

Spatial analysis of the infrastructural components of learning city based on spatial heterogeneities between Zanjan urban neighborhoods

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Extended Abstract

Objective: With the advent of the information age and the growth of new communication technologies, managers and urban planners have increasingly considered the design concept of the learning city. Such a movement, by emphasizing the concept of lifelong learning, provides universal learning for all citizens, regardless of any distinction, and affects all human social relations. This approach, by focusing on the land use learning and the learning population, removes the artificial boundaries of learning within the urban space and leads to the strengthening of urban learning. The realization of such an approach is based on a level of solidarity in a sustainable city that has always had its basic emphasis on spatial interactions and interactions between its main elements. Therefore, in order to increase the efficiency of learning activities in urban spaces, it is necessary to pay attention to the location and benefit of all people from learning services. In fact, since the learning space organization of the learning city is affected by various economic, social, political, and cultural functions, the existence of unequal spaces in its urban space causes equal learning opportunities for all residents. In addition, in a virtuous circle, it increases spatial disparities between different parts of the city and deepens social conflicts as much as possible. The existence of such a situation in many Iranian cities such as Zanjan has caused a defect in this approach. Accordingly, the present study aims to analyze the spatial relationships between demographic and physical factors as basic principles of the recipient city, to take the spatial disparities between the urban areas of the Zanjan city into account.

Methods: The present study is applied in terms of purpose and analytical-descriptive in terms of the nature and method. The statistical population of the study is 110 neighborhoods of Zanjan city. In this process after identifying the indicators and main elements of the learning cities in order to explain the current situation of each factor, the required information is obtained through reliable and documented sources related to urban centers and statistical results of the 2016 census. Then, using basic, location, and descriptive information, all the variables discussed in the ArcGIS software were identified and extracted. In the next step, in order to analyze the data, lead the research and objectives forward and achieve the desired results, the Moran global statistical technique was used to measure the spatial distribution pattern and identify the relationship and the existence of a spatial correlation between the studied variables. Following such an analysis, in the presence of spatial relationships between variables, in order to perform spatial modeling and significantly measure the relationship between the indicators, the geographical weight regression model has been used. The study area of the present study is the city of Zanjan. This city, as the center of Zanjan province, has expanded in an area of 6169 hectares and according to the latest general population and housing census in 2016, has a population of 433475 people.

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Results: The results of using Moran's statistics show that the spatial autocorrelation between all the measured indices is positive and follow the cluster pattern. Given the existence of such a model, the evaluations obtained from the GWR model indicate that the demographic, education index by 13.5% has the greatest impact on the transformation of Zanjan into a learning city. In addition, the model, considering the adjusted R² values of 43 and 32%, modeled the spatial relationships between the variables with almost acceptable accuracy, but with low and positive relationships and was able to optimize spatial inequalities and optimal settlement ranges to predict learning centers well in the coming years. According to the results of the Predicted Index, in all parameters measured in neighborhoods, Islamabad and Trans have faced the problem of mismatch between land use and population learning. For this purpose, according to the GWR model, the mentioned Bisim neighborhoods are designated as the location of land use learning centers in the coming years.

Conclusion: The research findings show that most of the neighborhoods of Zanjan city suffer from spatial imbalances in terms of proportionality between their land use learning and their population. This problem is much more severe in the areas of Islamabad, and Trans with an illiterate population of 40.6%. Therefore, city management must consider the equitable distribution of services to prevent the occurrence of gaps and socio-spatial inequalities between areas and neighborhoods. In addition, by determining the optimal land-use learning paves the way for achieving the learning city approach in Zanjan urban areas.

Keywords: Spatial Inequality, Learning City Indicators, GWR Model, Zanjan City.

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