

Providing Empirical Suggestions for Rehabilitation of Deficient Urban Parks Based upon Users' Preferences

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ABSTRACT: The main purpose of this study is to investigate the preferences of urban dwellers for various elements of urban parks in order to provide some important suggestions for rehabilitation of urban deficient parks. In this regard, this study has conducted a survey in one of the oldest parks in Khorramabad, Iran, to reveal the overall satisfaction of the park situation and to explore the preferences of users regarding the characteristics of appropriate hard and soft landscape elements of the park. This paper uses five independent combined analyses covering elements of the urban park, including locational, functional, physical, visual and the vegetation characteristics in order to provide the most preferable elements for rehabilitation of this park. For finding significant results, questionnaires are distributed among 100 park users during spring 2014. Findings of the research show general dissatisfaction regarding the existing condition of the park and provide some key points that can be helpful for improvement of the quality of the park based on visitors' ideas.

Keywords: *Urban Park, User Preference, Rehabilitation, Park elements, Moallem Park.*

INTRODUCTION

Urban green spaces are important natural and cultural entities of cities. They shoulder significant roles in sustainable urban development and urban ecology by virtue of multiple environmental, social and economic benefits (Chiesura, 2004; Zhou & Wang, 2011). Open and green spaces also facilitate the fulfillment of urban residents' needs including physical and social ones (Javan Forouzande & Motallebi, 2012).

Natural and built green areas along with their effects on climate (Habibi Nokhandan et al, 2011), in urban areas are recognized as valuable factors for benefits such as conservation of biodiversity and creating spaces for people to feel relaxed. Thus, urban planners and designers try to include green spaces in the organization of new urban areas.

One important objective in the creation of urban green spaces is to increase human wellness by allowing them to be closer to nature. Wellness is a multidimensional concept founded on balance and spirituality and combines physical and mental

health with social and environmental elements (Myers et al, 2005; Steiner & Reisinger, 2006; Goodarzi et al, 2015). In addition, silence for a few hours a day is very essential for the human's well-being. This need will be increased by growing population density and urbanization of the residential environment in the future. Therefore, development of urban green spaces where humans can relax is a necessary part of urban projects.

The construction of public green space in the area of rapid urbanization needs the combined effort from city planners and architects, local authorities, and all kinds of local habitants (Chiesura, 2004; Zhou & Wang, 2011).

When an open space is designed as part of an urban renewal project, the unique aspects of the target city, such as environment, culture, lifestyles, and history, should be reflected in the new design. The designers easily capture environmental factors, but they typically do not notice the less obvious needs of users that derive from culture, history, and lifestyle. This is because relationships are absent between designers and the many potential users of an urban space (Katoshevski & Timmermans, 2001). However, urban planners and designers

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should seek to find the specific requirement of potential users of parks. The main purpose of this paper is to explore user preferences for improvements on different elements for the urban park.

Recently, physical development of urban structures in Khorramabad makes it important to redesign and rehabilitate natural ecosystems and recreational areas in the city especially the ones that are not efficient enough. So, Moallem Park in Khorramabad has been selected as a case study of this research in order to find some appropriate solutions for enhancing the quality of public space, increasing urban green space functions, and improving the recreational facilities. Finally, based on users' preferences, suggestions are provided for redevelopment and enhancement of the park quality.

Accurate evaluation of urban public spaces and an assessment of their current deficiencies will help towards the development of highly qualified urban environment (Barghjelveh & Sayad, 2011). In this study, we evaluated the users' satisfaction and their preferences to find some recommendations for redevelopment of Moallem Park. In order to find users' ideas, we employed questionnaires that are divided into five categories to gather user's attitudes and to provide specific factors for rehabilitation of the urban park.

A plan for open green space has important meaning among the urban redevelopment projects. This is because open green spaces play a crucial role in supporting biodiversity (Gaston et al., 2005; Crane & Kinzig, 2005) and also makes important contributions to the quality of life for urban residents (Takano et al., 2002, Masnavi et al., 2012). Moreover, public green spaces provide meeting places for neighborhood residents (Germann-Chiari & Seeland, 2004; Martin et al., 2004).

When people consider green spaces in cities, they are mainly concerned with large, well-maintained park areas. Much less attention is paid to the types of nature in proximity to where people live and work, to small-scale green areas in cities, and to the benefits of these types of green spaces to people (Chiesura, 2004). However, the interest in small-scale green areas has become higher due to the current insufficient room for green space in the inner city (Peschardt et al., 2012; Nordh et al., 2010). English Nature (2005) asserted, "People living in towns and cities should have an accessible natural green space less than 300m from home." Moreover, ease of access to green space influences the sustainability of urban communities (Wray, 2005). Im (1984) defined three major components of urban spaces: physical and vegetation, behavioral and functional, and

esthetic and visual. Mambretti (2011) defined the schema of urban park characteristics in two regards, image and comfort. For the image aspect, vegetation and structure are included and for the comfort aspect, preference and activity are included (Lee et al., 2014).

Due to the special situation of Moallem Park and because of different approaches regarding green spaces in Iran, this paper defines elements of the urban park in five aspects: locational, functional, physical, visual and vegetation characteristics. Locational conditions are related to position of the park. Functional conditions are the structural features of the urban park. Physical conditions are related to sense of security and physical facilities of the park. Vegetation characteristics describe the planting situation of the park. Finally, visual conditions mention the aesthetical characteristics of the urban park.

MATERIALS AND METHODS

The main purpose of this study is to examine the desirability of Moallem Park, social functions, assessing of people satisfaction, and providing rehabilitation points for Moallem Park based on user preferences. The method used in this study is a descriptive, analytical and field survey. Firstly, the information from library resources and articles have been gathered and in order to further the understanding of the study site, a field survey has been conducted. To complete the required information, the locational, functional, physical, visual and vegetation aspects of the park have been evaluated through observation and interviews. The first two categories of characteristics examine the level of users' satisfactions regarding overall condition and function of the park while three latter categories evaluate visitors' opinions and preferences in order to find some suitable criteria for improvement the quality of the park and increase efficiency of it base on users' ideas. Classified questionnaires were established to gather 100 users' opinion about park structure and function. The respondent demographic statistics can be seen in (Table 1). The questionnaires were distributed during spring 2014, mostly in the evenings since the peak time for visiting the park in the spring is in the evenings. Questions are divided into five categories. The first category examines the level of users' satisfaction regarding locational characteristics of the park. The second category investigates satisfaction of people about functional characteristic. The Third category explores some users' opinions regarding preferable condition of some physical elements of the park. The Fourth category includes questions regarding desirable vegetation characteristic

Table1. Respondent Demographic information

Respondents	Gender	Age	Education
Residents (64%)	Male (46%)	0-19 (10%)	Diploma (52%)
Tourists (36%)	Female (54%)	19-40 (62%)	Undergraduate (40%)
		41-60 (24%)	Graduate (8%)
		Over 61 (4%)	

for users, and the fifth category involves questions regarding users' favorable visual characteristics.

Study Area

Moallem Park is located at the central area of Khorramabad, Iran. The area of this park is about 2.5 Hectares, and this park is one of the oldest urban parks in the city (Fig. 1). Despite being located close to downtown, these days this park is not preferable open space for most of the families to spend their leisure time since there are some obvious deficiencies that make it an unsuitable place for them; furniture is damaged, paving is made of eroded and broken concrete. Lack of light in this park causes public discontent along with a decrease in a sense of security. Plants in this park are not in good situations and generally, disorder is the main characteristic of the park. The park has no parking and visitors' vehicles use the streets around the park as a parking area. Generally speaking, the main function of the park as a recreational place for families has dropped dramatically.

In order to provide some suggestions for improving the quality of the park, we first classified questions regarding characteristics of the park into five categories – locational, functional, physical, vegetation, and visual–based on some important elements of landscape design. Questionnaires have been regulated so that respondents are able to answer questions without facing numerous topics. Finally, we combined results of five separate groups to provide suggested points for rehabilitation of the park. The first category of questions are regulated to find park quality based on users' satisfaction in terms of locational characteristics such as "distance from home" and "position of park elements in the park." The distance from home and accessibility of the park may influence the number of users of this type of park. The second category of questions are scheduled for evaluating

the functional characteristics such as "capacity of the park ", "size or area of the park elements", and "performance of park elements" based on users' opinions. These features affect the proper function of the park.

As we mentioned before, the main purpose of the first and second categories are evaluating users' satisfaction with existing condition of the park. But the role of third, fourth and fifth group of questions are different. In these categories we asked preferences of users regarding some park elements in order to find some points and suggestions for rehabilitation of the park and exploring key factors that help the park to be more attractive and convenient for them. In the following, details of three latter categories will be mentioned.

The third analysis explores the preferences of users for physical conditions of the park facilities. Some parks are comprised of facilities that provide services to park users. Some instances of facilities include: seating facilities, lighting at night, parking lot, fencing, and paved pathways. The question regarding seating facilities investigates the type of chairs preferred by users. Parking lot and lighting examine the importance of these features and if they prefer designed parking lots and specific lighting for the park. In addition, lighting at night refers to sense of security of the park. The fencing also examines whether users perceive the existence of fencing and which height of fencing is preferred by them. Paving refers to the type of material throughout the park grounds. Entrance evaluates the kind of features that make the space more defined. The final element, "main material" characteristic mentions the types of building materials that are preferred to form the hardscape of the park. There are five options for building materials to form hardscape such as wood, plastic, metal, concrete and stone.

The fourth category explores preferred plants by users in different aspects and known as vegetation characteristics. In this category,



Fig. 1: satellite photo of Moallem Park

Table 2. Five categories of analysis

Category	Content	Factors
Locational Characteristics	Size and location	Distance (from home) Position of the park spaces
Functional Characteristics	structure	Area of the park open spaces Capacity Activity of spaces in the park
Physical Characteristics	Facility & Security	Chairs Parking lot Lights Fencing Paving Entrances Main material
vegetation Characteristics	Plants	plant type Plant's leaf type
Visual Characteristics	Aesthetics	colors views

we find users' priorities among four types of plants such as trees, shrubs, hedges, and groundcovers to be used more than other types. The “plant green period” characteristic is used to find preferred type of plants between deciduous or evergreen plants. The fifth analysis finds the visual features that influence the users’ preference on colors of materials and view of the places for making the decision to stay there from a few seconds to many hours. (Table 2)

RESULTS AND DISCUSSION

Based on the results of the questionnaires, opinions and preference of people regarding five different categories of questions show that:

In the first category, users' satisfaction about locational elements was analyzed, and their preference was asked. According to the results, most people use the park as a neighborhood park, 67% of visitors go to the park by foot. Others access to the park by vehicles from different parts of the city. Due to lack of efficient public transportation systems in Khorramabad (same as most cities in Iran), people mostly use personal vehicles to reach the park. These show that there is not enough convenience or attractions for people of other parts of the city to drive a long time for spending their time in this park. In terms of position of the park elements, most of the users (55%) believe that spaces of the park are well located and are easily accessible (Table 3). The satisfaction of more than half of users from position of park elements reveals that there is no need for large changes in the park design.

In the second category, which is related to functional elements (Table4), people are generally dissatisfied with the function of the

park. Based on their opinion, the size and area of park elements are insufficient for users’ activities; the park is able to meet the needs of only 200 people at the same time, and the performance and function of park elements such as soft and hardscapes are not proper enough. These show that even if people are interested in using the park, because of lack of room in the park, they cannot find an appropriate place for spending time and feeling relaxed. On top of that, in very crowded spaces, social interactions may alter to conflicts between park users.

In the category of physical condition, we asked users' preference about park facilities such as seating facilities, specific parking lot, proper lighting, fencing, entrances, and ground types. Also, we examined their opinions about preferred building materials for hardscape. Results show that most of the people prefer to sit on benches instead of single seats. In addition, they believe that this park needs a special parking lot to solve the problems they face in finding a proper places to park their car. Likewise, they believe that, due to poor lighting, there is a very strong sense of insecurity at nighttime. So, they believe that proper lighting should be scheduled for the park. Around some places in the park, such as children's playground, people prefer fencing to define the area of the place; they believe that the waist height is appropriate elevation for fencing, because it helps them to have a good view of the surroundings. As ground materials consist of irregular and uneven adjacency of concrete and sand, people believe that park should have paved ground. The preferred materials for paving and hardscape are respectively stone, brick, and wood. Finally, people prefer entrances that are defined by plants and landmarks. (Table 5)

In the fourth category of questions, which describes the

Table 3. Locational characteristic elements

Locational Characteristics	Components	Percentage	
Distance from home	Less than 10 minutes by foot	53 %	
	More than 10 minutes by foot	14%	
	Less than 10 minutes by car	23%	Personal vehicles (82%)
	More than 10 minutes by car	10%	Public transportation (18%)
Position of the park elements (accessibility of element inside the park)	Good	55%	
	Fair	32%	
	Bad	13%	

Table 4. Functional characteristic elements

Functional Characteristics	Components	Percentage
Park's Capacity	Fewer than 200 people	83%
	More than 200 people	17%
Size/area of the park elements (including softs and hardscape)	more than enough	4%
	sufficient	41%
	insufficient	55%
performance of park elements (including softs and hardscape)	Good	17%
	Fair	32%
	Weak	51%

Table 5. Physical characteristic elements

Physical Characteristics	Components	Percentage
Parking lot	Sufficient (no need for parking lot)	9%
	Not sufficient (need for designed parking lot)	91%
Light	Efficient	20%
	Not Efficient (need for designed lighting)	80%
Fencing	Not necessary	32%
	Knee height	18%
	Waist height	50%
seating facilities	Single chair	34%
	Bench	66%
Ground type	Concrete and Sand	3%
	Asphalt	17%
	Paved	57%
Main material	Wood	22%
	brick	25%
	Ceramic	7%
	Concrete	13%
	Stone	33%
Entrances	Open Space	16%
	Pergola or Arch	24%
	Planted	31%
	Landmark	29%

Table 6. Vegetation characteristic elements

Vegetation Characteristics	Components	Percentage
Plant Type	Tree type	33%
	Shrub type	25%
	Hedge type	19%
	Groundcover	23%
Plant's green period	Evergreen	45%
	Deciduous	55%

Table 7. visual characteristic elements

Visual Characteristics	Components	Percentage
Color	Light colors	35%
	Dark colors	12%
	Vibrant colors	53%
View	Vast view to outside the park	34%
	Open view to park	52%
	Limited view	14%

Table 8. Alternative style for redevelopment

Factor	Suggestion
Size/area of spaces and park elements	Should be modified based on number of users
Function of elements	Need to be strengthened through redesign and using appropriate materials as follow
Seating facilities	Benches are more preferred than single chairs
Parking lot	Should be considered and allocate a special area for this purpose
Light	lighting design for whole the park is required
Fencing	Waist height is the most preferred height for fencing
Ground type	Paved walkways and surfaces are necessary using materials based on following priorities
Main material	Preferred materials for construction are respectively Stone, Brick and wood
Entrance	Plants and landmarks are the most attractive elements for people in the park entrances
Plant type	Trees are the most attractive plants for people. Shrubs, hedges and ground covers respectively have next priorities.
Plant's green period	Deciduous plants are more preferred than evergreen
Major Color of materials and elements	Vibrant colors are the most preferred colors for park elements and materials, especially in children playground
view	Open view to other park spaces is the most preferred view for users

vegetation characteristics, we asked about plant types and the period of plant's greenness in a year. People prefer trees more than other types of plants to be used in the park. Shrubs, groundcovers and hedges are next priorities by users. In addition, they preferred deciduous plants more than evergreen ones. (Table 6)

The users' opinions about visual characteristics of the park show that they prefer vibrant colors in the park to create an

exciting and attractive place especially for children. In terms of view, most of the people prefer to have a wide view to other spaces of the park. (Table 7)

CONCLUSION

One of the main roles of urban green space is to create a sense of peace and enjoyment in public, especially in the cities that their houses have been converted into apartments. Khorramabad

is one of Iran's major cities that, in recent years, has faced an accelerated rate of growth. Because of lack of lands for horizontal development, it has turned to a compact city that the ratio of green space to population is low and insufficient. One of the urban parks that can play an important role in improving psychological and social quality of the city is Moallem Park that is located close to the city center. Nevertheless, this park has become a place that is not appropriate for most people in recent years. In this study, using a classified questionnaire, opinions and expectations of the people about rehabilitation of the park have been gathered. Questions have been categorized in five groups: locational, functional, physical, vegetation, and visual. After examining the level of attraction and satisfaction of the park based on users' opinions, the most preferred factors for rehabilitation of the park in order to increase the attraction and convenience of it have been extracted, and some suggestions for these purposes are presented. The results of user preferences regarding park rehabilitation are gathered in (Table 8) to create some points for redevelopment of Moallem Park. Using these points, planners and designers could improve the quality of the park in order to return the social and psychological function of the park to the city.

Identification of significant distinct qualities and preference of landscape characteristics of urban park must be done to ensure users' satisfaction. Different people like and perceive the environment differently. This is important for Iran and other developing countries, since in the process of rapid urbanization, the role of parks and open spaces is more than a recreational area. So, it should be considered that general dissatisfaction and operating any urban development project without considering users' satisfactions and preferences may generate very huge economic, social and psychological problems with long-term negative effects that cannot be unraveled easily. The research on Moallem park will significantly contribute to the city, the people, the users of the parks and the environment overall. This study will also encourage city administrators, planners, urban designers and landscape architects in considering urban parks in the context of social, aesthetical and scientific principles to produce attractive places in overall urban planning and design.

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