



THE EFFECT OF PUBLIC LIGHTING ON THE PEDESTRIAN'S SENSE OF SAFETY IN THE CITY PARKS CASE STUDY: DÜNYA BARIŞ PARK, BEŞİKTAŞ, ISTANBUL

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ABSTRACT

People seek out parks because they provide contact with the natural environment and a social environment which offers opportunities for meeting with friends, watching others and being seen all of which help to establish a feeling of comfort and security. The design of a park can have a direct impact on people's perceptions of safety and their willingness to use a space. The physical characteristics which park users associate with high-risk environments include: Poor lighting, Confusing layout, Physical and aural isolation, Poor visibility, No access to help, Areas of concealment, Poor maintenance, Vandalism, Presence of "undesirables". In this paper we are going to focus on lighting and the effect of that in the safety of dunya Baris Park near besiktas, Istanbul, turkey. The single most requested physical design modification to improve safety is usually an increase in lighting. Lighting is a key factor because it can clarify the layout of a park by emphasizing walkways, focal points, gathering places and building entrances. When planned as a coordinated system, lighting improves the night time legibility, use and enjoyment of a site. Different methodologies have made in this case, like Experimental Study Area, site observations, to understand qualitative variables and also, make questionnaires about user satisfaction in this park to reach both qualitative and quantitative variables, In order to know the effect of public lighting on the pedestrian's sense of safety in the city parks.

Keywords: Public lighting, Safety, Urban parks, park lighting

INTRODUCTION

Different theories have been proposed to detect the causes of the creation of cities and human societies, one of which considers the issue of security and safety effective in this field. In many cases, the design type of physical spaces has certain roles that make an area or space unsafe or secure. Of course, the fact that parks and gardens play an important role not as utilization but as an urban green infrastructure should be considered at the highest – metropolitan- level of design policymaking. If we divide the available spaces into two under-roof and outdoor spaces, the interior or the so-called underroof spaces should have some characteristics such as the protection of privacy. On the contrary, the outdoor spaces or the spaces in the open air should be a place for social interactions, being subject to the public, and should be experience able and equal spaces for all in order to have a healthy life. Indeed, as a house and all its interior spaces provides a safe shelter for family and guests, a city and its spaces should provide safety and security for all residents and administrators equally (Lubuvva and Mtani, 2004). Some call safe spaces "defensible spaces". In fact, they are spaces

in which people are more active, feel more secured and there is fewer incidences of criminal activities.

Urban parks are of a strategic importance for the quality of life of our increasingly urbanized society and provide significant ecosystem services, as environmentally, aesthetically, recreationally, psychologically and economically. The presence of natural assets such as urban parks and forests, green belts and components (i.e. trees, water) in urban contexts contributes to the quality of life in many ways. In the 19th century with massive urbanization, the continued explosive growth of urban areas and the decline of nature throughout the 20th century, the alienation between people and the nature was increased. Urban parks, open space and related human health issues are a critical component of any state, regional, and local infrastructure plan for livable, just communities. Urban parks promote the core values at stake in building public infrastructure: providing children the simple joys of playing in the park; improving health and recreation; equal access to public resources; democratic participation in deciding the future of the community; economic vitality for all with increased property values, local jobs, small business contracts, and affordable housing; spiritual values in protecting people and the earth; the environmental benefits of clean air, water, and ground; and sustainable regional planning.

LITERATURE SURVEY

Bova (1988) investigated the different aspects of the impact of light on human life and the environment and has highlighted the different usages of light in different industries and arts. The book "Daylight in Architecture" by Benjamin Evans in the field of utilization of natural light in processing and its practical applications in architecture has proposed many issues and examples. Steffy (2002) in the book "Architectural Lighting Design" referred to the principles, methods and artistic and technological aspects of architecture lighting through artificial light and comprehensively take into account the cycle of a lighting project in monuments and buildings from the beginning to the end. The lighting research project of urban parks (Prelovšek et al., 2012) has investigated two urban parks in Slovenia and presented some guidelines to improve the quality of park spaces at night which can also be generalized to other similar urban spaces (Herbert and Davidson, 1994). In their joint article, they considered the role of street lighting in reducing crime and corruption and evaluated the effects of street lighting in this field with a very significant positive correlation. The article by Knez (1995) examined the effect of lighting on human's temperament and investigates the effect of interior lighting of buildings on human with different intensities and colors and regards it as one of the factors effective in human performance in the workplace and life and has shown that its effect on men and women is different. Seitingner (2007) focused her research on urban screens (urban television) and pointed out that urban lighting is an issue that still has a potential capacity for study and research. In this regard, she emphasized the existence of a different expertise for a comprehensive lighting design. In Iran, while considering the general principles of lighting of urban parks, Adibi et al. (2006) point out that in their paper that night landscape should be taken into consideration by designers as an integral part in the design of parks and gardens simultaneously with other sectors. This article regards park lighting effective in the readability of signs, pathways, provision of facilitation and security and encouraging citizens to use the parks at night. Today, in many major cities around the world, urban managers try to establish a connection between people, lighting and urban environment by using lighting consultants and implementing different plans and hold a social approach to urban lighting. Urban lighting is a functional field that despite its progress still has important and effective capabilities that must be taken into consideration. In this study, we seek to look at lighting from the viewpoint of its effectiveness in increasing the security of urban parks.

STATEMENT OF PROBLEM

Urban lighting design especially park lighting is not a matter of decoration. It is, rather, a way to answer to our search for a progressive method of better preparation of safety and a comfortable environment. Today, lighting means the identity and the lack of light or darkness at night caused problems such as increased incidents, accidents, crime and violation and reduces social security. Accordingly, the night life has become a part of urban life. As a result, in order to create a suitable and secure spaces for urban nightlife and to improve the visual quality, lighting in parks is one of the important subjects for designers. In order to Increases safety in parks and Highlight the identity of a place, and also create a sense of drama we should use lighting methods .Lighting is a key factor because it can clarify the layout of a park by emphasizing walkways, focal points, gathering places and building entrances. This study regards park lighting effective in the readability of signs, pathways, provision of facilitation and security and encouraging citizens to use the parks at night.

THE IMPORTANCE AND NECESSITY OF RESEARCH

Today, less attention has been given to its capacity as an effective factor in attracting visitors and enhancing the security in parks. The present study is important since in addition to evaluating the role of lighting as an important and effective factor in increasing in the number of visitors, it investigates and improves parks safety.

METHODOLOGY

Different methodologies have made in this case, like Experimental Study Area, site observations, to understand qualitative variables and also, make questionnaires about user satisfaction in this park to reach both qualitative and quantitative variables, In order to know the effect of public lighting on the pedestrian's sense of safety in the city parks.

THE THEORETICAL LITERATURE OF DEFINITIONS AND TERMINOLOGY

Lighting

Lighting is an issue in the field of biology and physiology as it is related to psychology. Good lighting in any context (urban, architectural, green space) depends on the accurate understanding of the features of the lighting case. This is perhaps the most important stage of the set of procedures in lighting process. Answers to some questions such as “what kind of lighting do people need in order to implement their plans properly?” or “what lighting method provide more comfort for them?”

Park lighting

Park lighting is a combination of lighting of accessories, park buildings, furniture, lamps and, symbols and sculptures that in addition to providing the conditions for continuing activities and functions of the park at night, it plays an important role in the establishment of thesecurity and comfort and attractiveness of parking spaces.

The importance of urban lighting and its role in providing security

City is an environment with much diversity, with less or more facilities, parks and gardens, wide and narrow neighborhoods and with different streets and pathways that links together social spaces. All new facilities in today's cities as in the past are not able to provide peace and security for citizens. The factors that destroys the urban security are numerous. Some urban areas are considered as unsafe places such as urban under stairs, inside the underpasses, overpasses are some examples of indefensible spaces in cities. Lighting and light design belong to art and science and they require proper understanding of the function of the light source. Lighting should be completely evaluated in different sizes. By using good

ideas in architectural and landscape architecture, lighting becomes an important design element. Another thing about outdoor lighting is that it lets you to walk during the night and at the same time it prevents crime in your neighborhood.

CASE STUDY: DUNYA BARİS PARK, BEŞİKTAS, ISTANBUL

Dunya Baris Park with almost 10 thousand square meters is located in the neighborhood of besiktas between Ihlamurdere Street and Ihlamur Yildiz Street. The park has trees planted in the name of every country that symbolizes peace in the park and flags of about 15 countries. Dunya baris park, ihlamur park, ihlamur kasr, Abbasaga park, are places that especially people who live in Macka, fulya and Besiktas district use the most as an urban park in their neighborhoods.

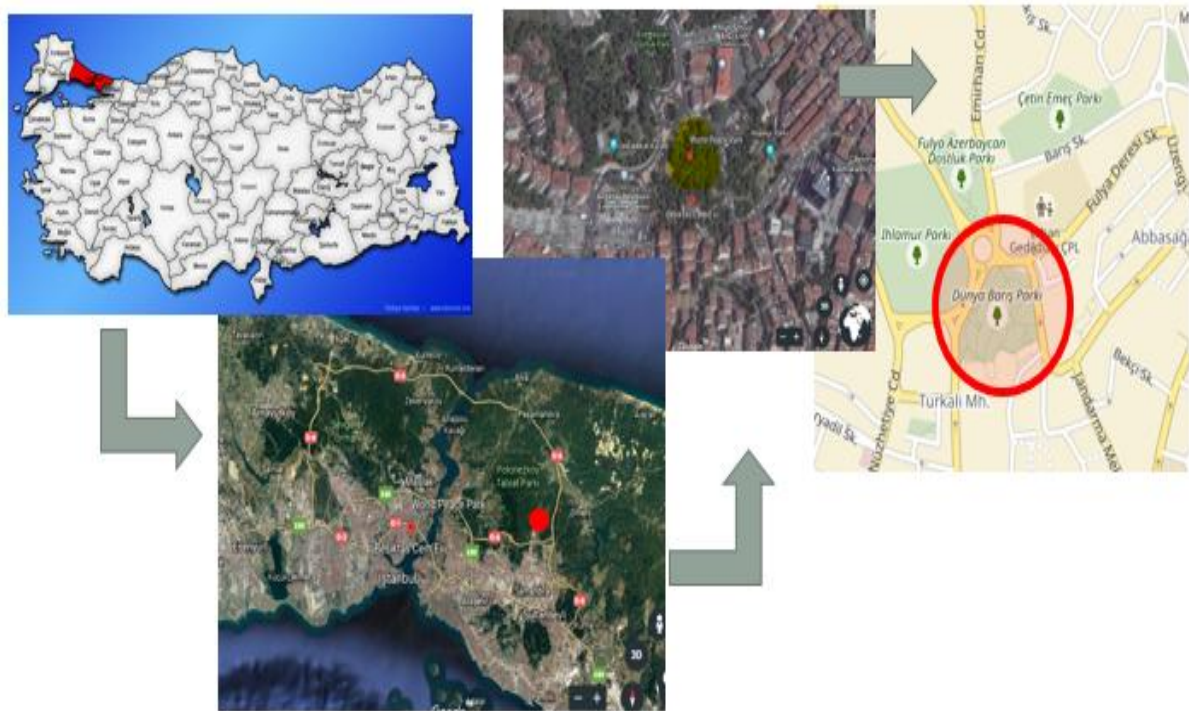


Figure 1: location of dunya Baris Park

The park was built in the year 2000 by besiktas municipality at beşiktaş district of Istanbul city.

Site observation

The Observations are made during three weeks in both weekday and weekend and also Pictures are taken from different parts of the park in order to identify the unsafe places that may carry risk. In addition thirty people were randomly selected. Questions were asked about their satisfaction from the park. And whether the park's lighting level is sufficient for them or not in different times of the day.



Figure 2: Inappropriate areas in terms of lighting in dunya baris park

Survey template

1. What is your age?
 - 20 and under
 - 21 to 40
 - 41 to 60
 - 61 and over
2. What is your gender?
 - Male
 - Female
3. How far are you living from the park? (1mile=1609meter)
 - 0 to 1/4 mile away
 - 1/4 to 1/2 mile away
 - 1/2 to 3/4 mile away
 - 3/4 to 1 mile away
 - more than one mile away
 - more than 5 miles away
4. How often do you use this park?
 - Daily
 - Weekly
 - Monthly
 - Occasionally
 - rarely
5. In general, do you come alone or with others?
 - Alone
 - With others
6. Why do you visit this park?
 - Time with family and/ or friends
 - Exercise or Jog
 - Relax

- Walk Dog
 - Others
7. Please rate the condition of park equipment.
 - Good
 - Fair
 - Poor
 - N/A
 8. Please rate the condition of the park lighting at night.
 - Good
 - Fair
 - Poor
 - N/A
 9. Do you feel safe in this park?
 - Often
 - Sometimes
 - Never
 - No opinion
 10. At which part of the day do you prefer to go to the park?
 - Morning
 - Noon
 - Evening
 - Night

RESULTS

according to the observations and questionnaires that were made in this case study, we observed that both men and women are the users of this park in an almost same ratio. but the age profile is different among the users. 53.3 percent of people come to this park are between 21 to 40 years old and most of them live 1.2 to 3.4 miles away from the park.

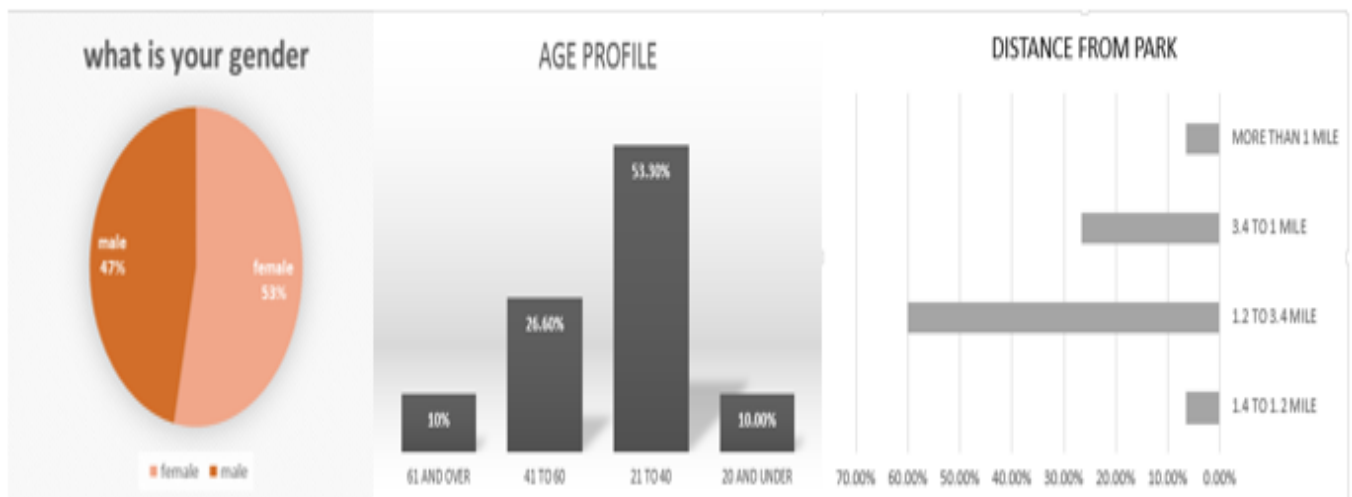


Figure 3: age and gender chart ,living distance from park

Questions were asked about how often they were using the park and if they visit alone or not. and the results show that most of the people use the park occasionally and they prefer to come alone.

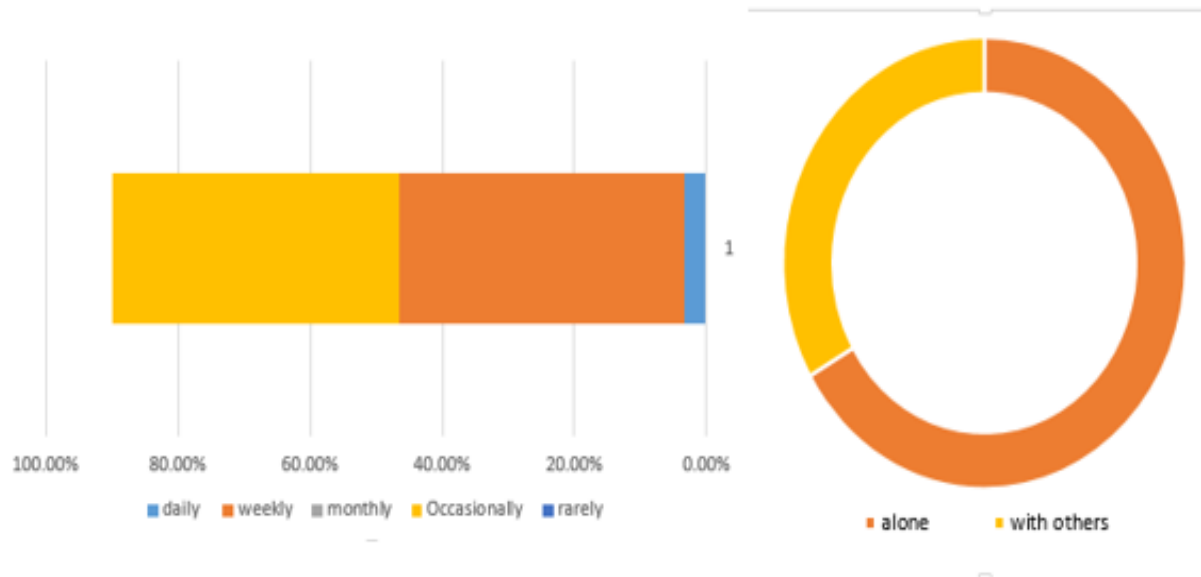


Figure 4: how often people visit the park

After that, they were asked about activities which they do in the park and the result show that almost half of the users come to park just to walk their dogs.

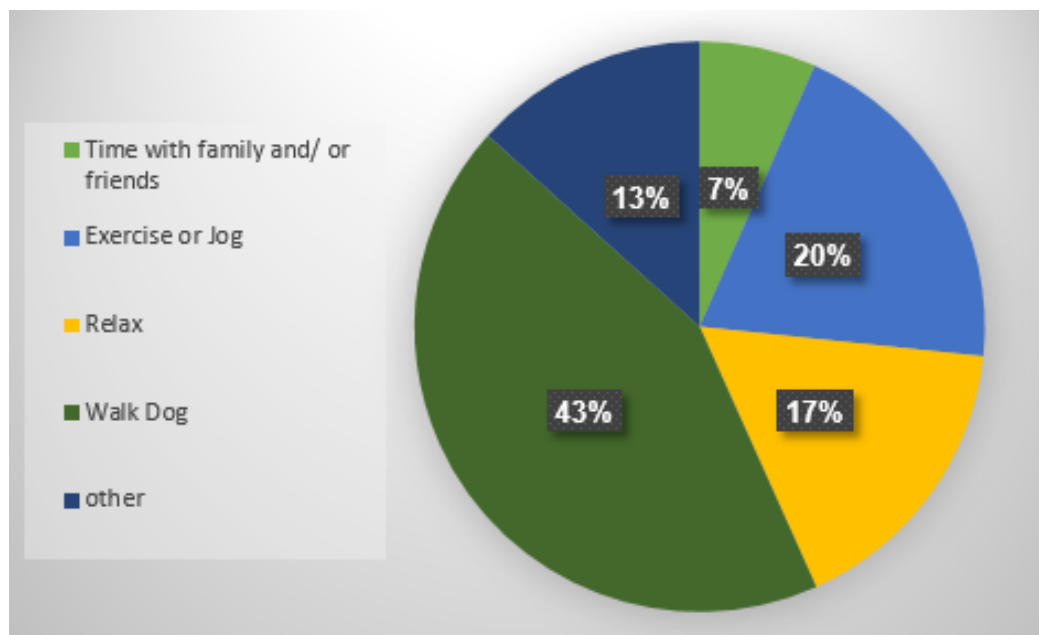


Figure 5: user activity

And also other questions were asked about user satisfaction in the park. First, they were asked about the condition of park equipment and after that, some questions about the quality of park lighting were asked to them. At the end of a survey, they were asked if they feel safe in the park or not and which part of the day they prefer to go there.

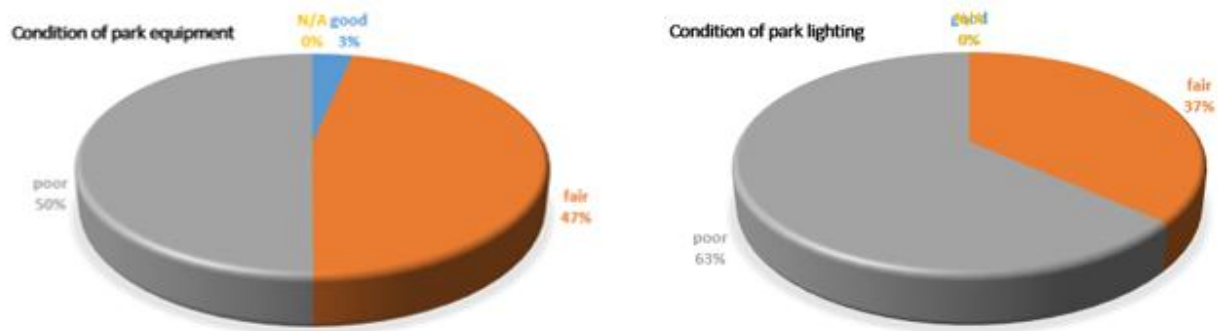


Figure 6: user satisfaction of park equipment and lighting

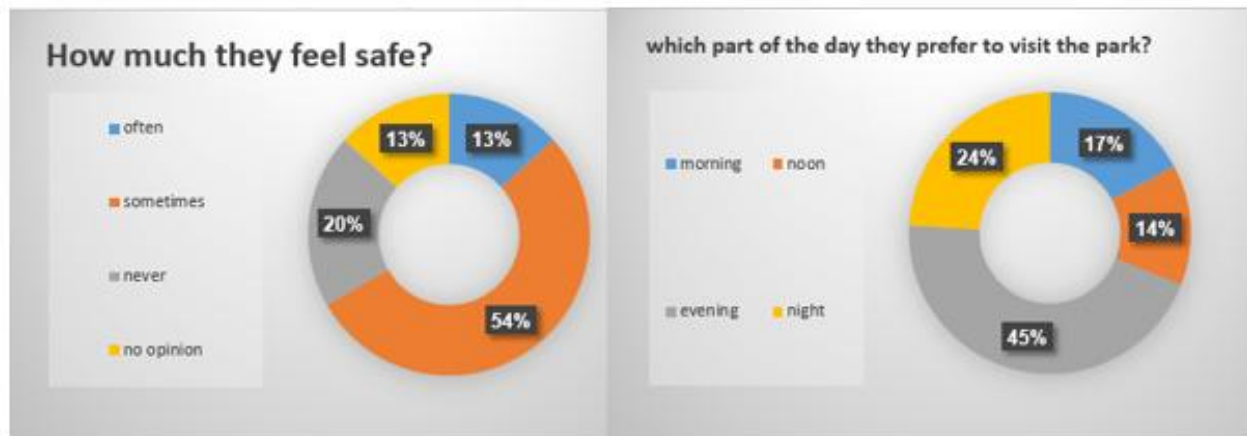


Figure 7: user safety and Maximum use time during the day

People didn't feel safe enough in this park but in order to answer their daily needs they have to use the park mostly in the evening. There are some examples of proper lightening and solutions for our case area that can be use in order to make a place more useable and safer.



memorial to victims of violence, Mexico, by Gaeta Sprigall Architects.



Queen Elizabeth Olympic Park, London, United Kingdom

Figure 8: samples of proper lighting

The main strategy to achieve the goals in the field of lighting is in the first place changing the attitude of authorities and institutions associated with urban issues toward lighting. The approach to park lighting as a minor, decorative and expensive activity should change. The urban authorities and institutions should be aware that nowadays park lighting can improve places and the quality of urban environments and enhance security.

Exterior lighting creates security and peace, and if the lights are used properly, they can make tremendous changes in the beauty and security of the environment without huge spending. In addition to providing lighting and security in the environment, lighting elements are also used as design elements.

If designed properly, lighting elements can also be used as architectural elements in daylight. Otherwise, it should be invisible or hidden in the environment.

It is hoped that this study will bring about effective practical results for the improvement of urban lighting condition and social security through a proper urban lighting design.

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