

Social Sustainability in Landscape Design Elements
(Case study: Istanbul Technical University Maslak Campus)

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ABSTRACT

Social sustainability, first defined over 30 years ago, is widely accepted as an important conceptual framework. It ensures the sustainable improvement of society. Landscapes are one of the most effective parts of the cities for humanity, for spending leisure time and passing daily activities. The landscape is also one of the most important elements of social sustainability. The main purpose of this research is to find out if there is any relation between social sustainability and the landscape design elements. As a case study, we analyzed the Istanbul Technical University, Maslak Campus landscape design. In this article, we identified two main elements of social sustainability and discussed in detail: equitable access and the sustainability of the community itself. We utilized five main elements of landscape design (Line, Form, Texture, Color, and Visual Weight) as attributes of creating a cohesive design. Besides, we conducted observations of the student's behavior in the landscape and interviews with the users. The results showed an effective relationship between social sustainability and landscape design elements in the ITU Maslak Campus design.

Keywords: Social sustainability, equitable access, community, landscape design, social interactions

INTRODUCTION

Social sustainability is a wide-ranging multi-dimensional concept, with the underlying question 'what are the social goals of sustainable development?' which is open to a multitude of answers, with no consensus on how these goals are defined [1],[4]. There has been little theoretical debate on defining social sustainability, despite recent European policy focusing on 'sustainable communities' and social cohesion. Sustainable communities are the places where people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built, and run, and offer equality of opportunity and good services for all' [2]. Landscape can be a context for the social communities, and therefore it is a critical notion for social sustainability. Feeling safe in the environment, using the place for the social life and spending time, and the existence of social community are indicators of sustainability. Social sustainability has two main dimensions that are equitable access and the sustainability of the community.

Equitable Access

The concept of social equity has its foundations in social justice, distributive justice, or 'fairness in the apportionment of resources,' and equality of conditions [3]. Social equity has a direct relationship with sustainable development [1]. Accessibility and equitable access are a fundamental measure of social equity

[5]. Some of the aspects of everyday life which residents and users need equitable access include public services and facilities such as green space, walking, and cycling routes and public transport routes.

Sustainability of Community

The sustainability of community is about the ability of society itself, or its manifestation as a local community, to sustain and reproduce itself at an acceptable level of functioning [6]. Sustainability of community involves social interaction between community members. It requires the relative stability of the community, both in terms of overall maintenance of numbers and the turnover of individual members. The existence of and participation in local collective institutions, formal and informal, are crucial. Lastly, the levels of trust across the community, including issues of security from threats, and a positive sense of identification and pride in the community are critical notions of sustainable communities [7]. The European policy interpretation of ‘sustainable communities’ includes social aspects of sustainability and describes them as active, inclusive, and safe [2]. Other features of sustainable communities are claimed to include a sense of community in a healthy and safe environment [8], social contact and a stable community of residents who feel attached to where they live [8]. Sustainability of community relates to the collective aspects of social life.

The article aims to elaborate on how the main landscape design factors can affect social sustainability. The Istanbul Technical University, Maslak Campus, will be analyzed in terms of its social sustainability and landscape design.

Several specific inter-related measurable aspects of community sustainability are identified to explore social life at the campus scale. These five dimensions are [6]:

1. social interaction/social networks in the community

Wirth describes social interaction as ‘the basic process in the formation both of human nature and of the social order’ [13], and a cohesive society hangs together in part, through social interaction [9]. Without social interaction, the inhabitants of the same place can live separate lives, with little sense of community or sense of pride or place attachment [22].

It is argued that social networks are ‘social support systems,’ indicating that the people we know and feel we can depend on can influence other aspects of life such as feelings of safety and sense of well-being [10],[20].

2. participation in collective groups and networks in the community

Participation in local and community activities is one of the domains of social capital [8] and a dimension of social sustainability related to social coherence and social network integration [4]. The act of participation may manifest itself within the neighborhood/community as, for example, attendance at a neighborhood group opposing the erection of a mobile phone mast or regular participation in a sports team on the local green space [22].

3. community stability

The claimed associations between community stability and the built environment are not clear and direct. Residents’ decisions to stay in, or move out of, a neighborhood may be related to the perceived quality and maintenance of the built environment, the level of accessibility to key services and facilities (such as schools) and the type and size of dwellings in relation to the life stage of the resident [11].

4. pride/sense of place

Relph states that ‘to be inside a place is to belong to it and to identify with it’ [12], which can be as much about the physical environment as the people who inhabit it. The prescriptive theory advocates

achieving a ‘sense of place’ through carefully designing spaces and buildings and, for example, the retention of landmarks [21]. A positive sense of attachment to a place is a dimension of social sustainability because it is an integral component of people’s enjoyment of the neighborhood in which they live [14]. Pride/sense of place is closely related to the built environment since such feelings can be affected by the perceived quality of a place [15].

5. Safety and security

The perceived safety of a neighborhood is said to be a fundamental part of social sustainability [4]. In its definition of social cohesion, the UK House of Commons Committee positioned perceived safety within Maslow’s ‘hierarchy of needs,’ with the fulfillment of basic needs required before social cohesion can be achieved [16]. In this way, it is an antecedent of any positive social activity taking place in a neighborhood [17]. Providing security and, with it, feelings of safety in a neighborhood is closely related to the other dimensions of community sustainability. In a neighborhood free from crime and disorder, residents can feel secure in their social interactions with other people and participation in community activities. People ‘hate to feel unsafe or to live in an unsafe place’ and that most want reassurance that they have nothing to fear from their neighbors [18]. Such feelings of safety arguably enhance trust and reciprocity between residents and contribute to the sense of community and sense of place in a neighborhood. Some of the claimed associations between safety and the built environment include the cited benefits of natural surveillance, i.e., active frontage such as windows directly overlooking streets, which is said to increase perceived comfort and safety when people interact with one another. Poor condition and maintenance of the built environment are claimed to have detrimental psychological effects on people’s sense of safety [19].

Istanbul Technical University Campus

Istanbul Technical University Maslak Campus expands over a total of 164 hectares. Approximately 50 hectares of this area include education, research, administrative and service buildings and the rest comprise of open and green spaces. On the campus, 65 hectares of forest and 2 hectares of pond serve as a natural reserve area.

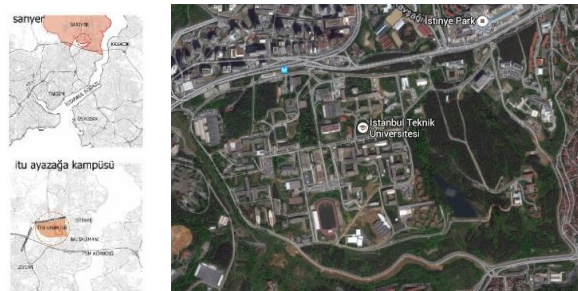


Figure 1. ITU Maslak Campus area

Istanbul Technical University initiated a long-term and multi-disciplinary project in 2013 to create a “GREEN CAMPUS.” ITU Green Campus activities focus on four headings:

- 1-Pedestrian and bicycle-friendly campus,
- 2-Sport, health, and barrier-free design,
- 3-Waste management and recycling,
- 4-Biodiversity and campus landscape.



Figure 5. ITU Maslak Campus pedestrian ways (after)

While providing pedestrians with a more comfortable, ergonomic, and aesthetic walking experience, plant materials with low water usage were planted along the pedestrian way to improve sustainability. Positive perception of pedestrian space was attainable through color and texture of planting design. Addition of low water use plants and native species to ITU campus not only increased biodiversity but also helped carbon sequestration on campus.



Figure 6. ITU Maslak Campus entrance [URL1]

There exist substantial improvement in terms of the energy use of the existing buildings. Moreover, the policy related to the new buildings enforces the construction of green buildings with high standards of energy efficiency. Innovation in building and landscape materials are also encouraged by the new policy. All of these improvements within five years (2013-2018) has brought a substantial placement in the “Green Metric World University Ranking.” ITU Green Campus project become 67th among 719 universities all around the world in 2018.

METHOD

This study concentrates on the influence of landscape design elements on social sustainability. The Istanbul Technical University Maslak Campus is the case study. Landscape design elements, social sustainability factors, and their relations and interactions are the focus of the research.

In this article, two main elements of social sustainability are identified and discussed in detail: equitable access and the sustainability of the community itself. Five elements of cohesive landscape design include Line, Form, Texture, Color, and Visual Weight. Observations and interviews enable the understanding of the effect of these elements on the students’ behavior. The statistical analytics tool is SPSS.

By analyzing the landscape of ITU Maslak Campus, the study elaborated the elements of a sustainable social landscape. The observation of the site users (Figure 7) helped to elaborate on the relationship between social sustainability and design. Besides, some interviews and a questionnaire helped understanding people’s opinion about the campus landscape design. Randomly selected 60 people participated in the interviews. 43% of the recitations include men and 57% women. There wasn’t any relation between the sex of the recitations and the answers.

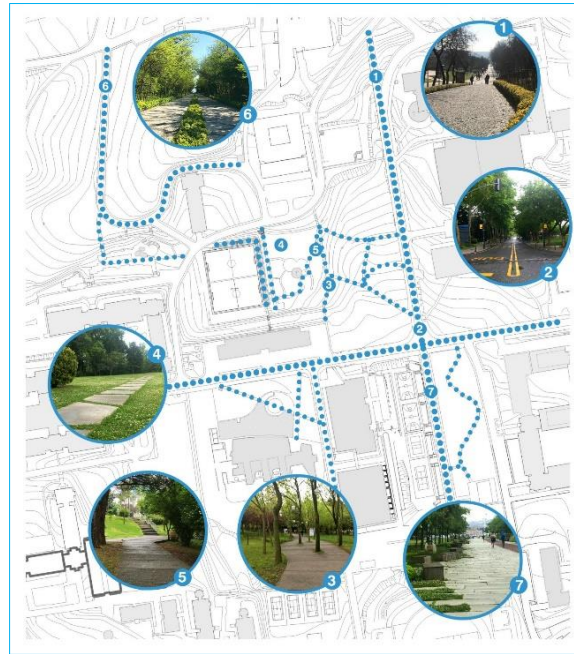


Figure 7. ITU Maslak Campus main observation points [Authors.2019]

RESULTS

Landscape Design Elements in Istanbul Technical University campus

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The elements are the separate “parts” that interact and work with each other to create a cohesive design. Line, form, texture, color, and visual weight are the main elements.

1. Line

A line creates all forms and patterns in the landscape. Lines define the form and culmination of lines create patterns. They direct eye movements and control physical movements. They are real or perceived.

Straight lines are structural and forceful while curved lines are relaxed and natural and imply movement. Lines consist of plant beds, hardscape lines, plant outlines, and walking or cycling routes.

In Figure 7, Point 1 is the view of the main entrance street of ITU. Point 2 is the first primary connection of routes on the campus. Other points show the different locations on campus with the combination of curved and straight lines for walking or cycling.

As shown in figure 8, the combination of curved and straight lines in ITU Maslak Campus, make its landscape spatially diverse. There are many routes of cycling and walking, which makes sense of flexibility for the users of the campus. These ways help the users to access easily to the essential services.

As a result of feeling safe and access easily by suitable ways to the essential services, residents decide to stay on the campus.

The other factor of this landscape is the way of connecting these lines. They have some open views of the connections. The students believe that these unobstructed views in the connections of the routes make the place safe for them.



Figure 8. ITU Maslak campus Main Street [URL2]



Figure 9. ITU Maslak Campus main library [Authors. 2019]

The correct combination of lines promotes a sense of safeness. Feeling safe in a place is one of the most important factors in social sustainability. In ITU landscape, the lines are connecting in a complementary way to create a suitable vista. They give different perspectives for the user when they are passing the ways.

The lines of the campus that are direct, long, with a wide-open view, make sense of safety for the users. The wide vision also makes the users identify the place better, hence promoting legitimacy. Legible spaces stimulate a positive sense of attachment toward the place.

The campus users explained their notions of safeness and belongings. The students indicated that they feel safety and place attachment while they are on campus, and they can identify the place easily. They feel they belong to this place. These factors are some of the main qualities of a sustainable social landscape.

Here is the result of the answers to the questions about the feeling of the users in the main lines of the ITU campus landscape. For instance, they are questioned about their opinion to see the curved lines in front of the main library of the campus (Figure 8), if they feel safe in the connection of the routes (Figure 9), and about accessing the essential services. They believed that easy access makes them decide to stay on the campus for improving their needs. They point that they feel safe in the connections of the routes and when they are walking or cycling on the campus. They added that they could quickly identify the ways because of the combination of curved and straight lines. The result shows that the median and mode of the answers are 28. Table 1 & 2 show that 53.3% of the recitations satisfactory is above the median.

Table 1. Statistics

Line		
N	Valid	60
	Missing	0
Mean		26.8666
Median		28.0000
Mode		28.0000
Percentiles	25	26.0000
	50	28.0000
	75	28.0000

Table 2. The recitations answers in comparison with median

Line				
		Frequency	Percent	Valid Percent
Valid	22.00	2	3.3	3.3
	24.00	10	16.7	16.7
	26.00	16	26.7	26.7
	28.00	26	43.3	43.3
	30.00	4	6.7	6.7
	32.00	2	3.3	3.3
	Total	60	100.0	100.0

2. Form

The form is a series of lines in three-dimensional that define a shape or space and provides scale. The most enduring quality of a plant or a mass of plants, every furniture that we use in landscape, hardscapes, or voids concludes form.

ITU Maslak Campus contains different forms, especially in the form of furniture. The elements on the ground which can be used for sitting and sleeping, the stairs with a suitable height that are acceptable for sitting and watching around make the users feel that they belong to the place. A positive sense of place attachment happens when the form of the furniture helps the user to use it flexibly and at each point of the Campus, there is some special furniture.



Figure 10. ITU Maslak Campus main points observations [Authors.2019]

Figure 10 shows some of the furniture in the ITU campus with different forms that offer several uses to the users. There are some elements in front of the main library of the ITU campus that students use for sitting or sleeping freely on them. (Points 3, 4).

Urban furniture on the campus increases the sense of place attachment and identification of place which is a very important factor for a socially sustainable landscape. Besides, the height of plants and the mass of the trees and having the open spaces in a balanced composition make the users feel safe and help the users to have a sense of attachment to the place. The users stated their opinions about the furniture, structural elements, mass of plants and trees and the height of plants in ITU campus.

The sense of identification will happen when there are a different kind of form and elements in the landscape. Belonging to the place will also occur when people can spend their time in a way that they enjoy. These are some of the factors that make a landscape socially sustainable.

Also, they believed that they identify the place better by these different form of furniture.

Table 3. Statistics

Form		
N	Valid	60
	Missing	0
Mean		20.2000
Median		20.0000
Mode		22.0000
Percentiles	25	18.0000
	50	20.0000
	75	22.0000

Table 3, 4 show that 76.3% of recitations feel safe, free and flexible by the form of furniture, elements, and plants in ITU Maslak Campus.

Table 4. The recitations answers in comparison with median

Form				
		Freque ncy	Percent	Valid Percent
Valid	16	10	16.7	16.7
	18	6	10.0	10.0
	20	18	30.0	30.0
	22	20	33.3	33.3
	24	6	10.0	10.0
	Total	60	100.0	100.0

3. Texture

Surface quality, tactile, and perceptual Provides variety, interest, and contrast. The texture is referred to as coarse, medium, or fine and occurs in: Plant material, macadam material or every material used in landscape design. The open spaces with the grass texture make the ITU campus landscape a flexible place for the users to spend their time. The social communities happen easily in these public spaces covered by grass enjoying to sit on when people are spending time on the grass and talking together.

One of the crucial factors of social sustainability is social interactions. People prefer to live in a place that they know others and feel they can depend on them. This quality can influence the other aspects of social sustainability such as safety. Also, feeling free by sitting on the grass or lying on it makes sense of place attachment.



Figure 11. ITU Maslak Campus Greenspace [Authors. 2019]

The different patterns in some roads cause the users to feel a sense of place attachment, the sense of being inside a place and belonging to it or identify with it which is an important factor of a socially sustainable landscape.

Using different materials makes the place more interesting and identifiable. The big pool in front of the ITU library and the combination of grass, concrete sculpture and the shaped stones in the ground that can have different functions make the landscape more functional, usable and interesting for the users. Different road textures for cycling, the cars or pedestrians make the landscape more identified for the people, which is one of the social sustainability factors.

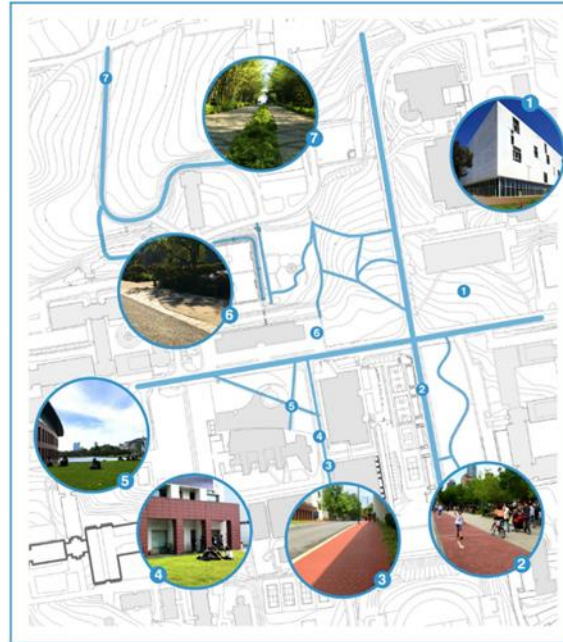


Figure 12. ITU campus main points observations [Authors.2019]

Figure 12 shows some points with different materials that affect users in ITU campus. The cycling and walking ways, the open areas covered by grass or different textures that make the landscape easily identified.

Interviews yielded the user’s opinion about the effects of texture on their feeling about the landscape. They believed that different textures help them to identify the place better. Also, different textures make them feel safe when they see other people in open spaces.

Table 5, 6 show that 66.7% of recitations satisfactory is above median about helping texture in ITU landscape design to their identification of campus.

Table 5. Statistics

Texture		
N	Valid	60
	Missing	0
Mean		3.53
Median		4.00
Mode		4.00
Percentiles	25	3.00
	50	4.00
	75	4.00

Table 6. The recitations answers in comparison with median

Texture				
		Frequency	Percent	Valid Percent
Valid	Satisfactory	8	13.3	13.3
	Above Average	12	20.0	20.0
	Superior	40	66.7	66.7
	Total	60	100.0	100.0

4. Color

The hue of the plants and hardscape material provides variety, interest, and contrast. It affects human emotion and perceived distances. The color appears in: plants, hardscape, water, etc.



Figure 13. ITU campus using different colors [Authors. 2019]

Using different colors in different functions make the ITU campus distinguishable for the users. Each color makes a specific sense for the people.

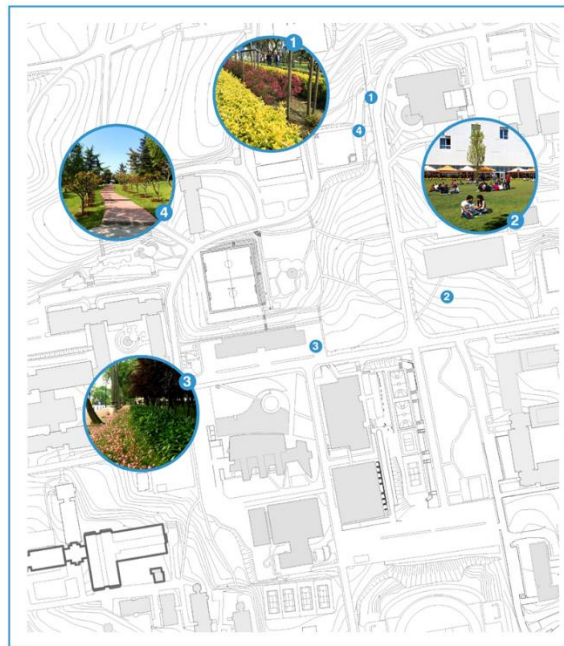


Figure 14. ITU Campus main points observations [Authors.2019]

For instance, grasses in green color in wide areas make sense of pleasure that can make the user feel calm to sit and enjoy the time. The blue color of water in front of the library makes the student feel free after some hours of studying, and different color of flowers can make the place more identifiable for the people.

The variety, interest, and contrast which are produced by the use of different materials with different colors make sense of place attachment for users. Besides, using the plants which have a different and special color in different seasons help the landscape to make sense of place attachment for the students. It helps them to have some memories of different seasons that are important for a socially sustainable landscape. Figure 14 shows some points of ITU Maslak Campus landscape that include different colors.

The students stated that different colors used in different ways in the ITU landscape influence them, improve the legibility of the place. Also, colors increase their sense of place attachment. As a result, in comparison with the median, Table 7 and 8 show 70% the recitations believe that the variety of colors in the ITU campus help them to identify the site better.

Table 7. Statistics

Color		
N	Valid	60
	Missing	0
Mean		13.6666
Median		14.0000
Mode		16.0000
Percentiles	25	12.0000
	50	14.0000
	75	16.0000

Table 8. The recitations answers in comparison with median

Color				
		Frequency	Percent	Valid Percent
Valid	8.00	4	6.7	6.7
	10.00	6	10.0	10.0
	12.00	8	13.3	13.3
	14.00	20	33.3	33.3
	16.00	22	36.7	36.7
	Total	60	100.0	100.0

5. Visual Weight

The force of expression of each of the elements sometimes called visual strength. It is the characteristics of the elements that attract our attention. Elements can have high visual weight or low visual weight. Using different elements with different visual weights make sense of place attachment and safety in each area. The furniture with the low visual weight that allows the user to see the around open spaces easily without any interruption makes the place safe for the user. The monuments that have a high visual weight will cause a sense of place attachment for people and identifiable.



Figure 15. ITU Maslak Campus main monument [Authors. 2019]

The visual weight of the elements can result in different feelings for the users, which can be positive or negative. The main point is that choosing the suitable place for each furniture, plant, monument, or every element of landscape with high or low visual weight can help the user to feel safe, have a sense of place attachment and the sense of belonging to a place. These are the main factors of social sustainability. For instance, the monument in front of the ITU main library by the combination of low and high visual weight make sense of safety beside of feeling a sense of attachment and identifying the place.

There were some interviews and questionnaires that the users speak about their feeling of the different statues and furniture by the influence of the visual weight of them. They believe that these elements help them to identify the place better and have a definite sense of attachment to the site.

Table 9, 10 show the feeling of the recitations about the monuments, furniture, or plant with different visual weights in ITU campus. The median of the answers is 23.50, that shows 50% of recitations believe different visual weights in ITU campus help them to feel safe and identify the place better and have a sense of place attachment.

Table 9. Statistics

Visual Weight		
N	Valid	60
	Missing	0
Mean		23.0333
Median		23.5000
Mode		24.00
Percentiles	25	21.0000
	50	23.5000
	75	24.0000

Table 10. The recitations answers in comparison with median

Visual Weight				
		Frequency	Percent	Valid Percent
Valid	19.00	4	6.7	6.7
	20.00	4	6.7	6.7
	21.00	12	20.0	20.0
	22.00	4	6.7	6.7
	23.00	6	10.0	10.0
	24.00	18	30.0	30.0
	25.00	4	6.7	6.7
	26.00	2	3.3	3.3
	27.00	4	6.7	6.7
	28.00	2	3.3	3.3
Total		60	100.0	100.0

CONCLUSION

Social sustainability is related to the accessibility and sustainable community which can be produced by the built environment. In this paper, the social sustainability elements are discussed, and the relation between social sustainability and landscape design is explained. Istanbul Technical University Maslak Campus landscape as an excellent example of a socially sustainable landscape design is chosen, and by analyzing the elements of landscape design in ITU Maslak Campus landscape, the influence of the landscape design elements on social sustainability is explored.

As a conclusion, not only the elements of landscape design but also the functions that are chosen in the landscape can be practical on social sustainability. The location of critical services in ITU campus and the verity of them can cause accessibility for the users which is one of the factors of social sustainability. For instance, in ITU campus the location of cafes, shopping centers, bank, metro station (as an example of public transportation), bicycle stations, post bank (PTT), sport salon, basketball playground or hairdresser make the campus very accessible for the students. The accessibility makes the users decide to stay on the campus.

Table 11 shows the conclusion of the paper in a concise way. It shows how elements of landscape design effect on social sustainability. As mentioned, social sustainability is dimensioned by two main factors that are equitable access and sustainability of the community. The fair access, social interactions, participation in groups and community stability are some factors that can be affected not only by landscape design elements but also by the functions that are chosen for the built environment while the sense of place and safety and security are intimately affected by the design of the built environment.

Table 11. The conclusion of the research [Authors.2019]

		Line	Form	Texture		Color	Visual Weight	Functions
Equitable Access		*						*
Sustainability of Community	Social Interaction		*	*				*
	Participation in groups		*					*
	Community Stability	*					*	*
	Sense of place	*	*	*		*	*	*
	Safety & Security	*	*	*		*	*	*

As a result, this paper discussed the landscape design elements effect on social sustainability which can feel in Istanbul Technical University Maslak Campus. The students feel safe in this landscape, and they have a sense of place attachment to this place. They communicate with each other in this place effectively, involve in different group activities such as football or basketball teams, sing and dance in open spaces areas, go to the cafes and shopping centers. And finally, they belong to this place, and it is identifiable for them. This feeling is the most crucial point to say that ITU campus is a socially sustainable landscape.

REFERENCES

- [1] Hopwood, B. Mellor, M. O'Brien, G. (2005). Sustainable Development: different mapping approaches, *Sustainable Development* 13: 38–52.
- [2] Office of the Deputy Prime Minister (ODPM). (2006). UK Presidency: EU Ministerial Informal on Sustainable Communities Policy Paper, ODPM: London.
- [3] Burton, E. (2000a). The compact city: just or just compact? A preliminary analysis, *Urban Studies* 37: 1969–2001.
- [4] Littig, B. Griessler, E. (2005). Social sustainability: a catchword between political pragmatism and social theory, *International Journal of Sustainable, Development* 8: 65–79.
- [5] Burton, E. (2000b). The potential of the compact city for promoting social equity. In *Achieving Sustainable Urban Form*, Williams K, Burton E, Jenks M (eds). Spon: London; 19–29.
- [6] Dempsey, N. (2011). The Social Dimension of Sustainable Development: Defining Urban Social Sustainability, *Sustainable Development* 19: 289-300.
- [7] Burton, E. Mitchell, L. (2006). *Inclusive Urban Design: Streets for Life*, Architectural: Oxford.
- [8] Forrest, R. Kearns, A. (2001). Social cohesion, social capital and the neighborhood, *Urban Studies* 38: 2125–2143.
- [9] Hirschfield, A. Bowers, KJ. (1997). The effect of social cohesion on levels of recorded crime in disadvantaged areas, *Urban Studies* 34: 1275–1295.
- [10] Fischer, CS. (1982). *To Dwell among Friends*, University of Chicago Press: Chicago, IL.
- [11] Wilson, WJ. Taub, RP. (2006). *There Goes the Neighborhood: Racial, Ethnic and Class Tensions in Four Chicago Neighborhoods and Their Meaning for America*, Knopf: New York.

- [12] Relph, E. (1976). *Place and Placelessness*. Pion: London.
- [13] Wirth, L. (1964). *On Cities and Social Life: Selected Papers*, University of Chicago Press: Chicago, IL.
- [14] Nash, V. Christie, I. (2003). *Making Sense of Community*, Institute for Public Policy Research: London.
- [15] Talen, E. (1999). Sense of community and neighborhood form: an assessment of the social doctrine of new urbanism, *Urban Studies* 36: 1361–1379.
- [16] House of Commons ODPM Housing Planning Local Government and the Regions Committee. (2004). *Social Cohesion: Sixth Report of Session ,2003–04*. Stationery Office: London.
- [17] Barton, H. Grant, M. Guise, R. (2003). *Shaping Neighborhoods: a Guide for Health, Sustainability and Vitality*. Spon: London.
- [18] Shaftoe, H. (2000). Community safety and actual neighborhoods. In *Sustainable Communities: the Potential for Eco-Neighborhoods*, Barton H (ed.). Earthscan: London; 230–243.
- [19] Worpole, K. (2003). The social dynamic. In *Urban Villages and the Making of Communities*, Neal P (ed.) Spon: London; 118–131.
- [20] Pierson, J. (2002). *Tackling Social Exclusion*. Routledge: London.
- [21] Duany, A. (2003). Neighborhood design in practice. In *Urban Villages and the Making of Communities*, Neal P (ed.). Spon: London; 84–101.
- [22] Dempsey, N. (2006). *The Influence of the Quality of the Built Environment on Social Cohesion in English Neighborhoods*, Oxford Brookes University: Oxford.
- [URL1]<https://turkeypurge.com/16-academics-from-istanbul-technical-university-get-prison-sentence-of-3-to-7-years>
- [URL2]<https://beyondborders.dtu.dk/pages/university.aspx?uid=318ee5b0-f766-e711-80e6-005056965456>