., & Azari, A.(2009). Spatial Analysis of the Role of Bazaar in Iranian Cities. *Abadi*,29(64) , 26-30.

Asadi, I.(2000). Shopping Centers Essay: Study Resources. *Municipals*, 2(20), 17-21.

Bakhtiar, A.(1974). The Royal Bazaar of Isfahan. *Iranian Studies*,7(1/2),320-347.

Borden, I., & Ruedi Ray, K. (2008). *The dissertation: an architecture student's handbook*. (F.mehdizadeh, Trans.). Tehran: Soresh-e-danesh press.

Bounds, M. (2011). *Urban social theory, city, self and society*. (R. Sedigh Sarvestani, Trans.). Tehran: university of Tehran press.

E.stek, R. (2000). *The Art of case study*. Z (M. hamidrafie, Trans.). Tehran: Iran culture studies.

Haj Bagheri, M., Parvizi, S., & Salsali, M. (2011). *The Qualitative Research Methods*. Tehran: Boshra Publication.

Madani Pour, A. (2010). *Public and private spaces of the city*. (F. Norian, Trans.). Tehran: ICT organization of Tehran municipality.

Ministry of Housing and Urban Development. (2009). *Persian Bazaars; An Attempt To Document Traditional Market In Iran*. Tehran: Jihad Daneshgahi Publication.

Mir Salim, S. M. (1996). *Encyclopedia of Islam*. Tehran: Islamic Encyclopedia Office, 314-405.

Neshat, G.(1981). From bazaar to market :foreign trade and economic development. *Iranian Studies*,14(1/2),53-86.

Raesolmohadesin, S., & Alipoor, B.(2012). Investigating Sustainability Factors According to the Image of Iranian Bazar. *International Journal of Architecture and Urban Development*, 2(6),25-30.

Rajabi, A. (2007). *From Typology of Bazaar*. Tehran: Agah Press.

Shafaghi, S.(2001). A Structural and Spatial Physical Survey of the Bazaar in Isfahan. *Geographical Research Issue*, 60, 23-51.

Shoaei, H., Mokhtabad Amrei, M., & Habib, F. (2013). Public Urban Spaces: Reflecting the Collective Rituals (Iranian Tkayay and Hosseiniyeh). *International Journal of Architecture and Urban Development*, 3(2),31-38.

Soltanzadeh, H. (2001). *Iranian Bazaars*. Tehran: Iran Culture Studies.

Yazdanfar, S.A., Mousavi, M., & Zargar, H. (2009). Analysis of the spatial structure of Tabriz in Barrow with usage of space syntax method. *road & structure*, 67, 58-67.