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Article

Urban interventions and public pedagogies for raising public awareness on sustainability

Beste SABIR ONAT*

Department of City and Regional Planning, Istanbul Technical University Faculty of Architecture, İstanbul, Türkiye

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ABSTRACT

Learning experience infiltrates the lives of individuals by taking shape in parallel with many other developments such as technology, today's conditions, media systems, and educational methods of the time. In parallel with this, learning cannot be thought of without time and place; it is essential to associate it with the context of the current time and lived moment. Alternative and informal learning modes – such as learning by doing, experience-based learning, playful learning, and Place-Based learning – have strong ties with the spatial organisation. The relationship between space and learning experience has turned into a situation that needs to unfold and be re-discussed. Especially learning in urban open spaces and the relationship of public pedagogies with public spaces need to be highlighted and unfolded. Learning about sustainability is essential to cultivate sustainable habits in citizens' daily practices. Scarcity, destruction of natural areas, urbanisation problems, epidemics are not separate concepts. This study, in which informal learning about sustainability is discussed, also questions the informal teaching potentials of urban open spaces. The article also scans the potential of public spaces and informal learning experiences about sustainability. The study, which aims to emphasise the importance of programming public spaces to raise awareness about sustainability and small-scale interventions to be made in these areas, focuses primarily on a literature review on learning experiences about nature-human relationships. It then opens a discussion on small-scale interventions in public spaces and their potential to raise awareness of sustainability. Samples are selected in parallel with the characteristics clarified in parallel with the literature review and the selected public space interventions are examined. The common characteristics and keywords of these interventions, which focus on learning about sustainability in public spaces, are extracted. The study focuses on public pedagogies and raising awareness of sustainability in public spaces while aiming to create a common ground for future interventions. Secondly, it underlines the socio-ecological transformation potential of public spaces.

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INTRODUCTION

For a sustainable future raising ecological awareness

– starting from the individual scale – is of great importance. In urban spaces, public spaces have the potential to transform the habits of the inhabitants' social

*Corresponding author

*E-mail adres: bestesabir@gmail.com



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consciousness and strengthen their connections with the environment. Therefore, the main issue of this study is based on creating a common ground for public space design and interventions that may raise public awareness of sustainability.

After the pandemic, situations such as scarcity and lack of resources become more profound; on the other hand, people's connection with nature, environmental awareness, and the places to be shaped with this awareness are among discussion topics. Based on the human-nature-space relationship, in line with the view that the transformation of human ecological consciousness and its relationship with the environment will bring along positive behavioural changes in many scales with a systemic acceleration. This paper will pursue raising public awareness of sustainability in public spaces through the urban interventions and informal learning processes.

The first section scans the processes behind the human and its environment, the separation of this pair and learning processes are examined to strengthen the relationship between nature and humans. In parallel with the questioning of education and learning methods emphasis is placed on the idea that critical awareness and ecological consciousness can be strengthened by public space design and interventions. The study questions our learning potential and awareness raising regarding the environment in public open spaces and daily life. Figure 1 explains the continuous learning potential of public spaces.

Figure 1 explains (on the left) the climate crisis, environmental problems, and pandemics, the places of education and learning also need to change shape. Instead of learning spaces stuck in a single volume, the spatial fiction that infiltrate the city should be constructed with an experiential and informal learning process. On the right;

the infiltration of learning into everyday life, learning in public spaces, learning as a continuous experience.

Methodology

Design is not only searching for aesthetics, but we as designers also have the responsibility to create inspirational places that transform the social and ecological structure of society. That is why public spaces need to be interpreted in this manner and handled in these manners. In public spaces, we can interact, share, gather and exchange. Therefore, it is a crucial opportunity to inspire and learn from each other, designers should start developing these ideas and create more inspirational and experiential spaces where people not only spend time but learn from the space and from each other about sustainability.

Here are the main questions that create the main ground of this paper: Which spatial features can support raising awareness on sustainability in public spaces? How can we design our public spaces in a more educative and awareness-raising way? How can the places of learning spread into our daily lives? The method of this study is based on such questions, and it continues with a literature review, a relational, multi-layered reading and a discussion of learning and space theories. Samples around the world are examined in the light of the theoretical framework, which mentions the contribution of spaces to the learning process regarding the environment and sustainability and the learning spaces that infiltrate daily life after the pandemic. Main characteristics have been selected after the literature review and then, samples have been selected through these characteristics. Therefore, the literature review supported to choose the samples. And these samples are evaluated through the spatial qualities and design applications aiming to create a common ground for discussing the public spaces



Figure 1. Public spaces and learning experience relation.

that have the potential for social transformation and raising awareness of sustainability. And this study aims to create a common ground for future studies about public space interventions that focus on public pedagogies.

HUMAN-NATURE SEPARATION

Many theorists have evaluated the human-nature distinction in the historical process and associated it with various effects. Descola (2013) dissects the universal conception of nature with deconstruction; he underlines that the difference between nature and culture is not a universal one but a Western-oriented one. Descola deconstructs nature, states that it does not exist as a single universal truth. Moreover, Descola (2013) mentions that modern man shaped the world organisation with the concept of Western cosmology in the 17th century, and he defines this dualist separation as naturalism. According to him, in parallel with Western dualist thought, society and nature are defined as two different states, consisting of humans and non-humans. This segregation brings along societies moving away from the environment, unplanned urbanisation processes, famine, and climatic crisis. They affect each other on a systemic scale.

Kaika (2017) criticises the smart city concept, which is presented as a solution in line with sustainability today and mentions the necessity of having unique solutions for each region. Kaika underlines the necessity of producing solutions by absorbing the knowledge of nature and the place – stating that our enhanced sustainability and smart cities could be the disaster of someone else’s social environment. Kaika (2017) continues as follows; cities should be understood by examining beyond the geographical; for this reason, we cannot treat the nature of the cities as if it was different entity from them.

Kaika (2017) stated that instead of separating the words as city or nature, it is necessary to understand the process in cities as urbanisation of nature with a metabolic flow. For this reason, people need to come together and meet with nature again.

While issues such as energy, climate change, scarcity, and environmental issues have become increasingly important and new solutions need to be found, the systems approach can have significant potential in creating solutions to these problems, which are not singular, stand-alone problems, they are all interrelated and should be handled with a relational, holistic, systemic approach rather than singular solutions.

Von Bertalanffy (1968) defines the general system theory and explains it as the interaction of more than one discipline. These interrelations happen between social, cultural, biological, physical, and biological systems. Von Bertalanffy (1968) explains the system as a complex hole

that has interacting elements with each other and with their environments. Therefore, the system is explained as a self-regulating concept, in continual evolution and focuses on holistic wholeness.

This evolutionary concept overlaps with Latour’s (1991) term bricolage, for emphasising the holistic and systemic link between humans and non-humans (can be nature, technology) in the system and the necessity of handling it together. Therefore, man cannot be considered separate from the systems around him, and environmental problems must be evaluated within a whole system by relating them to social dimensions. Society and individuals have the potential to rearrange their behaviour, their relations with the environment, and their cultural values.

“Bringing sustainability to home is about cultivating a sustainability culture that suits the characteristics of the place” (Van der Ryn and Cowan, 2007, p. 83). Ecological thinking begins at home. In the change of the individual’s daily behaviour, there is always a relationship between micro and macro, and the improvement of the environmental system starts with the individual.

One of the main issues put into the basis of the study is that; to “restore” this transformation of man against nature and the distancing from it – that can be called blindness – the potential to support sustainable habits and being a responsible and aware individual towards the environment, to re-establish the human-nature relationship. In this sense, public spaces – where daily life passes and shapes our values, and our culture as well – are interpreted as crucial laboratories that have the potential to raise public awareness of sustainability.

LEARNING ABOUT SUSTAINABILITY AND RAISING THE PUBLIC AWARENESS

Learning and education methods are a subject that has been researched for a long time, but where and how we learn falls into a different field of research. Information is not only shared in schools; alternative learning spaces also have an essential value for the sharing of knowledge.

The freedom of building our cities and ourselves is directly related to the educational processes (Harvey, 2008). As Aristotle emphasises, we need to learn before doing things, and to learn; we need to practice them (Bynum and Porter, 2005).

In parallel with this, many concepts and theories have been proposed, such as learning by doing, practicing, and learning in the city as informal processes. Social justice and democracy cannot be separated from learning and education, is defined by Freire (2005) as enlightenment (critical consciousness-*conscientização*) that must be developed to be free from oppression. It is underlined that

the potential of individuals to change their environment is possible with social critical, political step-taking power, and self-actualisation.

Critical consciousness involves taking action against oppressive attitudes in individuals' lives. (Mustakova-Possardt, 2003). "Since sustainability is a cultural process, it depends on the everyday actions of ordinary people" (Van der Ryn and Cowan, 2007, p.82). In this sense, there is an essential link between the transformation of individuals and the awakening of their critical consciousness. Schools and the current education system are insufficient in this sense; the practice of sustainability can be realised with spatial fiction that infiltrate daily life.

Parallel with the critical pedagogy he put forward, Freire (2005) defines today's education system as a one-way method that descends from the instructor to the student, in a closed space and is limited to specific tools, in terms of critical consciousness. Freire (2005) refers to the power of learning and education to transform individuals in critical and critical inquiry. He argues that it will make students

active and actionable against situations and the realities of the time. In parallel with this, he proposes a praxis-oriented education model.

Freire (2005) defines the "problem-posing model" (Chapter 2) and emphasises the importance of this model for critically perceiving the dynamic world in constant transformation and formation. This model proposes to provide the transfer of knowledge by addressing a problem, thus bringing with it the process of questioning, criticising, filtering the events by looking critically instead of memorising, and thus learning by practicing. The problem-posing model requires "to listen, to dialogue, and to take action" (Wallerstein, 1987, p. 35).

Conditions such as listening to each other, communication, dialogue, participation, action, experimentation, learning by experiment can be placed at the basis of learning models in public spaces, and they may form the main ideas at the basis of public space designs (See Figures 2 and 3).

In these two micro-scale designs and interventions; there are processes such as urban dialogue, experimentation,



Figure 2. Tandem, located in Madrid, encourages citizens to take ownership of the public space by jointly managing their energy use (XXI, 2020).



Figure 3. Ciencia Pública. While explaining the transformation of grey water as a process, this project, which has turned into a gathering and sharing space as an urban furniture, will be examined in detail in the following sections (Exploratorium, n.d.).

observation, and coming together. These examples, which are encountered and joined by chance in daily life, are essential in the learning process.

There are learning processes and potentials related to daily life in all these typologies, such as experimentation, sharing, participation, and communication. In the space, a learning process that occurs through the experience of the space itself should be a priority instead of a person or institution telling a subject and informing it as a one-way process. De Certeau (1984) mentioned; just as the practiced space becomes the place, the practiced spaces have a great potential to teach by experience.

De Certeau (1984) mentions the power of ordinary people in everyday life and underlines that the dominant power can be opposed to the tactics created by the ordinary man. In parallel with this, Freire (2005), in his *Pedagogy of the Oppressed* study, mentions the transformation of tactics and the learning methods of ordinary people and the development of critical consciousness.

Raising Public Awareness On Sustainability Through Public Spaces

Giroux (2007) takes urban education as a bottom-up approach and states that it supports people's cultural mobilisation, emphasises the importance of cultural studies and educators. Lefebvre (1991), on the other hand, states that a bottom-up urban learning method will give the citizens the potential to transform their position in society with the practice of learning by making them productive.

Biesta et al. (2014) interprets civic learning as a practice associated with transformation. Sacré and De Visscher (2017), on the other hand, support the loading of the learning experience into the city by examining the city in a cultural context with an educational focus and talk about the transformation of the city into a curriculum on its own. They state that; the re-establishment of the city-culture-learning relationship can be achieved through a new understanding of urbanism that can go beyond the socio-spatial perception of the city consisting only of people and buildings.

As McLuhan (1957) mentioned in his "City as a Classroom" study; it is time to focus on spatial constructions that emphasise the relationship of everyday life with education and adaptive solutions for creative, playful situations, rather than the one-sided, top-down structure of the education system which is limited in space and tools. In the introduction of Illich's (1973) *De-schooling Society*, he criticises the one-sidedness of education by likening the current education system to a funnel and, in contrast, emphasises the overall change of institutions. With an emphasis on educational networks, he discusses individuals' learning in daily life and their potential to transform these

times into moments that they learn, share and care about each other and nature.

Discussing the place of learning in everyday life and the place of public open spaces in learning about sustainability, this paper aims to scan the spaces for sharing and informal learning in parallel with these ideas because informal "learning" has the potential to steer experimental, playful situations.

"Learning; is the process of creating knowledge by transforming experience" (Kolb, 1984, p. 38). The experiential learning model put forward by Kolb is in parallel with informal learning in this sense. Jacobs (1999) defines experiential learning as a process in which the learner produces knowledge, skills, and values directly from experiences (p. 51). Therefore, learning by doing is also included in this process.

Learning in the city is vital in terms of the potential to develop the critical awareness of the inhabitants, to develop their coexistence by recognising the power of the citizens, and to realise that the ordinary person, who is the primary determinant of daily life, can be a guide in the place where they live in. De Certeau (1984) mentions that ordinary people realise the power to transform their lives using daily life tactics. In *Pedagogy of Oppressed*, Freire (2005) explains the development of critical awareness as, in a similar parallel, the participation of ordinary people in life and management, starting to question the city and participating in decision-making. Critical awareness, the ability to take responsibility, and knowledge of the requirements of a sustainable city are required in making environmental and urban decisions.

As Sacré and De Visscher (2017) stated, although the city is seen by all urban actors as a community, produced by daily activities, urban learning now needs a new paradigm (p. 10). The design and management of cities, in parallel with this, must respond to current needs with new tactics, small-scale interventions, share information with their users, and prepare them for a prosperous future. Informal education and experience, and the learning process by sharing, have a great place in this regard.

Commoning of Public Spaces

*"Public spaces are promoted as part of active social networks, which are essential in knowledge transmission."*¹

According to Gehl and Gemzoe (2001), there was not much work on public spaces between the years 1930–1970, but after the 1970s, public spaces began to occupy an important place in architectural and urban debates. In parallel with the changing dynamics in cities – especially in terms of production, consumption, and socialisation – public spaces are produced. Therefore, the definition, meaning, task,

¹ Madanipour, 2011, p.153.

perception, and content of public spaces, pass through important breaking points.

Especially today, cities and public spaces are reinterpreted and understood in parallel with issues such as climate change, resource scarcity, and resilience, and solutions are tried to be produced with new approaches. It is necessary to adopt new insights and install new lenses in order to make the city more ecological, more sustainable, and more resistant to future conditions: There is a need for a paradigm change that will be reshaped by establishing relationships with public spaces within keywords such as; sharing, small intervention, participation, interaction, hybridity, third spaces, flexibility, change of consciousness, behaviour change, multi-purpose, and multi-layered.

Everyday Life and Tactics in the Public Space

There is an intricate relationship between the place and the individual. The individual reshapes and transforms the space in line with his own experience so that a dialogue between the city and the urbanite emerges. With a two-sided flow of information, the individual of the city and the individual have the potential to transform and remake the city. This “dialogue” is the essence of this transformational process. The idea of social autopoiesis – the city’s self-repair – is possible through the dialogue between the city and all parts of the system. The dynamic and interactive process between the city and its users is read from public spaces.

“Cities have the capability of providing something for everybody, only because, and only when, they are created by everybody” (Jacobs, 1962, p. 238). The existence of ordinary man in daily life is possible with the development of critical awareness in a free and democratic way by getting rid of the power mechanism with the help of tactics. The “practiced space”, which De Certeau refers to, is a place where interaction, participation, collaboration, communication passes, where the boundaries of contrasts are melted, where they can be practiced and existed in a free, democratic way with critical awareness, and they can transform the concept into a meaningful place.

Small-Scale Interventions, Third Places and Collective Learning

The idea of intervening in the city at scales smaller than the urban planning scale emerged due to the common emphasis on the need for a human-oriented, humanist social and physical environment, which has been included in the criticisms of the modernist urban planning approach since the 1950s (Akgün Yüksekli and Kabakoğlu, 2016).

The places where the learning processes will occur should be designed to be pluralistic, open to dialogue, and inclusive of the learning process. Parallel to this, it would be appropriate to examine small-scale interventions and discuss their place in the process of learning about the environment and gaining critical ecological awareness. De Certeau (1984) put forward

the term tactic, which is the unplanned actions of ordinary people in daily life, as opposed to strategy. “Tactics reshape the urban space in an unplanned way, with their informal activities. They offer us options on space that have not been considered before” (Çınar and Yirmibeşoğlu, 2020).

Garcia and Lydon (2015) define tactical urbanisation as short-term, low-budget, simple interventions. Tactical; literally, it means that small-scale applications serve larger purposes (Garcia and Lydon, 2015, p. 3). “Micro-spatial urban practices” that intervene in the city on a small- or micro-scale are approaches that are developed to make the urban environment liveable and comprehend urban problems from districts, neighbourhoods, streets, buildings, or smaller scales (Akgün Yüksekli and Kabakoğlu, 2016). This synergy created through micro-interventions in the city may have the potential to increase knowledge and awareness of the urban environment, ecosystem, and sustainable urban behaviour.

In the third space theory, which is a post-colonial theory, Bhabha (2004) underlines the potential of such spaces as a kind of synthesised, hybrid space to bring different cultures together interactively and creatively, and states that there is a place for the “new” in the third spaces. In parallel with the post-colonial discourse, cultural hybridity becomes possible with the melting of the boundaries between the self and the other and the increase of communication and relationship networks. In parallel with the concept of hybridity, which is reflected in spatial situations, two different cultures can create a new formation – unity through coexistence, communication, relationship, and creative bonds instead of suppressing or suppressing each other. Thus, third areas can be defined as places standing in the middle, in between, and where creative ties emerge. The spatial boundaries and melting of cultural differences in the public sphere have great potential, especially for heterogeneous cultures and communities (Figure 4).

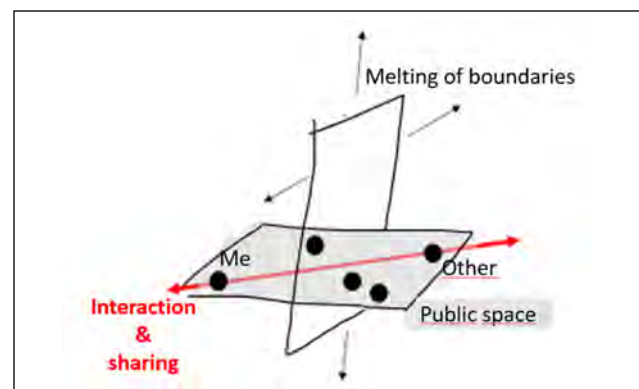


Figure 4. Hybridity in the public domain. The third spaces are important in terms of informal learning in the city with its structure that includes coexistence and differences (Source: Developed by the authors in parallel with Bhabha’s (2004) concepts).

In parallel with encounters in the public sphere and the potential for hybridity, the boundaries between self and others may melt. Along with factors such as interaction and sharing, the urban learning process can begin by coming together. In this sense, micro-scale interventions and urban tactics to be made in the public sphere are of great importance. The boundary between people’s participation in this process and the self-other; has the potential to dissolve in a productive, creative, sharing, interactive way. These small-scale interventions can create a hybrid (third) space by raising an issue against environmental problems and creating a dialogue space.

ASSESSING THE CONTRIBUTION OF PUBLIC SPACE INTERVENTIONS FOR RAISING PUBLIC AWARENESS ON SUSTAINABILITY: CREATING A COMMON GROUND

Just as the practiced space – mentioned by De Certeau – turns into space, the practiced spaces have important teaching and experience potential and will be discussed with examples as fieldwork. As the spatial content and provided criteria in the small-scale interventions examined below, with processes such as creating a space for urban dialogue, learning by experiment, observing, listening to each other, getting together, the learning process occurs.

In all the samples examined, there are potentials of the learning process with practices related to daily life such as experiment, sharing, participation, and communication. Firstly, the typical spatial features found in the examples were determined; later, the spatial criteria and informal learning methods of these selected examples were brought together and discussed in relation.

Informal Learning from the Place to Raise the Public Awareness On Sustainability

The learning pyramid that has been developed by Edgar Dale in the NTL Institute, was taken as the basis for to define the learning styles in public spaces in this work (Wikipedia, n.d.). The cone of experience or learning pyramid explains the learning activities and categorises learning methods from passive to active ways of learning. This model has been developed in 1946 and these categories and methods need to be updated and new methods can be related to the categories. Since technology, media systems, the internet and new learning bases are developed, therefore learning in the open spaces can use these new technologies as well. VR technologies, internet-based learning, media facades and various methods can be included as a way of learning and these methods can be included under a new category – since they cover more than the audio-visual methods of 1950s when Dale developed this learning pyramid.

Nowadays new media surfaces and interactive spheres create strong connections between human – non-human and the pyramid needs an edition with the addition of new interactive mediums that cannot be added under the category of audio-visual. As it can be noticed, auditory and visual ways of learning are not efficient on learning. However, in the kinaesthetic part, discussion, gathering, problem posing, sharing ideas may come to the surface, and a democratic way of citizenship may occur-cultivated. Practicing what you are learning, experiencing, applying your knowledge, experiencing, and participating in the learning process is also active. Therefore, in the pyramid from lecture-listening to down-part teaching others, the learning experience becomes more active. The

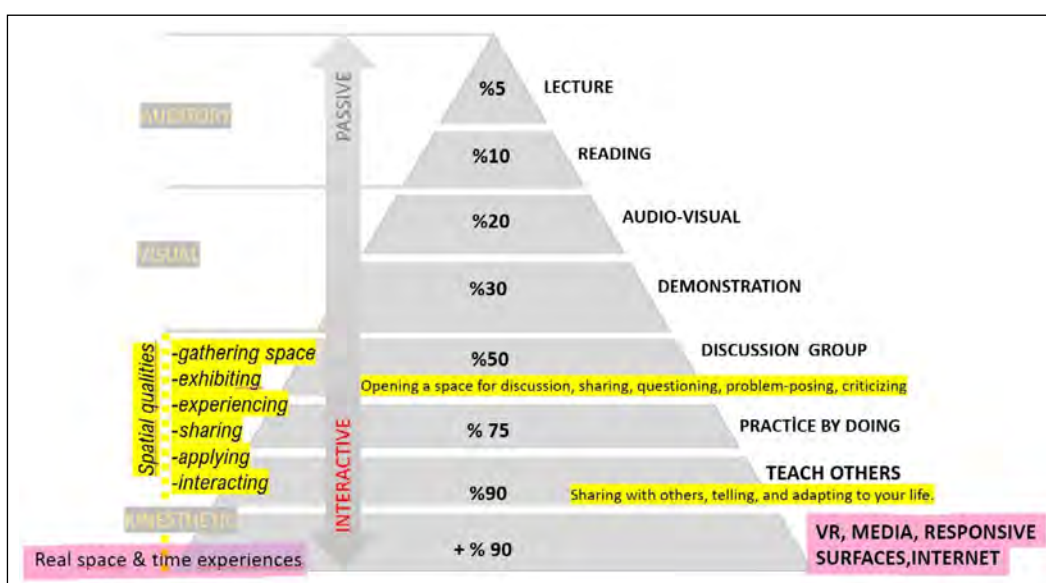


Figure 5. Adapted from the pyramid model “cone of learning”, was developed by Edgar Dale in 1946, in the National Training Laboratories Institute, Bethel, Maine.

spatial qualities and necessities of that phase have some requirements discussed in the following topic.

Following Figure 5, new modes/mediums of learning that enhance the learning experience have been included in Dale's cone of experience diagram. With technological developments internet, media surfaces, VR, interactive surfaces are being included in the public spheres – those new modes may have the capacity to enhance learning efficiency. It is a form of creating a human-non-human relationship. Therefore, the author edited the pyramid, and in the following case studies, these learning modes and spatial qualities and requirements will be discussed.

Spatial Requirements and Characteristics of Urban Interventions and Public Spaces for Raising the Public Awareness On Sustainability

McFarlane (2011), who put the concept of aggregation as the basis of urban learning as a spatial grammar, explains the state of gathering as a concept related to urban perception, interaction, and creation, as a context that defines the unity that can occur between differences/otherness.

In this parallel, McFarlane (2011) explains urban learning as the gathering activity where the inhabitants produce the city. Parallel to this, all examples of spaces that provide a basis for gathering and gathering in public open spaces talk about the spaces encountered by chance and joined by individual desires in daily life. Therefore, they are essential in terms of the learning process.

On the other hand, it is an essential step for the public space design and interventions to be made for the inclusion of learning in the practice of daily life, to connect with the metabolic flow and systemic relations of that system, and to share this information with the user in an experiential way within the design.

After the literature review some characteristics of public spaces have been defined and explained below:

a. Creating space for urban dialogue: Gathering, listening to each other, discussing, participation activities should be developed related to public space interventions. As it is explained in the learning pyramid, interaction and democratic citizenship are crucial for learning together and learning from each other during everyday life to develop public pedagogies.

b. Exhibiting, showing the ecological cycle: In the sense of strengthening the human-nature equality and the bonding of the system in parallel with the systems approach, interventions should explain the interrelations of humans and non-humans. That way by experiencing, seeing the strong relations of humans with nature and with the systems, we can evolve and raise awareness of sustainability.

c. Interacting between humans and non-humans (media, technology, nature): As it is explained above, the connection

and relation of human-non-human should be highlighted in the intervention programs for public spaces.

d. Trying, playing and experiencing the space and the intervention. Therefore, the interventions that are planned in public spaces should carry an interactive role. Their programs should include these characteristics.

All five projects reviewed below meet the main spatial requirements mentioned above. The Alternative City Stops, Alternative Cycle, PS1 Public Farm, Tandem, and Public Science projects are examined in detail. As a sixth example, the inadequacy of the environmental learning system based on visual images and reading in Antalya Karaalioğlu Park is also examined.

Alternative City Stops, London Design Biennial, 2016

Temporary pavilions designed by Asif Khan aim to cross the paths of people living in their flow in modern city life and offer them alternative spaces to stimulate their relaxation and creativity in the period between home and work. The three pavilions named “Connect, Create, and Relax” covered with plants feed on the idea of “*shinrin-yoku*”, which means “forest bathing” in Japanese culture. The plants specially selected by the expert Jin Ahn strengthen the forest atmosphere and stimulate people's senses, offering both individual and shared experiences. Visitors who can take plants can also bring their plants and leave them in the rooms (Figure 6).

This small-scale intervention opens space for environmental learning to infiltrate into everyday life. In this sense, it has conditions such as human-non-human (nature) small-scale intervention, creating space, exhibiting, interacting, experimenting, and experiencing by doing. Therefore, from the characteristics above, we can see that points b and c have been applied to the program of this intervention.

Alternative Cycle, Rotterdam (Rotterdam Floating Park), 2018

The floating park, produced with recycled materials collected from the river within the scope of the project, aims to prevent plastic waste from reaching the open sea, aims to raise awareness, and improve the ecosystem of the city. In Rotterdam, a prototype project carried out by The Recycled Island Foundation, which wants to draw attention to plastic waste pollution in water, is opened to visitors. Using plastic waste that has been collected from rivers and ports, this floating island participates in the ecological cycle in the city, highlighting the possibilities of the recycling movement (Figure 7).

Aiming to demonstrate that recyclable plastic is a valuable material, the 140 m² floating structure consists of a series of hexagonal blocks made entirely from plastic waste collected from the Nieuwe Mass River. In addition to the positive environmental impact of these green blocks, the designed



Figure 6. How do small-scale interventions create space while experiencing and teaching about the environment? Some main spatial characteristics and keywords are added to the images (XXI, 2016).

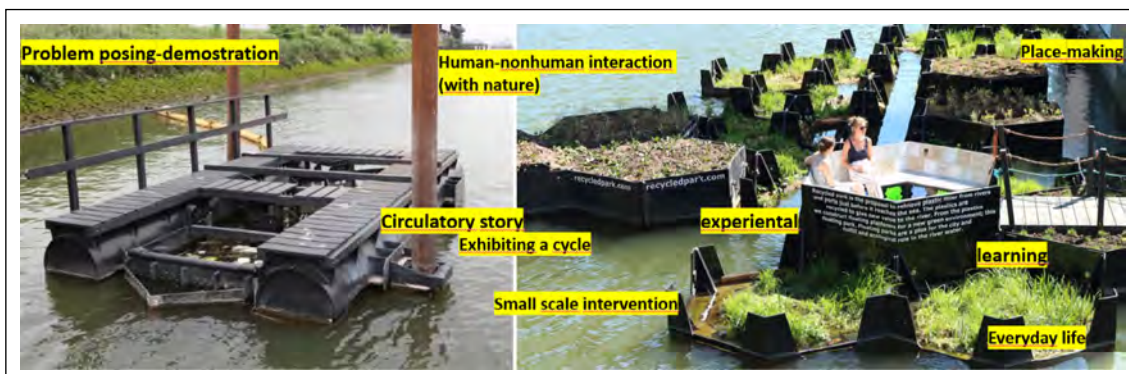


Figure 7. How do small-scale interventions create space while experiencing and teaching about the environment? Some main spatial characteristics and keywords are added to the images (Stinson, 2018).

park also benefits the river and harbour ecosystem. It offers a habitat for micro- and macro-fauna, including snails, flatworms, insects, and fish.

From the characteristics above, points b and c have been applied to this intervention and design.

PS1 – Public Farm One, 2008

It is possible to see public spaces being perceived as city laboratories and organised at the intersection of urban interactions and public spaces for learning and sharing purposes in MoMA-PS1. In this urban experiment initiated under Public Space – PS1 in the backyard of the Museum of Modern Arts, public projects and interventions are put into action by regularly hosting designers and architects in parallel with the Young Architects Program. Public Farm One, realised in parallel with the same program, was implemented

by WORK Architecture Company in 2008 (Figure 8).

From the characteristics that have been defined above in the previous section, a point has been applied to this intervention. People can interact, gather, share, and learn together in daily life.

Tandem – An Energy Self-Sufficient Public Space, Madrid, 2018

The project encourages the citizens to take ownership of the public space by jointly managing their energy use, focuses on the self-sufficiency of the public space in terms of energy, and the functioning of the urbanites as a laboratory for energy management.

The intervention, consisting of an open classroom, a small stage, and a knowledge point-energy collector, provides



Figure 8. How do small-scale interventions create space while experiencing and teaching about the environment? (de Boer, 2009 and Mas Context, n.d.).



Figure 9. How do small-scale interventions experience and teach about the environment while creating space? Tandem encourages citizens to take ownership of the public space by jointly managing their energy use (XXI, 2020).

energy for all users who need it in the square to use urban devices. These three devices are also interconnected. They can perform functions such as leaving messages on LED screens. In this project, the relationship between humans and non-humans (technology and media) can be read. The project's main idea is to test how energy self-efficacy can play a vital role for urban dwellers to stimulate and jointly manage (liberate) activities in the public sphere (Figure 9).

The second important issue regarding energy and public space is related to urban pedagogy. The fact that solar-collecting batteries can produce, and store limited energy teaches citizens to use shared energy in a responsible way. Thirdly, it is emphasised that the “instant” can become a “habit,” and it is emphasised that the ownership of the public space should not be expected only from institutions. Solar panels, the classroom and the stage are connected

to a social media machine that controls some interactions with the users, such as the possibility to switch the colour of the artificial lighting of the square, to make selfies using a webcam or to leave messages displayed on a LED screen. The project allows to demonstrate that energy self-sufficiency can become a trigger for the activation, promotion, and joint management of citizen activities in public spaces. Thus, the generated energy is not only for individual use, such as charging electronic devices but also for new, collective uses, such as the screening of movies during the summer or the lighting for concerts or other events. Energy self-sufficiency allows citizens to use public spaces for initiatives that were not even conceivable before due to the absence of free energy allowing them to realize them publicly.

TANDEM is also an educational laboratory, as it educates the public about the responsible use of energy, making people wonder: “How can I use it in the best possible way?” Figure 10 shows that different methods of learning are applied in this example. Interactive LED screens and activities create a new experience.

From the characteristics that have been explained in the previous section, we can see that the points a, b, c and d have been applied to the program of this small-scale intervention.

Public Science Parklet, Madrid (Ciencia Pública: Agua), 2015

While the small-scale intervention called Public Science is focusing on sustainable water use. It describes the transformation of grey water as a process, it also turns into a gathering and sharing space as a piece of urban furniture. Public Science aims to support informal education in science, technology, engineering, and mathematics (STEM). The Project is in two parking spaces of a parklet.

From the characteristics that have been explained in the previous section, we can see a, b, c and d have been applied to the program of this small-scale intervention.

Karaalioğlu Park, Antalya

Karaalioğlu Park is a Republic-era Park built with the participation of the public. It was designed to be integrated with the Community Centre and some other social buildings. The Public House, located near the park, makes people aware of issues such as construction and agriculture, and this function has been considered in integrity with the park.

As shown in Figure 11, the sharing of vegetative diversity in daily life with the public takes place through the method of “reading and visual images.” As mentioned in the learning pyramid, the interaction and effectiveness of these methods are low, so this space’s informal learning experience and learning levels are inefficient.



Figure 10. How do small-scale interventions create space while experiencing and teaching about the environment? (Exploratorium, n.d.).



Figure 11. On environmental learning inside the park, applications provided with reading and visual images (Image: Author).

There is no applied characteristic to the program of this design from the characteristics that have been explained in the previous section. Therefore it is hard to say that informal learning can happen in this example. For to develop this example, the intervention may provide a program inside considering the characteristics that have been explained in the previous section. Thus, while raising awareness of the bio-diversity and the plants in this park and region, there can be a small-scale intervention mentioning the cycle of these plants, or there can be an interaction between humans and these plants, there can be a gathering space around this zone where people can interact with these plants, learn and share, or there can be playful digital installations that interact with people. All these ideas follow the interactive stages of the learning pyramid that has been explained above.

DISCUSSION AND CONCLUSION

Perspectives that will open space for the relationship between the design of public open spaces and the learning experience will have an important place.

Learning about sustainability and gaining self-sufficient habits can be experienced in everyday life – instead of formal

education methods. In parallel with this, public spaces where daily life takes place, and instant encounters and experiences occur; can be thought of as laboratories or machines that trigger social and behavioural transformation. Rather than concrete, finished spaces, spatial designs that are happening and experienced, reshaped, and then deteriorated again, “focusing on the experience and learning process rather than the final product” are essential for the transformation potential of individuals.

This paper questions the relationship between public spaces and the transformative power of that spaces. Secondly, highlights the role of design and mentions the social role of design. Third, aims to open a discussion on developing public spaces in this manner that have the potential to raise public awareness of sustainability. Therefore, the paper lastly aims to create a common ground for the evaluation and interpretation of public spaces in relation to learning about sustainability in these spaces. By doing so, the paper highlights various criteria of learning spaces in daily life regarding sustainability while trying to read education and learning methods, human-nature relationships, and spatial theories in an inter-relational, multi-layered manner.

Bottom-up decisions in parallel with participation support

learning processes in the city. For a sustainable future, education and learning should be integrated into a multi-layered framework parallel with the democratic spaces and systems approach; this is important for the city constructions that will take shape in the future.

Following the literature review during the paper's research process, education, learning methods, informal learning processes were examined and discussed concerning an interactive and interdisciplinary reading with public open spaces and small-scale intervention methods, in parallel with spatial theories. Later the literature study and scanning of case studies, determine "the common criteria of public sphere interventions" that provide a basis/common ground for future public space developments.

On the other hand, the learning methods are determined in parallel with the informal learning process. Six samples in total were scanned; five examples support the informal learning process, while the sixth last example is insufficient in this sense.

We may declare for future comparisons that; if the interaction is high and learning experience efficiency is high in an intervention, in these spaces, informal learning is expected to be the highest. In the sixth example, the park, where reading and visual images are used among informal learning methods, has low efficiency.

In Turkey, our public spaces generally are not developed with public pedagogies and programs of public spaces and interventions that take place in these spaces do not include any pedagogical approach that may raise awareness of sustainability. There should be regulations on a national level and pedagogical layers behind the public spaces should be unfolded and discussed in an interdisciplinary way.

As the paper discusses, public spaces carry crucial potential on activating the public and have the role of a socio-ecological transformation of its time. Public interventions should be handled with these characteristics that have been explained during this study, in order to create sustainable futures.

This paper aims to propose a basis for the evaluation of informal learning processes regarding the environment in future public open spaces. The study also aims to create a common ground to compare the efficiencies of public interventions that aim to cultivate sustainable habits and educate citizens about sustainability.

McFarlane (2011) aims to develop an innovative understanding of urbanism for the future; conceptualised urban learning as a necessary "lived and shared/discussed" area, where citizens come together. In parallel with this, Certeau's practice of everyday life work and Freire's critical pedagogy overlap at this point. They give clues to daily life practices and public space programs where informal learning can take place.

McFarlane (2011) defines learning as a process (where knowledge is created and transformed) and as a practice and interaction. McFarlane (2011) underlines that learning is generated through relationships between people, materials, and the environment. Again, we come across a systemic and metabolic approach. Systemic relationships and cycles between humans and non-humans are essential for the emergence of learning. With the establishment of these relationships and processes, the learning process takes place. The human-non-human relationship can create ties between human-nature, human-media, human-technology, or human-different time experiences. These examples which consist of various modes of teaching and using technology and interactivity are essential because they create strong ties between the knowledge and user. Also, they create interactive learning environments which should be included open space interventions and designs.

In parallel with this, it is time to evaluate and associate all parts of the system, such as individual-society-nature-technology together. Cities should be approached sustainably and systematically, with their humans and non-humans components. The cities of the future should not be analysed separately from their users. The transformation that begins on an individual scale is vital for healthy and self-sufficient future cities.

Therefore, the spread of small-scale interventions to be positioned in open public spaces with bottom-up strategies, creating grounds that reveal democratic communication, coexistence, critical awareness, comprehension of the practice of daily life and including informal processes designed specifically for that region are of great importance in the process of socio-ecological transformation.

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