

Analyzing the Concept of Spatial Structure Coherence in Historical Districts Using the Space Syntax Method (Case Study: Historical Districts of Hamadan City)

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Extended Abstract

1. Introduction

Historical districts in Iran have been the primary source of Iranian cities coming into existence. These districts are of artistic and historical values as they bear various principles and features of ancient Iranian-Islamic architecture and urbanism. Among these features, coherence is one of the most significant characteristics which is the result of connections between the various components that form different works of architecture and cities. Regardless of their exuberance inside, our cities in the past involved a coherent form. There are two trends regarding the factors that offer coherence in the cities of the past; some scholars consider such a unity as a result of the unitary perspective of Muslim architects while others have pointed out general principles governing physical-spatial organization as the main factors forming this concept.

Population growth along with the emergence of modern technologies has led to the development of city structures, in which unity and coherence as well as other principles of architecture and urbanism of the past are absent. Such developments in cities have brought about shapes that not only broke apart their previous coherence, but also failed to provide unity and consistency in their new forms. Subsequently, cities and districts became a set of buildings and spaces as independent, distinctive structures with no clear connection to their adjacent elements. Therefore, in order to preserve the structure of historical districts as well as revive neighborhoods in which certain interferences

have taken place, paying attention to the coherence aspect is of substantial importance.

2. Methodology

Space Syntax is a theory and a tool for analysis in architecture and urbanism which is based on studying how social and spatial forms are connected. This theory asserts that to gain a profound understanding of urban spaces, the individual role of each single space in a micro scale is of less significance compared to its roles in combination with other urban elements, i.e., in a macro scale considering the whole urban system. The main idea in this theory involves the notion of space configuration, the purpose of which is to describe how constructed places such as buildings, networks and urban streets are formed. In particular, the concept also deals with how such components are articulated and linked together. Given the aforementioned definitions, the concept of coherence entails connections among various elements. As a result, the most important part of coherence in historical districts that is connections between spatial structures as well as how a social or cultural meaning is expressed, is evaluated using space syntax. Spatial structure is the main organizing force that governs cities and districts. Hence, there exists a bidirectional connection between spatial structures and social organizations. In the present study, the integration index was selected for analyzing coherence in the intended spaces using the axial system in the space syntax method. The integration index marks connections or disconnections between a part and the whole or a second degree system. A space with higher

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accretions to other spaces involve high integration.

3. Discussion

The Aghajani Beig district involves the highest mean extent of coherence as it is more integrated with its adjacent districts and there are less streets and interferences in this neighborhood. However, it is confirmed in various studies that there is a direct relationship between integration and the extent of people's presence in the environment. In this regard, a higher comprehensive integration as well as a higher number of connections between spaces in each passage has a positive impact on the number of pedestrians. Consequently, people are present more in this district and more social interactions are formed as a result. On the other hand, Kolapa district entails the lowest mean extent of coherence as it is located far from the congested areas of the city. Nonetheless, numerous interferences have taken place for its development, the consequences of which involve less separation between private and public fields along with insignificant presence of population in public areas. The minimum extent of coherence in four main districts is the same which denotes the similarity between their structures. Constructions in historical districts were carried out in a way as to avoid spatial fractures more than usual; as mentioned, it was attempted to offer coherence and unity in cities by adhering to the principles that govern urbanism. To this end, the maximum extent of coherence lied within the center of districts; the center of Kababian district is more coherent compared to other neighborhoods which has led to the more significant presence of the community along with social interactions forming among them. Kolapa district involves the least extent of coherence at its center due to inactive applications in the area as well as excessive developmental interferences leading to insignificant presence of the population and fewer social interactions.

4. Conclusion

The analysis of the findings shows that one of the effective features in coherence between

spatial structures of historical districts is the presence of a single centrality for the district that has always been a proper environment for forming social interactions among citizens. Another feature includes the hierarchical structure of allies and passageways that indicate the private and public areas of the neighborhood as well as the extent of people's presence in those fields. Historical cities and districts were coherent as they featured such characteristics, yet there are physical-spatial forms emerging in contemporary urbanism which are the result of neglecting the process of coherence in historical districts along with failing to learn from them; shortcomings are district growth in macro scale in the form of checkered networks with no centers, the absence of spatial integrations between various elements and their surrounding urban textures, increase in the number of missing spaces, development of vehicle transportation networks, the absence of hierarchy between realms, and contradictions among different patterns of space and mass combination having formed cities and districts as separate areas. These factors have diminished hierarchies regarding private and public areas and led to insignificant presence of people and frail social interactions among them in public fields.

If the central, hierarchical structure of a district and its passages are conserved, the coherence between spatial structures and their resulting social constructs would not be eliminated. In general, the less there are destructions of historical contexts and new construction projects in a neighborhood, the more coherent their structures are. All in all, paying attention to the principles of local architecture and urbanism and adhering to them can play a significant role in inhibiting and organizing developments in urban districts. Though some may believe that the role of local architecture and urbanism within the modern urbanism process is declining, the instances of historical cities and their values for people can be an appropriate indicator for committing to those local features.

Keywords: Coherence, Historical districts, Space syntax, Integration

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