

Santralistanbul Campus, Bilgi University: A transformation of an industrial site to a liveable campus

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Abstract

This paper focuses on the concepts of adaptive-reuse and campus urban space. Through a case study, it explores universities' role in the transformation of urban areas (macro-scale) and investigates the university campus as a context for spatial and social relations (micro-scale). It analyzes the Santralistanbul Campus of Bilgi University, located in the historic Peninsula in Istanbul, Turkey, as a successful example of a converted run-down industrial site to a vibrant university campus. In one hand, it studies the campus urban location, spatial organization, and design principles. On the other hand, it explores the physical features of campus which are influential in space-use patterns. The study methodology is twofold. Firstly, the historical background, existing documents, university website, and annual reports have been examined. Then, spatial analysis has followed by acquiring information from campus designers, analyzing masterplans, and Google Earth maps and OpenStreetMaps. Secondly, considering the literature, the main parameters of a good campus space have been studied. Doing so, a qualitative approach - in-situ observation, informal interviews, and questionnaire survey - have been conducted. This study highlights that there is a relationship between campus design principles and space-use patterns. It emphasizes that application of the adaptive re-use strategy by educational institutions can contribute to acquiring available urban campus land, integrating the academic body into society, transforming the deteriorated areas, preserving an industrial heritages, and serving the university mission which ultimately generates vitality and socio-spatial sustainability. The converted Santralistanbul campus can be used as a good example in designing other campus conversion projects.

Keywords

Adaptive re-use, University-city interaction, Campus urban space, Space-use patterns, Santralistanbul Campus.



1. Introduction

Universities are restructuring their educational programs, functions, and their spatial organizations according to the new needs of the new era. The traditional mission of universities has been radically altered from mere teaching and research to the third mission activities which include urban outreach activities. Contemporary universities are not mere architectural monuments or educational cloisters but they are in close dialogue with everyday life. They are collaborative institutions that while creating a vibrant academic environment, they also consider beyond their campus boundaries (Benneworth et al., 2010; Etzkowitz et al., 2000; Razavivand fard, et al. 2017). They are pioneer institutions in providing opportunities for business, industry and socio-cultural promotion of their vicinity as well as spatial transforming of their urban space particularly in deteriorated areas. They conduct urban regeneration projects that enhance the socio-economic and physical condition of their neighborhood. Therefore, the notion of educational environment, the life within the campus and the relationship between university campus and its embedding context have gained more significance in various disciplines (Bender, 1988; Chapman, 2006; Coulson et al., 2015; Dober, 1992, 1996; Gaines, 1991; Kerr, 2001; Perry and Wiewel, 2005; Turner, 1984; van der Wutsen, 1998; Wiewel and Perry, 2008). Den Heijer (2008) states that "The presence of a university does not only strengthen the knowledge base, but the vitality of the student population and the employment that a university generates can also add value to other foundations, such as the economic base, the quality of life and the urban diversity." Urban-universities, as the manifestation of this need for close university-city connection (Hoeger and Christiaanse, 2007), act as a part of the city, interwoven with its daily activities. However, considering universities large size, it is a challenging issue to acquire a proper piece of land in urban areas. In this respect, the existing run-down and abandoned industrial sites are good solutions that can address the universities' need for urban lands and

also contribute to the socio-cultural and spatial regeneration of the area as well as addressing the institutions' academic requirements.

In this context, Istanbul has many declined industrial sites which through adaptive re-use projects, can provide opportunities for enhancing sustainability and promoting the socio-cultural and economic status of the derelict district.

2. Conversion and adaptive re-use of industrial sites to university campuses

Along with the globalization and its subsequent economic changes, many large industrial districts and infrastructure facilities of the 19th and 20th centuries became derelict areas. During 1960 and 1970s, the notion of "Adaptive Reuse" came into mainstream architectural practice as a growing environmental concern and the rise in energy and material costs. This notion proposed a new function for the abandoned buildings and run-down districts that anymore can obtain their original use. The re-using of the industrial heritages assist in the protection of historical edifices and contributing to sustainability incentives (Razavivand fard and Mehan, 2018).

Universities are among the pioneer institutions who have attempted to convert and revitalize the abandoned facilities and run-down urban areas and re-use them as their educational settings. There are numerous adaptive-reuse projects conducted by universities throughout the world that proposed innovative solutions for the conversion of a wasteland to a vibrant multi-purpose academic space. These projects also provide incentives for universities to move in the sustainability path. Doing so, they preserve the historical heritage, preserve available land, improve diversity and mixed land-uses, boost the economy, address social inequalities, enhances well-being, reduce the energy consumption of the demolition and construction phase and many more to mention. This is also a great opportunity for the universities to acquire affordable land in the central areas of the cities where is difficult to find vacant space.

There are several examples of this kind that have contributed to the revitalization of their urban space such as the University of Kassel in Germany, Brown University and Amherst College in the USA, University of Milano-Bicocca and University of Torino in Italy (Bott, 2018) and Bilgi University in Turkey. These adaptive re-use projects conducted by universities are considered as the major urban regeneration projects in brown field areas that thoroughly transformed the socio-cultural and economic condition of these districts. They bring about new and mixed-use functions that provide a stage for new economic activities, offer new job opportunities, improve the social status, enhance the vitality of the neighborhood and change the spatial pattern of these urban areas.

Therefore, higher education institutions have had an active role in the adaptive re-use of decayed industrial sites throughout the world. The conversion projects encompass a wide range of typologies and have conducted from small-scale to large-scale projects (Coulson et al., 2015). Some of them have been completely adopted and inserted within a run-down complex such as Norwich University of the Arts in the UK whilst some other have combined the old buildings with newly designed structures such as Bergen University College in Norway.

These projects are not simple campus plans and may not have an appealing status like completely new construction. Nevertheless, through conserving and regenerating the abandoned structures, universities can propose innovative architectural and planning ideas to re-create an identity for their places, develop a brand for themselves, foster stronger correlation with their society, and move in the sustainability pathway.

3. University campus: A context for spatial and social relations

The existence of a university in an urban district influences any aspect of everyday life in that area and can also be considered a major parameter of the vitality of the district. Because of this presence, many new functions are added to the area including recreational and cultural activities as well as

new residences and businesses. These activities diffuse energy and vitality into urban space by introducing new cafés, restaurants, retail stores, galleries, exhibition halls, sports facilities and so forth. Currently, in many cities, university facilities such as hospitals, libraries, exhibition areas, conference halls, etc. can be used by citizens and in contrary, the urban facilities such as restaurants, housing, entertainment, and shopping centers serve university members as well. The contemporary university campus, with unique nature, serves both students and staff and performs as a public space for the larger community specifically in smaller towns.

It can be stated that a university campus resembles an urban space with built spaces, open spaces between buildings and movement networks which arranged according to a spatial configuration. The objectives and values of the institution are expressed through its spatial layout and planning principles. Campus urban space functions as the hub for a variety of functions - learning, living, and socializing - where formal and informal learning occurs. It is argued that the campus physical attributes and the quality of the setting affect the quality of campus life and the performed activities.

University campus, as a micro-scale model of society, embraces many of urban space attributes without being that much complicated. Thus, the issues related to urban space can be inferred to university urban space as well. Bentley et al. (1993) have analyzed the quality of a responsive environment and have suggested main principles as permeability, variety, legibility, robustness, visual appropriateness, richness, and personalization. For Appleyard and Lintell (1987), seven essential factors of a good urban environment are livability, identity, and control, access to opportunities and joy, authenticity and meaning, community and public life, urban self-reliance, an environment for all. Lynch (1981) also identifies five performance dimensions of urban design as vitality, sense, fit, access and control. He also argues that the features of the physical form including diversity, mobility, connection, character, and

liveability highly affect the quality of the built space. The Project for Public Space (1999), classified four essential factors of successful places as comfort and image, access and linkage, uses and activity, and eventually, sociability (Carmona et al., 2003). Kaplan and Kaplan (1982), also have discussed the environmental preference framework, mentioning dynamics as coherence, complexity, legibility, and mystery.

Indeed, the campus environment can be approached as a physical setting and social setting. Public open spaces in a university campus just like urban areas, constitute of pathways, streets, courtyards, plazas and green areas. Recently, the traditional nature of the university campus has been transformed, domains have been blurred and formation of informal places and mixed-use areas for learning, research and socialization have been intensified. The physical setting functions as the physical location for campus everyday life and diversified activity patterns and the social setting represents the locations for encounters, social interaction between members of the university community (Johnson, 2009).

According to Whyte (1980), there is a close connection between qualities of urban space and activities occurring there though simple physical alterations can enhance the quality of use of the place noticeably. The physical setting offers potentials for various activities and behaviors and it restrains some activities and behaviors as well (Razavivand fard, 2014). It is noticeable that relationships and social interactions are associated with the spatial configuration of a setting and existing common-use spaces and activity settings that facilitate social interactions and spontaneous encounters (Fleming et. al., 1985). Physical and functional distances and proximity of individuals and orientation of spaces are also influential in individuals' socialization (Hillier and Hanson, 1984). The physical proximity generates encounters and facilitates socialization and creation of cohesive groups within a society (Abu-Ghazze, 1999).

Building on this, the campus open spaces stimulate human connections and improve the quality of university

life (Biddulph, 1999). In the same context, University campus outdoor spaces serve as the place for various activities such as student interactions, gatherings, group meetings, resting, strolling and so forth. A great portion of the leisure time of students is spent in outdoor environments. Thus, campus design needs to be capable of setting the ground for the diversity of activities in terms of social and aesthetic pleasure and responds to users' functional, social, and psychological needs. It should be arranged in a way that addresses the users' needs, supports relationships between people, and enhances the quality of university life (Abu-Ghazze, 1999). Observing university outdoor space regarding to three kind of activity forms of Gehl (1987), it can be mentioned that campus space is significant not only compulsory activities but also for optional and social activities, because it offers opportunities for students' various demands in the case that it has been anticipated properly in planning and designing.

According to Hillier (1996) and Giddens (1984), social relations are linked to interactions that occur in the environmental setting which requires co-presence and co-awareness. Co-presence and eco-awareness achieved through existence and movement in everyday life. Hillier and Penn (1991) also, emphasize on the role of chance encounters within an open space such as a university campus on developing knowledge and claim that it can contribute to generating weak ties and increasing solidarity between members of various disciplines (Greene, 1997).

The notion of "Educational Campus" proposed by Campos Calvo-Sotelo (2005) is a university spatial philosophy that defines the criteria for a university to be excellent. It states that campus needs to go beyond a mere material container to transmit the values and for this purpose, the principles such as spatial harmony, image and accessibility, sense of community, adaptation to the environment and sustainability, and university-city relationship are at the center of attention. Hence, a university campus can be considered as a "Third Space" (Fisher, 2007) which

embeds a wide range of activities including education, socializing, shopping, living, entertaining, and so on. The extent of these activities to a great extent is dependent on the flexibility of campus urban space. John Worthington assumes campus space as “landscapes for learning” that should offer opportunities for diversified activities at the same place and at the same time. Caldenby (2009) underlines the importance of informal learning as well and suggests that movement spaces can act as corridors for encounters and knowledge exchange. Herman Hertzberger (2008) also emphasizes creating a balance between openness, visibility, and seclusion through forming spatial units. He rejects the spatial components which are mono-functional like just pathways and favors the social spaces such as transit areas and gathering points. He proposes creating spaces like “social streets” that stimulate social activities. He also explains that a university campus should be flexible in a way that the existing buildings function properly while considering the adaptability of future processes.

In this respect, the responsive campus design principles need to be applied to both newly constructed campuses and also interventions and renovation

on existing structures. It should be approached in a comprehensive manner that considers both functional and spatial requirements.

“Education is a spatial act” (Campos Calvo-Sotelo, 2014). Therefore, the quality of education is correlated with the physical quality and design of a university campus. Architectural design and campus planning can stimulate students’ engagement, foster more desirable attitudes, increase informal knowledge exchange, both intentional and coincidental encounters and consequently have a positive impact on educational outcomes. Educational institutions attempt to make a successful relationship between physical space, programs, and users and for this purpose, it is very important to be able to create more sustainable and liveable spaces. Thus, the physical space of a campus that present legibility, sociability, vitality, functionality, flexibility, adaptability, accessibility, connectivity, character, comfort, and congruence with nature will express a high spatial quality. These spatial qualities are key elements in directing activities and shaping the use patterns.

4. Santralistanbul Campus: A social-spatial transformation

Bilgi University was established in 1996, in Istanbul, Turkey. Its main motto is “Non scholae, sed vitae discimus” (learning not for school but for life) and intended to be a pioneering institution, presenting a new outlook to Turkish higher education system.

Over time, it has developed to comprise four campuses; Kustepe Campus, Dolapdere Campus, Santralistanbul Campus, and Kozyatagi Campus. These campuses have been distributed in central urban areas and particularly located in former industrial and run-down sites. In this respect, Bilgi university contributes to the socio-economic and physical transformation of the deteriorated urban areas. To do so, it has transformed the squatter settlements of Kustepe and Dolapdere to establish its campuses with the objectives of altering the sociodemographic and cultural status of the districts while proceeding in the educational context.

In its initial embodiment before res-



Figure 1. Santralistanbul Campus before renovation (Source: NSMH Archive).



Figure 2. Santralistanbul Campus before renovation (Source: NSMH Archive).

toration and conversion into Santralistanbul Campus, the Silahatarağa Power Plant was the Ottoman Empire's first urban-scale power station. The site of the Power Station was located at the end of the Golden Horn (which is known as Haliç in Turkish) and at the point where Alibeyköy and Kağıthane creeks meet. Haliç is a main urban waterway and the primary bay of the Bosphorus in Istanbul. It delimits the northern boundary of the peninsula composing "Old Istanbul". The power station's construction started in 1910 and continued until 1957 and spread within an area of 118,000 m². It was in operation as a power station, supplying the city with electricity until 1986, whereupon it was left to its fate. This entire region was used as an industrial zone from the last period of the Ottoman Empire until 1990; the creeks and the Golden Horn were used as wastewater channels. Today, there is no active industry in the area and this former wasteland is now considered the most favorable gentrification zone of recent times. As the area is well supported by public transportation and is in the proximity of land and sea transportation node. It is far enough from the crowd of the city center and meanwhile still at the heart of it. It is a district with a magnificent past and a brilliant future which makes it the best place for urban transformation projects.

Regarding the power plant's special position as a national unique industrial heritage site, it was decided to restore and convert it into Santralistanbul Campus. It was a socio-cultural and educational transformation project that involved the cooperation of the public sector, the private sector, and non-governmental organizations. The project was carried out between 2004 and 2007 and converted this urban-scale national capital to one of the most attractive and dynamic contemporary cultural centers of the city.

The conversion project was designed by the collaboration of Turkish famous architects including Nevzat Sayin, Han Tumertekin and Emre Arolat and has been awarded some architectural prizes. The design project is considered as one of the most highlighting settlements of Istanbul embracing the



Figure 3. Santralistanbul Campus after renovation (Source: www.arkitektuel.com/santralistanbul).



Figure 4. Santralistanbul Campus after renovation (Source: www.arkitektuel.com/santralistanbul).



Figure 5. Exterior view of library at night (Source: NSMH Archive).



Figure 6. Interior of renovated law faculty (Source: NSMH Archive).



Figure 7. Exterior space of educational buildings (Source: NSMH Archive).



Figure 8. Exterior space of renovated cafeteria building (Source: NSMH Archive).



Figure 9. Central green area (Source: Bilgi University Archive).



Figure 10. Central green area (Source: Bilgi University Archive).

educational facilities of Bilgi University, Energy Museum, Contemporary Art Center, galleries, restaurants, library and public spaces consisting of well-organized outdoor places.

Santralistanbul, the largest campus of Bilgi University, attempts to become a “comprehensive, critical and interdisciplinary international platform with the purpose of contributing to urban revival within Istanbul” and aims at setting ground for presenting art, culture, and education in a single stage with its new interdisciplinary vision. The main objectives of the institution have been remarked as creating a network with other similar international institutions, contributing to the promotion and social sustainability of the historical district of Golden Horn beside addressing to a wider mass of society. Therefore, various functions are juxtaposed within a single university campus. Santralistanbul contains a public library, Contemporary Art Museum, Energy Museum, places of residence for international guests, open-air recreation areas, cafés, restaurants and spaces for modern cultural and artistic activities as well as educational units and faculties. Since the historical power plant is located within the campus site, they are merged with modern and well-designed buildings that attempt to serve the wide range of users of this multi-purpose center (Url-1) .

5. Methodology

The main objective of this research is studying the campus urban space of Santralistanbul Campus as a converted project from a run-down industrial site to a multi-purpose university campus. It aims at exploring campus spatial organization and identifying the trend of space-use and activity patterns in the campus outdoor space. Regarding its multi-dimensional nature, the research method is two-fold. The first step is a spatial analysis. In this respect, the historical background, existing documents, university website, and annual reports have been examined. Then, spatial analysis has followed by acquiring information from architects and designers of campus, analyzing campus masterplans, and maps retrieved from Google Earth and OpenStreetMaps.

In the second step, considering the literature review, the main parameters of a campus space-use have been defined.

Doing so, a qualitative approach applied to gain insight into aspects of human-environment intersections. For this purpose, in-situ observation, informal interviews, and a questionnaire survey have been conducted to collect data about students' activities and users' perception.

In-situ observation through photographs and sketches carried out to identify how the variety of activity patterns take place and which areas of the campus are mostly frequented, as it is a more direct way to detect the usage of space by people. Therefore, the variables of the hypotheses have been identified. Independent variable was defined as physical and visual features of the setting and dependent variables were described as users' activities and diversity of them in various areas of the campus environment. In addition, informal interviews were done with students, to inspect their perspectives on their university outdoor space to understand to what extent does it match with the initial objectives of the project. Then the outcomes indirectly included in the discussion of the findings and conclusion section.

In addition, the questionnaire technique was conducted to fifteen respondents who were chosen randomly among campus students and guided by the interviewer to fill the questionnaires. Questions are arranged into seven categories including sociability, landscape elements, visual elements, activities and space use, vitality, access and linkage, and comfort and image. Therefore, the attempt made to determine the respondents' profile, characteristics of activities, physical and visual features of the campus outdoor spaces and users' preferences of the setting.

The 5-choice Likert scale is used in the questionnaire rating the responses between one to five. The score of 1 shows the lowest agreement and score of 5 shows the highest level of agreement and the number 3 is the median of responses. Then, the mean of agreement score was compared with the number 3 in order to obtain how much students are satisfied with each selected variables.

5.1. Campus spatial analysis

The campus spatial analysis conducted through in-situ observations, studying campus plans in different phases before and after implementation of the conversion project, analyzing campus maps retrieved from Google Earth and OpenStreetMap and examining various



Figure 11. Location of Santralistanbul Campus in Istanbul (Source: NSMH Archive).



Figure 12. An aerial view to Santralistanbul Campus (Source: NSMH Archive).



Figure 13. Aerial map of Santralistanbul Campus within its urban fabric (Source: Google Earth).

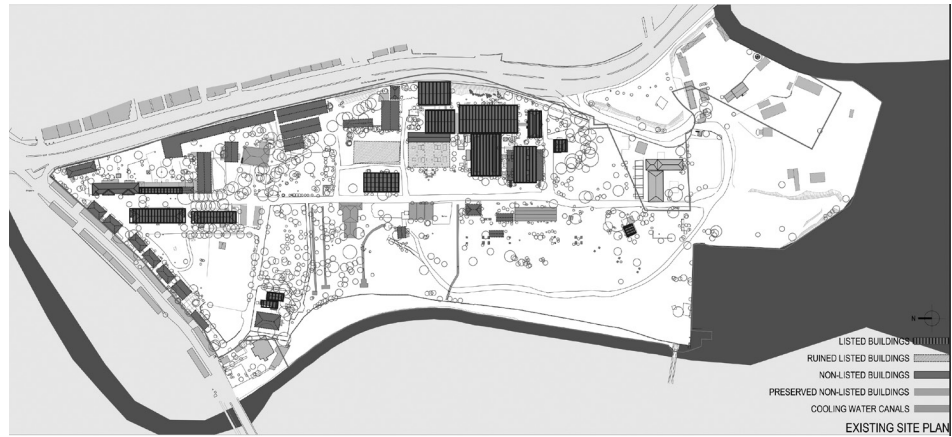


Figure 14. Silahtarağa Power Plant site plan as it had evolved by 1984, presenting the three typologies of buildings before implementation of conversion project (Source: NSMH Archive).

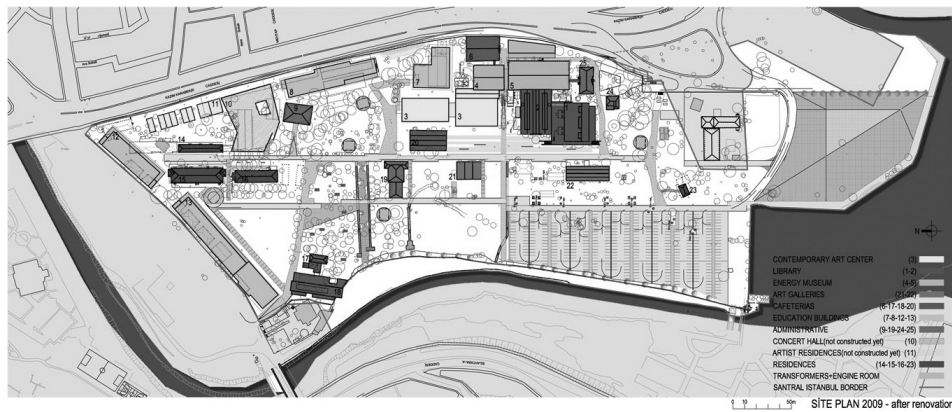


Figure 15. Proposed campus master plan, First phase (Source: NSMH Archive).

documents and reports related to campus design.

The analysis explored the position of the campus within the city and in relationship with its surrounding urban fabric. Santralistanbul Campus has been inserted within an organic fabric in a central position of the city of Istanbul. Concerning its central position, the campus is accessible by different

means of public transportation and also university shuttles that facilitate the accessibility to campus for students and also the residents.

The proposed campus master plan valued the old campus organization. The main adjectives of the architects in the designing process were preserving the historical heritage of this industrial site. They categorized the existing



Figure 16. Implemented campus master plan (Source: NSMH Archive).

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buildings according to their value for preservation as demonstrated in Figure 14.

According to project architects, the conversion project was designed with respect to preservation of the industrial heritage and the identity of the site and plotted on the existing traces of buildings among the green fabric in order not to destroy it. The language of old buildings presented three typologies; (1) the industrial buildings presenting the universal block forms and carrying a common style of the period, (2) the administrative and residential buildings of directors and guests as prestige buildings featuring regional characteristics, and (3) housing for workers and engineers as ordinary buildings showing local characteristics with no particular value. The design of educational buildings attempted not to represent a dominant effect considering the common characteristics of the historical site and while the details and materials express a similar language. The building which was not listed as preserved buildings were demolished but the new buildings were mainly constructed on their footprints (Nevzat Sayin Mimarlik Archive).

The new campus plan embeds several heritage buildings including Energy Museum, Contemporary Art Museum, Library, Guest residences, and Cafeterias which have been renovated and reused with a new function.

The spatial organization of campus is distinguishable from surrounding urban fabric. It has a bi-directional spatial organization in most of the areas excluding the northern area, the educational building, which built on the traces of old buildings. It has formed along to the main axis and created a grid structure. The campus green space also has been preserved and a big central green area has been created in the northern part of the campus. It can be considered the main open space for spending time by students, especially in good weather conditions. The space in front of the Library and Contemporary Art Museum has been designed as a public space with a water element and art objects creating a desirable space for socialization. Different land-uses have been organized in a balanced way

inside the campus that facilitates the accessibility to various buildings. The newly constructed educational buildings have been located on the northern and eastern edge of the campus. Being located in the campus edges has created a kind of wall (border) between campus and outside urban space. The parking areas have been located in the southern part of the campus which does not distort the consistency of the space. The sports facilities also have been situated in the southern area with a view to the historical part of Istanbul.

5.2. Questionnaires and interviews

5.2.1. User profile

Santralistanbul campus has an approximate number of 3000 students (Url-2). Within the framework of this research, the total number of 50 respondents participated in questionnaires. 54% of respondents were female and 46% were male students. All the respondents were students and the age group differs between 18 and 28.

5.2.2. The space use patterns

The questionnaire technique was conducted and the respondents were guided by the interviewer to fill the questionnaires. Questions were arranged into seven categories including sociability, landscape elements, visual elements, activities and space use, vitality, access and linkage, and comfort and image. Therefore, the attempt made to determine the respondents'



Figure 17. Campus plan highlighting different land-uses, campus axis, boundaries, and activity zones (Source: H. Razavivand Fard).

profile, characteristics of activities, physical and visual features of the campus outdoor spaces and users' preferences of the setting. In the evaluation of the questionnaires conducted in Santralistanbul Campus approximately all of students responded that they use the space in-group rather than spending time alone. About 85% of respondent specified that they use the outdoor space before and after their lessons and the rest of them (15%) mostly use the open space of the setting in their free time. About the duration of spent time of users, the average is about 1 to 3 hours a day.

Analysis of the activities conducted by users in this setting indicated that the most frequent activities are, resting, chatting with friends and eating and drinking that mentioned by more than half of the respondents with 56%, participating in cultural and extra curriculum activities such as exhibitions, watching films, festivals and so forth are 32% and studying-reading and drawing and taking photographs and other activities related to their course are about 12% of the total conducted activity types.

Respondents were also asked to indicate a specific place for each activity that they engaged in the setting. The average place preferences are café and restaurants with 63% and the open courtyard and central green area with 47%.

The results of questionnaires on the space use patterns, users' perceptions and their satisfaction of the campus urban space are presented in the Table 1.

6. Discussion and last remarks

Concerning the urban location, Bilgi University has acquired four smaller inside-city campuses instead of one large outside-city campus as is common in many developing counties. This approach helped Bilgi University to be an integral part of society and form a knowledge network within the city. Being situated in old and underdeveloped wasteland areas facilitates acquiring affordable land within the central urban fabric. The central urban position of these sites also provides the opportunity for university faculty to have access to urban amenities and to be integrated with the social life of the city. Through acquiring and regenerating derelict and underdeveloped urban quarters, Bilgi University attempts to act as a development engine and improve the socio-cultural, economic and physical status of its adjacent urban area. Bilgi University has also created a network of knowledge between its several campuses that can act as a catalyst for urban development. By intentionally insertion of the campuses in historic or semi-historic urban areas, the university attempts to form more sustainable educational centers and more motivating workspaces.

Santralistanbul Campus has transformed a run-down industrial land to a prospering educational, cultural and recreational complex. This new academic and cultural function has offered a wide range of new economic potentials to the neighborhood including new residences, stores, café and restaurants, new job opportunities and so on. It has also created a stage for socio-cultural exchanges with the immediate neighborhood. The campus is mainly dedicated to education, art and culture. It intends to form a plat-

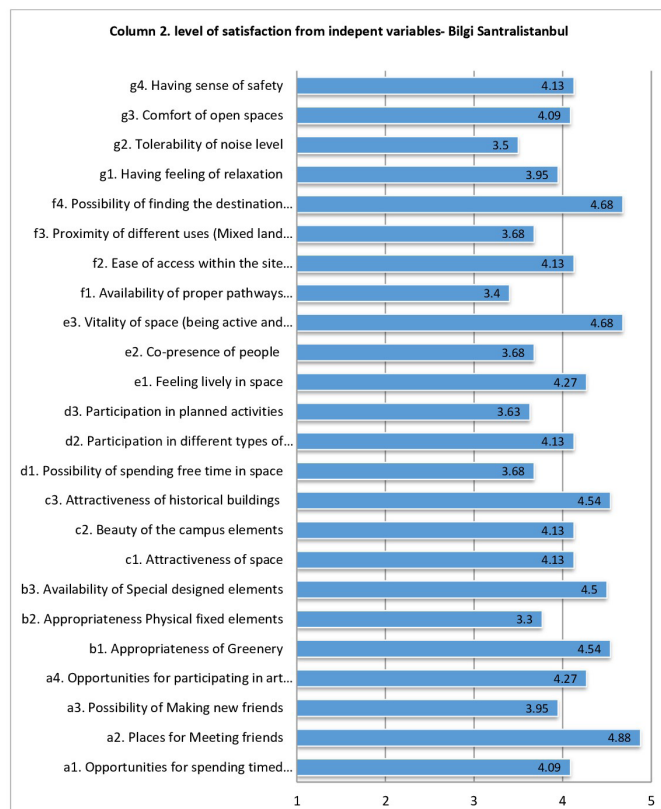


Figure 18. Users' activities, perceptions, and satisfaction of the campus urban space (Source: H. Razavivand Fard).

form for cultural exchanges and assists young artists to express themselves in the global context.

Santralistanbul Campus initially designed as a multi-purpose center and intended to be open and accessible by university body and the general public. However, because of the security reasons, it is enclosed with fences and walls. The educational buildings which are located in campus peripheries also act as a border separating campus space from outside. In spite of being enclosed, the university offers numerous art and cultural events, seminars and conferences, exhibitions and festivals and educational programs for the public as well. It also shares its facilities including museums, galleries, library with the outside community. It attempts to contribute to socio-cultural growth of its surrounding urban context. Doing so, it has created a more liveable and dynamic campus space which is also revealed in students' positive responses to the questions that if they find their campus lively and attractive.

Considering the campus plan, it is arranged as a bi-directional space and has a grid structure. The spatial arrangement of campus is inward-looking and center-oriented. The newly-constructed buildings including educational buildings are located around edges of the site where has been created a huge central green zone. This green area is preferred and frequented by many students since it has the potential to respond to a variety of activity types. The central greenery is acting as a public venue, an urban plaza. It is the main public space of the campus which provide chances for students' social interactions, exchanging new ideas, presenting artworks, engaging in course-related task, gatherings, and relaxation. In this sense, it enhances the sense of engagement and collegiality.

According to interviews with students, the major activity types are resting, chatting with friends, eating and drinking tea and coffee, and also participating in cultural and extra curriculum activities and reading-studying. It is obvious that almost most of the activities are optional and social activities regarding Gehl (1987). The presence of

Table 1. Users' activities, perceptions, and satisfaction of the campus urban space (Source: H. Razavivand Fard).

Parameters of public open space	Attributes	Strongly agree	Agree	Neither	disagree	strongly disagree
a. Sociability	a1. Opportunities for spending time with others	32%	54%	4.5%	2%	0%
	a2. Places for Meeting friends	9%	59%	18%	13.5%	0%
	a3. Possibility of Making new friends	0%	50%	36%	13.5%	0%
	a4. Opportunities for participating in art and cultural activities	36%	45%	4.5%	9%	4.5%
b. Landscape elements	b1. Appropriateness of Greenery	49.5%	45%	4.5%	0%	0%
	b2. Appropriateness Physical fixed elements	27%	45%	9%	13.5%	4.5%
	b3. Availability of Special designed elements	31.5%	49.5%	13.5%	4.5%	0%
c. Visual elements	c1. Attractiveness of space	27%	58.5%	13.5%	0%	0%
	c2. Beauty of the campus elements	22.5%	67.5%	9%	0%	0%
	c3. Attractiveness of historical buildings	49.5%	45%	4.5%	0%	0%
d. Activities and Space use	d1. Possibility of spending free time in space	4.5%	45%	40.5%	9%	0%
	d2. Participation in different types of activities	9%	58.5%	27%	4.5%	0%
	d3. Participation in planned activities	0%	31.5%	40.5%	27%	0%
e. Vitality	e1. Feeling lively in space	22.5%	63%	13.5%	4.5%	0%
	e2. Co-presence of people	13.5%	54%	18%	13.5%	0%
	e3. Vitality of space (being active and dynamic)	13.5%	63%	13.5%	9%	0%
f. Access and Linkage	f1. Availability of proper pathways (walkability)	18%	31.5%	27%	18%	4.5%
	f2. Ease of access within the site (Accessibility)	27%	45%	22.5%	4.5%	0%
	f3. Proximity of different uses (Mixed land use)	13.5%	54%	18%	13.5%	0%
	f4. Possibility of finding the destination within campus (readability)	13.5%	63%	13.5%	9%	0%
g. Comfort and Image	g1. Having a feeling of relaxation	13.5%	72%	9%	4.5%	0%
	g2. Tolerability of noise level	9%	40.5%	40.5%	9%	0%
	g3. Comfort of open spaces	22.5%	67.5%	4.5%	4.5%	0%
	g4. Having sense of safety	22.5%	67.5%	9%	0%	0%

students engaging in different activities around the environment accentuates the vitality of the space.

Being organized along to the main axis helps the campus space to be highly legible and accessible. Different land-uses are well integrated and are easily accessible through the campus open space. In addition, most of the students expressed their satisfaction with the ease of access within and to the campus setting. Regarding the

scale of this campus, it is not so large and the topography is flat which provide a shorter distance between different places and as a result easier access within the setting. Moreover, it has been designed in a way that most of the buildings are accessed through this unique central space and the greenery acts as a node space. This central space is quasi-amorphous but it does not express a form of remaining space, in contrary, it acts as a focal point which is enclosed by surrounding buildings.

As a result of organizing building on the site boundary, the visual and physical connection between inside and outside has been restricted in the northern and eastern part, but the central green area offers a visual connection to all parts of the setting. It is also noteworthy that merging historical industrial buildings with the modern built forms has created a beautiful frame and enhanced the sense of identity of the campus as has also been indicated by students in the questionnaires. However, the amphitheater area in spite of having a nice view to Golden Horn is not mostly frequented and is just used in festivals and specific events, because of its long distance from the central area.

Overall, respondents implied their satisfaction with the campus general atmosphere generated by the landscape and physical features, as it is more planned and well designed. Students are satisfied with the environment in terms of landscaping, architectural, aesthetic and visual elements. While space is coherent and harmonious and represents the sense of legibility. The campus space is attractive, and inviting and stimulate the sense of participation in diversified optional and social activities around the campus space.

To summarize, within the decades, Silahtarağa Power Plant complex has been a living center for the workers. Embracing residences, guest houses, mosque, cinema, greenery, it was considered as a home for its residents. After a long working day, the workers used to rest and entertain in the complex open space. Considering this background, the adaptive re-use project of new Santralistanbul campus has valued the socio-cultural history of the

complex through applying the proper architectural and landscape features. The new project has created a unique venue that contribute to the social life within campus and outside campus boundary, preserve the city's historical memory, promotes the sense of place and sociability, enriches the image and legibility, enhances accessibility and connectivity, boosts economic status, and sustains the socio-cultural sustainability. To be concluded, it can be stated that placing university campuses in declined industrial areas is a good strategy that supports sustainability initiatives while providing a proper campus land integrated within the urban fabric. In this way, universities planners can provide innovative design ideas which offer an inspiring environment for their academic body while contributing the wider society.

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