

# The Influence of Users' Socio-Economic Background on the Perception and Involvement of Urban Spaces

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## 1 ABSTRACT

opportunities in their daily lives. Arguably, recreation and socio-economic status have always had a longstanding relationship. However, spatial perception is seen as the criteria which decides whether architecture succeeded at delivering a certain message, or satisfied a certain role within a specific context. In fact, perception is a highly creative process; although people relate to the same reality, they will perceive it in a different way according to what the environment means to each of them. Different environments will have different perceptual influences. These differences are derived from various personal backgrounds (knowledge, experience, culture, and physical). Furthermore, some studies suggest that low level of physical and recreational activities is more prevalent among lower income, less educated, and unemployed populations compared to higher income individuals. In turn, this could cause dissatisfaction with the living condition in the low-income neighborhoods and many of the associated issues can be traced to the inability of the city to meet the basic needs of its inhabitants.

Neighborhood space in many contemporary residential communities, particularly in Third World countries, often has the appearance of no man's land. This is because public spaces in the contemporary city, in all their tidiness, are thought of as a secondary space, owned neither by the city nor by the individuals. It does not invite one to be or remain. This paper focuses on studying the manner in which people, with different visit purposes, perceive the space they visit, how and why users change their environment. This paper concludes that a large number of neighborhood park users are not neighborhood residents, they are indeed derived from lower-income neighborhoods where the access to open spaces is very limited. It is necessary to study the needs of the user groups with the least number of people in order to boost their visits to the park.

Keywords: open spaces, interaction, recreation, perception, Egypt

## 2 INTRODUCTION

The communal dimensions of a neighborhood are stated by social planners and sociologists (Canter, 1977; Keller, 1968; Lee, 1970). They consider the neighborhood as per its symbolic and cultural features, they also stress on shared activities and experiences, common values and loyalties, and resulting social groups. (Abu-Ghazze, 1996) A large extent of social and cultural factors affect the spatial and temporal systems of neighborhood urban spaces which generates perceptual inputs, the material for cognitive schemata, and the effective responses. (Rapoport, 1976) In fact, meanings, ways of communications and social relationships are linked to the design of spaces where certain activities take place. These aspects support the psychological variables studied by the paper.

It is obvious for planners nowadays that creating new residential projects and neighborhood environments is not sufficient, what is more important indeed is the way in which they work. (Corbet, 1981; Lang, 1987). The unpredictable usage of environments by people is finally realized by designers and planners. This behavior may occur because the built environment does not match the living pattern of the users, or else due to unpredicted new opportunities generated by the surroundings. Hence, for better future designs, designers must study the way in which people use a certain space and most importantly the reason behind such a behavior. A lot of studies call attention to the importance of both social and psychological factors, these factors are indeed of great influence yet they are underestimated during the planning and designing phase. (Brower, 1980; Herting & Guest, 1985; Sommer, 1969) The well-being of the city can be maintained through high quality urban life created by a proper planning for urban spaces.

### 3 THEORETICAL BACKGROUND

#### 3.1 Spatial Perception

Modern psychology describes perception as being the highest level of complication in collecting and analyzing information. It has the capability to recognize physical items in the communal surrounding, at the same time it comprises as well the image created based on events, other individual or even items that are connected to experiences which the end-user has lived in the past. However, geography gives us a wider image on the term 'perception', consisting of the global scope of percepts, impressions, convictions and preferences, therefore it covers the full information which is linked to an environment or even features that can be assembled under the expression of 'environmental cognition'. (Stea, 1973) Moreover, sensations are the one who form the base of the perception process. This process creates an image that comprises information related to some significant attributes concerning the perceived elements as: textures, colors, sounds, smells, time of the day, time of the year, weather etc. However, sensations provide single and simple information. Thus we may consider that perception is created through multiple sensations. (Pomerantz)

According to Grutter, all judgements consist of two key elements: an object and a subject. The object is to be defined as the physical item which is perceived, the objective. The subject on the other hand, is the one who exerts the operation of perceiving, the subjective. (Grutter, 2006) Additionally, one's personal experience along with the incident evaluation of a certain situation influence directly the environmental perception. Although human perception can be influenced by the tiniest difference and cognition. (Gifford, 2007) By way of explanation, when feeling take control over the created mock-up, perception will act exactly the same, it will dominate not only the formed mock-up but also expectations, factors concerning emotions and cognitions, inspirational conditions, decisions and perceiver's self-determination. (Ghasem, 2001)

Presuming that architecture is a sign system, it is important to analyze these signs and sort them into categories. One of the most interesting approaches is the "semiological triangle" discussed by O.K. Ogden and I.A. Richards. This approach was initially developed from Ferdinand de Saussure's theory, a well-known leader in the field of semiology. Saussure in his book *Course in General Linguistics* proposes that a system of signs form language. Each sign is consisted of a two-party object: a "signifier" and a "signified". (Saussure, 1916) A consistent approach concerning the human-environment relationship was distinguished by psychologist James Gibson. His ecological theory of perception presumes a certain association between the observer and his environment, this association usually takes place over movement and visual perception. (Ingold, 2011) The environment is therefore considered as an 'affordance': it is not treated as a visual object or a 'thing' anymore but rather as a stimulus capable of providing the observer with meaning, and consequently pushing him to interact and respond to his surrounding environment

#### 3.2 Quality of urban spaces

Parasurman stated that the 'gestalt' concept is what defines quality (Parasuraman, Zeithaml, & Berry, 1985), he also presumed that what achieves high quality service in outdoor recreation is the fulfilment of users' needs. With that being said, the achievement of high quality recreational services would be much less challenging if decision makers consider users' desired expectations from the services they offer. (MacKay & Crompton, 1990) Furthermore, what gives urban spaces additional value is their potential to improve the urban well-being in regards to offered opportunities, physical settings, sociability and cultural diversity. It is also debateable that people and their behaviour is what shape quality. (Burgess, Harrison, & Limb, 1988) In fact, quality is represented by people who use and manage the techniques or procedures given to them at what is called 'total quality management'. Moreover, physical elements which enhance the quality of a community are appraised by (Smith, Nelischer, & Perkins, 1997). The term 'quality community' refers to a community where inhabitants needs and desires are fulfilled. This could be reflected on open spaces or neighbourhood parks. The author also describes quality as being the unique properties that advocate a certain level of excellence. Needs can be shared among a certain group of people, however each person in this group also processes his own particular needs that he aspires to be satisfied in a special way. The primary question of why people tend to use a specific space can be answered by understanding all the purposes of people's visits and the additional factors that will boost their visits frequency. Based on these answers, researchers can conclude a pattern of personal preferences. (Hester, 1984) These patterns translate the desired needs that neighbourhood residents expect to be answered. Hester proposes a checklist of needs which neighbourhood

park's users may aspire such as settings, safety, aesthetic appeal, convenience, and psychological comfort, and symbolic ownership, policy in use, cost and interaction with natural environment.

On another hand, (Jacobs, 1961) made planners pay attention to people who have a direct access to urban spaces in order to generate a sense of security in the neighbourhood they inhabit. She also highlighted other important factors for a neighbourhood space quality, such as the need for neighbourhood open spaces to support contact, safety, and child use. Another master in urban planning (Lynch, 1960) suggests rights for public spaces, these rights include presence, use and action, appropriation, modification, and disposition. Lynch also declared that besides people's right to access public spaces, they also have the right to use, change and modify it. (Sommer, 1969) highlighted the importance of involving users and sociologists in the decision-making process. He also stated that while designing, it is important to always remember that planners are working with people and not for them.

#### 4 METHODOLOGY

The aim of this study is to find the influence of different users' backgrounds on their use pattern, satisfaction, needs and interaction with urban spaces in districts which have different socio-economic typologies in Alexandria, Egypt. This will be achieved through studying the manner in which users, with different backgrounds, perceive the space they inhabit, how and why users change their environment. The study focuses on three different urban spaces, which belong to poor-middle-high income groups. However, this paper studies only one space as a pilot study. A more extended survey will follow encompassing two more spaces as to ensure a broader scope and more representation of different types of open spaces.

This research will adopt an inductive methodology whereby the initial problem and its dimensions are firstly examined through literature review. An analytical study is to follow utilizing questionnaire-based survey, observation survey and correlations analysis techniques, to: (1) identify main user groups based on their motivations to visit a neighborhood park; (2) examine and compare spatial distribution patterns of different user groups, (3) identify preferred park settings for different user groups, and (4) explore the perceived qualities and needs of each user groups. Theoretically, the study provides empirical evidence on how visitors' motivations may influence their spatial distribution and use patterns in neighborhood parks. Methodologically, by utilizing questionnaire-based survey and observation survey, the study proposes an objective approach to analyze users' desire for certain needs. Practically, the study identifies preferred settings of different user groups, which can shed light on future park planning. This study also explores the perceptions of quality and its significant impact on access to recreation from local communities. The result would help to highlight the problems and needs of users with different backgrounds and visit purposes towards these parks and to propose design criteria that seek to improve the quality of the recreational aspects of parks.

#### 5 CASE STUDY

##### 5.1 Setting: Allenby neighbourhood park

This paper focuses on one space as a pilot study among three others which will be discussed in a further research. This space was chosen in one of the wealthiest neighborhoods of Alexandria: the Kafr Abdo neighborhood. Hence this site represents the urban space which is situated in the high-income level context. Located in the heart of Alexandria and surrounded by embassies, historical villas, and reparable architecture, Allenby Park is considered as one of the oldest and the finest parks in Alexandria. (Fig.1) It dates back to 1920s, referring to Lord Allenby, the British high commissioner in Egypt. Many wealthy British and other foreign businessmen built their villas along the same street. Though it has been known as a park used mainly for walking dogs for some time, it is now an important node for several activities which attract a number of users with different backgrounds, perception levels and motivations. Many events are often held in the park by the kafr Abdo community in collaboration with NGOs and many other organizations.



Fig. 1: (left) the chosen site of Allenby Park, Kafr Abdo, Alexandria. (right) the surrounding context of the site.

## 5.2 Data Collection and Analysis:

The study was conducted in March and April 2021, when the climate was encouraging for outdoor activities. For the selected park, data collection occurred at random timings between 9:00 am and 11:00 pm during work-days as well as weekend-days over an eight weeks period from a convenient sample of park users. Park users were invited to participate in the study through an on-site questionnaire-based survey along with an online survey addressed only to the park's users. This survey was administered to collect data on demographics, user motivations for parks visit and desired needs. Participants were enrolled throughout the day, therefore the time of their participation varied from morning, afternoon and until evening. An observation-based survey was used to collect spatial position information from study participants, their circulation and favorite settings. According to the questionnaire's results, users tend to visit the park mostly in the afternoon and evening that's why the observation survey took place mainly between 12:00 and 8:00pm.

The survey questionnaire was designed to understand the participation of the residents in relation to the use of the park, their perception and satisfaction of their experience in the park and finally their needs. Part 1 of the questionnaire used socio-demographic background such as gender, age, marital status, occupation, and monthly income to identify the characteristics of the participants. Part 2, related to participation of the residents based on information such as park visitation, frequency of visit, time and duration of visit, activities. Part 3, is to identify the additional factors that would motivate users' visits. Part 4 is mainly on the perceived quality; the park's cleanness and maintenance, the location, quality and number of seats (Likert-scaled questions). Lastly, Part 5; is to investigate users' aspires and needs.

The analysis included three main parts. First a descriptive statistic was performed to identify the main user groups and explore their use patterns. Then crosstabs analysis was applied to examine the differences in use patterns among the user groups, the motivation of their visit, the perceived qualities translated into their satisfaction and aspired needs. Finally, the collected data from the observation survey was illustrated into maps to highlight park's accessibility, users' concentration and favorite settings for each user group.

## 6 RESULTS AND DISCUSSION

### 6.1 Descriptive statistics

#### 6.1.1 Users' demography

In Allenby Park, 85 users took part in the study; 30 (35.3%) users from online questionnaire and 55 (64.7%) from on-site questionnaire-based survey were completed and included in the analysis. More than half of all participants were between 20 and 30 years old and had college or higher education. (Table 1). Two thirds of the users live in families with less than five members. The majority of respondents came to the park either in groups to spend time with family members or friends, or alone to enjoy nature and relax. Only (27.1%) chose to visit the park alone. Furthermore, (47.1%) worked in the private sector, while (31.7%) earned more than 7,000 EGP (446 USD). Most participants stated that they don't spend money while visiting the park (43.5%). In fact, visitors who claimed to visit the park with family and friends tended to spend the most money during their stay in the park, with 17 (20%) users declared that they spent more than 20 EGP per person in one visit. Followed by 15 (17.65%) users who came alone to enjoy the nature. Participants were asked to identify how often they visit the park and to specify the time of their visit. The results showed that almost half of the questionnaire respondents visited the park 1-3 times a month (71.8%). It is worth mentioning that none of the participants visited the park for the first time which proposes that they were all familiar with the park and its features. Regarding the park's time of visit, it was detected that people come most regularly during the period of afternoon hours from 12-4pm and evening hours from 4-8pm. These results include both weekdays and weekends. In fact, more than half of the respondents (55.3%) usually go to the park on foot. Most users (45.9%) visited the park for approximately 1-2 hours per visit.

A crosstabs analysis was used to identify the respondents who worked in the private sector were the group who visited the park most frequently (2.35%) sometimes even twice a day (2.35%), 1-3 times per week (7.0%) and 1-3 times per month (35.3%). Followed by students' group who visited the park less frequently 1-3 times per week (7.0%) and 1-3 times per month (28.2%). Putting into consideration the travel mode and the time users take to arrive at the park, and using the same crosstabs analysis, it can be detected that almost

half of the users were neighborhood residents (47%) came to the on foot in less 30 mins and (9.4%) drove to the park in less than 15 mins. The other half came via public transportation, including bus and tram. Hence, it can be assumed that despite the size and location of the park, both non-neighborhood residents and neighbourhood residents visited the park equally.

1	Gender	41 of the participants were Males (48.2%) and 44 Females (51.8%).
2	Age	2 users were between 15 and 20 (2.4%), 34 between 20 and 25 (40.0%), 36 between 25 and 30 (42.4%), 8 between 30 and 40 (9.4%), 4 between 40 and 60 (4.7%) and 1 more than 60 years old (1.2%).
3	Marital Status	54 of the participants were single (63.5%) and 20 in a relationship (23.5%). 10 users were married (11.8%) and only 1 was divorced (1.2%).
4	Educational Level	none of the participants had no formal education or went to a primary school, 4 users went to middle/high school (4.7%) and the other 81 users were enrolled in college or higher education (95.3%).
5	Occupation	30 of the participants were students (35.3%) and 3 were self-employed (3.5%). 6 users worked at public sector (7.1%) and 40 worked in private sector (47.1%). 2 users were unemployed (2.4%), 3 were housewives (3.5) and only 1 was a retiree (1.2%).
6	Monthly income (EGP)	18 of the participants didn't have a monthly income (21.2%), 16 earned less than 3,000 per month (18.8%). 12 users had a monthly income between 3,000 and 5,000 (14.1), another 12 between 5,000 and 7,000 and 11 users earned between 7,000 and 10,000. 16 users made more than 10,000 per month (18.8%).
7	NO. of family members	60 of the participants had a family of less than 5 members (70.6%), 18 had families of 5 members (21.2%) and 7 had families with more than 5 members (8.2%).
8	visit purpose (N=128)	34 users went to the park to enjoy the nature (26.6%), 8 went to exercise (6.3%). And 4 went to play with children (3.1%). 54 users had the purpose to meet family members and friends (42.2%), 19 went to walk dogs (14.08%) and 9 participants went for other purposes (7.0%).
9	Companion (N=95)	38 of the users visited the park with less than five family members and friends (44.7%), 34 were accompanied with more than 5 people (40.0%) and 23 chose to visit the park alone (27.1%).
10	mode of travel	47 users reached the park on foot (55.3%), none went by bicycle and 29 went by driving (34.1%). 5 users used public transportation like the bus (5.9%) and 4 used the tram (4.7%).
11	Duration of Travel	26 users took less than 15 min to reach the park (30.6%), 42 took between 15 and 30 minutes (49.4%) and 12 users took between 31 and 60 minutes (14.1%). Only 5 users went to the park in more than 61 minutes (5.9%).
12	Frequency of Visits	4 users visited the park on a daily basis (4.7%) and 2 other users visited it twice a day (2.4%). 18 participants went to the park between one to three times a week (21.2%) and 61 went between 1 to 3 times a month (71.8%).
13	Time of Visit (N=109)	26 users went to the park in the morning (30.6%), 28 in the afternoon (32.9%) and 35 in the evening (41.2%). Only 20 users went at night (23.5%).
14	Duration of Visit	30 users visited the park for less than one hour (35.3%), 39 for a period between one to two hours (45.9%) and 15 spent between two and four hours per visit (17.6%). Only one participant stayed for more than four hours (1.2%).
15	Average Money spent per Visit	37 users didn't spend money during their visits (43.5%). 3 users spend 5 EGP (3.5%), 8 users spent from 5 to 10 EGP (9.4%) and 10 spent between 10 to 20 EGP per visit (11.8%). 5 users spent an amount between 20 and 40 EGP (5.9%) while 12 users spent between 40 and 60 EGP (14.1%). 10 users spent more than 60 RGP per visit (11.8%).

Table 1 Users' profile, visit purpose, companion and frequency of visit of the visitors

### 6.1.2 Park visit purpose and user groups

In order to measure users' perception of the park's features, their experiences, preferences and needs, the assembled data was classified according to the reason behind people's visit to the park. Thus, the data analysis and the deduced relationships from the visit purpose of each user group would determine how people with different motives and backgrounds would perceive and use a certain space as per what initiates their visits in the first place. A multiple-choice question was addressed to identify participants' purpose for visiting the park, the top three categories with the largest numbers of visitors (including more than the half of the total visitors) are considered as the main user groups. Meeting family members and friends, enjoy the nature and walking dogs were the most frequently mentioned purposes for park visit. Participants who came to meet family members and friends outnumbered other groups (42.2%), followed by the ones who visited the park to enjoy the nature (26.6%) and users who came to walk their dogs (14.8%). Meanwhile (16.4%) of all users came for exercise and to play with children.

### 6.2 Differences in use patterns among user groups

The collected data was classified according to the five user groups interpreted from the visit purpose of the participants. A crosstabs analysis was applied to further explore how each questionnaire element related to the user groups. At first, the data was analyzed according to the number of users in each element. The calculated percentages (P) indicate the number of participants in each user group (N2) in accordance to the total number of users of all user groups (N1) in each element ( $P=N2/N1$ ). (Table 2). The results indicate that the main age group who visits the park is consisted of participants between 25 and 30 years old (50 user). Half of these participants go to meet family members and friends, (26.0%) visit the park alone to enjoy

nature, (14.0%) walk dogs, (6.0%) go to exercise and (4.0%) go to play with children. On the other hand, the age group who visits the park the least is consisted of users between 15 and 20 years old. These users are divided between groups who spend time with friends and people who go to exercise. Moreover, the majority of the users went to the park on foot (62 user), they can also be considered as neighborhood residents. Among these users, (48.4%) went in groups while none of them went to play with children. From the on-site observation and interviews, it was interpreted that families who visited the park with children were derived from a lower socio-economic background. In fact, open spaces, greenery and parks in general are very few in Alexandria city especially among the lower-income neighborhoods. That also explain why none of these families took less than 15 mins to reach the park. On another hand, only 3 users tended to reach the park by bicycle. This can also be interpreted through the lack of cycling lanes, facilities and culture in general in Egypt. Cycling which is the most easy, sustainable and affordable way of transportation is of a great danger in the city especially for long distances.

However, the duration which users tended to spend in the park was between one and two hours (59 users) and the least duration was more than four hours. This may indicate that seats condition and number were suitable for a medium stay but not for a long period of time. Furthermore, participants chose to visit the park the most in the evening. That can be due to the hot climate Egypt processes most of the year especially during the day. Only 30 users declared using the park during the night period, the park has actually a quite bad lighting system during the night, in fact a lot of the park's areas are in complete darkness and this may affect the sense of security of the users.

Use Patterns	Total N	Meet Family and Friends		Enjoy Nature		Walk Dogs		Exercise		Play with Children	
	Number of Users	54		34		19		8		4	
	N1	N2	P	N2	P	N2	P	N2	P	N2	P
<b>Age</b>											
Between 15 and 20	2	1	50.0	0	0.0	0	0.0	1	50.0	0	0.0
Between 20 and 25	48	23	47.9	16	33.3	6	12.5	3	6.3	0	0.0
Between 25 and 30	50	25	50.0	13	26.0	7	14.0	3	6.0	2	4.0
Between 30 and 40	10	3	30.0	3	30.0	3	30.0	0.0	0.0	1	10.0
Between 40 and 60	5	1	20.0	1	20.0	2	40.0	0.0	0.0	1	20.0
More than 60	4	1	25.0	1	25.0	1	25.0	1	25.0	0	0.0
<b>Mode of Travel</b>											
on foot	62	30	48.4	15	24.2	12	19.4	5	8.1	0	0.0
bicycle	3	0	0.0	0	0.0	0	0.0	3	100	0	0.0
driving	41	19	46.3	14	34.1	6	14.6	0	0.0	2	50.0
bus	4	1	25.0	1	25.0	0	0.0	0	0.0	2	50.0
tram	6	1	16.7	4	66.7	1	16.7	0	0.0	0	0.0
<b>Time of Travel</b>											
less than 15 min	38	17	44.7	11	28.9	8	21.1	2	5.3	0	0.0
Between 15-30 min	59	29	49.2	16	27.1	8	13.6	4	6.8	2	3.4
Between 31-60 min	13	5	38.5	4	30.8	2	15.4	0	0.0	2	15.4
More than 61 min	9	3	33.3	3	33.3	1	11.1	2	22.2	0	0.0
<b>Frequency of visit</b>											
everyday	7	1	14.3	2	28.6	3	42.9	1	14.3	0	0.0
2 timed per day	4	2	50.0	1	25.0	1	25.0	0	0.0	0	0.0
1-3 times per week	27	10	37.0	7	25.9	5	18.5	5	18.5	0	0.0
1-3 times per month	81	41	50.6	24	29.6	10	12.3	2	2.5	4	4.9
<b>Duration of visit</b>											
less than 1 hour	37	16	43.2	12	32.4	6	16.2	2	5.4	1	2.7
1-2 hours	59	27	45.8	17	28.8	11	18.6	2	3.4	2	3.4
2-4 hours	21	10	47.6	4	19.0	2	9.5	4	19.0	1	4.8
More than 4 hours	2	1	50.0	1	50.0	0	0.0	0	0.0	0	0.0
<b>Time of visit</b>											
		N=73		N=48		N=27		N=12		N=4	
Morning	44	16	36.4	15	34.1	9	20.5	3	6.8	1	2.3
Afternoon	43	17	39.5	14	32.6	7	16.3	3	7.0	2	4.7
Evening	47	24	51.1	13	27.7	6	12.8	4	8.5	0	0.0
Night	31	17	53.3	6	20.0	5	16.7	2	6.7	1	3.3

Table 2: Relationships between use patterns and the total number of users. Note: Cells shaded in light red indicate the maximum number of users while cells shaded in blue indicate the minimum number of users. Cells shaded in darker red indicate the maximum number of users in each questionnaire element. This color coding applies on each questionnaire element.

The collected data was then analyzed according to each of the five user groups. The following table shows the number of participants (N2) in each user group and their relation to the questionnaire elements. The calculated percentages (P) indicate the number of participants in each questionnaire element (N2) in

accordance to the total number of users (N1) in each user group ( $P=N2/N1$ ). (Table 3) The results show that the first two user groups are those who go to the park to spend time with family members and friends (54 user) and people who visit the park alone to relax and enjoy the nature (34 user). The first group is mainly consisted of young adults between 25 and 30 (46.3%) while the participants of the second one has between 20 and 25 years old (47.1%). Most users of these two groups reached the park on foot (55.6%) and (44.1%) consequently, while none of them used a bicycle. They normally spend from 15 to 30 minutes on their way to the park (53.7%) for the first group and (47.2%) for the second one. The users of these two groups go between one to three times per month (75.9%) and (70.6%). Only (1.9%) of the first group tended to gather in the park on a daily basis. They usually spend from one to two hours per visit (50.0%) for both groups. It is worth mentioning that despite the reparable similarities of the use pattern of these two user groups, they are way far from being alike. The gatherings of the first group are based on social activities while participants of the second group prefer calmness and relaxation. That's why, users who visit the park to meet their friends mostly go in the evenings (30.1%) after work hours, meanwhile people who visit the park to enjoy the nature and relax tend to go in the morning (31.3%), when there is the least presence of the first group (21.9%).

Use Patterns	Meet Family and Friends		Enjoy Nature		Walk Dogs		Exercise		Play with Children	
	N1		N2		N2		N2		N2	
	54		34		19		8		4	
	N2	P	N2	P	N2	P	N2	P	N2	P
<b>Age</b>										
Between 15 and 20	1	1.9	0	0.0	0	0.0	1	12.5	0	0.0
Between 20 and 25	23	42.5	16	47.1	6	31.6	3	37.5	0	0.0
Between 25 and 30	25	46.3	13	38.2	7	36.8	3	37.5	2	50.0
Between 30 and 40	3	5.5	3	8.8	3	15.8	0.0	0.0	1	25.0
Between 40 and 60	1	1.9	1	2.9	2	10.5	0.0	0.0	1	25.0
More than 60	1	1.9	1	2.9	1	5.3	1	12.5	0	0.0
<b>Mode of Travel</b>										
on foot	30	55.6	15	44.1	12	63.2	5	62.5	0	0.0
bicycle	0	0.0	0	0.0	0	0.00	3	37.5	0	0.0
driving	19	35.2	14	41.2	6	31.6	0	0.0	2	50.0
bus	1	1.9	1	2.9	0	0.00	0	0.0	2	50.0
tram	1	1.9	4	11.8	1	5.3	0	0.0	0	0.0
<b>Duration of Travel</b>										
less than 15 min	17	31.5	11	32.4	8	42.1	2	25.0	0	0.0
Between 15-30 min	29	53.7	16	47.2	8	42.1	4	50.0	2	50.0
Between 31-60 min	5	9.3	4	11.8	2	10.5	0	0.0	2	50.0
More than 61 min	3	5.6	3	8.8	1	5.3	2	25.0	0	0.0
<b>Frequency of visit</b>										
everyday	1	1.9	2	5.9	3	15.8	1	12.5	0	0.0
2 timed per day	2	3.7	1	2.9	1	5.3	0	0.0	0	0.0
1-3 times per week	10	18.5	7	20.6	5	26.3	5	62.5	0	0.0
1-3 times per month	41	75.9	24	70.6	10	52.6	2	25.0	4	100
<b>Duration of visit</b>										
less than 1 hour	16	29.6	12	35.3	6	31.6	2	25.0	1	25.0
1-2 hours	27	50.0	17	50.0	11	57.9	2	25.0	2	50.0
2-4 hours	10	18.5	4	11.8	2	10.5	4	50.0	1	25.0
More than 4 hours	1	1.9	1	2.9	0	0.0	0	0.0	0	0.0
<b>Time of visit</b>	N=73		N=48		N=27		N=12		N=4	
Morning	16	21.9	15	31.3	9	33.3	3	25.0	1	25.0
Afternoon	18	24.7	14	29.2	7	25.9	3	25.0	2	50.0
Evening	22	30.1	13	27.1	6	22.2	4	33.3	0	0.0
Night	17	23.3	6	12.5	5	18.5	2	16.7	1	25.0

Table 3: Relationships between use patterns and user groups. Note: Cells shaded in light red indicate the maximum number of users while cells shaded in blue indicate the minimum number of users. This color coding applies on each user group.

The third user group represents dog owners (19 user), they are mainly between the age of 25 and 30. Basically they walk their dogs to the park (63.2%) and take from 15 to 30 minutes (84.2%). Users of this group frequently visit the park from one to three times a month (52.6%) and spend a period of one to two hours per visit (57.9%). They prefer visiting the park in the morning (33.3%) when there is less people and more space for playing with their dogs. People who visited the park to exercise formed the fourth group, they were young adults between 20 and 30 years old (75.0%). Basically, they reached the park on foot as some sort of exercising (62.5%), it took them from 15 to 30 mins to arrive there. They were the user group who visited the park more frequently from one to three times per week (62.5%) and who spend the longest period of time from two to four hours per visit (50.0%). This may be due to the consistency of the exercises which take place regularly and for a specific duration. They prefer visiting the park in the evenings (33.3%) before it turns out too dark. The last user group is consisted of parents who go to the park with their children (4

users) and which are generally between 25 and 30 years old. They reach the park either by driving or using the bus. This user group take the most time to reach the park from 15 to 60 minutes, this shows the importance of these visits for the children who rarely find an open green space to play in the city of Alexandria.

### 6.3 Users' perception of the park

#### 6.3.1 Additional factors to motivate the park's visits

Allenby Park has a unique location, it is situated in the heart of a lot of recreational, cultural and social attractive nodes. In order to identify the surrounding magnets which exist within the park's context, participants were asked to indicate all the additional factors which motivate them to visit the park more frequently. The calculated percentages (P1) indicate the total number of users who chose each factor (N1) regarding the total number of the users in the five user groups (Total N=188), meanwhile (P2) indicate the number of participants in each user group (N2) in accordance to the total number of users of all user groups (N1) in each element ( $P2=N2/N1$ ). (Table 4) The results show that what motivates all the user groups in general the most to visit the park are nearby food outlets and restaurants (34.0%), almost (42.9%) of the participants who chose the food outlets were among the group who meet family and friends. It is clear that this specific user group tend to have more social engagements and activities than the other user groups. On the other hand, participants considered organized events and fares the least attractive (40%). Both users who visited in groups and dog owners were the main two user groups who were motivated by the organized events (35.0%) and (27.5%) consequently. Prearranged appointments were basically chosen by users who meet their friends (53.5%) and the least chosen by people who go alone to enjoy nature (9.3%) and those who go with their children (7.0%). Finally, the surrounding facilities mainly attract users who go to the park alone and who were consisted mainly of neighbourhood residents, they declared to be motivated to visit the park after attending appointments at the bank or cultural facilities facing the park (39.0%).

Motivations	Total N		Family and Friends		Enjoy Nature		Walk Dogs		Exercise		Play with Children	
	N1	P1	N2	P2	N2	P2	N2	P2	N2	P2	N	P2
<b>Number of Users</b>	<b>188</b>		<b>84</b>		<b>45</b>		<b>37</b>		<b>15</b>		<b>7</b>	
organized event (fares/exhibitions/etc..)	40	21.3	14	35.0	10	25.0	11	27.5	4	10.0	1	2.5
prearranged appointments (with family or friends)	43	22.9	23	53.5	4	9.3	8	18.6	5	11.6	3	7.0
<b>nearby food outlets/restaurants</b>	<b>64</b>	<b>34.0</b>	<b>36</b>	<b>56.3</b>	<b>15</b>	<b>23.4</b>	<b>8</b>	<b>12.5</b>	<b>3</b>	<b>4.7</b>	<b>2</b>	<b>3.1</b>
nearby magnets (bank/facilities/cultural centres/etc..)	41	21.8	11	26.8	16	39.0	10	24.4	3	7.3	1	2.4

Table 4: additional motivation for park visits for all users. Note: Cells shaded in light red indicate the maximum number of users while cells shaded in blue indicate the minimum number of users. Cells shaded in darker red indicate the maximum number of users in each factor. This color coding applies on each factor.

Speaking from the user groups perspective, the additional motivation factors were then analyzed according to each of the five user groups. The following table shows the number of participants (N2) in each user group and their relation to the motivative factors. The calculated percentages (P) indicate the number of participants in each factor (N2) in accordance to the total number of users (N1) in each user group ( $P=N2/N1$ ). (Table 5) Results show that the user group who visited the park to meet family members and friends found the food outlets the most important attraction as well (42.9%), followed by the prearranged appointments (27.4%). Participants of this user group didn't find nearby facilities appealing (22.2%). This can be interpreted that users who visit the park in group pay little attention to the surrounding facilities and care the most about social gatherings where food is considered a primary element, prearranged appointments with friends and at last the organized events which don't take place more often (16.7%). Moreover, users who visited the park alone to enjoy nature and relax were mostly attracted by nearby facilities (35.6%) and least attracted by the prearranged appointments since they tended to avoid gathering in the first place (5.9%). Furthermore, dog owners were encouraged to visit the park by organized events (29.7%) and equally the least attracted by prearranged appointments and nearby food outlets (21.6%) for both elements. Users who visit the park to exercise were mostly motivated by prearranging appointments with their colleagues and trainers (33.3%) and equally the least attracted by food outlets and nearby facilities (20.0%) since they were

precise in their motivation to visit the park in the first place. Finally, families who visited to the park to play with children went in groups so they were mainly motivated by the prearrange appointments (42.9%).

Motivations	Meet Family and Friends		Enjoy Nature		Walk Dogs		Exercise		Play with Children	
	84		45		37		15		7	
N1	N2	P	N2	P	N2	P	N2	P	N2	P
organized event (fares/exhibitions/etc..)	14	16.7	10	22.2	11	29.7	4	26.7	1	14.3
prearranged appointments (with family or friends)	23	27.4	4	8.9	8	21.6	5	33.3	3	42.9
nearby food outlets/restaurants	36	42.9	15	33.3	8	21.6	3	20.0	2	28.6
nearby magnets (bank/facilities/cultural centres/etc..)	11	13.1	16	35.6	10	27.0	3	20.0	1	14.3

Table 5: additional motivation for park visits for each user group. Note: Cells shaded in light red indicate the maximum number of users while cells shaded in blue indicate the minimum number of users.

### 6.3.2 Satisfaction of users' experience at the park

Great experiences are generated from great spaces, each one of them give the user a chance of experiencing unique feelings such as admiration, belonging or exploration. A checklist was given to the participants in order to measure the satisfaction level of their experience at the park, on the scale from 1 to 5 (1 being very dissatisfied, and 5 being very satisfied). Users were mostly satisfied with the park's cleanness (3.48), they also found the number of seats (23 bench) so unsatisfying especially that most of the lawn area is also fenced. Table (6) From the user groups 'perspective, users who visited the park in groups were also highly satisfied with its cleanness (3.44) but needed more shaded seats (3.02). people who visited the park alone were equally satisfied with the park's cleanness, maintenance and the seats 'quality. Furthermore, dog owners were satisfied with park's maintenance but not with the seats 'number (3.05). on the other hand, users who came to exercise were the only group which is satisfied with the number of seats as they don't actually use them more often (4.25), however not with their location (3.13). Finally, families who visited the park to play with children were satisfied with the park's maintenance but not with its safety (2.8) nor with the seats' quality or the number of shaded seats (2.40 for both).

User's Satisfaction	Total N	Family & Friends	Enjoy Nature	Walk Dogs	Exercise	Play with Children
N	85	54	34	19	8	4
	Mean Score	Mean Score	Mean Score	Mean Score	Mean Score	Mean Score
Park's Safety	3.25	3.20	2.30	3.53	3.88	2.80
Park's Cleanness	3.48	3.44	3.50	3.58	4.00	3.40
Park's maintenance	3.42	3.39	3.50	3.79	3.38	3.60
Seats number	3.07	3.19	3.06	3.05	4.25	3.00
Seats' location	3.32	3.33	3.41	3.47	3.13	3.00
Seats' quality	3.39	3.30	3.50	3.68	3.63	2.40
Shaded seats	3.15	3.02	3.06	3.32	3.50	2.40
Mean Satisfaction Score (1 to 5 Scale)						

Table 6: user's satisfaction mean scores of their experience in the park from questionnaire based survey. Note: Cells shaded in light red indicate the highest satisfaction rate while cells shaded in blue indicate lowest satisfaction rate.

### 6.3.3 Needs of each user group

This particular question is to get opinions on several desired facilities which users need during their visit. (Table 7) The results are based on the list of statements where respondents were asked to indicate the extent to which they agree with the statement, on the scale from 1 to 5 (1 strongly disagree, and 5 strongly agree). The majority of the participants chose the animal friendly zone as their primary need (3.4). this can be interpreted through the large number of dog owners who visit the park, side interviews showed that locals call Allenby Park "dogs park". In fact, dog owners were the user group who agreed the most on the necessity of an open lawn zone for their dogs (4.26). Participants agreed that indoor activities are not needed in the park (2.84), they enjoyed open spaces more since the amount of open liveable space in Alexandria is very limited. The user group who desired the indoor activities were people who came to exercise since they sometimes need closed areas for the workouts especially in cold weather (3.25). From the user groups perspective, users who came in groups and alone both desired an animal-friendly zone the most (3.89) and (3.94) consequently, they didn't care much about the existence of public toilets. On another level, people

who came to exercise also appreciated the presence of WIFI (3.38) but not the public toilets (2.25). Finally, families who came to play with children appreciated the existence of children playground the most (3.60).

User's Needs	Total N	Family and Friends	Enjoy Nature	Walk Dogs	Exercise	Play with Children
N	85	54	34	19	8	4
	Mean Score	Mean Score	Mean Score	Mean Score	Mean Score	Mean Score
Public Toilets	3.40	2.19	2.29	1.21	2.25	3.00
Animal friendly zone	3.94	3.89	3.94	4.26	3.38	2.60
WIFI	3.84	3.91	3.59	4.05	4.00	2.40
Indoor activities	2.84	2.65	2.85	2.58	3.25	3.00
Exercise equipment's	3.61	3.72	3.79	3.47	3.63	2.60
Children playground	3.35	3.00	3.06	3.11	3.63	3.60

Table 7: users' mean scores of the desired needs of each user group. Note: Cells shaded in light red indicate the highest satisfaction rate while cells shaded in blue indicate lowest satisfaction rate.

### 6.4 Park's accessibility

Allenby Park is accessible through 6 entrances, the number of people who use each entrance was calculated through indicating the number of visitors who access the park through each entrance in ten minutes throughout 5 different times of the day. (Fig 2) The results indicate that entrances located on the main roads are the mostly used. The highest number of users (72-84 user/hour) access the park using entrance (1) that is located on the neighborhood's main street which connects the park to the city's main road in the north. Followed by entrances (2) and (6) that are both located on main streets and which also attract a large number of users (24-48 user/hour). However, from the on-site interviews that were held during the collecting data phase, users who came to the park by driving (34.1%) declared that they usually use these specific entrances because of the nearby parking lots located on the two main streets. Furthermore, entrances (3) and (4) which are situated on the eastern side of the park attracted the least number of users (13-24 user/hour) and (0-24 user/hour) consequently. People who use these entrances, especially entrance (4), come generally from a nearby low-income neighborhood. Due to the low usage of these entrances, the eastern area usually attracts users who want to sit alone and dog owners. Finally, the least active entrance is entrance (5) which is blocked as well as entire southern street due to diplomatic reasons. The surrounding context didn't only block accessibility to the park from the south, but most importantly due to this blocking, it created a calm and shaded area along the southern side. In fact, this specific area is most of the time occupied by users who go picnicking on the lawn and who are usually accompanied by friends or children.

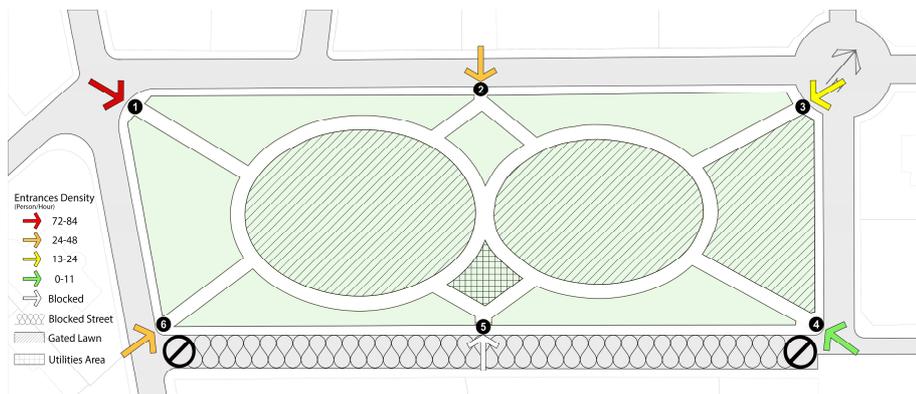


Fig. 2: Park's accessibility and context.

### 6.5 spatial distributions of the user groups and Density of settings' occupation

The spatial distribution patterns of different user groups at overall park level were detected through an observation-based survey. The clustering of each group's spatial distribution was detected to identify which group tends to explore a larger area in the park and which group tends to stay concentrated. Based on the results, it was interpreted that user who come to enjoy nature are more spatially dispersed and explore larger areas in the park. This might be because in contrast, users motivated to have social interactions usually have a specific activity that they would like to engage in and a specific park setting in mind to visit. For instance, those who come to play with children may prefer to spend time in shaded settings or play with children in a lawn area. Users who come to meet family members and friends may prefer to have direct access to entrances leading to nearby facilities such as food outlets, thus they tend to stay near the park's entrances. In

contrast, visitors who come to enjoy nature may not have a specific activity in mind, and instead are more interested in exploring the park. Hence, this group tends to have a larger walking area side by side with people who visit the park to exercise and dog owners. Observation also indicated that nature-oriented visitors usually stay longer, walk a longer distance and are spatially more distributed.

Approximately 80% of the park's total area is a fenced lawn, which leaves only 20% for circulation and seating. Fig (3) During the on-site interviews, visitors who belonged to different user groups manifested their desire to access the deprived zones. They were very upset with the concentration of all users within a small area which caused great crowdedness. Due to the lack of open lawn areas along with the unsatisfactory low number of seats (3.07 on Likert scale), visitors who came alone, with friends or with children tended to benefit from the small shaded open lawn area in the south to picnic. During the observation survey, it was detected that some users came to the park with their own portable seats, especially evenings when the park was mostly crowded (41.2%).



Fig. 3: (left) large fenced lawn area. (middle) well-maintained greenery. (right) small pathway left for seating and circulation.

## 6.6 Favourite settings for each user group and shared hotspots

In order to calculate the density of users, an observation-based survey was held whereas the number of users that occupy each seat in the park along with to which user group they belonged was detected. Then, the number of users location points during 5 different times a day throughout the whole observation period were calculated to illustrate the user density for different user groups and the occupation level of the park's settings. Fig. (4) The results suggest that users were concentrated in both northern and southern areas. Shaded settings resulting from large trees are mainly what these two areas have in common. The northern zone has high accessibility from main streets while the southern area tends to be private and quieter. On another hand, users were more evenly distributed on both sides of the intersecting ellipse shaped pathway. This distribution may result from the uncomfortably users get from sitting in a place which is exposed to a very high circulation such as the above-mentioned area.

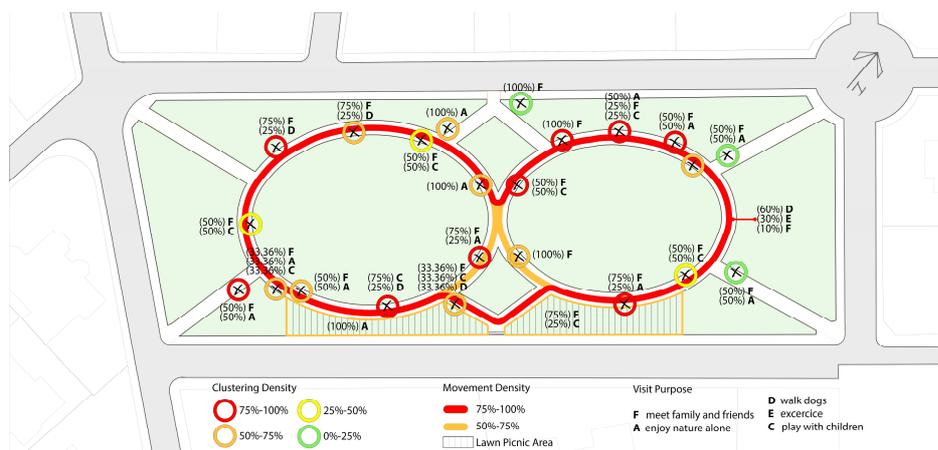


Fig. 4: Concentration density and favourite setting for each user group.

Following up to the previous clustering analysis, park areas that are frequently visited were detected in order to investigate the park 's favorite settings that attract different user groups to stay. Then a comparison of preferred park settings of different user groups was made by examining the shared hotspots to investigate whether different users prefer the same areas to stay in during their visits. The results indicate that users who came to meet family members and friends preferred shaded seating benches on the main streets near the

park's entrances. Areas further from the park busy entrances were visited more frequently by users who came to have contact with nature and relax. Meanwhile, users who visited the park to walk dogs preferred open lawn areas along with paved circulation paths. Those who visited the park to exercise also chose the paved circulation paths for jogging. Finally, the group who came to play with children chose shaded seats, open lawn and settings far from main streets and entrances.

Moreover, since conflicts often occur when different user groups use the same site at the same time, users who aim to enjoy the nature and relax are more sensitive to disturbances from other groups. Thus, they tend to choose areas with lower usage mainly in the eastern side of the park away from the main road Fig. (5) and in the southern area where both the park's entrance and the road are blocked as previously mentioned. Conflicts may arise because of crowdedness, blocked views or noise disturbances. For instance, this study suggests that a group of seats facing each other may be located on both the western and northern sides of the park to attract users who come to engage in social activities and meet their friends. That way users who go alone would enjoy nature peacefully.



Fig. 5: (left) passage leading from low-usage entrance 3. (middle) passage leading from low-usage entrance 4. (right) low-usage entrances produced quite seating areas suitable for enjoying the nature and relaxing.

## 6.7 Public interaction and involvement

### 6.7.1 Social activities

Great spaces encourage its visitors to interact and take part of its greatness. Urban spaces can affect its user in both a good and a bad way; it may encourage them to take part of social and cultural activities or at the opposite it may boost vandalism and crime. Further activities were noticed within the park; a nearby school used the park as an excursion to its student. The teachers drew animal figures on the trees so the children may later on identify them as a sort of an outdoor activity. Fig (6) One of these excursions actually visited the park in the same time of one of the observation surveys. Children were notably very excited and delivered their joy to all the other users who visited the park. The school wouldn't have taken such an action if the park wasn't appealing enough for the children or safe and clean for them.



Fig. 6: (left) outdoor school activities for children. (middle) example of school activity. (right) example of school activity.

### 6.7.2 Neighbourhood residents' sense of community

Neighbourhood open spaces work appropriately when people feel a sense of control over them. Conversely, open spaces fail when people perceive them as belonging to the city. The residents of kafr Abdo neighborhood founded an organization called the "Kafr Abdou community". This organization's main aim is to make kafr Abdo a better livable neighborhood. From the on-site interviews, residents stated that a small

amount of money is collected from each dwelling per month in order to keep the neighborhood clean and well-maintained. They placed garbage bins all over the neighborhood (fig. 7), paid gardeners to keep the park at the best shape they could and organized seasonal events/fares for small crafts, events to raise awareness about a certain topic or even to encourage social engagement of the residents. This had a direct effect on the users 'experience while visiting the park, as they were mostly satisfied with the park's cleanness. see (Table 6)



Fig. 7: (left) garbage bins placed by the neighbourhood community. (right) Park's cleanness and maintenance.

## 7 CONCLUSION AND RECOMMENDATIONS

In summary, when designing or renovating urban spaces, planners should pay great attention to the users of the space they are designing, whether they were residents or non-neighborhood residents. Decision makers must understand users' socio-economic status, cultural background, interests and motives. These factors will later on have a direct influence on users' behavior, on how they perceive the space's features and most importantly whether it fulfills their needs or not. The study found that despite the location of Allenby Park, which is situated in a high-income level neighbourhood, almost half of the users came from different parts of the city and took more time to reach the park.

According to the study findings, people who visited the park for different purposes had different use patterns, users who went alone to enjoy the nature stayed the longest (from two to four hours per visit). None of the participated families who came to play with children reached the park on foot, they were all derived from lower-income neighborhoods where greenery and open spaces in general are very limited. The user group who visited the park more frequently was consisted of users who go to play sports and that is mainly due to the consistency of their exercises. Both users who go with friends and those who choose to go alone to relax have a similar use pattern, however they visit the park at two different times of the day to avoid conflicts.

The findings also show that what motivates people to visit the park more frequently are basically the food outlets which are located nearby the park, they attract more often the group of users who go to meet friends and engage in social activities. People who go alone to enjoy nature and who are also mainly neighborhood residents, are attracted by nearby facilities such as banks. Finally, families who go to play with children stated that the pre-arranged appointments are what motivate them the most, that can be explained because they are derived from far districts and tend to visit the park in groups. Moreover, users are mostly satisfied with the park's cleanness which is resulted from the organization founded by the neighborhood community to help in maintaining the park.

The surrounding context had a great impact on the areas which each user group prefer; the diplomatic building which caused the blocking of the southern entrance and street made that zone suitable and safe for children. Furthermore, the eastern side of the park included low-usage entrances that people from a nearby low-income neighborhood used to access the park. This generated a calm and relaxing zone for those who preferred going alone to enjoy the nature. The findings of this study emphasize the necessity of allocating additional park settings to satisfy users 'needs. It is also important to reduce the amount of fenced lawn areas and open them to the public, this way the circulation pathways would be less dense which would give space for exercising and walking dogs. Following users' needs, a segregated animal-friendly zone would be highly appreciated due to the large number of dog owners who visit the park.

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