

# Enhancing Community Interaction in Public Spaces Through Situated Public Displays

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## ABSTRACT

Public spaces are important building blocks of local communities. They facilitate social encounters, create a sense of belonging, and can provide relaxation, excitement, and learning opportunities. However, a single public space may be shared by different social groups only at different times, effectively keeping those groups separate. At the same time, other social groups may share common interests yet do so across physically separated spaces. Public Displays can play an important role in bridging such gaps in social interaction – across spatial barriers, temporal barriers, and social barriers. The following article discusses the role of public spaces in the social fabric of communities and outlines the challenges in bringing separated communities together, based on a literature review in urban design studies and related disciplines. It then describes the potential of public display technology to address those challenges with the help of four illustrating scenarios.

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## INTRODUCTION

We encounter public spaces everywhere we go: town centers, parks, and public streets are all common settings of our everyday life. They are a passing scenery on our way to work, a place where we run into friends and “hang out”, or an opportunity to sit down and relax for a moment. But whoever “we” might be, “we” are not the only people occupying the public space. Different social groups, e.g., based on race, religion, age, or gender, reside *in and across* public spaces. More often than we might expect, these groups form communities that have difficulties interacting with each other, even though they inhabit the same space. At the same time, groups may be distributed across multiple physical centers where different group members meet, in turn making it difficult to create a sense of community among them [3]. Public displays have the potential to bridge those gaps between communities, both *within and across* public spaces. Today’s public spaces see an increasing deployment of large digital displays: in shopping malls, universities, museums, buses, in train stations or even on building facades. While many of those displays are still singular installations that simply run some slideshow of a locally connected computer, it is easy to envision that in the future, all of these displays could be interconnected

through the Internet. Endowed not only with output, but also input capabilities (e.g., sensors), they could constitute a novel global communication medium.

This new medium could be used in several ways: it could promote social diversity in a public space and ease the communication between *different communities occupying the same space*; it could help shrinking the distance between *distributed communities* by enabling synchronous and asynchronous inter-community communication; it could enhance the context of a place by providing *place to people* communication; and it could *familiarize visiting members of a community* with a community-relevant place.

This position paper attempts to outline the challenges of transforming today’s one-way public displays into a future communication medium. It briefly summarizes current scholarly work on public spaces and their typologies, and identifies general opportunities for providing social interaction within and across communities that occupy public spaces. Finally, it presents four scenarios that illustrate the potential of situated public displays in bridging separated communities, and in communicating the notion of a place to people.

## PUBLIC SPACE TYPOLOGIES

The question ‘What is a public space?’ can be analyzed from different perspectives. Gehn and Matan [4] contrast and discuss two different views dominant in the literature: one focuses on a space’s *context*, the other on actual *use* of the space. The first approach defines public space as a ‘kind of hybrid of physical spaces and public spheres’, where the public sphere is the area of social life where people can freely meet, discuss, and create political opinions. In this view, the important defining element of a space is its *historical, political, and social context* and how those affect people’s perception of the public space. The second view defines public space as ‘open public locations... where citizens can gather, linger or wonder through’. In this view, public space is defined by its *actual everyday use*.

In their seminal book on public spaces, Carr et al. [3] follow the second view and define public space as ‘the common ground where people carry out the functional and ritual *activities that bind a community*, whether in the normal routines of daily life or in periodic festivities...[it] is the stage where the drama of communal life unfolds.’ Carr et al. subsequently classify eleven different types of public spaces, based on how people *use* the space: public parks, squares and plazas, memorial, markets, streets,

playgrounds, community open spaces, greenways and parkways, atrium/indoor marketplace, found/neighborhood spaces, and waterfronts. Although their typology is based on public spaces in the US there is significant overlap with spaces in other countries.

While Carr et al.'s typology of public spaces focuses on usage, Carmona [1, 2] offers a typology that instead uses aspects of *function*, *perception* and *ownership*, resulting in no less than 19 different types: natural/semi-natural urban space, civic space, public open space, movement space, service space, left over space, undefined space, 'interchange' space, public 'private' space, conspicuous space, internalized space, retail space, 'third place' spaces, private 'public' space, visible private, interface spaces, user selecting spaces, private open space, external private space, and internal private space.

In contrast to these two rather concrete typologies, Iveson [5] uses *political-economical* analysis in order to describe how the conception of public space can change its use. He differentiates between four different models: the *ceremonial model of public space*, i.e., public space "that represents the triumph of public over the market through state ownership and large-scale civic design", the *community model of public space*, i.e., public space that fosters community, the *liberal model of public space*, i.e., public space that is open to all and ignores all social differences, and the *multi-public model of public space*, i.e., public space comprised of different people with different opinions. According to Iveson the first three models have flaws: *the ceremonial model* doesn't include openness by virtue of being the state's apparatus; *the community model* could lead to homogenization of the people occupying the space by making them belong to the same community (outsiders are not welcomed); *the liberal model* that is 'open to everyone' could be interpreted as 'open to everyone like us'. In contrast to the three mentioned models, which assume uniform representation of the public space, the *multi-public model* sees the public space comprised of multiple publics coexisting in the same space at the same time. This goes along with the findings from Holland et al. [6] reporting that different social groups often occupy the same space.

### Needs, Rights, and Meanings

Public space typologies tell us how we can classify and describe the public space, but they do not tell us what people seek and do in them. Carr et al. [3] conclude that 'most people go to public open spaces for specific reasons.' They describe the necessary qualities that public spaces should support in order to address human necessities more effectively. They call them "human dimensions of public space" and they include the *needs*, *rights*, and *meanings*.

#### Needs

Human needs in public spaces vary from immediate needs for food, water, or rest, to less obvious long-range purposes, like the need to exercise. They provide opportunities to connect with other people by running into friends, or by

simply watching what other people do. A bench in the park can provide an escape from the everyday fluster of work, noise, and crowd.

There are five types of needs in public spaces: *comfort*, *relaxation*, *passive engagement with the environment*, *active engagement with the environment*, and *discovery*. *Comfort* is one of the basic human needs and without it, it is very difficult to see how other needs can be achieved. The level of comfort can influence the amount of time people stay in a place. Also, psychological and *social comfort* is a 'deep and pervasive need' that extends the overall experience of a place. *Relaxation* is the state of the body and mind at ease. One of the factors that raise the level of comfort is the contrast to the adjacent urban environment. *Passive engagement with the environment* is the need of connecting with the setting without being actively involved. The most common passive activity is "people watching". *Active engagement with the environment* represents more direct interaction with the space itself and people in it. People want to socialize in public places with friends, acquaintances, and strangers, e.g., 'parent socializing appears to be as important as child play in a playground/park.' Also, strangers are more likely to socialize if there is an unusual event going on creating the effect of "triangulation" whereby the special feature of the place is a link between the people and stimulates strangers to socialize. Ultimately, public space is 'a place to bump into friends and neighbors, share news, gossip, and lobby officials.' *Discovery* represents the desire for stimulation, challenge, and enjoyment we all have in exploring new things, which would be in this case exploring new parts of the space. The need for discovery is usually met by traveling or by *meeting new people*. To make the place more interesting either people have to bring suitable items with them, e.g., books, or the place itself has to provide some sort of stimulation that will endure people's stay.

#### Rights

'The rights to use a public space and have a sense of control within it are basic and overarching requirements.' [3] These requirements are achieved through *access*, *freedom of action*, *appropriation*, *claim*, *change*, and *ownership and disposition*. *Access* refers to the ability to enter space. It can be physical, visual, or symbolic: Is the space physically available to the public? Can potential users of the space see into it and conclude that it is a public space that is welcoming them? And is there a presence of cues (boards) and people (security guards) indicating who is welcomed in the place? *Freedom of action* involves 'the ability to carry out the activities that one desires, to use a place as one wishes but without the recognition that a public space is shared.' However, the interests of one group may be a potential threat for another (e.g., teenagers and elderly), creating the necessity of balance between different groups and activities in the place. Also, some groups are often neglected in public spaces, such as people with disabilities, women, or the elderly. *Claim* represents stating a

possession of the space. Different groups are subject to time-sharing of the space, e.g., teenagers and the elderly occupy the space at different times. In order to achieve their goals in the space, people need a certain degree of spatial control over it. Control can provide evidence that people care about the space, that it belongs to someone, and that people, even non-users, value and respect it. One of the important qualities of a space is its *change* over time. This change can be permanent, e.g., a new fountain, or temporal, e.g., moving the chairs in a café. Also, events, like concerts, protests, celebrations, can occupy the space and change its use. Although public spaces are supposed to be owned by the public, *ownership and disposition* refers to the difference between legal ownership and the ultimate right of possession.

#### *Meanings*

People build links to the world that go beyond the immediate experience of a setting. These links are created over time through activities occurring within the space, ultimately giving places *meanings*. Carr et al. borrow a description of a meaningful place from Kevin Lynch's book *A Theory of Good City Form (1981)*: 'A good place is one which, in some way appropriate to the person and her culture, makes her aware of her *community*, her past, the web of life, and the universe of time and space in which these are contained.' Certain criteria have to be satisfied in order for a space to become meaningful: it has to be *legible*, i.e., it has to have special cues that differ it from other places, it has to provide *relevance*, i.e., it has to provide for people's needs on the individual level and it has to comply with the cultural norms and practices on a cultural level, and it has to create *connections* itself and its users.

*Connections* exist on several levels: they can be *individual*, *group*, *connections to the larger society*, *biological and psychological*, and *connections to other worlds*. *Individual connections* help us in creating a sense of ourselves and represent links in our lives between different stages in life. *Group connections* are created through social interactions with other people, where the "others" may be closely associated groups or communities. *Connections to the larger society* represent connections on a large scale, connecting a culture, community, or nation. *Biological and psychological connections* suggest that people are drawn to places that "stimulate associations with human spatial archetypes", e.g., "Lincoln father figure sitting in the womblike cave of his monument". *Connections to other worlds* include fantasy places like Disneyworld or places that suggest 'cosmic and universal connections', like Stonehenge.

#### **CHALLENGES FOR SOCIAL INTERACTIONS**

Carr et al. make a strong connection between public space and community: 'the common ground where people carry out the functional and ritual activities that bind a community... it is the stage where the drama of communal life unfolds'. Similarly, Holland et al. [6] conclude that

'public spaces allow people to meet on ostensibly neutral ground in planned and unplanned ways, to interact with others within the context of the whole community.' Drawing from those two works, we will summarize the problems facing different communities *in-and-across* public spaces as well as those between *places and people*.

#### *Different communities occupying the same space*

The concept of time-sharing a space most prominently emerges between different age groups, e.g., the elderly and teenagers. Holland et al. argue for the "provision of difference" in public places and conclude that 'being able to be seen in public – and to be able to see different types of social groups – may go some way to enabling everyone, and children and young people in particular, to observe difference, and thereby perhaps, promote tolerance for social diversity.' [6]

#### *Distributed communities*

'People like to remain connected with the public life of their villages, towns and cities.' [6] According to Carr et al., places are a core driver for enabling people to connect with larger communities. While virtual communities (e.g., online social networks) provide one way to connect distributed communities, their "hiding-behind-a-screen" access model runs the risk of isolating users from their immediate surroundings. Places can also improve connections between neglected communities, e.g., people with disabilities.

#### *Place-to-people communication*

Places sometimes "send the wrong message" to its visitors, in particular relating to the perceived safety of a place. Places can get reputations that they do not deserve. A place can look dangerous to strangers when instead it is safe. Also when we approach a place for the first time we do not know anything about it: who is occupying the place, what activities are going on, what can be done in it etc.

#### **PUBLIC DISPLAYS AS COMMUNICATION MEDIA**

In our vision, public displays can be more than just simple advertising machines. By becoming a novel communication media, public displays can act as "community glue" that helps bringing hitherto socially separated communities closer together – may it be due to their spatial separation, temporal separation, or even social separation. They also have the potential to tell us more about the place itself. We will illustrate their potential through four short scenarios.

#### *"Surprising hobbies..."*

Maria is a 76 years old retired librarian. When her first grand kid, Barbara, was born 10 years ago, Maria often took care of her during the day, sitting in the park with her and feeding birds. Even though Barbara has since moved away with her parents, Maria still enjoys going back to the park and feed birds now and then, since it reminds her of the time she spent with Barbara. When she comes to her favorite spot a little later than usual today though, she notices a number of teenagers sitting in the grass nearby, dressed all in black. Maria sits down uncomfortably, watching the kids out of the corner of her eye as she is quite

intimidated by their looks. While occasionally glancing at a nearby public display, however, she begins to notice some follow-me community-ads that apparently belong to those black-clad kids. Can it really be that they are advertising their classical music concert? Indeed, it seems that most of those teenagers are actually in a youth orchestra, as Maria notices, which will give an open-air concert in the park later this week featuring Bach compositions. 'Well,' Maria decides, 'if they like classical music then they can't be that threatening after all!' She makes a small mental note to call her daughter later and invite her over for the concert – this might be a good opportunity to see Barbara again!

*"In the nick of time!"*

"Where is he?" Jane thinks while she is waiting for Mike, her violin partner for tonight's concert. Jane is a senior and plays piano at Roosevelt High. She and Mike are supposed to perform for her end-of-the-year recital. 'The concert is starting in 10 minutes. Did I send him the right address?' she wonders. The problem with her recital started yesterday when her standard violin partner, Stan, caught the flu. They had practiced Strauss's Sonata for Violin and Piano in E-flat Major together during the last few weeks. When she got Stan's message she immediately posted a message looking for someone to replace him to the new "EduNote" system, which connects public displays in high schools throughout the city. Mike was the first one to respond to her post – her message caught him as he was on his way to violin practice and he got interested in meeting someone from Roosevelt High who shared his interest in Strauss. 'In the nick of time!' she thinks as she sees Mike carrying his violin. 'If he plays well as he looks maybe I'll get an A.'

*"Something else for a change..."*

Visiting a new city can be hard, especially if you have only one day to explore it. Jane knows that. She has been traveling on business for more than ten years and visited literally hundreds of cities. To prevent her from burning out on the road, Jane usually tries to explore a bit of the city she is in, even if it is only for a short evening. Back in the early days, she did not like it that much: wandering the streets alone... 'God knows what might happen', she often thought. But today's ubiquitous public displays usually help her "reading" a place much better than before. Many public spaces have systems that visualize the activities that happen in them over the course of the day, giving Jane a chance to quickly assess her own personal comfort levels. And if an area has a particularly interesting mix of activities, Jane usually ends up in a cute bar or restaurant, meeting interesting people during the course of an evening. As her meeting went well, Jane feels like experimenting: She notices a bar where nearby displays show that it is popular with people her daughter's age. 'Why not something else for a change?' she thinks. When she enters, she is pleasantly surprised, as it is all decked out in a 60s design: 'Wow, it seems my teenage days are finally trendy again!'

*"How cool is your skate park?"*

Eric is a teenager on vacation with his family. How dull is that, he thinks. He would rather be at SK8, his favorite skating park back home, hanging out with his friends and kickin' some cool flips with "Mercedes". "Mercedes" is the name of his skateboard and he never leaves home without it. When he exits the hotel he sees something that looks like a skate park nearby. When closer inspection shows that it is one, Eric is first thrilled, then anxious: 'What if all the people inside are, like, amateurs?' He is pretty good with Mercedes and he only wants to hang out with skaters that are as skilled as or even better than him. Luckily he sees that there is a public display at the park showing some of the recent tricks performed at the park. "Skull" just did an "Air walk grab" this afternoon, and "Death at the disco" is usually doing "Kickflips" around this time. Scanning the display, Eric finds a number of skaters in the park that do really cool tricks, and he decides to give it a try.

## CONCLUSIONS

Public places play important role in a community life: they provide a place for social encounters, entertainment, and relaxation. Often enough, however, different social groups occupying the same space might not "play well" together. At the same time, physically separated communities might miss out on important social encounters. Public displays have the potential to bring communities within and across public places closer together, to communicate the notion of the place, and even to connect visitors to a local community. Based on a literature review in the social sciences, we created four scenarios that illustrate the potential of public displays for improving social coherence. We are currently in the process of designing a testbed in order to trial some of these applications in realistic settings.

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