The Role of Culture in Shaping the Spatial Structure of Tehran

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Abstract

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The human being is influenced by the environment and affects it. So if we care about the man and his life, it is necessary to take care about his habitat and its spatial structure. Although much research has been conducted about the factors affecting the spatial structure, it is rarely seen from the perspective of culture. However, it seems that culture is one of the components affecting the spatial structure of the city. This study seeks to answer this question whether the spatial structure has a relationship with culture of Tehran? Hence, first the culture and its dimensions are analyzed from the perspectives of different scientists and theorists, and different models are proposed in order to analyze the culture, and finally the Shine model and its proposed indicators are chosen and changes are done according to the issue assumptions. Then we examined the spatial structure, and by proposing definitions provided by various thinkers we extracted its components and indicators from the definition by prominent architect, Frank Lloyd Wright about space, and investigated its different aspects. Finally, a main hypothesis and seven sub-hypotheses were proposed by investigating the interaction between components and variations of culture with the components and variable of spatial structure using correlation, finally after collecting and analyzing data, chi-square test results confirmed the hypotheses. The statistical society of study was the elite group of urban management including university professors, experts and scholars of the city council, and finally suggestions were provided for using the research achievements in the process of urban management.

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1. Introduction

What made up the human habitat in the past was within the nature; like when the human being was living in the cave or in the villages, and had or integrated link with nature such as villages and initial
settlements. Over time and in line with the development of the initial core of cities, the human relationship with nature became less [1]. Still, old cities were practically formed in an organic architectural and made of indigenous materials which prevent breaking the link between human with nature. Urbanization development process and being away from nature continues until suddenly with the Industrial Revolution in the eighteenth century dramatic and unprecedented changes occurred [2,3]. Mining steel, inventing concrete, and developing the building technologies which were mass produced by the emergence of large factories suddenly changed the urban Landscape. Small cities developed and merged together, so mega-polises were made [4]. The human is not an element at the heart of nature in the metropolitan area. He is an element that if had an opportunity, might be able to visit outside the metropolis and its suburbs in order to have a short visit of the nature. Clearly, despite the impossibility of returning to the past, by urban planning and efficient management certainly it can be possible to put some balm on the pains of the current depressed and bored human being and create a better environment for human life in the metropolis by a proper spatial structuring [5].

So what factors form the urban spatial structure in order to manage them? It seems that one of these factors is culture. It means that culture influences the urban spatial structure [6, 7]. What we're looking for in this research is confirming or refuting this correlation.

As noted before, what we seek in this research is to understand how culture affects the spatial structure of Tehran. Whether the spatial structure of Tehran depends on the culture or not? However, our hypothesis is based on this point that correlation exists. By increasing the cultural changes, the spatial structure of urban areas is more altered. And finally, we are going to assess the correlation to derive the exact form of optimal management of urban areas by analyzing it accurately. For example, parks in Tehran were all closed and had doors and walls like a living place, but nowadays they have the same look with the surroundings, with no physical boundary [8]. Where is this from? People still have not changed and a whole generation has not been replaced, but they have different interests. This change alters the preferences of spatial physical parameters. The same thing happens within the cells of an urban area or houses, kitchens are made without a visual barrier which is known as the term "Open". Therefore, the physical borders will be generally pale. Business without Borders will be shaped and the global village defined [9]. We consider that how changes in the preferences and culture of the people will lead to changes in the physical properties of place. The mentioned changes may be due to the communication (which is called as the Third Wave). The purpose of this study is whether the spatial structure of urban areas has correlation with culture? If this correlation is confirmed, the urban spatial structure depends on the culture. Consequently, the cultural differences which are exactly the same as cultural changes lead to changes in the spatial structure of urban areas. But what is the benefit of this prove? By confirming this correlation, the roots of some structural differences can be realized in different areas of Tehran. The reason for why in some areas modern
cultural elements such as cinemas, theatres, and parks are developed and in other area religious sites, Hosseiniches, and mosques are located, is the citizens' request which depends on their culture [3, 10]. By detailed analysis of the culture it can be understood that the mall should be constructed for selling goods (as a symbol of modern business relations) or Bazaar (as a symbol of traditional trade relations). Generally, the traditional restaurant or Sofreh-khanesh established the appropriate spatial structure for residents. In fact, this can be noted that significant recognition of this correlation can lead to improved urban management [11]. This study tries to clarify the problems of society, as well as developing the methodology and codify the theories. According to the fundamental difference between communities in the past in which the process of globalization progresses is the early stages, and current communities in which the globalization is one of the most powerful and influential factors, to review the concepts and principles of classical sociology is inevitable. Culture as one of the main concepts which is examined in the sociology, needs further analysis with regard to its effect on urban spatial structure. Therefore, the researches in this regard can be a guide to offer new ideas and patterns. On the other hand understanding the society, culture, elements and effective factors are necessary for managing and administering the community.

Although the society is very complicated and it is difficult to claim that we have understood and predicted the future, efforts in this regard and gaining the relative recognition can guide the management policymaking [12]. By understanding the influential factors and their impact on culture, and cultural pathology, the big steps will be taken in the field of urban management and planning because it seems that cultural pathology will lead to the physical and spatial pathology. In addition, considering that culture is one of the basic elements of society and with the appropriate culture, a lot of economic, social and political problems can be prevented or reduced; ignoring its effective factors can be disastrous and underlies forgetting the Iranian identity.

2. Research Objectives

The ultimate goal of this research is to increase urban City Managers' knowledge about the relationship between culture and the spatial structure. What urban managers, planners and custodians of Metropolises know about the neighbourhood of people, seems too little of what human must know about and will understood in the future. The individual and collective, physical and psychological, and economic and spiritual difficulties and problems especially in big cities confirm that some parts of it were due to not knowing, the other parts were due to not wanting to know and the others due to not being able. We help to develop the knowledge by proving and denying the proposed assumptions in this study and by executive assumptions try to provide strategies for using the knowledge.

Based on the correlation among the components of culture and the spatial structure of Tehran, the applied aim of research is that custodians take more attention to cultural issues in urban planning and
know the culture as a variable affecting the spatial structure of Tehran. Therefore, the comprehensive, detailed, and... plans should not be dictated with consistency from up to the bottom in all urban areas, but they should be provided based on the residents' cultural parameters of different areas and by a reciprocating planning from the bottom up and vice versa in order to have more desirability and higher enforcement. In fact, the research findings can be applied to Tehran Municipality and other urban planners and custodians.

3. Research Questions
The main research question is to know that whether culture affects shaping the spatial structure of Tehran? If it is effective, what is its impact type and how we can be used this correlation. This question led to the emergence of the main theory and underlies this research.

4. Research hypotheses
The main research hypothesis is that the culture affects the spatial structure of Tehran. The sub- hypotheses are:
Hypothesis 1: Artefacts affect the physical development process.
Hypothesis 2: Artefacts affect the performance of the urban area.
Hypothesis 3: The attitude to the location affects the physical structure of a house.
Hypothesis 4: The attitude to the activity affects the urban plan.
Hypothesis 5: The attitude to the human affects the urban design.
Hypothesis 6: Religious attitude affects the performance of the urban area.
Hypothesis 7: The attitude to life affects construction technology.

5. Methodology and research analytical model
We define a function by using the correlation method as $y=f(x)$ in which $y$ is the spatial structure of Tehran and $x$ is culture. Now we want to see "Is $y$ a function of $x$?" If this correlation is proven, it is reasonably demonstrated that changes in $x$, will also change $y$. And in exchange for $x_2$, $x_1$ which are unequal, $y_2$, $y_1$ will be unequal. It means that cultural differences lead to differences in spatial structure. The variables of this function are $x$ as the culture which is defined as a continuous independent variable and $y$ which is a continuous dependent variable. Spatial structure and culture variables are located in the analytical model. Hypotheses were tested using chi-square test and as they are eventually seen, they will be approved according to the results of the software.

The statistical population of research is considered as urban management elite such as urban experts and the elite. The elite in this study are those with the following conditions: 1 – At least with bachelor degrees, 2 – Educational degree related to civil affairs, 3- At least ten years of executive experience,
4- At least three years of management experience, 5- At least three years of executive experience in cultural affairs, 6- Having a job related to the urban affairs. It is a simple non-random and the sample size has been determined as 96 individuals, using the following formula:

\[ N_p = \frac{Z^2 \times P \times (1-P)}{\varepsilon^2} \]  

(1)

5.1. Analytical model

Data collecting was done by the questionnaires. Since our statistical society includes the elite of civil affairs, so the method of creating a questionnaire was in a way that asks the statistical sample directly to express his opinion about the impact of culture indicators on the indices of the spatial structure. This was in line with confirming or refuting the main hypotheses and sub-hypotheses, and additional questions were not asked. First 48 questions equal to the number of original variables indicators multiplied by the number of sub-variable indicators were designed. Since the statistical society of this research contains University professors, civil affairs specialists, and researchers, considering their lack of time to respond, finally the number of questions reduced to 20. In order to create the questionnaire in this research the "Theoretical method" was used.

Fig. 1: Level of cultural analysis
Validity of questionnaire: the validity concept answers this question: "How much the measuring tool can measure the desired trait. The validity of a test usually is determined by those skilled in the studied subject. Therefore, the content validity depends on the judges' decisions. However, we distributed a number of preliminary questionnaires among a part of a statistical sample and by the received feedback we reformed the questionnaire, and then the attached questionnaire was designed.

Reliability of questionnaire: the external validity of questionnaire (reliability): the purpose of assessing the reliability and stability of questionnaires is that if this survey is done by the same researcher or another person at another location and time, the same results with current results will be achieved.

In order to assess the reliability of the questionnaire, the Cronbach's alpha coefficient was used. For this purpose, the questionnaire was distributed among 66 individuals from the Statistical Society and the Cronbach's alpha coefficient was calculated as follows:

\[ \alpha = \frac{n}{n-1} \times (1 - \frac{\sum s_i^2}{s_t^2}) \]  

(2)

The SPSS was used in order to calculate the coefficient \( \alpha \), the value of \( \alpha \) was obtained 0.84 for 20 questionnaires, and the required validity of questionnaire was determined; because the value of coefficient \( \alpha \) is above the acceptable limit for practical purposes, which is 70%. Therefore, it can be argued that the questionnaire has acceptable reliability.

Grading method of questionnaire: Each question (Q) in the present questionnaire has five options: very low, low, medium, high, and very high. The respondent should choose an option which most reflects his interests and feelings and describes his feelings well. If none of the options comply his options, an option that is close to his thought should be selected. The grading method follows a 1 to 5 system; it means that if respondent choose the option "very high" will have the score 5 and if he choose the option "too low" the score will be 1; similarly the score 4 is given to the option "high", the score 3 to the option "Medium", and the score 2 to the option "low".

5.2. Theoretical framework and research model

From the Shine's viewpoint, the culture can be analyzed at several different levels. The term "Level" refers to the visibility of cultural phenomenon from the observer's viewpoint. The levels vary from visible and tangible manifestations which a person can see and feel to the unconscious basic assumptions which are deeply covered and called "the essence of culture". The levels through which the culture is analyzed are shown in Figure 1 (as mentioned before).
5.3. The explanation of Shine Model about culture

Artifacts or cultural products: include all phenomena that can be seen, heard and felt. When a person enters a new group with an unfamiliar culture, this level of the culture includes visible products of group such as the following ones: architecture, physical environment, language, technology and products, artistic creativity, their lifestyle as is formed in their clothing, ways of introducing and giving address, emotional displays, told myths and stories, ceremonies, and celebrations, and so on. The most important point about this level of culture is that it is easy to find and it is very difficult to decipher.

Values: Include the people beliefs about what they think is right, wrong, or important. These beliefs guide people behaviour and actions. Therefore, for understanding the future behaviour and attitudes, the current values and beliefs are an important starting point (Hines, 5). In fact, shared protected values are the behavioural norms and rules. Basic and underlying assumptions: are the ultimate source of values and actions which practically guide the behaviour, and teach the group members how to understand, think and feel about things. They are assumptions that we are not dealing with them or talk about, so it is extremely difficult to change them.

Shine provided six assumptions in his proposed model as the nature of reality and truth, time and place, human nature, human activity, and human relationships which are changed in our study after consultation with urban affairs experts and inferring the spatial structure and urban culture from the architectural and urbanism texts. Finally, the indices of attitudes to settlement and activity were selected for believes; and three indicators of attitude to life, to human, and religious attitude were selected for basic assumptions.

![Fig. 2: The culture shine model](image-url)
6. Spatial structure

Frank Lloyd Wright said in a definition: "The place should be considered as a man who has both aspect of body and soul. The physical aspect is its physical body and mental one is activities which are done at place. (Frank Lloyd Wright)". Therefore, by this definition it is obvious that the concept of place is more general than only the physical body. Thus, in order to recognize and analyze the spatial structure of cities we require the knowledge of physical structure and different periods of change and development of this structure, and the functions of urban area must be considered and to explored. City is as a living organism that has both body and soul which were mentioned above. But it should be noted that the body of this organism, the physical body, is formed of various components, such as buildings, landscaping, various applications, and communication ways, etc. Therefore it must be viewed in both macro and micro aspect; this important issue prompted us to evaluate the physical structure of Tehran in two categories of urban physical landscape as well as the physical structure of accommodation after evaluating different periods of urban development and functions of urban area. Finally, by described definition of spatial structure in the literature of study, we chose four components including the physical development process of city, performance of urban area, physical structure of housing, and the physical body of city based on the spatial structure. We divided the physical structure of housing into the indicators including the physical arrangement of house, technology of structure, and compactness and divided the physical body of city into the building facade, urban design, and urban plan. These are operational concepts defined in the literature of study; the way of impacting the cultural indicators on spatial structure indicators is described below.

7. Interaction of components and variables

Artefacts are the cultural products which include the clothing and garment, to car and technology. The impact of artefacts on spatial structure of the city is so vast that we just mention two examples. First, car is considered as a technological product of cultural artefacts. The emergence of car to human life created profound physical changes in the biological place. Narrow lanes changed into the highways and communication ways; even sometimes these communication ways pass right through the coherent body centre of a neighbourhood and split it into two parts; in the other words it transforms the urban plan. Access to remote distances was achieved by cars and this led to the acceleration in the physical development of city. Car producing led to the new jobs including the repair and maintenance and other services and also changed the urban area. The compression is increased in parts of city which have better access to the roadway than other areas. Therefore we can see that artefacts affect the urban physical development, performance of urban area and plan. All the physical characteristics including the physical structure of housing and physical body affect the human achievements.
Attitude to settlement: people can make a family with paternal families and live with their brothers, sisters and their closed relatives' families in a shared physical place which is called the "Extended family" in the sociology. This way was more popular in the past and now is being eroded in metropolises; in contrast we have the nuclear families in which individuals are living independent of parents and relatives. Increasing the attitude of a nuclear family led to the Increasing in the housing demand and living places in the current time. In addition, since the expansion of urban infrastructure has not grown in proportion to the expansion of population, it causes vertical development of city that increases the compression. It also affects the urban landscape. Compression and facade of buildings are the Indices of spatial structure which were mentioned before. As you can see, changing in the attitude to settlement affects the spatial structure of city.

Attitude to activity: As a result of Weber's theory of division of labour, the tasks were divided to the simpler activities once the industrial revolution occurred and these simpler activities were transferred to the factories. By transferring the activities out of house and industrial places, industrial areas were risen in the urban areas or around them; and these industrial spots were later located into expanded cities. Consequently, workers' houses and shopping centres were built around these industrial spots. It is clear that the changing in attitude to activity will affect urban physical body and urban plan.

In addition, this attitude affects the physical development process in the city. In this case, by industrial revolution and the division of labour, the factories were suddenly established; and the residential areas for workers were formed around them, and according to the rapid growth of industry in the development process continued with a high acceleration. Finally, the emergence of industrial, educational, cultural and... functions were led to changes in the performance of urban area, and new functions were created.

Attitude to human: is one of the basic assumptions of culture. The industrial revolution brought people out of the house because the activities which were done in the house before, such as manually artefacts, were mass produced in the factories. This eventually made people more extroverted than before. People were extroverted and Iranian introverted architecture slowly faded, and central yards were destroyed. It means that he layout of the house changed and yard was stuck to the outer edge of ground rather the inner position. On the other hand, the feminist movement encourages women to participate more in the society. By such influential movements, the attitude to men and women and their role have changed, and women with high presence in the society caused the creation of educational, cultural, and... performances.

Religious attitude: It is from the basic assumptions which affect the most indicators of the spatial structure of the city. For example, by increasing the people attitude in the society to the Shia, mosques, Religious sites, Hosseiniehes, and generally religious applications will be increased; it means that changes in the function of urban area or opposite direction of bathrooms with Qibla have
changed the layout of house. In addition, the privacy subject in Islam led to the emergence of introverted Iranian-Islamic architecture which is known as the exterior, interior index. It changed the layout of houses. On the other hand, the orientation of houses toward Qibla led to the emergence of Northern-Southern cities, and affects the urban design which is one of the spatial structure indicators. Using the zigzag Arabic arches on the facade of the structures affected the urban landscape at some periods of Iranian history; even today this influence can be seen in some structures. 

**Attitude to life:** is one of the indicators of basic assumptions in the culture. Under this perspective, two views about dominating the nature or being subjugated by the nature can be detected. In the other words it is the Compulsion and Authority subject in the Islamic jurisprudence. In the past, being subjugated by the nature was dominating the nature and this led to humans who were incapable of changing the life events, and they were satisfied with the status quo. Nowadays, people's attitude to the life has changed and the attitude of dominating the life has enhanced. Therefore, humans have thought about dominating the nature, and knowledge is gained acquisitively and attractively. This led to the emergence of concrete, steel and..., which affected severely the historical development of cities, and provided the new technologies of construction for human being.

8. Data analysis

By the Chi-square test, a chi-square was obtained for each hypothesis, and then compared to the table; the results suggest that chi-square of hypotheses was higher, which means that the basic hypotheses and sub-hypotheses are confirmed.

<table>
<thead>
<tr>
<th>Culture affects the spatial structure</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very low</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Low</td>
<td>5</td>
<td>5%</td>
</tr>
<tr>
<td>Average</td>
<td>12</td>
<td>13%</td>
</tr>
<tr>
<td>High</td>
<td>32</td>
<td>33%</td>
</tr>
<tr>
<td>Very high</td>
<td>46</td>
<td>48%</td>
</tr>
<tr>
<td>Sum</td>
<td>96</td>
<td>100%</td>
</tr>
</tbody>
</table>
According to the above table, 81% believes that culture affects the spatial structure of Tehran, and based on the result of statistical test ($\chi^2=89.9$, $P=0.001$) the hypothesis $H_0$ is approved.

9. Conclusion

Executive recommendations (for executive agencies managers of urban affairs):

What led to a sense of desirability in people is place not only the physical body; for example about the Nursing Home, the recent studies have shown that even if it has a good design, but because high percentage of elderly people have experienced living in the society, they are not relaxed with this physical body. Thus it is necessary that Urban Affairs Planners create a suitable accommodation for citizens considering all the dimensions of place (derived from the theoretical framework of research). By confirming the first proposed sub-hypothesis in this research, it can be concluded that cultural artefacts can affect the urban physical development, so Department of Housing and Urban Development must consider the effects of their decisions in using cultural artefacts such as highway and bridge construction and... on the configuration, development, or stopping the development of city. By confirming the second proposed sub-hypothesis in this study, it can be concluded that cultural artefacts affect on the performance of urban area. Non-level crossings are considered as the technological achievement among the cultural artefacts. Deputy Mayor of development should consider the impacts on different dimensions of place while making decisions. For example, although an overpass crossing which is made in a region of a city helps the easy traffic and finally improves the physical structure, citizens' current activities can be badly influenced. For example, shops and places can be destroyed, and the businesses function of market disrupted. A park, building, or street which has the historical, religious, educational and other values is destroyed, then the functional changes occur, and the outcome of desirability in improving the urban physical structure and this undesirability is negative.

By confirming the sixth sub-hypothesis, it can be stated that the religious attitude affects the urban area. Therefore it is necessary that administer of mosques and Urban Planning Department ensure people's cooperation with urban predicted functions by identifying and measuring people's religious attitudes. For example, if a cultural function such as a cinema and theatre is planned to be in the urban plan, building it in an area such as Shahr-e-Rey In which people have religious trends, may lead to low people's tendency in using them, and ultimately the efficiency will be reduced. If they are made in other areas, not only people's need about those cultural functions is met, but also economic efficiency is guaranteed. Similarly, the shortage of mosques, religious sites, and Hosseinieh in areas with high religious trends, may cause people dedicate their time to these functions and this leads to a disorder in
traffic, peace and other urban processes. According to confirming the basic hypothesis regarding the impact of culture on the spatial structure of Tehran, we can suggest that the ISLAMIC CONSULTIVE ASSEMBLY (MAJLIS) approve a central plan as the national observatory of culture for the whole of country. This centre can periodically check and monitor the basic assumptions of culture.

It can investigate the relationship between the basic assumptions of culture with other variables of spatial structure. Observing the changes in basic assumptions of culture in the society, and investigating its correlation with other variables and effective factors over time can be productive guidelines for policy making and cultural planning. It should be noted that the cultural programs will show their results in the long term. In addition, by this method we will be able to know about the effects of cultural policies and programs on the society and design and implement the necessary corrective actions if necessary.

Also, by cultural monitoring of different, we can realize differences and cultural distinctive points of various regions of our country and plan according to them. We can have regional and urban planning for each region or city based on the requirements of that city and focus on meeting the requirements of each city in the cultural management. Since, the cultural basic assumptions has changed to the ability of changing the environment, it is recommended that spatial distributing of power in the political structure is in a such way that citizens' opinions and desires in decision-making is more effective. This can be done by delegating more authorities to local councils and municipalities. By increased citizens' participation in decision-making according to the basic assumptions tendency to pluralism, rule-orientation, and collective interests, it is expected that efficiency and productivity of administrative and organized processes will increase. In addition, citizens will be more satisfied with this method.

In planning and executive plans which directors take into account it can be noted that today people have the critical differences with people in the past. When the citizens' basic assumptions tend to domination of nature and pluralism, they become more sensitive to their environment and therefore will be more active in social decision-makings. It is suggested, in this regard, that managers and policy makers at all levels that implement the programs and projects in collaboration with stakeholders, and especially citizens. If the urban comprehensive plans and urban strategic plans 1 are implemented and designed in collaboration with citizens, they will have greater chances to be successful. If these participations are done in all stages of designing, planning, and implementing, the successful results will be achieved. Attitude to human are affected by development of social interactions to the pluralism, relationship orientation, and collective interests. This means that people's tendency has been increased to collective activities through which the majority of people will benefit. Therefore, in order that managers will be successful, it is recommended that in urban planning and
strategic plans the collective and group activities take into account. This can be considered in cultural activities of municipalities.

References