



Evaluation of Pedestrianized Streets in Terms of Landscape Design and User Satisfaction: The Case of Antalya-Şarampol Street

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Abstract

Due to the urbanization in the world, there is a great increase in the number of vehicles in the cities. The increase in the number of vehicles causes an increase in vehicle roads and prevents the pedestrians to move comfortably and safely in the cities. This situation affects negatively the individuals living in urban areas in terms of social, economic and physical aspects. Antalya where the research area is located is one of the Turkey's most important tourism centers. Şarampol Street, located in the center of Antalya city, is one of the most densely used streets in the city. In 2017-2018, the street was closed to traffic within the scope of urban design and landscaping project. Thus, the street has been pedestrianized by the spatial arrangements realized within the scope of the project. In this study, it is aimed to investigate the pedestrianization of Antalya-Şarampol Street in terms of landscape design and user satisfaction. In this context, as a result of the evaluation of the data obtained from the analyzes, 82.3% of the users stated that they were satisfied with the project which realized in the street. They also stated that after the implementation of the project, the street became a center of attraction for the region. As a result recommendations have been made to increase the spatial quality of the research area and to increase user satisfaction.

Keywords: Pedestrianization, landscape design, user satisfaction, Antalya.

Yayalaştırılmış Caddelerin Peyzaj Tasarımı ve Kullanıcı Memnuniyeti Açısından Değerlendirilmesi: Antalya-Şarampol Caddesi Örneği

Öz

Dünya'da yaşanan kentleşmeye bağlı olarak kentlerdeki araç sayısında büyük bir artış yaşanmaktadır. Araç sayısındaki artış araç yollarının artmasına ve yayaların kentlerde rahat ve güvenli bir şekilde dolaşımına engel olmaktadır. Bu durum ise kentlerde yaşayan bireyleri sosyal, ekonomik ve fiziksel yönden olumsuz etkilemektedir. Araştırma alanının yer aldığı Antalya kenti, Türkiye'nin en önemli turizm merkezlerinden birisidir. Antalya kentinin merkezinde yer alan Şarampol Caddesi ise geçmişten beri kentin en yoğun kullanılan caddelerindedir. 2017-2018 yıllarında caddede gerçekleştirilen Kentsel Tasarım ve Çevre Düzenlemesi projesi ile cadde araç trafiğine kapatılmıştır. Böylece cadde, proje kapsamında gerçekleştirilen mekansal düzenlemelerle yayalaştırılmıştır. Çalışmada Antalya-Şarampol Caddesi'nin yayalaştırılmasının peyzaj tasarımı ve kullanıcı memnuniyeti açısından incelenmesi amaçlanmıştır. Bu kapsamda gerçekleştirilen analizlerden elde edilen verilerin değerlendirilmesi sonucunda Şarampol Caddesinde gerçekleştirilen projeden kullanıcıların %82.3'ünün memnun olduğu tespit edilmiştir. Ayrıca kullanıcılar projenin uygulanmasından sonra caddenin bölge için önemli bir mekân haline geldiğini belirtmişlerdir. Sonuç olarak, araştırma alanının mekansal kalitesini arttırmak ve kullanıcı memnuniyetini arttırmak için önerilerde bulunulmuştur.

Anahtar Kelimeler: Yayalaştırma, peyzaj tasarımı, kullanıcı memnuniyeti, Antalya.

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1. Introduction

The number of motor vehicles is increasing day by day due to urbanization in the world. As a result of increasing urbanization and motor vehicle traffic, people living in the city deprive of the opportunity of comfortable ease of movement especially in public spaces in the city center (Darby and Selcuk 2015; Tarakci Eren et al. 2018). In addition, the rapid growth of the cities cause a rapid change and transformation in the functions of the city center. This change cause traffic congestion and environmental pollution in urban centers and a decrease in physical, social and economic attractiveness (Oztan 2004; Soni and Soni 2016; Tarakci Eren et al. 2018).

In recent years, with the campaigns carried out within the scope of environment-friendly cities in the world, people are encouraged to walk and benefit from the opportunities of the city in which they live. In addition, many institutions and organizations want to benefit from many benefits of environmental, social and economic aspects provided directly and indirectly by pedestrianization activities (Table 1). For this reason, in many cities around the world, local governments attach great importance to pedestrianization projects in the urban centers (Celebican 2011).

Table 1. Benefits of implementing pedestrianisation (Leung 2009)

Environmental and Safety	Reduced air pollution
	Reduced noise pollution
	Provide safe environment
	Reduced traffic accidents
	Improved physical health
Social Benefits	Providing of Public Space
	Improved lifestyle and community livability
	Heritage preservation
	Opportunities for urban renewal
Economic Development	Improved economic productivities
	Increased property values
	Increased pedestrian traffic
	Improved retail trade
	Increased employment

Although various definitions have been made by different researchers for pedestrianization, Cambridge dictionary defines Pedestrianization as "to make an area into one where vehicles are not allowed to go". Hence, pedestrianization is to convert (a street) into an area for the use of pedestrians only, by excluding all motor vehicles. "Car-free" space or city is another popular term (Soni and Soni 2016; Dinc and Hergüner 2017; Güngör and Güzelgene 2017).

Three kinds of pedestrianization defined commonly (Iranmanesh 2008; Mofrad and Shahni 2013; Soni and Soni 2016).

1. Full time pedestrian streets: In this design arrival of vehicles into street is fully forbidden and usually services are in the back of street. In most cases only emergency service vehicles are allowed to enter.
2. Part-time pedestrian streets: Part-time pedestrian streets are those where vehicular access is allowed only in specific periods. There is no on-street parking spaces allowed but however loading bays are available.
3. Traffic calming streets: The third form of pedestrianisation is traffic calming streets. They serve to reduce the dominance and speed of road vehicles. There are no restrictions to vehicle access, but footpaths are widened and parking spaces are reduced. Various traffic calming measures are used to slow down the speed of vehicles. They include speed tables, narrower traffic lanes and use of different road textures and colors to remind drivers that they are within traffic calming zones (Iranmanesh 2008; Mofrad and Shahni 2013; Soni and Soni 2016).

According to Mumford (1961), some form of pedestrianisation can be found in records dating back as far as the times of Leonardo Di Vinci (Moosajee 2009). In the nineteenth century, European Countries built many pedestrian arcades. These precincts are, however, different to precincts today (Moosajee 2009).

Although the modern pedestrianization activities began in the 1920s and 1930s, the actual works began with the reconstruction of the cities after the Second World War (Moosajee 2009). At that time, increasing the number of

vehicles in cities attracted the attention of different experts. Thus, experts proposed urban planning models to make the city suitable for both vehicles and pedestrians (Blaga 2013). According to Hall (1985), Germany was the pioneer of modern pedestrianization with at least 1 pedestrianized street in each of the 35 cities until 1960. In 1984, there were more than 800 pedestrianized streets in Germany's urban centers (Moosajee 2009). In this context, pedestrianization activities have been implemented in many different cities especially in Japan, Singapore, Shanghai and Beijing in the last 20 years (Leung 2009).

Depending on the growing population and urbanization in Turkey it is experienced an increase in the number of vehicles. For this reason, pedestrianization activities are carried out in many cities in order to ensure that the pedestrians are comfortably and safely circulated within the city.

In this context, the first pedestrianization arrangements were carried out in Turkey in Istanbul-Beyazit. After this period, pedestrianization projects in Istanbul have increased because of increasing population density of the city, increasing traffic problems and the lack of public spaces. Moreover, many pedestrianization projects have been implemented in different cities of Turkey such as Antalya, Eskişehir and İzmir (Caliskan 2011).

In this research, the pedestrianization of Antalya-Şarampol Street was investigated with regard to landscape design principles and user satisfaction. Şarampol Street has been subjected to latest pedestrianized application in Antalya defined as tourism capital of Turkey. Therefore outcomes of the pedestrianization were discussed with economic, safety and social benefits.

2. Material and Method

2.1. Material

Antalya, with Taurus Mountains stretching along the shoreline in the north, Mediterranean Sea in the south, is the neighbor of Mersin, Konya and Karaman in the east, Isparta and Burdur in the north and Mugla in the west. The area of the city is 20.815 km², and this is the 2.6% of Turkey's total area (Sarı 2012; Erdogan et al. 2016; Olgun and Erdogan 2016). Moreover, its population is 2.364.396 according to Address Based Population Register System in 2017 (Turkish Statistical Institute 2018).

The main material of the research is the Şarampol Street, which is one of the oldest streets in Antalya (Figure 1). The street in the center of the city is one of the most important transit routes used by the people living in the city. The street, which was previously open to vehicle traffic, was closed to vehicle traffic within the scope of "Şarampol Street Urban Design and Landscaping" project which was realized with the motto "Legend is returning, Şarampol is flourishing" as to be full time pedestrian streets.

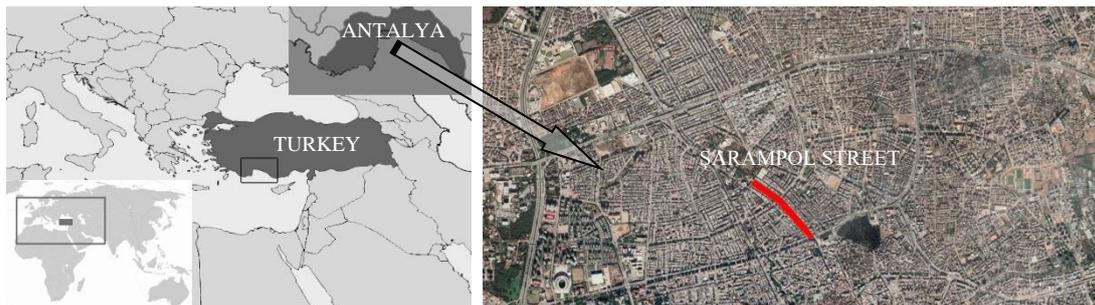


Figure 1. Location of research area (Google Earth, 2019).

2.2. Method

The research was carried out in 3 stages.

In the first phase of the research, the current situation of the research area has been determined. In this context, the literature (books, dissertations, papers, notices and reports) has been reviewed, the research area has been observed with structured observation method and Şarampol Street urban design and environmental design project has been examined.

In the second phase of the study, the user satisfaction survey was conducted to evaluate the landscape design of the research area. The questionnaire form was prepared in accordance with the information obtained from the

observations and literature (Postalcioglu 2009; Senkaynak 2010; Pehlivan 2015; Demir et al. 2016; Akin 2018).

Regarding to user satisfaction, the size of the exemplifying universe was calculated according to Yazicioglu and Erdogan (2014) where the sample size was determined as 96 persons at 0.05 significance level with $d=+0.10$ sampling error and $p = 0.5, q = 0.5$ probability.

The survey was conducted on a voluntary basis, and by simple random sampling method over a period of 1 month in different time periods of the week. The questionnaire form, which consists of 15 questions, consists of three parts. In the first part of the questionnaire form, the questions about the socio-demographic status of the users, in the second section their mativation behind choosing the street and in the third section the user opinions about the street were questined to the randomly selected users. The data obtained from the questionnaire were digitized in SPSS program and the data were evaluated with frequency and descriptive analysis methods.

In the final phase of the research, the data which obtained from the literature, field surveys and analysis were evaluated together. In this context, recommendations have been made to increase the spatial quality of the research area and to increase user satisfaction.

3. Results and Discussion

Şarampol Street, which is one of the oldest streets of the city, is located in the city center. Public institutions, shopping centers, historical places and residential areas in the vicinity of the street lead to intensive use of both domestic and foreign tourists and residents of the city. Yener Ulusoy and Adnan Menderes Boulevards located south of the Şarampol Street are among the routes with the most intense vehicular traffic in the city. In addition, the historic Muratpaşa Mosque, Mark Antalya Shopping Mall and the street outgoing to the historic Kaleiçi district, located south of the street, increase the usage density of the Şarampol Street. To the north of the street are the Social Security Institution Provincial Directorate, the Forest District Directorate and the Covered Market. In this context, Şarampol Street has an important place in the city as it is close to public institutions, residential areas, commercial centers and historical places.

To launch Şarampol Street urban design and landscaping project of the Şarampol Street by the Antalya Metropolitan Municipality, project promotion meetings were held. Voting was carried out in 9 neighborhoods respectively Elmalı, Balbey, Tahıl pazarı, Cumhuriyet, Güvenlik, Kızılsaray, Muratpaşa, Sedir, Üçgen in order to evaluate the needs and requests of the individuals living in and around Şarampol Street where the project will be carried out. According to the voting results of the referendum held on October 18, 2015, and as a result the neighbourhood approved and requested the implementation of the project with 90.19% and with agreeing 4637 people.

In the beginning of pedestrianization project, the main street, Şarampol was closed to vehicle traffic and the road which comes from the Tonguç Street was dividing Şarampol Street into two parts. For this reason, 3-underpass for vehicle was built along the Tonguç Street in order to allow walkway flow (Figure 3). In addition, infrastructure works have been carried out to avoid problems such as flooding relating to infnrastructure. In addition service roads have been constructed to allow ambulance, fire and emergency services.

Priorities of Şarampol pedestrianization project were to improve functional and aesthetic qualities of the street. Regarding to this scope and in order to improve visual quality of the built setting, the facades of the buildings were painted and the facades of the shops and retail stores were renovated by rather natural mateials such as wood veneer. In addition, the signs of shops and stores have been standardized.

Furthermore site-specific lighting and seating units have been used. Taking into the fact that project site is located in the Mediterranean region with very dry and sunny summers, shading equipments were designed as a linear and circular form to protect users from the uncomfortable effect of sun. On the pavement of the sidewalks, granite cube stone has been used. According to the information received from the Antalya Metropolitan Municipality, in the pedestrian road, which previously was a vehicle road and pedestrianized with the project, synthetic resin bonded natural aggregate as a road pavement material were used in or to allow easy and flexible wheel chairs and prams move. In addition, the color led lighting used in the ground gives a nice view to the street especially in the evening (Figure 4).



Figure 2. Characteristics along Şarampol Street (Original).



Figure 3. Construction (Gorez 2017) and present state of underpass for vehicle.



Figure 4. Urban equipment elements in the research area

There are 5 ornamental pools on the street. This ornamental pools designed and applied for the street which are adding an extra beauty and visual attraction as well as cooling effect for the street. Especially, the designed pools offer a visual feast with water shows which synchronized with tram passes, and lighting systems.

Parking is the most important problem for those who come to the street with their vehicles. In this context, the areas at the back of the street have been merged by the metropolitan municipality and convert into a car park. In the project, underground and multi-storey car parking solutions were located on both sides of the street. However, the underground car park project to be built in Giritli Park (Üçgen Neighborhood) was canceled with the referendum (Voting participants: Üçgen Neighborhood, Cumhuriyet Neighborhood and Şarampol Street tradesman) on 11 June 2017 (Antalya Metropolitan Municipality 2018). The other underground car park

planned in Göçmen Park (Cumhuriyet Neighborhood) have been completed with the open green area which is top of the underground car park (children's playgrounds, walking-track, sports exercise area, ornamental pool, seating areas and green areas) (Figure 5).



Figure 5. Construction of underground car park planned in Göçmen Park (Antalya Metropolitan Municipality 2018).

As stated by Cay and Asilioglu (2014), the social and cultural activities in the pedestrian areas promote the use of these areas. Including street concerts, exhibitions and shows will increase the attractiveness of these areas. In this context, after the pedestrianization of the street, social and cultural activities have been started in the Şarampol Street.

After the current situation of the research area was determined, the survey was conducted to examine the satisfaction level of the users from the street.

The first set of questions was about personal information of surveyed people which are including gender, age, education level, occupation and monthly income. According to results of this part participants of the survey are; 38.2% of the surveyed people are women while 61.8% are men. The majority of the participants are young people between the ages of 18-29 (47.9%). Other participants; 28.1% is 30-49 years old, 14.6% is 50-65 years old and 9.4% is 65 and older years old. 9.4% of the participants' education level is primary school where 29.2% is secondary school, 40.6% undergraduate education, and 20.8% is graduate education. There are seven occupational groups in the surveyed people. In this context; 33.3% of the participants is student, 22.9% is tradesman, 12.5% is retired, 11.5% is worker, 10.4% is civil servant, 7.3% is unemployed and 2.1% is housewife. With regard to the individual monthly income, 39.6% earn less than 366 \$, 24.0% earn 366-634 \$, 19.8% earn 635-1000 \$, and 16.7% earn more than 1000 \$.

The other part of the questionnaire study is how often and for what purpose participants use the area, and it is related to which vehicle they have access to the research area. In this context, 30.2% of the participants stated that they used the street every day. 31.3% of the participants use the street as a transit route. 26.0% of the others use the street as walking point, 18.8% shopping, 13.5% work, and 10.4% meeting point. 30.2% of the participants have access to the area by tram, 25.0% by pedestrian, 17.7% by bus/minibus, 15.6% by private car and 11.5% by bicycle/motorbike.

82.3% of the participants are satisfied with the pedestrianization carried out within the scope of the urban design and landscaping project of the Şarampol Street. While 82.4% of the 17 non-satisfied persons are not satisfied with the car park, 17.6% are not satisfied with the lack of green areas.

With the renovation of the street, the urban equipment elements on the street were renovated. Area specific designed lighting elements, seating units, cover coats and waste bin are located at different points along the street. In the scope of the research, when the users are asked what you think about the urban equipment elements used in the street, 39.6% of the participants stated that the urban equipment elements used in the street is insufficient. 84.2% of the users who think that the of urban equipment elements are insufficient think that the seating units are inadequate and that they are positioned incorrectly. 55.3% of them think that the waste bins are insufficient and incorrectly positioned and 26.3% the lighting elements are insufficient and incorrectly positioned. In addition, 42.1% of the 38 participants who think that the urban equipment elements are insufficient think that the cover coats are insufficient. 31.6% of them think that the artistic objects (sculptures) are insufficient, 7.9% the limiting elements are insufficient and 13.2% to the sign and information signs are insufficient.

After the implementation of the project, 96.9% of the users stated that walking comfort increased on the street. In addition, 95.8% of the users stated that the accessibility of elderly people, disabled users and strollers on the street increased and thus increased street use (Table 2).

Table 2. Propositions presented to participants and their opinions.

Suggestions	Agree (%)	Neutral (%)	Disagree (%)	\bar{x}	Std. Deviation
The walking comfort of the street increased	96.9	2.1	1.0	2.96	0.061
The accessibility of the elderly, disabled and baby carriages increased	95.8	3.1	1.0	2.95	0.071
The use of the street increased	91.7	5.2	3.1	2.89	0.166
The street has become the city's center of attraction	91.7	3.1	5.2	2.87	0.224
Safety of pedestrians using the street increased	88.5	7.3	4.2	2.84	0.217
Environmental perception of street users increased	75.0	18.8	6.3	2.69	0.343
Noise and environmental pollution decreased	79.2	8.3	12.5	2.67	0.477
Bicycle use increased	64.6	27.1	8.3	2.56	0.417
Street is suitable for the night use	72.9	9.4	17.7	2.55	0.608
Participation in social and cultural activities increased	70.8	7.3	21.9	2.49	0.695

\bar{x} Refers to arithmetical average.

4. Conclusion

The continuous increase in the population in urban areas and the increase in the number of vehicles affect the comfortable and safe circulation of the pedestrians in the cities. Due to the fact that Şarampol Street, one of the oldest streets in Antalya, is located in the center of city and commerce space, the usage density is quite high. In the street, which was open to vehicle traffic in the previous years, the pedestrians could not walk comfortably and safely because of the narrow sidewalks. Visual pollution and noise pollution were also very high. Within the scope of pedestrianization project, the closure of the street to the vehicle traffic and the realization of landscaping have increased the visual and functional quality of the street. High user satisfaction is an indication of this.

In the results obtained from the research, one of the problems that arose after the pedestrianization of the street is the parking problem. However, it is thought that this problem will be eliminated when the underground car parks planned for the project are put into service. In addition, some users stated that the density of green areas in the street is low. Over time, when the trees grow and when the seasonal vegetation is planted, the intensity of the green field will increase.

As a result, pedestrianization of streets makes cities more comfortable, safer and accessible for pedestrians. It makes a positive contribution to the social life of individuals living in the city. It contributes to the urban identity of cities because it will increase the environmental perception of individuals.

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