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Revealing the Potential of Public Places: Adding a New Digital Layer to the Existing Thematic Gardens in Thessaloniki Waterfront

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Abstract. In recent years, mobile devices have become very popular communication tools that provide access to information and communication, influence people's social behaviour and change patterns of their everyday activities. The use of communication technologies in public open spaces has become significant for the outdoor experiences of people and the relationship between users and technologically mediated outdoor activities. More specifically, wireless digital cultures not only influence spatial layout, infrastructure systems and moving patterns, but also require ICT-based placemaking strategies. This is often not considered sufficiently during the physical design stage. It is important to consider a space appropriation approach to the use of digital technologies in public spaces, based on user requirements and the local context. This is demonstrated with a case study of the Gardens at new waterfront of Thessaloniki, Greece. In this project space analysis and users' questionnaires were applied to relate digital space to the reality of the physical landscape as a first stage in the design process. This approach has wider implications for successful place making strategies. This chapter considers the possibilities of extensive outdoor use of digital media technologies in traditional forms of spatial experiences. It proposes that the new digital layer overlaying the physical space should first be methodologically explored in a way that could advance understanding of the extent to which immaterial networks and relationships can affect material planning and design dimensions.

Keywords: Added value · Mediated public spaces · Successful placemaking · Thessaloniki's waterfront · Users

1 Introduction

In recent years digital cultures have not only influenced the spatial layout of public spaces, infrastructure systems and moving patterns, but also facilitated place making strategies, based on the local context. However, the question of the relation between human activity, public open space and new media technology finds its significance within the broader context that defines the social and experiential potential of emerging forms of hybrid outdoor spaces (Ioannidis et al. 2015). Can we consider technologically mediated spaces as places which accommodate users' preferences, activities and behaviours? How can the user-orientated spatial requirements be addressed by the digital overlay? Do these spaces have a structural relation with the immaterial volume of data offered within them, a relation that can possibly transform the mediating tool into a mechanism for shaping their content? The two-way communication between space and people has been revealed in the work of scholars like Appleyard (1969, 1972, 1977); Lefebvre (1991) and Banerjee (1971, 2001). The social and experiential potential of places supports possibilities for social interaction, long-lasting activities and changes in behaviour patterns. They are products of the active relationship between users and a place's locale. This chapter relates to users' appropriation and engagement with public open spaces in the post digital age.

This hybrid landscape of physical and digital relations is investigated through the case study of the New Waterfront of Thessaloniki, Greece. The chapter develops a space analysis, employing a methodology based on both empirical-analytical approaches (users' questionnaires, data statistics) and focusing on explaining and understanding this emerging phenomenon, which relates digital space to the reality of the physical landscape as a first stage in the design process. This methodology has wider implications for successful place making strategies. Three thematic gardens along Thessaloniki's Waterfront are critically assessed for how digital enhancements can foster future user needs, place appropriation, new experiences and added values. Finally, the chapter proposes that the new digital layers, which are overlaying the physical space and exceeding the physical limits of the gardens, should be methodologically explored in a way that could advance understanding of the extent to which immaterial networks and relationships can affect material planning and design dimensions.

2 Literature Overview

Place making is a multi-dimensional approach to the planning, design and management of public spaces, which allows people to make public places more attractive and meaningful for their lives (Anderson 2013). The place making process capitalizes on social interactions in public places, a local community capacity to participate and results in the creation of quality public spaces that reflect community aspirations and contribute to people's wellbeing (New Castle City Council 2012; PPS 2015). Therefore, social construction of public places refers to the active process of connecting communities, relating them to locations and making them meaningful for their lives (Holland et al. 2007).

Intangible values, embedded in the public places, and sometimes referred as a “spirit of the place”, are layers of meanings by different communities under different contexts (Garagnani et al. 2016). The intangible and tangible (physical) elements of public places contribute to a community’s sense of belonging and cultural identity (García 2013). Therefore, valorisation of public spaces should be based on their appropriation and identification by different users and communities (CEM 2011). That is why successful places promote sociability, things to do, they are safe, comfortable and attractive (Gehl 2011).

There is evidence that in the age of digitalisation while people are connected in virtual spaces, their activities in the public places are reduced (Gumpert and Drucker 2004). Therefore, digital technologies should be provided in the public spaces together with other physical design features (for example trees, water, or other amenities), aiming to encourage people to spend more time in public places facilitating private time, providing flexibility of choices, promoting communications, activities, collaborative practices, collective empowerment and creating experiences (Abdel-Aziz et al. 2016; Bhalla 2016; Janner-Klausner 2017; PPS 2014).

A local sense of place can be facilitated by digital tools through complex links and interconnections between the tangible and intangible layers created in the public places, encouraging people to personalise public places, and engage with them and with each other (Harrison and Dourish 1996; Nisi et al. 2008). Personal meanings of public places can be created by digital adjustment of physical surroundings, digital storytelling, personal photos, and annotations, contextualizing in virtual space and relating to past experiences. This approach uncovers social values of public places and allows people to have physical and virtual possession of places.

By introducing new digital layers, public spaces are turned into “hybrid geographies”, which consist of layers of interpretations of the place, where people can re-programme their surroundings, reflect on experiences, and redefine possibilities to relate to objects and processes (Berry and Hamiton 2010; Morley 2003; Sappleton 2013). The interaction between these layers results in changing private and public boundaries of people and places (Ampanavos and Markaki 2014). In other words, digital tools capture a “cognitive landscape” of people’s perceptions about places and provide a combined creative and combined knowledge about the place and people (Farina et al. 2005). This knowledge overrides any time references (for example historical references) of the place and allows movement through different layers of space (Van Assche et al. 2012).

Digital tools can help to overcome distances and create sites of fantasy and memory, turning the place into a read/write, publishing surface (Iaconesi and Persico 2011; Lughì 2013). In this context public places can be turned into “a time/space continuum for multiple, stratified layers of information and opportunities” related to specific place (Fattahi and Kobayashi 2009; Iaconesi and Persico 2013; Markaki 2014; Zook and Graham 2007).

It is argued that people and places “influence each other by being part of actor networks” and the concept of place can be framed as “an entanglement of people and things associated by meanings and memories” (Dork and Monteyne 2011).

This mutuality of new media and urban environments is why cities are being referred to as interfaces. For example, with no physical signs in sight, spaces can be a meeting place, a co-working space, a weekly market, etc., which can be only discovered by accessing digital information (Avram 2014; De Waal 2014).

A range of targeted projects have been conducted to add social values to public spaces. For example, the Visualizing Venice project aimed to enhance the understanding of the city “as an on-going process of change and transformation over time” and to communicate new knowledge about place and space to the public through portable devices and on the Visualizing Venice website (Visualising Venice 2017). The European Street Design Challenge project created a new urban identity for Seine-Saint-Denis La Plaine in Paris, aiming to propose digital opportunities to support a design idea. (ESDC European Street Design Challenge (ESDC) 2013). The Play the City project is using game mechanics as a model for engaging stakeholders to have fun and participate in co-creation process (Play the city 2017). The POBLEJOC installation was a site-specific public art installation, supported by digital platforms developed in Barcelona for San Marti district to create new pedestrian areas and public spaces (Active Public Space 2016). The collaborative project Big Screens between the BBC, LOCOG and UK local authorities used multimedia screens as a socialising platform (Thomson 2012). 3D digital water curtains were instated in major cities in Spain for public entertainment and community building (Digital Water Curtain 2017).

These projects attempted to improve individual and collective appropriation of public places where collective appropriation aims to strengthen community’s sense of belonging, empowerment, collaboration, public participation, community engagement and connectivity of the people involved (de Hann 2005). The social activities that were used in the projects included activities connected with:

- Understanding urban reality.
- Creating new and preserving old identities.
- Co-creation, including public engagement and participatory activities.
- Educational activities.
- Public entertainments.

The existing projects developed frameworks for successful placemaking by proposing ‘hybrid geographies’, composed of layers of interpretations of the place in digital form and perceptions of the place that digital tools can record, visualize, re-shape and share and physical features. The following digital layers were added to the existing urban fabric to address site-specific requirements:

- Mobile applications including applications for digital place-based storytelling, geo-tagging, location specific digital annotations (Nisi et al. 2008).
- Urban art games (Lughi 2017).
- Co-creation platforms used for community engagement, participation and joint activities.
- Monitoring platforms.
- Navigation platforms.
- Platforms for access to information.
- Sharing and checking in platforms.

- Announcing & directing platforms.
- Urban media art including digital site-specific art installations.
- Multimedia experiences with participatory functions. Interactive screens for community engagement, interactive arts and play.
- Animated architecture, combining landmarks and digital platforms.
- NFC (Near-field communication) and QR (Quick Response) touchpoints (Connectthings 2017).

It is notable that despite different urban realities, these mediated experiences proved to be successful because they delivered a set of urban planning objectives, encouraged interactions between people, reinforced existing urban features, and created novel urban experiences (Han et al. 2014).

In the current study we are going to explore possibilities to adopt the framework of adding additional digital layers to the existing urban fabric of public open spaces (Gardens) along the waterfront of Thessaloniki.

3 Study of Gardens of New Waterfront of Thessaloniki, Greece

Addressing the current upswing of digital solutions available to facilitate the use and attractiveness of public open spaces in relation to the new mediated reality of wireless connectivity, data access and retrieval “on the go” (Ioannidis 2017), this chapter explores the possibility of user centred improvements for existing public open spaces (Gardens) along the waterfront of Thessaloniki. It analyses its physical and design characteristics—spatial layout, greenery, landscape formations, materials - to consider how its thematic organization can offer more than a reference device by implementing a digital layer to enhance its experiential content. The authors are not aiming to provide specific forms, types and techniques for human/machine interaction. However, a critical analysis of today’s requirements of the Gardens can provide a correlation between traditional landscape design and architectural features (sitting facilities, meeting points, gathering opportunities etc.) and user’s quest towards a networked-like design where outdoor facilities and offered data can link not only people but also people with space.

3.1 Background and Original Design

In 2000, architects Prodromos Nikiforidis and Bernard Cuomo¹ attempted to construct a Garden-based narrative along Thessaloniki’s edge in an attempt to return to the city its lost relationship with the sea. The adopted design strategy, apart from reviving the

¹ Project name: *Redevelopment of the New Waterfront of Thessaloniki* (European Architectural Competition, 2000. First prize. Architectural Prize 2005–2008 from the Greek Institute of Architecture, Client: Municipality of Thessaloniki, Greece. Study period: 2001–2005. Construction: (first phase) 2006–2008, (second phase) 2009–2013. Architectural and urban design proposal: Prodromos Nikiforidis, Bernard Cuomo, Atelier R. Castro – S. Denissos. Design team: Paraskevi Tarani, Efi Karioti. Cost: €18,000,000. Total surface: 74,000 m²).

sense of the 19th and 20th century gardens found in the area but lost under the pressure of the massive urbanization process during the 1960's and 1970's, unfolds over space a set of principles emerging from a continuous plot – that is a story to be told to the visitors grounding meaningful concepts with the individual locality of space.

The constant earth fillings that occurred after the 1950s provided to the area its main visual characteristic - a dominant and undisturbed linearity. The strategy not only prioritizes and preserves this specificity but also elevates its experience into a new reality that challenges its conception as the dateless impermeable border between the city and the sea. Nikiforidis and Cuomo's winning proposal develops further the idea of a narrative, introverted spatial condition that runs parallel to the city's waterfront edge in a skilful and communicative way. They argued that their intention was indeed

the creation of a linear space with choices for entertainment, games, relaxation, education, and culture, the linkage of different spaces with various qualities that will cover a wide spectrum of human expression and mood, but will maintain the characteristics of unity and continuity imposed by the character of the urban frontage itself (Nikiforidis and Castro 2001:6).

Above all, the project is lodged in a “collection of spectacles” (Loukaitou and Banerjee 1998), masterly inserted along the city's edge by the architects-as-tellers. The story is extracted by what scholars like Sternberg (2000) and Gottdiener (1997) define as “purposeful thematization” spatially manifested by the alignment of fifteen inter-related thematic events in which “introverted green spaces for leisure, a human-centred design, and water events, along with natural materials like wood, sand, and stone, construct an arranged set of allegorical representations of places whose meaning is gradually revealed, cultivated, and negotiated within the user's mind” (Ioannidis 2011:223).

In the proposed set of purposeful thematization the formulation of the so-called ‘episodes’ is a central methodological approach and enhances, in a way, the means to tell the story. The architects argue that:

The intention to maintain the linearity of the coastal frontage, its unity and continuity, and leave the horizon of water along with the main promenade uninterrupted by any sort of seaside construction, is a central one. However, the need to find meaningful points of interest during unfolding this coastal track led to the decision to create specific interventions, like “episodes” that thematically are always related to the notion of water. The episodes “lower” the scale of the urban fabric creating points of rest and places to play; they signal specific points without destroying the linear unity of the track (Nikiforidis and Castro 2001:9) [the translation from Greek by Konstantinos Ioannidis].

The narrative sequence behind the spatial events of the fifteen Gardens is, namely, a set of memory-recalling notions: the Garden of the White Tower, the Garden of Alexander, the Garden of the Evening Sun, the Garden of Sand, the Garden of Shade, the Garden of Seasons, the Garden of Odysseus Foka, the Mediterranean Garden, the Garden of Roses, the Garden of Sculptures, the Garden of Friends, the Garden of Sound, the Garden of Memory, the Garden of Water, and the Garden of Music. Initially, the original design proposal of the competition submission included even more gardens, but some of them were not eventually materialised due to economic or legislation reasons.

What is rather remarkable is that, out of these themes, the architects managed, first, to let the story make the activity patterns alongside the edge challenging the public realm and, second, to let the users themselves make the story of the gardens told. Therefore, tellable green spaces offering moments of visual isolation and enclosure within various recreational uses and sport facilities narrate and connect the story of ‘the city lost’. Their design proposal specifies adequately the ontological status of those thematic areas, framing specific concepts behind lost images and atmospheres. By doing this, it reconstructs the lost identity of Thessaloniki’s waterfront in a modern and communicative way, rendering the above-mentioned notions either as real, like those of the sand, the evening sun and the water, or as fictitious like the notions of the friend and the music.

3.2 The Survey of the Current Use of the Waterfront Gardens and Its Findings

In order to explore the possibility of user-centered improvements for existing public open spaces an online Survey of the current use of the Waterfront Gardens was conducted. The survey measured users’ preferences, and strengths and weaknesses of the whole area with a focus on three of the fifteen Gardens – the Gardens of Sculptures and of Sound and the Mediterranean Garden. The questionnaire presented 15 questions with multiple choices and ability for the user to record his/her individual statement on a specific topic in a narrative or descriptive format. People were allowed to express multiple preferences. The design and responses to the questionnaire are available online.²

The analysis of the Survey shows that the Garden of Sound was liked by 91.9% of respondents, the Garden of Sculptures by 73.8% and the Mediterranean Garden by 56.5% of responders. A total of 62 visitors to the Gardens participated in the web-based survey. People answering the questionnaire were mostly residents of Thessaloniki (85.2%) and 14.8% of them were living in nearby coastal neighbourhoods. The vast majority of respondents (61.3%) were between 15–24 years old, while 33.9% were between 25–44 years old. It is notable that people belonging to “digital native” generation of 24–44 years old (Prensky 2001) were the dominant age group, who said that they visit the Gardens and that the Gardens require various improvements. 37.1% of the respondents visited the Gardens once a week and 33.9 once a month. 60% Of the respondents noted that the Gardens are empty for at least half of the time.

Respondents were asked to rate existing conditions of the Gardens. The connectivity of the Gardens to the other part of the city was considered important by 32.3% of respondents, ease of access to the Gardens by 27.3% of resonance and their identity by 37.1%. Specific design features of the Gardens were valued by 33.9% of respondents. 46.8% of respondents were attracted by the presence of sitting places, 33.9% liked shade in the Gardens and 33.9% valued its greenery.

² Survey on current use of Gardens in Thessaloniki New Waterfront (2017). <https://docs.google.com/forms/d/1OOpG3li7DJRvImaItkEdBAa1Z6fWaYnthEBLf2Xc/edit#responses>.

Urban thematization of the studied Gardens in terms of added meaning, value and function were highly rated by the respondents. Natural landscapes, greenery, water features and light were considered as attractive features of the Mediterranean and Sound Gardens. The Garden of Sculptures attracted people by its design, though it was noted that there is no shade there and no greenery.

58.3% of the respondents requested improvements to communications and collaborative practices in the Gardens. The Garden's maintenance and landscape scored only 1.8% and 22.8% respectively which indicates that responders would like improvements in their management and more individual and collective empowerment over these activities. In addition, the security in the Gardens was given by the responders 16.1%.

The 46.3% of respondents commented on lack of provision of experiences, entertainment and spontaneous activities in the Gardens and 40.7% of the respondents requested day entertainment and 59.3% night entertainment. Furthermore, the 66.1% of users wanted to see "surprises" in the Gardens. Pop-up installations were requested by 67.2% of respondents. The requirement for shops and bars were important to only 26.2% of respondents.

The original design of the Gardens did not incorporate any digital layer, which can improve connectivity, accessibility and security as, requested by the respondents to support new activities in the Gardens. This could attract more people and make the Gardens more popular and successful. 39% of respondents wanted to have digital interactions in Gardens and 39.3% wanted to have Wi-Fi hot spots in the Gardens. Respondents pointed that they were using smartphones in the Gardens to take photos (79.7%), to get information about the place (40.7%) and to communicate with friends (37.3%). It is notable that 56.1% of the respondents noted that free Wi-Fi in the Gardens will not be a main reason to go there. The analysis of empirical data related to people's everyday experiences in the studied Gardens, shows that they are considered as memorable places, where local people like to return frequently. At the same time the majority of people noted that the Gardens are under-designed and inadequately adapted to their needs and contemporary lifestyle.

The findings of the survey on the experiences of users of the studied Gardens, validated the authors' initial assumptions made during their observation study held in the area during April 2016, particularly in relation to the emptiness of many spaces during the majority of weekdays. Therefore, the design tasks and solutions are pivotal for the introduction of new material/physical and immaterial/digital features. In order to enhance the Gardens' everyday use, we need to consider the technologically mediated approach which will support users' needs and develop creative design strategies that bridge the gap between the physical and digital landscape of the Gardens. Specific strategic solutions for effective urban improvements within the existing thematic strategy of Nikiforidis and Cuomo can be facilitated by digital solutions based on the local context.

4 The Proposal of the User-Centred Approach for Effective Urban Improvements, Facilitated by Digital Solutions in the Gardens of New Waterfront of Thessaloniki

Following analysis of the reasons for the current under use of the Gardens, we propose a user-centred approach for re-shaping and re-designing them to achieve a set of urban objectives that were identified in the survey. The methodological approach, the design tasks and proposed digital layers (solutions) to facilitate these objectives to improve the attractiveness of the Gardens of New Waterfront of Thessaloniki are summarized in Table 1.

Table 1. Table identifying the urban objectives required the design tasks and the digital solutions for improving the attractiveness of the Gardens of the New Waterfront of Thessaloniki.

Urban objectives required	Design tasks	Digital layers facilitating
Improvement to individual and collective empowerment	Joint decision-making and co creation	Digital tools supporting co-creation practices
Improvement to communications and collaborative practices	Joint decision-making and co creation: <ul style="list-style-type: none"> • Understanding urban reality & generation of ideas • Refinement of ideas • Creation • Delivery • Monitoring 	<ul style="list-style-type: none"> • Dialogue incl. social networks, forum & social media • Engagement with locations • Sharing knowledge • Data collection • Community mapping • Making sense of data visualization & discussion • Personalising places (e.g. annotating places) • Storing information • Joint decision-making • Modelling concepts and virtual prototyping • Play a game and plan for your community • Showcase of results • Questionnaires & direct data-feedback from users

(continued)

Table 1. (continued)

Urban objectives required	Design tasks	Digital layers facilitating
Provision of experiences, entertainment and spontaneous activities including: <ul style="list-style-type: none"> • Day and night entertainment • Provision for sport activities • Entertainment for children 	Organize events and entertainments	<ul style="list-style-type: none"> • Collaborative practices • Events • Smart& Interactive furniture • Access to information • Site-specific stories • Navigation • Modelling & prototyping • Site-specific media experiences • Social Inclusion & Accessibility
Increasing flexibility in use	Organize day & night events all year round and entertainments accessible for all users	<ul style="list-style-type: none"> • Events • Site-specific media experiences • Navigation • Collaborative and inclusive practices • Accessibility
Improvement personal security	<ul style="list-style-type: none"> • Organise events • Engage people • Give community powers • Manage boundaries • Improve site management 	<ul style="list-style-type: none"> • Events • Site-specific media experiences • Navigation • User generated sense of place • Collaborative and inclusive practices • Community management
Design improvements to: <ul style="list-style-type: none"> • Shading, greenery & water features • Roads and paths • Attractiveness • Private & public spaces • Accommodate all users' needs in particular children & disabled people 	<ul style="list-style-type: none"> • Physical solutions • Create additional routs and destinations • Introduce and manage new experiences with new boundaries • Mobilise community 	<ul style="list-style-type: none"> • Smart & Interactive furniture • Pop up installations • Physical and virtual events • Navigation • Personalising places by user generated content • Site-specific media experiences • Collaborative practices and inclusive practices
Improve digital accessibility: <ul style="list-style-type: none"> • Improve wireless connectivity • Improve digital interaction 	<ul style="list-style-type: none"> • Developing digital infrastructure & signals strengths • Digital skills • Digital solutions 	<ul style="list-style-type: none"> • Digital infrastructure • Wi-Fi hotspots • Information • Site-specific media experiences • Physical and virtual events • Smart & Interactive furniture • Pop up installations

The urban objectives (Table 1), identified by users, are related to improving the inclusiveness of the Gardens including communications, collaborative practices, individual and collective empowerment, provision of experiences and spontaneous activities, flexibility in use, personal security and design improvements. All these objectives contribute to accessibility of the Gardens and closely relate to improving their inclusiveness, which is defined “as the process of improving the terms of participation in society, through enhancing opportunities, access to resources, voice and respect for rights” (UN 2016). It involves prioritising the needs of a community and providing opportunities for all to participate as full members of society.

The site-specific digital layers over the existing urban Gardens are proposed to exceed their physical limits. Types of digital layers were identified in Table 1. They are capable to facilitate Garden specific and user orientated urban objectives, which were identified in the Survey. These layers are contributing to creative knowledge about the Gardens, which is shared between the stakeholders. They are useful tools to enhance social capital and inclusiveness of Gardens, strengthen their original designed identity and foster digital skills of the community. Digital exclusion can create disadvantage and prevent access to proposed digital layers and social opportunities. Using digital solutions, urban places can be easily and effectively turned into more inclusive, attractive and alive settings. In particular the Gardens of the New Waterfront of Thessaloniki can be turned into an interface of new media and physical urban environment and the generators of new intelligence, which will satisfy user’s needs and make the Gardens more attractive.

5 Conclusions

The designers Nikiforidis and Cuomo were successful in creating the linearity walk along the open horizon of Thessaloniki’s waterfront creating a new identity of the place, where people have every day contact with the sea and shoreline. The Gardens were designed to provide secondary meaningful points of interest and additional functions. The original design of the Gardens has not incorporated any digital experiences overlaying the physical space.

The survey of the local users of the Gardens was a useful way of gaining a clear understanding of the existing conditions of the use and maintenance of the Gardens, strengths and weaknesses of the design and a variety of users’ groups. The analysis of empirical data related to people’s everyday experiences within three main Gardens, shows that the Gardens are considered to be memorable places, where local people like to go frequently. At the same time respondents noted that the Gardens are under designed and inadequately adapted to their needs and contemporary lifestyle.

Poor activities and attendance of the Gardens are influenced by a lack of diversity of opportunities that the Gardens can offer to the local community and closely related to improving the inclusiveness of the Gardens. The achievement of these urban objectives will strengthen the designed identity of the Gardens and add new social value to their existing features.

We propose site-specific digital layers to be applied over the Gardens to create digital site-specific urban spaces, which exceed the physical limits of the Gardens.

These layers of information create a creative intelligence shared between the stakeholders and enhance the collective creation and creativity. Digital urban thematization of the Gardens can be facilitated by digital tools, identified in the literature review and site-specific digital experiences, which combine digital content with physical places. The combination of digital narrative experiences and real time events uncovers social capital of the Gardens and their hidden meanings beyond the urban form, giving people new insights, increasing the significance of the Gardens and encouraging community participation. The new digital content will create digital personal stories about the Gardens, personal augmentation of the Gardens, providing knowledge sharing, visualizing and prototyping of user generated content, online sense of connection, memories and unique atmospheres in the Gardens. This approach improves the local sense of place and its attractiveness, increases the social interaction and people's attachments to the Gardens.

Integration of mediated experiences with physical design solutions and giving new media an important role in place-making, should be considered at the early stages of the design and retrofitting process. Exploiting digital solutions, the urban places can be easily and effectively turned into more inclusive, attractive and alive settings.

References

- Abdel-Aziz, A.A., Abdel-Salam, H., El-Sayad, Z.: The role of ICTs in creating the new social public place of the digital era. *Alexandria Eng. J.* **55**, 487–493 (2016). <https://doi.org/10.1016/j.aej.2015.12.019>
- Active Public Space: Barcelona Installation – Outcomes (2016). <http://activepublicspace.org/>
- Ampanavos, S., Markaki, M.: Digital cities: towards a new identity of public place. In: *The Mediated City Conference* (2014). http://architecturemp.com/wp-content/uploads/2013/09/mc_conference_ampanavos_spyridon.pdf
- Anderson, E.: Placemaking: a tool for rural and urban communities (2013). <http://articles.extension.org/pages/67018/placemaking:-a-tool-for-rural-and-urban-communities>
- Appleyard, D.: Why buildings are known. *Environ. Behav.* **1**, 131–156 (1969)
- Appleyard, D.: A planner's guide to environmental psychology: a review essay. *J. Am. Inst. Plann.* **43**(2), 184–189 (1977)
- Appleyard, D., Lintell, M.: The environmental quality of city streets: the resident's viewpoint. *J. Am. Inst. Plann.* **38**, 84–104 (1972)
- Architectural Themes: Architecture in Greece 37 Editions: Σύγχρονα Θέματα (2003)
- Avram, G.: Turning spaces into places –weaving the digital double. In: *NordiCHI 2014* (2014)
- Banerjee, T.: Urban experience and the development of the city image. Ph.D. dissertation, Department of Urban Studies and Planning, MIT Press (1971)
- Banerjee, T.: The future of public space: beyond invented streets and reinvented places. *J. Am. Plann. Assoc.* **67**, 9–24 (2001)
- Berry, M., Hamiton, M.: Changing urban spaces: mobile phones on trains. *Motilities* **5**(1), 111–129 (2010)
- Bhalla, G.: Collaboration and co-creation: the road to creating value. *Mark. J.* (2016). <http://www.marketingjournal.org/collaboration-and-co-creation-the-road-to-creating-value/>
- CEM: Sustaining cultural identity and a sense of place – new wine in old bottles or old wine in new bottles? (2011). https://www.ucem.ac.uk/wp-content/uploads/2016/01/sustaining_cultural_identity.pdf

- Connecthings: Solutions (2017). <http://www.connecthings.com/solutions/#connected-city>
- de Hann, H.: Social and material appropriation of the neighbourhood space (2005). <https://repository.tudelft.nl/islandora/object/uuid:436408d2-e9e3-42a6-80c5-6f9878cf1332/datastream/OBJ>
- de Waal, M.: *The City as Interface: How New Media Are Changing the City*. NAI010 Publishers, Rotterdam (2014)
- Digital Water Curtain: Digital Water Curtain (2017). <https://www.digitalwatercurtain.com/>
- Di Stasio, C.: Giant interactive wheels light up Montreal (2016). <http://inhabitat.com/giant-interactive-wheels-light-up-montreal/>
- Dork, M., Monteyne, D.: *Urban Co-Creation: Envisioning New Digital Tools for Activism and Experimentation in the City* (2011). <http://mariandoerk.de/urbancocreation/hpc2011.pdf>
- European Street Design Challenge (ESDC): ESDC 2013 (2013). http://streetchallenge.eu/?page_id=611
- Farina, A., Bogaertb, J., Schipania, I.: Cognitive landscape and information: new perspectives to investigate the ecological complexity. *BioSystems* **79**, 235–240 (2005). <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.601.9188&rep=rep1&type=pdf>
- Fattahi, K., Kobayashi, H.: New era, new criteria for city imaging. *Theor. Empirical. Res. Urban Manag.* **3**(12), 63–72 (2009)
- Fredericks, J., Tomitsch, M., Hespanhol, L., Mcarthur, I.: Digital pop-up: investigating bespoke community engagement in public spaces (2015). https://www.researchgate.net/publication/285928221_Digital_Pop-Up_Investigating_Bespoke_Community_Engagement_in_Public_Spaces
- Garagnani, S., Arteaga, J., Bravo, L.: Understanding intangible cultural landscapes. Digital tools as a medium to explore the complexity of the urban space (2016). http://papers.cumincad.org/data/works/att/ascaad2016_044.pdf
- García, M.: Written at the place. The intangible values of the landscape (2013). https://www.researchgate.net/publication/282121024_Written_at_the_place_The_intangible_values_of_the_landscape
- Gehl, J.: *Life Between Buildings: Using Public Space*. Island Press, Washington DC (2011)
- Gumpert, G., Drucker, S.: *Communication Landscapers* (2004). <http://citeseerx.ist.psu.edu/view-doc/download;jsessionid=13520C079130D5AAD7BEA1883ABD4FC?doi=10.1.1.596.7815&rep=rep1&type=pdf>
- Gottdiener, M.: *The Theming of America: Dreams, Visions, and Commercial Spaces*. Boulder, Westview (1997)
- Han, K., Rosson, M.B., Shih, P.C., Carroll, J.M.: Enhancing community awareness of and participation in local heritage with a mobile application. In: *Proceedings of the 17th ACM Conference on Computer Supported Cooperative Work & Social Computing*, pp. 1144–1155 (2014). <https://doi.org/10.1145/2531602.2531640>. https://www.researchgate.net/publication/262165051_Enhancing_community_awareness_of_and_participation_in_local_heritage_with_a_mobile_application
- Happich, J.: NFC concrete slabs for a smart city (2015). <http://www.electronics-eetimes.com/news/nfc-concrete-slabs-smart-city>
- Harrison, S., Dourish, P.: Re-placing space: the roles of place and space in collaborative systems. In: *CSCW 1996: Proceedings of the Conference on Computer Supported Cooperative Work*. ACM Press (1996)
- Holland, C., Clark, A., Katz, J., Peace, S.: *Social interactions in urban public places* (2007). <https://www.jrf.org.uk/sites/default/files/jrf/migrated/files/2017-interactions-public-places.pdf>
- Iaconesi, S., Persico, O.: *RWR Read/Write Reality*. FakePress Publishing, Rome (2011)

- Iaconesi, S., Persico, O.: The co-creation of the city. Re-programming cities using real-time user generated content (2013). http://www.academia.edu/3013140/The_Co-Creation_of_the_City
- Ioannidis, K.: Designing the Edge: An Inquiry into the Psychospacial Nature of Meaning in the Architecture of the Urban Waterfront. KTH, Stockholm (2011)
- Ioannidis, K.: Technologies of anthropogenic spaces: co-creation aspects in co-mediated landscapes. In: Smaniotta, C., Ioannidis, K. (eds.) *The Making of Mediated Spaces*, Edições Universitárias Lusófonas, Lisbon [on press, expected December 2017] (2017)
- Ioannidis, K., Smaniotta, C., Suklje, I., Menezes, M., Martinez, A.B.: The lure of cyberpark: synergistic outdoor interactions between public spaces, users and locative technologies. In: Theona, I., Charitos, D. (eds.) *Proceedings of the 3rd International Biennial Conference Hybrid City 2015: Data to the People*, pp. 272–281. University Research Institute of Applied Communication, National and Kapodistrian University of Athens (2015)
- Janner-Klausner, D.: Using online tools for community engagement and consultation (2017). <http://www.commonplace.is/blog/using-online-tools-for-community-engagement-and-consultation>
- Lefebvre, H.: *The Production of Space*. Wiley-Blackwell (1991)
- Jones, L., Wells, K.: Strategies for academic and clinician engagement in community-participatory partnered research. *JAMA* **297**(4), 407 (2007)
- Loukaitou, A., Banerjee, T.: *Urban Design Downtown: Poetics and Politics of Form*. University of California Press, Berkeley (1998)
- Lughi, G.: Text-space dynamics. The digital media in defining new urban languages. In: *NUL - New Urban Languages. Conference Proceedings. J. Urbanism* **28**(2), 1–5 (2013)
- Lughi, G.: *Interactive Media in Urban Space*. Screencity Lab. 3 (2017)
- Markaki, M.: Digital cities: towards a new identity of public space. In: *The Mediated City Conference*, London, UK (2014)
- Morley, D.: What's "home" got to do with it? Contradictory dynamics in the domestication of technology and the dislocation of domesticity. *Eur. J. Cult. Stud.* **6**(4), 435–458 (2003)
- Nikiforidis, P., Castro, R.: Redevelopment of new waterfront in Thessaloniki. Competition brief for initial study. Municipality of Thessaloniki, Thessaloniki (2001)
- New Castle City Council: *Place Makers Toolkit* (2012). <https://www.newcastle.nsw.gov.au/Newcastle/media/Documents/Community/Place-Making-Toolkit.pdf>
- Nisi, V., Oakley, I., Haahr, M.: Location-Aware Multimedia Stories: Turning Spaces into Places (2008). <http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.451.9997>
- Play the city: *City Gaming Method* (2017). <http://www.playthecity.eu/>
- PPS: *Technology Brings People Together in Public Spaces After All* (2014). <https://www.pps.org/blog/technology-brings-people-together-in-public-spaces-after-all/>
- PPS: *Placemaking and Place-Led Development: A New Paradigm for Cities of the Future* (2015). <https://www.pps.org/reference/placemaking-and-place-led-development-a-new-paradigm-for-cities-of-the-future/>
- Prensky, M.: *Digital Natives, Digital Immigrants. On the Horizon*, vol. 9, no. 5. MCB University Press (2001)
- Sapleton, N. (eds.) *Advancing Research Methods with New Technologies*. Information Science Reference, Hershey (2013). https://books.google.ru/books?id=L_5kMPw3O-IC&pg=PA20&lpg=PA20&dq=Barry+%26+Hamilton+hybrid+geographies&source=bl&ots=zK7_iWsfOg&sig=UCo1fRDHP6LG2oDLPj91GtcgdPI&hl=en&sa=X&ved=0ahUKEwiFzemzo5LUAhWhJJoKHaL8Ay8Q6AEIPDAD#v=onepage&q=Barry%20%26%20Hamilton%20hybrid%20geographies&f=false
- SEGD: *Virtual Depictions: San Francisco* (2016). <https://segd.org/virtual-depictions-san-francisco>
- Sternberg, E.: An integrative theory of urban design. *J. Am. Plann. Assoc.* **66**, 265–278 (2000)

- Thomson, C.: BBC and the Big Screens (2012). <http://www.bbc.co.uk/blogs/aboutthebbc/entries/ea215929-b57e-3bb9-8d01-e0433f93fd62>
- UN: Identifying social inclusion and exclusion (2016). <http://www.un.org/esa/socdev/rwss/2016/chapter1.pdf>
- Van Assche, K., Duineveld, M., De Jong, H., Van Zoest, A.: What place is this time? Semiotics and the analysis of historical reference. *Landscape Archit. J. Urban Des.* **17**(2), 233–254 (2012). <https://doi.org/10.1080/13574809.2012.666207>
- Visualizing Venice: Visualizing Venice (2017). <http://www.visualizingvenice.org/visu/>
- Zook, M., Graham, M.: Mapping digital space: Geocoded internet data and the representation of place. *Environ. Plann. B: Plann. Des.* **34**, 466–482 (2007)

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