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Designing a Conceptual Model for Integration of Urban Space Network in District 6 of Tehran

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Abstract

The study of urban space as a structural element in cities has attracted growing attention in recent years. Certainly, public spaces serve as an essential factor that can increase urban arrangement, create and maintain a strong local center and enhance the quality of superior environment and the sense of citizenship. Moreover, integrity has been treated as the most basic structural quality and one of the essential principles and concepts of cities. Integrated urban spaces demonstrate the integrated structure of spatial organization in a city where not only the connection between forms and functions of spaces, but also the identity and its place in the complex urban system are taken into account. Therefore, the processes of planning, designing and construction of urban spaces can contribute to the resolution of structural problems in urban models such as inconsistency, which is related to spatial analysis. The main purpose of this study is to develop a conceptual model for an integrated network of urban spaces to help the decision-making process. Certainly, these networks strengthen urban structure and integrity, and contribute to the socio-economic growth and prosperity for city dwellers. Accordingly, the study seeks to explore the factors influencing the interconnected urban spaces network and to propose a conceptual model for its development. The research was exploratory-explanatory and a comparative analysis was adopted for the decision-making process. The main research method was content analysis and inductive reasoning. The results revealed that urban spaces were located in a network logic and to achieve spatial integrity, socialization, physical form, sense and functional indicators of each space were united with other spaces via integrity indicators including consistency, continuity, hierarchy, etc.

Keywords

Urban spaces, Conceptual network, Complex whole, Spatial integrity.

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Introduction

The traditional urban system of the country represents the integration of urban space in general, and its function in particular, so that the result of such design is the formation of lively and dynamic urban spaces in the metropolitan system of many old cities. There is no doubt that traditional spaces can be considered as interconnected sets developed in a particular hierarchical system which are tied coherently (Pourjafar & Ismailian, 2013: 66), while of the modern design has wreaked havoc on old valuable urban spaces with their integrated structure and imposed an inflexible spatial framework and political social order upon cities. The applied post-modern models are confined to the design of small spaces and they have failed to modify the expected and requisite spatial integrity of the spatial structure of cities. Unfortunately, scant attention to the design of separate urban spaces regardless of spatial integrity as a subsystem of metropolitan system have given rise to a plethora of problems in term of the incapability of these areas in creating the orderly and flourished local metropolis. Uncertainty of the status of urban spaces in different levels of decision-making on the one hand, and inadequate theoretical basis in term of consistent planning and design on the other hand have arguably contributed to the failure of the current design of urban spaces. In response to the failure of modern approach in encompassing new urban ideas, special regard for public spaces in cities has become a cornerstone of planning and urban design (Varna & Tiesdell, 2010: 575-576). Several studies have explored this issue. Urban spaces can be considered as a key factor which not only improve cohesion and urban systems, but also create and maintain a strong local center, improve environmental quality and economic competitiveness and enhance the sense of citizenship (Stiles, 2010: 9-12). Therefore, the main objective of this paper is to present a conceptual model underlined with a theoretical basis for integrating urban spaces. Hence, literature on urbanism in which the urban integrity is studied analytically based

on context analysis technique, and urban integrity criteria are extracted. Then, these indicators are in a conceptual model to provide desired model. Finally, using FANP model, the proposed conceptual model is employed in district 6 of Tehran.

Research framework

City is a dynamic and open system which is in a constant state of flux. A set of human elements and artificial factors are involved in creating such dynamicity and development (Shie, et al, 2015: 4). Uncertainty of the status of urban spaces in different levels of decision-making along with inappropriate theoretical basis for planning and coherent design are some of the factors contributing to the inadequacy of urban design. That is, factors such as inefficiency, merely communicative role, spatial discontinuity, isolation and separate space design, among other things, have motivated the development of a coherent network thinking of urban spaces in this study. The first attempts to define the concepts of space and place were made in the realm of philosophy by Plato and Aristotle (Felahat & Shahidi, 2015: 28). Carmona studied the formation of urban space in London over different historical eras of this city (Carmona, 2014: 2). He argues that the context, process and power indicate the integrated framework of public spaces involved in its formation. Therefore, to create integrity and solidarity in urban spaces, its underlying criteria should be placed within a network logic (Carmona, 2003: 23). According to Trancik, urban space integrity as an integrated network was one of the three fundamental principles in urban design (Trancik, 1986: 78). The main purpose of his study was to identify characteristic features of an integrated network of urban spaces and how they led to the integration of urban spaces. In this context, the paper aimed to explore indicators affecting the development of urban spaces and propose a model for the integrity of its network.

This paper is a qualitative study with both theoretical and practical approaches. In the theoretical approach, purely qualitative methods such as meta-analysis

using content analysis and inductive reasoning are employed, and in practical approach, positivistic methods such as logical reasoning are adopted. In the theoretical sphere, the views of relevant experts in the 21st century were studied analytically. The results led to the construction of a conceptual model for integrated network of urban spaces. The ANP model was used to evaluate the proposed conceptual model in practice. Also, to gather necessary information in addition to documents and library study, field observation of urban spaces in form of checklists and questionnaires were employed to explore the quality of spaces and indicators of integrity.

Review of literature

Urban space and urban integrity have been the subject of growing interest to many researchers particularly in the social sciences and economy. However, urban spaces integrity has not been adequately addressed in the 20th century. In 1965, 1977, 1987 and 2000, Alexander undertook several studies in urban areas which focused on urban integrity especially from physical-perceptual aspects (Alexander, 2000: 33). In 1986, Roger Trancik discussed space homogenization and necessity of integrity in his book "The Missing spaces". Integrity has been the subject of many other studies as well (Table 1). Since 2000, more attention has been paid to this issue. Salingarus (2000), Nan Ellin (2006), Carmona (2014), New Urban planners (2014) and Im Sik Cho (2015) are some of researchers who have explored this subject in details. Nevertheless, there seems to be a paucity of studies on integrity of urban space network.

Theoretical study and Research literature

The deductive reasoning method was used for evaluation of urban spaces criteria. Accordingly, the relevant ideas in the last two centuries were studied and presented in form of an analytical summary. In the perspective of Iranian experts, features such as unity, arrangement, interconnection, continuity, proportion and integration of mass and space, among other

things, are main factors involved in fostering spatial integrity in old towns (Tavassoly, 2002: 12-20). In the past, valuable urban spaces were formed in a rich integrated spatial organization (Ardalan & Bakhtiar, 1975: 73). Tavalaei propose five structures describing an integrated city including holistic, organized, structured, aesthetic- and contextual indicators (Tavalaei, 2012: 4-8). According to Pourjafar, main principles of urban integrity are represented in physical, practical and identical aspects (PourJafar & Ismailian: 2012). Table 1 presents an analysis of Iranian researcher's views. .

20th century theorists

Trancik argues that "the public space connection theory is derived from a set of routes which are responsible for linking urban spaces and creating consecutive spaces. These routes are in form of streets, pedestrians, open spaces, linear spaces or other connective elements that link different parts of the city, so that individual urban components are transformed into a coherent framework within a hierarchical system" (Trancik, 1986: 318). Table 2 shows theoretical analysis and indicators of urban spaces discussed in recent century (Table 1).

21st century theorists

Bucys argues that spaces are connected to provide wider corridors that allow mobility of masses.. He studied the logical connection between varied types of urban open spaces, contending that the cohesion between urban green spaces and other civil urban spaces leads to environmental sustainability (Bucys, 2012: 5). From Carmona's viewpoint, nature of contemporary public spaces is directly affected by their social- economic complexity underlying its establishment, which are constantly interacting with each other. Moreover, applying public space network thinking to the design at the scale of city neighborhood or district, leads to clarity and to the sense of perception and directionality of the urban spaces, which consequently result in integration of urban and neighborhood structures and eventually reinforcement of urban. (Carmona, 2003: 87-93).

Table 1. Urban integrity indicators in the view of Iranian experts. Source: authors, 2016.

Theorist	Indicator	Description
Ardalan& Bakhtiar 1975	Unity by organizing space - Unity of mass and space - Natural order - geometric coordination - Unity of mass and space	The natural order is the result of human solidarity with the laws of nature. Such coordinated order indicates plurality within unity. Geometric order governs most ancient urban system.
Mahmoud Tavasoli 2002	- Principle of spatial enclosure - Scale and proportion principle - The principle of spatial diversity	- spatial continuity -integration of community centers and city centers -Integrating buildings with urban elements - Integrating residential and urban elements
Tavalaei 2007	Holistic integration	Man’s attitude about totality, i.e. his worldview, is integral to his overall order
	Organized integration	The structuralists argue that the combination and adaptability of urban components should be represented in its function and inspire sufficient participation to achieve goals and be held accountable for a large number of residents’ demands.
	Aesthetic integration	Unity of form- Spatial enclosure - continuity of rhythmic components in the city- space and mass balance -visual overlapping- length, width and height ratio - combination of various forms -Image of the city: continuity of elements to create unity in the vision and direction of pedestrians. -Fostering integrity by identifying linking elements –belief in historical continuity
	Structured integration	Structuralists argue that the city must offer sufficient to the space network as the linking element: Space as the integrating element - Emphasis on large-scale network design space as the linking element of urban fabric - Attitude towards time as a continuous stream- Emphasis on step to step development- Creating an integratedstructure through the process of centralization, Symmetry and connections of elements
	Contextual integration	This approach regards compatibility with physical, historical, social and cultural context as the coherent factor Physical integration stresses 1) The Interaction between disconnected mass and space and different urban areas. 2. Attempt to find exhaustive models that allow such interconnection. 3. Implementation through collage.
Pourjafar 2013	Physical Structure	Spatial hierarchy principle- the principle of continuity spatial integration-unity in integration - human scale- spatial diversity, spatial contrast
	Functional structure	integration of functions- scale of activities
	Identity structure	Mental image- sense of space

According to Ana Julia et al.,” the integrity of urban spaces only makes sense in a two-dimensional network: (1) a physical aspect that consider various urban elements and their connections and (2) and a functional aspect that considers population as user of different sectors of the city and explore their

interactions”(Ana Júlia,2010: 8). According to theorists of new urbanism movement, considering continuous human-oriented paths rather than vehicle-oriented ones, maintaining the integrity of public transport and its continuity in all transversal sections, defining public spaces in each section and its relation with an

appropriate space with different transversal scale can create required visibility in the spatial organization of cities (Duany, Plater zyberk, 2014: 12-18). Nan Elline propose unity, integration and connectivity, porosity, authenticity and vulnerability as five major indicators of integrated urbanism (Ellin, 2006: 18-23). Salingarus presents 8 principles for urban integrity, contending that in an ordinary compound system, such as a biological organism or a large computer

program, the basic rules of integration are pursued so that components are connected efficiently (Salingarus, 2000:292). Im Sik Cho et al. posit that integrated urban spaces are made of a framework that consists of three levels of hardware, software and organization whose interconnection engenders cohesion. He presents criteria such as accessibility, connections, edges, etc. as indicators of integration (Im Sik Cho, etal, 2015: 153-163); (Table 2).

Table 2. Indicators of urban integration in the view of 21th century Western theorists. Source: authors, 2016, citing Tavalae 2002.

	Overall description in relation to urban integration theory	
Alexander 1965	In a tree structure, no two units are connected unless through their link to the whole, but in a semi network structure, units are interrelated. . He argues that modern urbanization scholars view cities as a tree. As such, cities are organized as branches with varying neighborhoods and functions.	
Lynch 1972	A coherent and transparent physical framework made of five elements of nodes, paths, edges, landmarks and neighborhoods is able to create a vivid mental image. Lynch stresses the perceived coherence to the urban landscape and its outstanding figures. Configuration in design and visual unity in responding to integrated mental images are tasks of urban designer.	
Kerier 1979	He extracted principles according to which interconnected urban spaces, while maintaining the human scale in the height of buildings, create balanced facades and meaningful forms with social and cultural functions, which enable social meetings and interactions.	
Colien 1986	Green space must create an interconnected whole in the city that helps people find their way	
Bacon 1986	The relationship between mass and space- continuity of experience-simultaneous continuities, The designer can integrate main buildings through designing a communication network, create overall unity in the design and foster the urban integrity.	
	Expansion through continuity-Space as a linking factor -Axes as linking factors Mass as linking factor-Interweaving spaces as linking factor-expansion through extension of elements- expansion through a longitudinal extension	Spread of city plan
Trancink 1986	The First principle: Successive network connection The second principle: enclosure from sides and edge continuity the third principle: Principle: Integrated bridging The fourth axis and perspective The fifth Principle: internal and external integration	
Alexander 1987	According to him, the important principle to create unity is creation of a center. Thus, a whole should have a center within itself and develop a network of centers in its surrounding.	
	1 The whole has a progressive growth which is consistent with the ultimate purpose. 2. The whole is unpredictable. 3. The whole is interconnected not fragmented and its components are interconnected in complex and surprising manner. . 4. The whole affects all of us and is able to motivate humans.	
	The progressive growth is the necessary condition for a whole – the growth of wider wholes - imagination is necessary to create a holistic structure. Each building needs to be connected to a continuous and well-formed public open in its surrounding. Entrances, main roads, components and interior open space, lighting and movement within buildings is compatible and integrated with the position of the building on the street and the neighborhood. the structure of each building should create smaller wholes – the formation of centers depends on the geometrical form of all wholes and scales involved in the process.	
Carleson 1989	Uniform fronts, representation of some urban elements as a whole, decoration of building materials; balance of components rather than the absolute size, Using techniques such as cornices, and continuous wall surfaces as well as identical height and facades to foster continuity of buildings and demonstrate spatial power in a range of buildings	
Alberti 1991	Integrity is a reasonable harmony or unity that bring together all components within a contiguous mold so that nothing can be added or removed without damaging the overall beauty of the structure.	

Theoretical framework and conceptual model (results and discussion)

Based on the study and analysis of discussed theories of urban cohesion and urban spaces integrity, a conceptual model of integrated urban spaces network is proposed. The model is rooted in recent theories of urban spaces integration. According to Alexander's theory, models offer responses to design problems, although each scheme can employ a solution only once (Alexander, 1977: 45). The model consists of three levels. The first level is the main field in which, space networks are mounted and is directly related to two other levels.

Level 1: Operating system

This level covers the entire decision-making system in the process of planning and designing. Based on Gestalt theory and Fractal formula, a complex whole is derived from decision-making process in the original structure. A complex and integrated whole consists of integral, interactive and joined components in which components and the environment are interrelated. A whole is a continuous flow that is generated gradually and undergoes changes to adapt itself with the environment. It is fairly orderly at each level of complexity and is governed by a pervasive order (Alexander, 1987: 34) which is culminated in the conceptual network (Alexander, 1965: 7). According to the theories of spatial integrity discussed in previous seasons, streams and nodes are the product of this network that establishes the basic integrity of the network via intersection and interaction (Chapman, 2011, 512-514).

A variety of urban units are integrated through intersection or boundary elements and components. In fact, interfaces rather than internal elements and components of each unit are responsible for communication between different units. . These interfaces allow components to move freely and communicate with each other through intersections (Mohajerani, 2006: 124). Accordingly, boundary elements of one module are linked to elements of another module, and sometimes these components

are connected like pieces of a puzzle. Moreover, contradictions can affect the connection of elements. In some cases, a third factor is required to expedite the linking. The success of an urban space is depended on the physical and visual integration of the pedestrian and constructed surfaces in the surrounding area. It is possible to obtain desirable borders of an urban space provided that proper visual principles are derived from geometrical principles. The content of these principles are classified in the second level (Salingaros, 1999: 29-35). The interplay between phenomena is a variable of their geometry and functions. It depends on the data available about their shape, texture, pattern, color and detail of elements, which similar to their content also classified in the second level. The interplay between streams and nodes identified lost and damaged areas. Finally, to maintain and reinforce integrity, spaces are directed to the first step, which is the decision-making process, in a cyclic process. .

Level 2: Urban spaces and its indicators

This level deals with the urban space. It is made of two spheres: content and form. There is no agreed-upon definition of urban space, According to Barnett, it is important that each space is defined relative to its environmental characteristics (Barnett, 2014: 49). The content of space is made of subsections including socialization, time, function and identity (Carmona, 2014: 169-170). The important point is that the integrity of urban space is achieved when each of these spheres are in a logical connection with other spheres and their integrity with the complex whole (urban space at a certain scale) is established. Further, every space is placed in a network logic together with other urban spaces and its integrity is maintained with the complex whole at the urban scale. The network that is supposed to shape this complex whole and develop integration between spatial components and between each urban space and other spaces is the first level operationalization system that underscores the intellectual base of the system. Finally, the necessary integrity is achieved

by indicators which are included in the Third Level of the framework.

Level 3: Indicators of urban space integrity

To construct integrity between urban spaces and between an urban space and its complex whole, the following spatial integrity indicators should be employed.

Porosity

Despite all modernist's efforts in removing any boundaries and also postmodernist's attempt in its enrichment, According to porosity, integrity is maintained in a way that things are brought together while there are still pores for penetration (Ellin, 2006: 60).

Visibility of borders

Visibility is a balance function between the content of a space and its accessibility to various available. According to Lynch (1960, 1981), a visible environment provides people with an axiom to accurately structure their mental image, which, in turn helps them to effectively navigate the space and react to the environment. Another essential aspect of movement and visibility in urban space is the permeability of its edges, which allows a choice of routes both to the inside and outside of the space (Im Sik Cho, et al, 2015: 153-163).

Synthesis

Order at the smallest scale is created by different and opposing elements that are synthesized and reflect an absorbing visual attraction. Urban elements that are strongly synthesized have a similar scale and form a unity. Therefore, there should not be fragmented elements in a unit. The synthesis of urban components at micro scale provides a platform for fostering coherence in large-scale structure (Duany & Zyberk, 2014: 32-35)

Diversity

Spatial diversity is related to the visual, experiential and functional variety in a setting (Im Sik Cho, et al,

2015: 153-163). The diversity of different elements is required with some elements serving as a mediator between other components (Salingaros, 2000: 293-308)

Continuity

Urban elements that are strongly connected form a module. There should not be any unconnected element inside the module (Salingaros, 2000: 293).

Organization

In a complex system, there is a hierarchical organization covering small to large elements. To achieve integration, hierarchical organization requires components of different sizes and dimensions to be harmonious with the whole. Complementary and contrasting are not only synthesized, but interact with each other to achieve the necessary complexity.

Hierarchy

A system's components are combined progressively from small to large. This process generates linked units that are discernable at many distinct scales. In a coherent and complex urban systems, components need to be connected with a hierarchical order that encompasses all scales from small to large (Alalhesabi, 2013: 18)

Interdependence

In a complex system, large-scale changes are more challenging than small-scale changes. At this scale, numerous details need to be modified. On the contrary, small-scale changes, which are not dependent on large-scale changes, are more conveniently achieved. (Salingaros, 2000: 296)

Inseparability

Decomposition of a complex system facilitates its analysis as it unravels internal structural relations. A fully integrated system cannot be decomposed into its constituents.

Otherwise, the complexity of a system will always remain concealed. An active integrated urban system is made up of different parts, but a whole cannot

be precisely separated into its internal section and relations. This can be called approximate solubility. If the system is fully decomposable, then any subset of the whole would become a simple neighborhood (Alalhesabi, 2013:19)

Connectivity

Connectivity refers to the degree to which the environment offers connection points across a range of scales and purposes (Talen, 2011: 65). The level of connectivity in urban space can be maximized by providing a variety of pedestrian routes and increases the opportunities for social interaction (Hepcan, 2006; Gehl, 2010; Salingeros, 1999). It is generally believed that those large-scale urban blocks, dead ends and tree-like networks can barely provide desirable connectivity. Movement means that while priority should be given to the pedestrian,

a successful urban space would also provide access to a variety of vehicles (Shaftoe, 2008: 43).

The proposed conceptual model

Indicators of urban space such as socialization, identity, physical, etc. are integrated through integrity indicators in an urban system. The above discussion can be summed up in the a conceptual model, as shown in (Fig.1)

Application of the conceptual model for the evaluation of case study

In this paper, the case study of District 6 of Tehran. It is particularly important for its strategic location, which is an important part of the urban skeleton, and also for the functional structure of urban spaces. Figure 2 shows the location of study area.

For evaluating the conceptual model, ANP model was

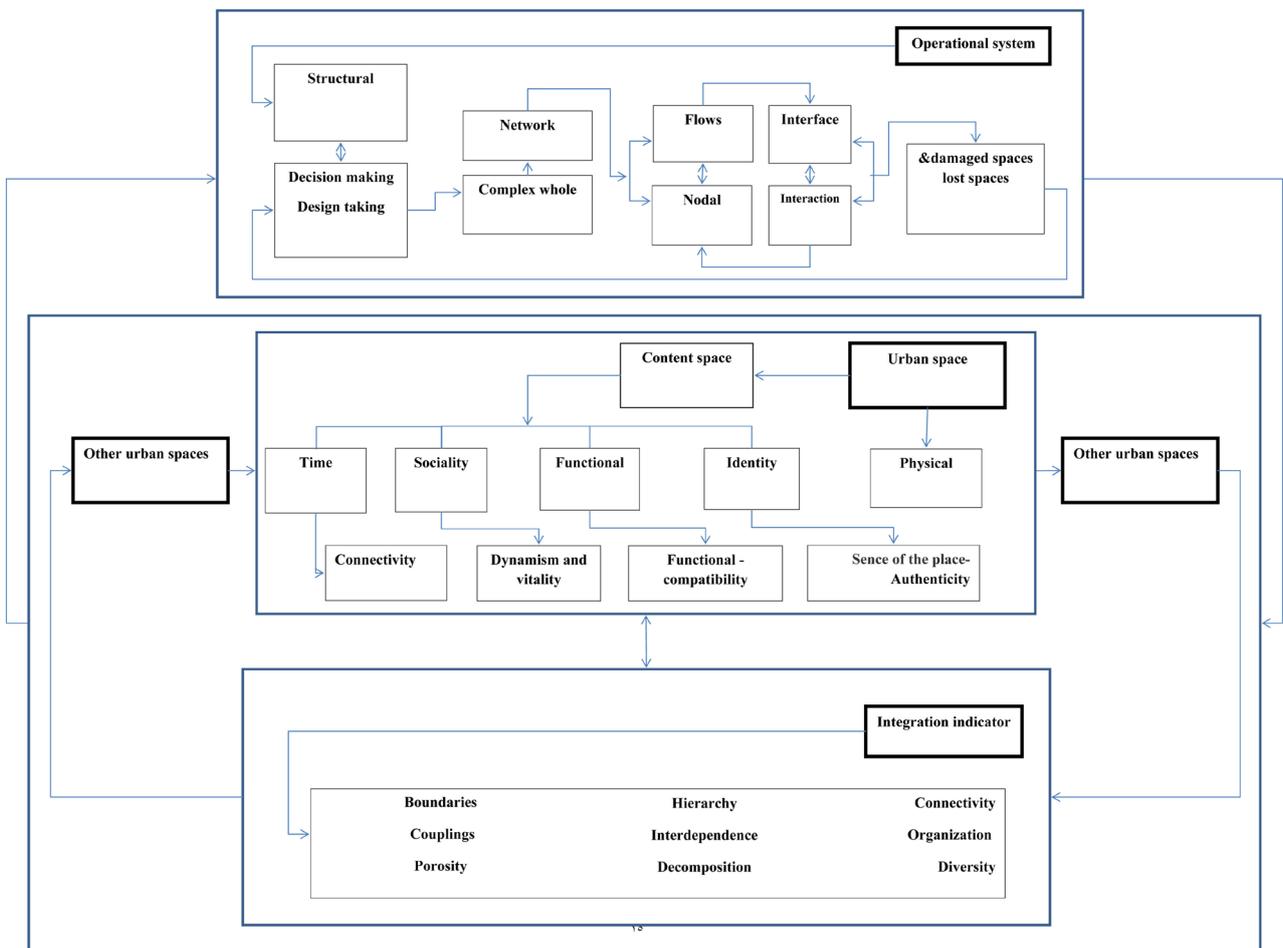


Fig. 1. Conceptual model of integrated urban spaces. Source: authors, 2016.

applied to the District 6 of Tehran. In the first step, objectives, criteria and sub-criteria were introduced for the purpose of evaluation. (Zebardast, 2014: 33). The purpose was the assessment of urban space integrity, which was divided into three categories: integrity indicators, urban space indicators and types of urban space. However the urban space was further divided into major categories of streets, squares and other spaces (Fig. 3).

In the next step, more than 20 matrices and tables related to indicators of urban space and integrity interacted with each other. To determine the scores of criteria and sub-criteria, their details were summarized in tables to compare the present situation and the desired state. The table's data have been assembled from project consuler, employers and people respectively.

Information was gathered using questionnaires and field-study check list. In these checklists, indicators of urban spaces integrity were defined and classified. Moreover for each indicator, evaluation measures were described. The assessment and scoring of urban spaces was based on these measures.

Notably, the data summarized in tables is the result of analyzing current situation and design studies including existing reports and maps as well as plans and field visits.

The weight of each indicator is obtained from the interaction of integrity and urban space.

The normal weight is multiplied by importance coefficient of indicators related to current situation and the final weight is achieved based on evaluation checklist (Table 3).

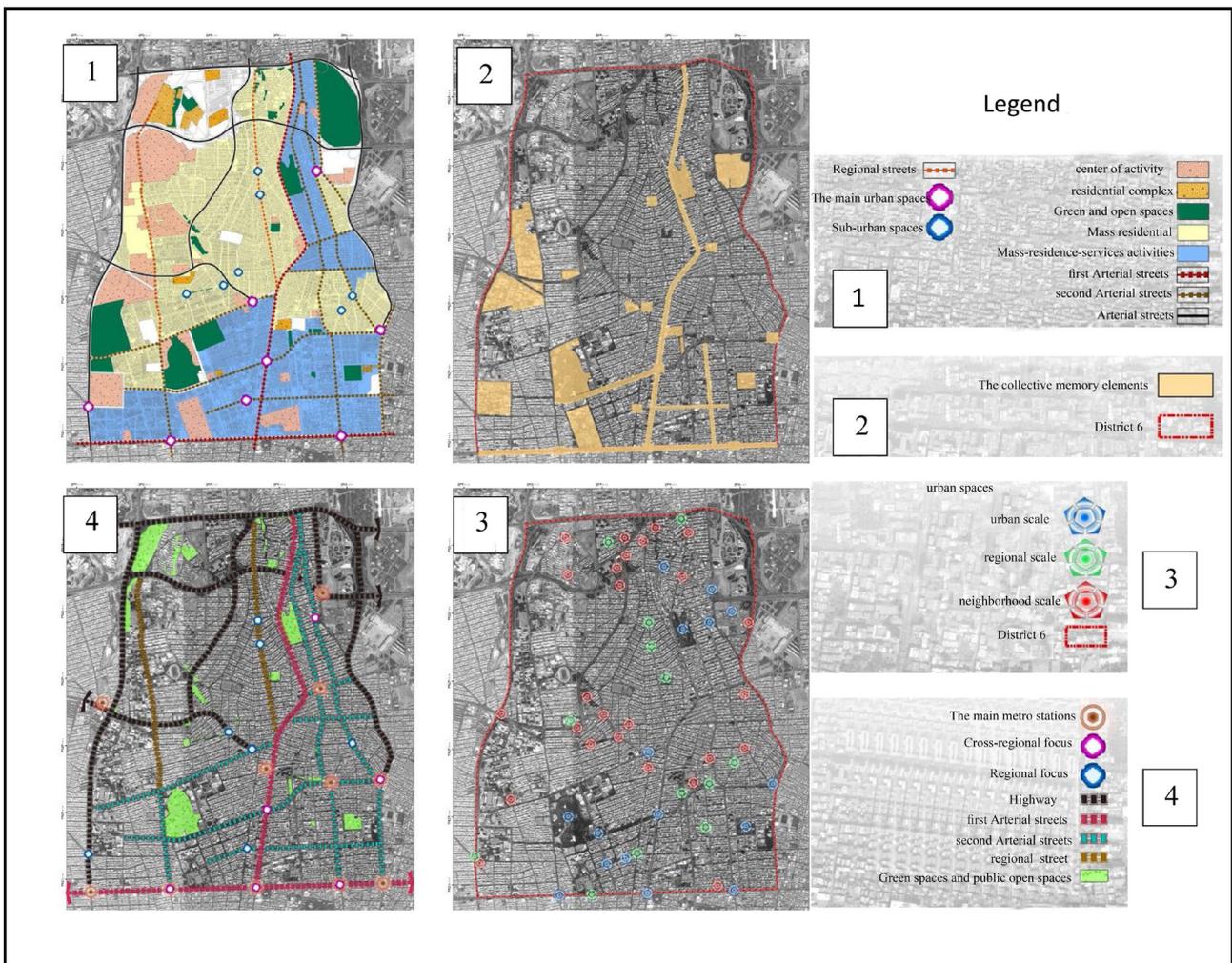


Fig. 2. Location of the case study area. Source: Tehran Master Plan, 2006.

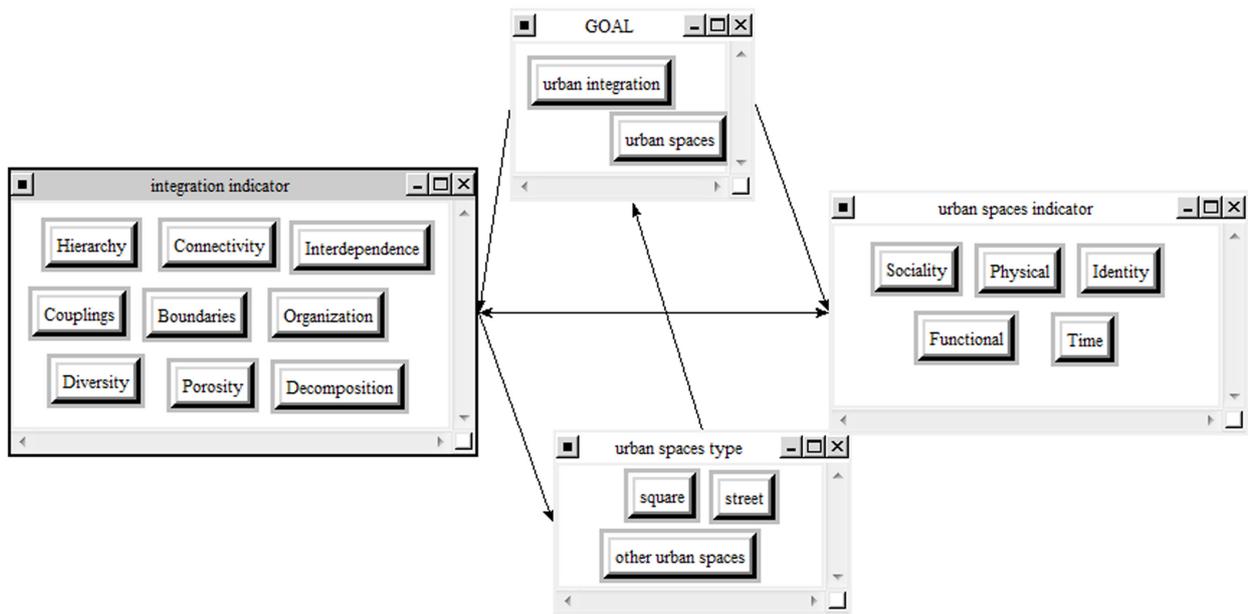


Fig. 3. The initial framework of ANP model. Source: authors, 2016.

The map of urban space integrity assessment can be made through the following steps. Since urban spaces integrity indicators are both qualitative and quantitative in nature, firstly they need to be homogenized for the purpose of evaluation. Therefore, using fuzzy logic, all indicators are assigned an equal value between 0 and 1. For this purpose, 53 urban squares, 22 Subway stations, 118 green and open spaces, 150 exchange spaces and part of the pavement across Valiasr and Keshavarz Blvd together with streets in four general categories of first grade arteries to local access were observed and scored based on the checklist. Finally, urban space and integrity indicators with marked with indices A and B respectively. The sum of index A indicate that the integrity indicators have priority over urban space indicators. Therefore, Delphi technique was used to assess the importance of these indicators. In this regard, 5 Iranian and foreign experts who had conducted studies urban integration were surveyed its results are presented in the following formula (Table 3). The spaces integrity map was the results of overlapping 9 integrity criteria with 6 indicator of urban space and their combination with a variety of urban spaces in District 6 of Tehran. In the map, a score of 4 and 0.3 represent the highest and the lowest integration respectively (Fig. 4).

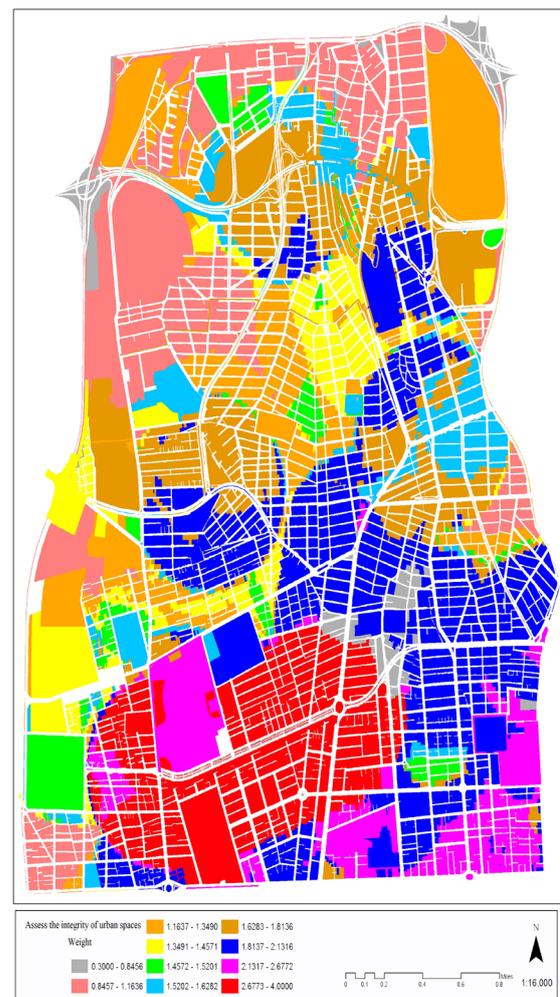


Fig. 4. Evaluation of urban space integrity in District 6. Source: authors, with reference to the master plan of Tehran, 2016.

Table 3. Weighting indicators of integrity and urban space interacting with each other. Source: authors, 2016.

Integrity Indicators	Title	Normal Weight	Urban Space Indicators	Title	Normal Weight
	Synthesis	0.09414		Socialization	0.21117
	Inseparability	0.07125		Time	0.08113
	Porosity	0.01804		Communicative functional	0.25554
	Diversity	0.1531		Activity functional	0.14192
	Organization	0.1585		Sense	0.10265
	Hierarchy	0.13832		Physical form	0.2076
	Boundary	0.0464			
	Dependency	0.09833			
	Continuity	0.22191			

Discussion

Integrity is a key principle of sustainable urbanization; however, urban space studies have paid scant attention to issue. Unfortunately, lack of theoretical foundations in this field, especially in Iran, have led to designs which often focus on isolated space and target beautification and improvement of pedestrians. However, inefficiency, mere communicative function, spatial discontinuity, isolation and separate space design have reduced the function of these spaces to an exhibition..

Therefore, in this study a conceptual model was proposed in three levels to bridge some of this theoretical gap. The basic structure of the system was formed in the first

level. The process of decision-making was also carried out at this level. The second and third levels represented indicators of urban spaces and spatial integrity which were integrated into the operating system and offered an integrated network of urban spaces. This model provided an opportunity for urban planner to adapt integrity indicators with urban space before proposing any design for the urban spaces to avoid deviation from integrated system during the decision-making process. In comparison to existing researches on spatial integrity, it can be contended that this study explained the concept of integrity as a principle of urban design in urban spaces, which breaks a new ground in the literature. .

Conclusion

According to this study, if five main indicators of every urban space including physical, socialization, sense, function and time interacted with 9 indicators of spatial integrity, they formed a matrix which laid the ground for formation of an integrated network of urban spaces through the interaction of components. This matrix was placed in the proposed system and the conceptual model was developed on the three levels. Within the framework of the conceptual model, the proposed matrix offered an appropriate mechanism to respond the second research question. The results suggested that the nature of integrity indicators could be employed in different assessment models, including the ANP, through evaluation checklists. The resulting map demonstrated that the integration of urban spaces at trans-regional scale and cities at local scale was higher. In addition, southern regions were more integrated than northern and eastern regions. The analysis of assessors at regional scale showed that the main weakness of urban spaces integrity was the discontinuity and fragmentation of scales, activities, time and hierarchy of spaces, especially on edges and borders. Finally, it should be noted that the integration of urban spaces is the product of a process which its characterized by gradual growth and change of its components, including access network and passages, usages and functions on the one hand and preservation of identity and sense, continuity of time from the past to the present and continuity of time during the day to provide proper conditions to attract dynamic population on the other hand, to form a unified whole. In response to the first question, it can be argued that abiding by the hierarchy of activities-communication, integration of population with the physical form, diversity of urban spaces from small to large scales, continuity of physical form-time- activity- communications within each space and in interaction with other space, attention to dependence of the whole on components, reinforcing the sense of identity uniqueness of the place, are some other features required in the process of planning and urban space designs to achieve genuine integration .

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