Infrastructuring Place. Citizen-led Placemaking and the Commons

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Abstract: A proliferation of participatory spatial practices is emerging in cities, as citizens seek alternative forms of urban governance and land use. Characterised by peer-to-peer production and mediated through the use of digital technologies, these practices are part of a larger narrative about the commons, the ways in which citizens participate in them, and the ways in which knowledge is produced and shared. This case-study uses participatory mapping, group interviews and document analysis to explore how participants in two urban gardening projects make place, and probes whether their practices offer new understandings of community-led placemaking. Results emphasise the important role citizens play in creating, designing and maintaining the commons and demonstrate the ways in which individuals and community groups working outside of a professional urban design context expand placemaking into a vehicle for social change.

Keywords: Placemaking, participatory urbanism, commons-based peer production, infrastructuring, urban gardening

1. Introduction

Until a decade ago, very little was known about how citizens and groups participate in design activities. Today, design scholarship is experiencing a reorientation towards everyday life and the public sphere through studies of non-expert innovation practices (Björgvinsson, 2010; Manzini, 2016). An exemplar is the recent work by participatory design scholars in Scandinavia (e.g. Binder et al., 2011; Björgvinsson et al., 2010; Björgvinsson et al., 2012; Karasti & Syrjänen, 2004; Karasti, 2014; Seravalli, 2013), who have begun to shift their research focus from project-based design in professional settings toward open-ended, long-term processes, or ‘infrastructuring,’ in community contexts (Björgvinsson et al., 2010; Le Dantec & DiSalvo, 2013). Infrastructuring is characterised as an emergent, multi-relational activity, where continuous co-creation involving people, objects and processes occurs (Star & Ruhleder, 1994; Suchman, 2002, in Björgvinsson et al., 2012).

This study seeks to expand conceptualisations of citizen-led placemaking by probing the social processes of infrastructuring (Star & Ruhleder, 1994) in two urban gardening projects. How do citizens working within groups conceptualise, prototype and build infrastructures? What possibilities does infrastructuring afford as a placemaking practice? Drawing on literature from both the social sciences and participatory design, this study aims to elucidate the social and material practices of
citizen-led placemaking within a commons-based participatory urbanism context by answering the question, *How do these urban gardening groups make place?*

2. Methodology

This study employs a qualitative parallel case study\(^1\) design - a form of multiple case study research, where the cases are studied simultaneously (Creswell, 2013; Stake, 1995; Thomas, et al. 2011; Yin, 2014). For case selection and recruitment, we employed criterion case sampling. The criteria were determined by their relevance to the study’s unit of analysis (Yin, 2014), citizen-led placemaking within a commons-based participatory urbanism context:

- Documented design of hardware and software technologies used to create the gardens;
- Participatory approaches to creating and maintaining the gardens;
- Community engagement through outreach initiatives;
- Creation of an urban garden on a vacant city lot\(^2\).

After conducting an extensive online search, two urban gardening projects were selected: Feedback Farms, in Brooklyn, New York, and Space-Ex, in Montreal, Quebec.

2.1 Measures & Procedures

In order to answer our research question, we analysed data from three sources: 1) mental (sketch) mapping – a participatory mapping technique based on the premise that local inhabitants possess expert knowledge of their communities; 2) group interviews; and 3) document analysis – an approach for gathering, selecting and evaluating documents (Bowen, 2009; Marshall & Rossman, 1995, in Merriam, 2008). The documents included Facebook posts, funding campaigns, reports, design sketches, drawings and videos.

Three individuals from each project participated in the study\(^3\) – two for the mapping exercise, and an additional participant for the group interview. The sketch maps were produced using freehand drawing tools on a blank sheet of craft paper measuring 36 x 24 inches. Each participant was provided with a set of colour markers and asked to produce a sketch map based on the following instructions: “Map out the story of [name of urban garden] and the community it serves.” The group interviews were semi-structured, with a mix of evaluative, descriptive and exploratory questions serving as a guide (Yin, 2014). The mapping and group interviews were audio-recorded and the sessions transcribed using Express Scribe transcription software and Microsoft Word 2011 for Macintosh.

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\(^1\) This study encompasses an approach to case study as it is understood in the social sciences and draws upon methodological sources from within this field of inquiry. This differs from the ‘case study’ as an illustration of a concept, as it is used in design.

\(^2\) In the design literature, placemaking focuses on transforming underutilised space into places. Since our research question is process-oriented, this was an important aspect.

\(^3\) The four core members, from each group, were invited to participate in the group interview, however, due to external factors only three were able to participate.
The data, collected in February and March 2015, was analysed in three stages: 1) coding – initial coding, focused coding and thematic coding; 2) document analysis; and 3) creation of actor-network maps with synapsis, using Actor-Network Theory (ANT) (Callon & Latour, 1981; Callon & Law, 1995; Law, 1992; Latour, 2005).

2.2 The Sites

**Feedback Farms**

Feedback Farms was established in Fall 2011 as an urban ‘mobile’ (moveable) research farm. Its mandate was to test new methods of urban food production using remote sensing techniques (Hart, 2012; Matus, 2012) to track production and monitor soil conditions across a network of sites in Brooklyn, New York.

The group’s first site, located on Bergen Street in Boerum Hill, Brooklyn, was part of a larger community initiative that included three other gardening groups. Together, these organisations created a multi-use, integrated community space on three adjacent vacant urban lots. The middle lot, on which Feedback Farms created their garden, was privately owned, while Housing and Preservation Development (HPD) owned the two side lots. Temporary access was granted through a series of contract negotiations with both HPD and the private owner.

In late Spring 2013, the group secured temporary occupancy to a second site at Myrtle Village Green (MVG). In addition to testing new methods of production, both garden sites were optimised to produce high yields. Later that year, Feedback Farms partnered with the Doe Fund, an organisation providing housing and job training to formerly homeless people. This partnership provided Feedback Farms with a permanent site in exchange for creating gardening job-training programs for the Doe Fund’s residents.

In November 2013, the private lot owner evicted Feedback Farms from their first lot, and by November 2014, Feedback Farms was operating from a permanent, single location at the Doe Fund.

**Space-Ex**

Space-Ex was established in Spring 2014 and is situated on an unused, privately owned lot in a mixed residential-industrial neighbourhood in Montreal, Canada. At the time of data collection, Space-Ex was a fairly new project and functioned as a grassroots cultural and educational hub. The garden began as a collective, with its original members envisioning a space from which to experiment and test prototypes for urban food production. At the time of writing, the garden functioned as a workspace, experimental site and community gathering spot (Space-Ex, in IOBY, 2014). Space-Ex’s stated objectives are to initialise positive social change, build relationships and partnerships with individuals and community organisations and create learning possibilities for members and participants (Space-Ex, in IOBY, 2014).

Space-Ex has a core membership of four people, who act as custodians of the site and organise activities. However, the project evolved into a community initiative, as additional members joined the group. It has grown to include many supporters, including neighbours, members of the local business community, friends and others who attend and participate in events, such as film screenings, music, art exhibits, potlucks, barbecues, and workshops, held regularly at the site.

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4 Details of each document were recorded separately and included the date the document was produced, the date that it became publically available, the author of the document, the person who published the document, the target audience, its intended purpose and social value.

5 The owner of the middle lot had secured the right to develop on all three lots in the future.
throughout the year. From a sustainable design perspective, almost all the materials used for the garden have been sourced from the urban waste stream and include shipping pallets, discarded plywood, old doors and windows, and empty plastic barrels.

3. Findings

3.1 Feedback Farms

Between 2012 and 2015, Feedback Farms’ three urban gardening sites each served a distinct community. During this time, they negotiated occupancy, use and access, while navigating tensions resulting from the conflicting interests of the various actors within those spaces. For example, on one site, Feedback Farms participated in regular planning meetings with the larger gardening group to determine the design, use and collective management of the space. The group also shared access to the both the Bergen and MVG garden sites with the larger community by maintaining open hours, installing community compost and holding market days. However, they also reported controlling access to the production area, as the group were conducting research trials. Due to the sensitive nature of tracking production using remote sensing, visitors were restricted from accessing these spaces unless someone from the group was present.

At the onset, Feedback Farms’ main objective was to make urban food production more efficient. To this end, they engaged in a number of design activities (e.g. freehand sketching, computer assisted drawing, writing software code, building, soldering, testing, and documenting). The group reported building a number of hardware and software prototypes for the research trials, which evaluated the design of five different sub-irrigation planters (see Figures 1, 2 and 3). They also adapted designs of existing infrastructural components and scaled them for urban agricultural production within a small physical space.

Figure 1 Sketch of sub-irrigated planter design. Source: Feedback Farms.
Over time, the group’s mandate changed from “how to grow food more efficiently” to “how to help people grow food” (T. Hallaran, interview, March 28, 2015). For example, Feedback Farms replaced the research trials with a community-supported agriculture (CSA), or work-share, program, after their first year of operation, as well as the job-training program for the Doe Fund’s residents mentioned above (see Figure 4).
In addition to agricultural training, Feedback Farms created and shared knowledge through scientific and design research. For example, the results of the research trial were published in a peer-reviewed agricultural journal (Sullivan et al., 2014) and presented at an event hosted by Farm Hack\(^6\) in 2012 (Figure 5).

While some of the group’s efforts were centred on advancing scientific knowledge about urban agricultural production, other initiatives were socially focused and established the gardens as sites of knowledge; for example, workshops, garden tours, social events, an on-site weekly market, and day-to-day interactions.

\(^6\) An open-source initiative where urban farmers share knowledge and tools (Farmhack)
3.2 Space-Ex

Space-Ex’s primary mandate was to conduct semi-controlled agrarian experiments in order to help people grow food “with and for their communities” (Space-Ex, in In Our Backyard, n.d.). At the time of data collection, a number of experiments had been planned, including vertical gardens, hugelkultur (a permaculture technique, where rotting wood and other organic matter are buried beneath the subsoil) (see Figure 6), a solar-powered greenhouse system with an aquaponics pond (see Figure 7) and a dehydrator. In this respect, Space-Ex was a testing ground in which to innovate and test systems for future production and use outside of the garden site.

![Figure 6 Screenshot of funding video - time-lapse of hugelkultur. Source: Space-Ex.](image)

![Figure 7 CAD drawing of greenhouse system as it appeared in the funding video: Source: Space-Ex.](image)

The group reported incorporating an in-situ (on site) design approach to determine the layout of the space. With some exceptions, the group sketched, designed and built the structures within the spatial boundaries of the site using locally sourced materials. Local businesses and residential
neighbours also provided resources such as water and electricity. Within the first few months, the space evolved from a predominant focus on production to a hybrid space that accommodated social and cultural events. Throughout the process, group members worked in a participatory way to accommodate one another. For example, core members were able to ‘rework’ or improve the design or placement of a structure at any given time.

Space-Ex held cultural and social events, such as film screenings and discussions (see Figures 8 and 9), musical performances, art exhibits, barbeques and potlucks, as mentioned earlier. The group reported making people feel “part of the project” (M. Poisson, interview, March 5, 2015) by opening up the space and allowing community groups to use it to host their own events.

Figure 8 Photo of film screening event. Source: Space-Ex.
According to the research participants, creating a community space involved much more than the physical space itself. Mathew explains:

I think what’s really innovative [...] what Pablo and Maryse bring, [...] is trying to demonstrate to people how to be participative, how to work together, not to use the hierarchy that we’re used to using. [...] I think that’s the thing I would like to see replicated (M. Gaddes, interview, March 5, 2015).

When asked if they could imagine a finished state of the garden, the participants agreed that Space-Ex would continue to evolve and change: “If [...] Space-Ex was always going to have the same mandate of education, community and things like that, I think it kind of needs to keep developing, moving” (M. Gaddes, interview, March 5, 2015). The examples above show that Space-Ex was a living, urban prototype, whose continual transformation was facilitated by inclusive, participatory, and spatially situated prototyping activities.

4. Discussion

At first glance, Feedback Farms and Space-Ex appear to share many of the same goals: both conducted agricultural experiments, incorporated an educational component, and were committed to providing people with access to green space. However, while each group engaged in commons-based practices to create the garden sites, they did so in different ways.

In order to examine the two cases, and identify how this study expands conceptualisations of placemaking and commons-based peer production, the findings are categorised into four themes: 1) Futuring Agricultural Production; 2) Prototyping the Commons; 3) Democratising Participation; 4) Expanding the Knowledge Commons.
Futuring Agricultural Production

Feedback Farms and Space-Ex held similar social objectives of connecting people to food sources. While Feedback Farms designed research trials as a means to innovate urban agricultural production methods, the group conceded that implementing work-share and job training programs were a more direct means of achieving this goal. Similarly, Space-Ex reported building and testing urban agricultural systems, such as a greenhouse system and aquaponics pond, for future production and use by urban communities outside the garden site.

The design activities reported by both groups can be read as a type of design futuring (e.g. Fuller, 1969; Margolin, 1998; Papanek, 1971) – a redirection towards more sustainable modes of habitation by envisioning possible outcomes (Fry, 2008). The notion of design serving a larger social objective has been discussed both conceptually (Manzini, 2014; Murray et al., 2010) and in a number of studies (e.g. Björgvinsson et al., 2012; Emilson et al., 2011; Hillgren et al., 2011). In the latter, participatory design scholars have considered the ways in which designers engage in social innovation design practices, or ‘design for social innovation’ within a community setting. These scholars discuss open and participatory approaches employed in diverse design fields, such as blurring the boundaries between production and use, and promoting collaboration amongst diverse stakeholders. Here, design can be viewed as a process of ‘becoming,’ - one that is negotiated between different social and material agents (Samson, 2010), and where the potential of place is embedded in the “multiple and pluralistic perspectives that go to make up a city’s imaginative projections of its future” (Bloomfield, 2006, p. 49). Together, these perspectives support the notion that citizen groups have the capacity to not only create and manage an urban space, but also to expand placemaking into a vehicle for social change and democratic governance (Bauwens, 2009).

Prototyping the Commons

Although both groups engaged in practices that were epistemologically embedded in the social aspects of urban agricultural production, the groups’ respective design approaches were markedly different. Feedback Farms incorporated a planned approach to production and building out the garden space. In this case, prototyping was a means to evolve the design toward an end product, such as the sub-irrigated planters and grow tent. However, while there was little change at the site level, the group’s mandate changed at the project level to “accommodate the needs” of each community. In addition, replacing the research trials with the work-share and job-training programs allowed the group to better meet the social goals of their mandate. The ability to adapt design practices to a shifting landscape is discussed by participatory design scholars (e.g. Björgvinsson et al., 2010; Hillgren et al., 2011), who stress that infrastructuring, as a design approach, supports innovation outcomes that would otherwise be difficult to achieve with a more structured project approach.

In contrast, Space-Ex employed an in-situ approach to designing the space and the structures within it. Here, prototyping was processual and provided a way of experimenting. Similar to Seravalli (2013) and Bieling’s et al. (2010) findings, Space-Ex’s goal for the agricultural experiments was not to create a final design but to explore the possibilities of future systems by integrating agricultural processes into a wider social context. For Space-Ex, dialogue occurred through the act of prototyping, and became an explicit way of experimenting and reaching alignment (Karasti & Syrjänen, 2004). Instead of seeking closure, there was a “procedural openness” (Corsín Jiménez, 2013), providing others with the opportunity to modify and add to the space. As discussed by Björgvinsson et al. (2010) and Hillgren et al. (2011), prototyping became a way to test not only potential designs but also the agonistic spaces in which collaboration was taking place.
Space-Ex’s approach supported their vision to keep evolving in order to stay relevant for the community. Here the space was “transformed and shaped by the activities entering and developing in the space” (Seravalli 2013, p. 9). According to Seravalli, this approach allows infrastructuring “to emerge and continue. To this end, Space-Ex can be considered a permanent prototype (Corsín Jiménez, 2013), where the ‘making’ is never finished (Eizenberg, 2012; Silberberg et al., 2013). More explicitly, Silberberg et al. (2010) suggest that these practices contribute to a new model of placemaking; one that emphasises flexibility, embraces impermanence, shares information, and prioritises process and community engagement over the ‘product’ of a built-out place.

Democratising Participation

An important aspect of the urban commons is the ways in which people participate in them. On a conceptual level, this entails viewing the commons as a shared land resource, as opposed to thinking about them in terms of formal ownership (Ferguson, 2014; Stavrides, 2014).

Space-Ex adopted a decentralised approach to participation, encouraging garden participants to lead design activities and organise events. A critical aspect of this approach was demonstrating to people how to be participative and work together. Feedback Farms also encouraged participation in gardening activities; however, they did so in a more structured way. For example, the work-share increased community involvement, but also contributed to solving a labour shortage. The relationship between Feedback Farms and work-share participants was one of mutual exchange: participants in the program received a basket of vegetables for their contributions. Despite their differences, the respective approaches described by Feedback Farms and Space-Ex reflect new modes of cooperative production (Marttila et al, 2014), commonly referred to as peer-to-peer production (Benkler, 2006; Benkler & Nissenbaum, 2006). According to Eizenberg (2012) and Müller (2013), these types of garden practices enable different perspectives on the city, exemplified by collaboration, cooperation and communication.

However, while both groups engaged in placemaking practices to create the commons, the degree and means of ‘openness’ differed. For example, Space-Ex was seldom accessible to the public outside of planned events, while Feedback Farms limited access to their sites unless someone from their group was present. While the latter worked actively to ensure the space was publically accessible, the group had to contend with the dual and conflicting goals of the gardens as public spaces and productive sites. Thus, the process of creating shared garden spaces is emergent, on-going and multi-relational, where things are collectively interpreted and placed into new relationships (Müller, 2013).

Expanding the Knowledge Commons

Both Feedback Farms and Space-Ex engaged in informal practices of knowledge production and exchange, such as workshops and tours, and daily interactions within the garden site. In addition to agricultural production, Space-Ex demonstrated that the garden was a place where the production of knowledge was deeply entangled with aspects of cultural production (e.g. Benkler, 2006; Bieling et al., 2010; Björgvinsson, 2014; Eizenberg, 2012), by integrating activities, such as music performances, film screenings and other social events. In contrast, Feedback Farms also engaged in the production of knowledge through a number of formal practices, such as the research trials, cooperatively managed work-share and job-training programs.

Urban gardening scholars have also characterised gardens as places of knowledge production and exchange. For example, Eizenberg (2012) found that the production and sharing of knowledge is facilitated by the daily, unplanned interactions between people as they engage in agricultural activities, whereas Drake (2015) identified how knowledge is transferred within and beyond local gardening networks. In this respect, the gardening groups produced knowledge that extended far
beyond the sites’ boundaries. For example, Feedback Farms disseminated the results of their research trials in public venues, whereas both gardening groups shared their design documents in digital forums using open-source licensing.

Open-source licensing (and by extension, the digital commons) is a means of sharing knowledge in a “radically decentralised, collaborative and non-proprietary” fashion (Benkler, 2006, p. 60), by allowing (and encouraging) others to replicate designs. Open-source design represents a new model of how knowledge is produced and distributed. In the case of the garden sites, it operates within both the physical and digital commons, where “a simultaneous dialogue” between the physical and digital commons creates the “participatory realm in which people actively engage their cities, neighbourhoods” (Corsín Jiménez, 2014; Wortham-Galvin, 2013, p.26). In this way, placemaking also occurs in digital spaces, and provides new ways of visualising the urban commons.

5. Conclusion

This study demonstrates how open, participatory, and democratic approaches to making place instil a sense of shared purpose amongst participants while nourishing a vision for the commons that embraces the power of the potential. It provides insights into the design practices of citizens in community settings, an area that is largely understudied. However, the participants in our study were limited to a small group of members who were instrumental in creating the garden. Including other garden participants, such as volunteers or members of the local community would have provided additional perspectives on the placemaking practices employed by the gardening groups.

Finally, this study contributes an interdisciplinary analysis of citizen-led placemaking in an urban gardening context. The findings offer insights to municipal planners and policymakers and could potentially inform decisions about increasing support for citizen-initiated urban projects. As demonstrated in this study, citizens working outside of professional contexts can (and do) innovate to create meaningful urban places. By opening up these spaces to the commons, municipal governments can democratise placemaking and provide citizens and groups with the opportunity to (re)shape their city.

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