

## Feasibility Study of Quality Improvement by Pedestrianization of Urban Roads; Case Study: Aram Street of Ghom CBD

M. Rafeian. E. Sedighi. M. Pourmohammadi

Received: 8 February 2011 / Accepted: 13 September 2011, 9-14 P

### Extended abstract

#### 1- Introduction

Urbanization growth and parallel to it the vehicles increase in urban areas has caused different problems. Among them we can refer to decrease of human scale on residential environments, lack of urban places, face to face contact, and population development in the urban centers increase of accidents rate in passages networks, disappearing safety and security of passer- by, decrease of passer – by value, and generally decreasing environment quality. To consider quality promotion of urban environments and following that to value passer - by, as the main formative elements of city and their satisfaction of urban environments are the principal drives of the research.

The research area is the area between Se rahe bazar to Shohada Square (Eram Avenue) and its Suburbs. The research purpose is to measure the rate of social group's tendency towards making pavement - oriented Main Street connected to Majesty holly shrine in Qom. The main question of the research is whether the increase of functional variety at different times of day and night will develop making pavement? And whether pedestrian roads will increase the social security for environment users?

#### 2- Theoretical Bases

The environment quality is a multiple dimension concept that is related to the concepts such as life quality, place quality, perception and citizenship satisfaction and life capability so that they are often regarded as similar concepts. While there is considerable variety on approaches inclined to discussion about urban environments quality, the concept of environment quality is considered in the form of theoretical approach according to two bases of the approaches

---

#### Authors

**M. Rafeian** (✉)

Associate Professor of Urban Planning, Tarbiat Modarres University, Tehran, Iran  
e-mail: Rafei\_m@modares.ac.ir

**E. Sedighi**

Assistant professor of urban transportation, Tarbiat Modarres University, Tehran, Iran

**M. Pourmohammadi**

M.A. of Urban Planning, Tarbiat Modarres University, Tehran, Iran

inclined to frame dimensions of environment and the approaches with majority social – local content. Also from other perspective in three bases we can consider the approach of policymakers, perceptual – psychological view and empirical research as the main grounds of indicating urban environments quality. Concerning the previous studies, the approach of environment quality measurement through environment users that is the same approach of measurement of residential satisfaction rate (is the subset of local – social approach) was selected for measurement of urban environment quality in this research. Thus in order to promote urban environment quality such as street and increase people satisfaction from the environment we tried to consider the solution of making pavement in the environment as the research hypothesis and establish statistical relation, between data. In this research pedestrian roads or pedestrian streets, are single streets that car traffic is eliminated from them. In other words in these streets non – motor traffic and passer – by moving have priority. Of course the particular cars (fire engine and emergency and police car) can use in emergency and service vehicles and load corridor are allowed to pass through them.

### 3- Discussion

In order to study the possibility of making pavement, it was considered from three functional, physical and environmental perception aspects. The environment quality was evaluated by

designing empirical model of quality assessment (value tree), using deductive method, studying 13 given criteria (including availability, environment, urban facilities, lighting, pavements, cultural- social factors, economic activities, entertainment functions, livability, identity, human scale, belonging sense, legibility) with an assessment in 4 levels.

By using available and documentary information as statistical and field study and from the value tree a questionnaire was provided and it was completed by both sex groups (male and female) 386 people with age range between 15-16 and different social classes and groups (resident and passer- by) during 6 successive days and different times of day (on Cochran -sampling formula).

The samples were selected as randomly systematic around Majesty Masoumeh's holly shrine and questioned and data were analyzed through spss software.

The correlation rate was determined between variables. In the next stage all selected sub- branches including 12 parameters were studied separately and their correlation rate was determined.

The rate of direct and indirect effect and also priority of each independent variable on the rate of people satisfaction with environment was determined by using path analysis. Physical characteristics with 0.682 were ranked in the first priority.

Then the environmental perception with 0.605 and the functional characteristics with 0.483 were ranked in

the second and third priority. The considerable point is however in regression analysis of variable the functional figures had the most direct effect on the variable of environment quality but in the path analysis with a view to the indirect effect of variables, the physical characteristics were standed on the first priority with 0.682. Also the finding result of research indicates user's dissatisfaction of environment quality around Majesty Masoumeh's holly shrine.

While the theoretical average of urban environment quality rate was equivalent to 2. the average of environment quality around Majesty Masoumeh's holly shrine was equivalent to 1.54 from environment user's view that is about 0.46 less than the theoretical average of 2.

#### 4- Conclusion

The statistical analyses (multiple variable regression, path analysis, person correlation test and tb Kendal, etc.) show that there is a meaning relation between dependent variable (environment quality) and independent variable (standards) with confidence %99.

In other words, there is a positive and meaningful relation between dependent variables of the research and variables of environment quality increase around Majesty Masoumeh's holly shrine through making the Eram street pavement-centered. Therefore the research hypotheses were confirmed by examining the studied samples. It means that the functional variety increase at different times of day land night encourages citizens to walk along urban places and allows making pavement in such place

with many and various functions. Also promotion of environment quality in the urban places on pavement increases social security for citizens. Therefore findings show there is the possibility of establishing pavement in such environment in order to promote the environment quality in the central part of Qom. Also in order to promote the environment quality on pavement, investment in security, availability, passages, economic functions items, may lead to improvement.

#### 5- Suggestions

From the main objective of the research, by using evaluation of environment users views around holly shrine and relying on information gained through cognition stage the following suggestions; can increase success of performance process of the project:

- Providing the proper public transit for citizens availability to this limit during the day and night
- Making the necessary facilities along Eram Street for meeting resting, walking, shopping ...
- Valuating the urban places (Astaneh Square and its adjacent Space, Eram Street) as a social place and also as qualified and identity element
- Designing a positive perspective at night
- Transferring incompatible activities and land uses around holly Shrine to outside of it.

**Key words:** Urban environment quality, pedestrian – oriented, hierarchical multiple variable regression, Qom.

## References

- Amergo, M. & Aragonés, J.I. (1997), "A theoretical and methodological approach to the study of residential satisfaction", *J. Environ. Psychol.*, No.17, pp. 1-5
- Aminsalehi, f. (2008), "Appropriate Solutions for Residential Quality Improvement of High-Rise Complexes, Case Study: Ekbatan Town", Rafieian, M., thesis master of art in urban and regional planning, faculty of art and architecture, tarbiyat modares university.
- Bahrainy, s.h. (2005), "Urban space analysis", university of Tehran press, four editions, Tehran.
- Brambilla. R & Longo. (2000), "Pedestrian precincts: twelve European cities", New York, Columbia University.
- Carlson, David & Carlson. Mary R. S. (1974), "The Pedestrian Mall: It's Role in Revitalization of Downtown Areas", *Urban Land*, No.5, pp.3-9
- Cerin, Ester, ET. al. (2009), "Explaining socio-economic status differences in walking for transport: An ecological analysis of individual, social and environmental factors", *Social Science & Medicine*, No.68, pp.1013-1020
- Chapman, D. (2005), "Creating Neighbourhoods and Places in the Built Environment", Sh.Faryadi and M.Tabibian, university of Tehran press, Tehran.
- Cheung, C. (1997), "Toward a theoretically based measurement model of the good life", *J.Gen.Psychol*, No.158, pp.200-215
- cozen, p M. (2002), "View point sustainable urban development and crime prevention through environment design for the British city toward an effective urban environmentalism for the 21ST century", New York, Pergamon Press.
- Eklind. A. (2002), "The Public transport and priority to pedestrians and bicycles as a basis for the quality of life in capital cities", Lisboa (Portugal), General Assembly of UCUE, Real Estate, Streets and Traffic Department.
- Farzboud, S. (2006), Planning for Vehicular and Pedestrian Segregation in Urban S. (Case Study: Tajrish Central Area) , Pourjafar, M.R. , thesis master of art in urban and regional planning, faculty of art and architecture, tarbiyat modares university.
- Fontana. M. (1999), "Car-Free Areas and Pedestrianisation for Traffic Management: The Experience of Five Italian Towns", Dublin (Ireland), Department of Public Economics-University of Pavoda, Institute of Energy Economics
- Gharib, F. (2004), "Feasibility Study of bicycle and Pedestrian Paths Creation in Old Tehran Area", *honar-ha-ye-ziba journal*, No: 19, Tehran.
- Hosseini, F. (2008), A Study on the Criteria of Physical and Functional Security Indices in Urban Public Spaces Case Study: Daneshjoo Park, Bemaniyan, Mohamadreza, thesis master of art in urban and regional planning, faculty of art and

- architecture, tarbiyat Modares University.
- Jaliliyan, E. (2008), "pedestrianization road and Civil Society", *daneshnama journal*, No: 164, Tehran.
- Jelinkova, Z., and Picek, M. (1984), "Physical and Psychological Factors Determining Population Responses to Environment". *Activ. Nerv. Sup.*, No.26, pp.144-146
- Madanipour, ali (2005), "design of urban space: an inquiry into a socio- spatial process", f. mortazaei, urban planning press, second edition, Tehran.
- Malahat, orang. (2007), "Environmental Quality Assessment in Post disaster Reconstruction: Case Study: bam City", Rafieian, Mojtaba, thesis master of art in urban and regional planning, faculty of art and architecture, tarbiyat modares university.
- McCray, J.W. & Day, s.s. (2003), "understanding environment quality through quality of life studies: the 2001 DAS and objective indicators", *landscape urban plan*, No.65, pp. 73-83
- Miguel, A.F. (2009), "Constructal theory of pedestrian dynamics", *Physics Letters A*, No.373, pp.1734-1738
- Moeini, M.M. (2008), "Physical and Socio-Cultural Influences on Pedestrian Experience of Urban Places in Tehran", *honar-ha-ye-ziba journal*, No: 32, Tehran.
- N.B., et.al. (1994), "National Bicycling And Walking Study, Traffic Calming, Auto-restricted Zones and Other Traffic Management Techniques-Their Effects on bicycling and Pedestrians" Washington, D.C., U.S. Department of transportation
- Papadimitriou, Eleonora, et.al. (2009), "A critical assessment of pedestrian behaviour models", *Transportation Research Part F*, No.12, pp.242-255
- Porta, Sergio, et.al. (2008), "Multiple centrality assessment in Parma: a network analysis of paths and open spaces", *urban design International*, No.13, pp. 41-50
- Porteous, J.D. (1971), "Design with People-the Quality of the Urban Environment". *Environmental and Behavior*. No. 3, pp.155-178
- Pourmohammadi, M. (2010), "feasibility study of pedestrian around hazrate-e masoumeh shrine with the emphasis on social security improvement", Rafieian, Mojtaba, thesis master of art in urban and regional planning, faculty of art and architecture, tarbiyat modares university.
- Rafieian, M, moludi, J. (2010), "Analytical Approaches and Methods of Urban Residential Environmental Assessment", publication azarakhsh, Tehran.
- Sahhafniya, b. (2008), "Impact Assessment of Pedestrianization Policy on Urban Environmental Quality Improvement: Case study: Tarbiyat Street in Tabriz", Rafieian, Mojtaba, thesis master of art in urban and regional planning, faculty of art and architecture, tarbiyat modares university.
- Tibalds, f. (2006), "making people-friendly towns", h.a.laghai and f.jadali, university of Tehran press, Tehran.

Ülengin, B., et.al. (2001), “A multidimensional Approach to Urban Quality of Life: The Case of Istanbul”,

European Journal Operational Research, No.130, pp. 361-374

Archive of SID