Urban Co-Creation: Envisioning New Digital Tools for Activism and Experimentation in the City

Marian Dörk
Department of Computer Science
University of Calgary
mdoerk@ucalgary.ca

David Monteyne
Faculty of Environmental Design
University of Calgary
d.monteyne@ucalgary.ca

ABSTRACT

With this paper we seek to shed more light on the use of digital tools in support of urban forms of civic participation. We outline a multi-faceted approach to urban issues and review different approaches to activism in the city. Based on this, we sketch out new opportunities for design and invention in support of a range of participatory practices in the city. While urban developments and planning processes may seem to be determined by abstract forces such as markets and bureaucracy, we argue that citizen activists can—and already do—get actively and concretely engaged in shaping their cities. We conceptualize these grassroots transformations of spatial, material, and social aspects of a city as *urban co-creation* involving—to borrow terms from computing culture—deciphering, debugging, and hacking the city.

FROM COMPLEXITIES TO URBAN CO-CREATION

The city has been for centuries an important locale of cultural creation, economic exchange, and political interaction. Mumford conceptualized the city as a "collection of primary groups and purposive associations" (p.93), and a 'theater of social action' with city inhabitants as its protagonists [14]. Today's cities can be seen as strategic places for both the dominant forces of capitalist globalization, but also for 'counter-geographies' of local citizen networks using digital tools [18]. To better understand the complexity of cities as social and spatial phenomena, it can be helpful to draw from actor-network theory as a sociology of associations [12]. In urban actor networks, humans (e.g., citizens, planners, developers) and artifacts (e.g., streets, buildings, benches) interact with each other in complex, contingent ways. This means that neither physical characteristics nor social relations have ultimately determining influence on the other. Instead, humans and artifacts influence each other by being part of actor networks. Following actor-network theory, the concept of place can be framed as an entanglement of people and things associated by meanings and memories. For example, a particular actor network of a specific place like a park or community centre becomes itself an actor that is part of the neighbourhood and city. Phenomena often associated with place, such as memory and identity, resemble linkages between citizens and the locations they value.

We can also make sense of urban space as the superimposition of many different dimensions. Sandalack and Nicolai [17] proposed a layer framework that organizes urban aspects along permanence including land, public realm, built form, program, and fashion. While street layouts are more constant, there is a degree of freedom when designing buildings. After construction, there is flexibility in the activities that are carried out in buildings and in the aesthetic modification of details. This framework could be used to describe different levels of intervention, which is particularly useful in times when market forces and complicated regulation seem to make change in cities unlikely. Mapping urban relations along levels of permanence helps to understand how people create, use, and transform the physical characteristics of a city. Inspired by the layer framework proposed by Sandalack and Nicolai, we propose a multi-faceted approach that arranges urban issues according to different human needs. For the discussion in this paper, we focus on sustainability, place, community, and participation as particularly significant urban facets. Each of these facets can be seen as significant subsystems or actor networks of the city that are interconnected and in parts interdependent.

Following the notion of the city as actor networks, we do not think that complex entanglements of people and places, i.e., cities, are designable objects. Design often implies a holistic vision of the object to be designed, but there are always multiple, partial views of streets, neighbourhoods, and cities. Furthermore, a city is also its population, whose behaviour cannot be prescribed by planners or designers. However, if we see urban planning and design as a participatory process involving many different actors (e.g., citizens, developers, architects, planners), we think there is great potential for change from different perspectives at multiple levels. For such a multi-player process, the term *urban co-creation* is possibly more appropriate than urban design. Instead of creating all-embracing master plans as results of conventional urban design and planning procedures, urban co-creation strives for a mosaic of transformations requiring loosening control and spreading power. The idea behind urban co-creation is to bridge the gap between professionals and laypeople and allow for intervention, participation, and engagement regardless of social or professional background of participants. The situated knowledge of those inhabiting urban environments should have at least the same level of authority as the experience of professionals. The role of urban designers, city employees, and other professionals in urban co-creation can be stimulating new ideas, facilitating participation, and providing advice to citizen activists.

URBAN ISSUES AND CHALLENGES

Urban conditions have been criticized numerous times before in the literature. Almost a quarter century ago, Jacobs and Appleyard [9] formulated an influential manifesto, in which they problematized the city and postulated goals for improving it. While they provided a list of physical requirements for better urban living, the practical implications for making the transformations happen remained unsaid. About a decade later, the idea of new urbanism [1] picked up the critique of the sprawling, car-centred city and aggregated widely agreed planning principles for different urban scales. While this attempt toward a new urbanism was criticized for not being able to live up to its goals [16], the main direction of celebrating the city as a potentially sociable, meaningful, and sustainable environment remains valid today.

Sustainability

As more and more people are living in urban environments, the city can be seen as the prime stage for addressing climate change. Often the city is seen as the complete antithesis of nature. However, neglecting nature amidst our cities may lead to greater costs of providing basic human needs and danger of contamination. Natural processes can fulfill many city functions [13] and, for example, the case of parks and gardens, nature can be seen as a thing of beauty that can lift up human spirits and become an important urban factor. Another important factor is density, which makes a variety of public services accessible and more sustainable forms of transport including walking and bicycling feasible.

Place

With greater density urban spaces can also become vibrant places. A place can be seen as the combination of location and people linked by experience, emotions, and meaning. Today we have either over-hyped places or tremendously neglected places. The commodification of public life as criticized Benjamin [2] has been perfected with stadiums named after big corporations and large parts of a city turned into semi-public spheres. In these privatized places meaning is drawn from commercial value and alternative practices are policed by private security firms. The challenge is to recover and revive urban places. Oldenburg [15] promoted a 'third place' besides work and homes, where people can come together not on premises of labour or kinship, but as free members of an engaged citizenry. Citizens should become curators and patrons of their places. In coffee shops, concert halls, and libraries people already come together to enjoy the arts, study and read, or meet friends. Beyond mere consumption, third places should encourage the creation, negotiation, and appreciation of meaning.

Community

As a spontaneous social space the city has been deteriorating. While we socialize with our professional and personal peers, more casual and less committed relationships with other city inhabitants have been decreasing. For example, Jacobs highlights how sidewalks can support a sense of security and how they get better the busier they are [10]. However, as the car has become the dominant mode of transport, sidewalks have become emptier making it less likely to meet people by chance. In the study of social interaction in public spaces, Whyte [22] shows how people tend to implicitly congregate with strangers mostly by sharing the space.

Gehl [7] describes such low-intensity social activity as "an uncomplicated opportunity to maintain already established contacts" (p.21) and a source of inspiration and stimulation. This kind of implicit social interaction has become rarer, as people tend to flock in shopping malls, where the sense of community competes with the urge to consume. The rise of such semi-public places separated from the streets has led to something that Boddy calls an 'analogous city' [3]. While the street has been traditionally a place for coexistence and dialogue between people from different backgrounds and social classes, this semi-public version of the city contributes to the marginalization of undesired people and creates an urban comfort zone for middle-class consumers. As cities spread out into suburbs and became socially fragmented, we now meet increasingly people of similar wealth and status.

Participation

We believe the aforementioned deterioration of urban place and community is partly due to the lack of participation of city inhabitants in urban decision-making processes. Regardless of their background, every citizen should be able to get involved in shaping their street, neighbourhood, and city. This ideal stands against the reality of many city inhabitants experiencing inequality, injustice, and inability to change their situation. To promote participatory practices in a city, everybody involved can learn from each other's experience and cooperate (and conspire!) at multiple levels in the co-creation of their city. There have been several approaches to allow for political participation in the urban planning process [5, 19]. However, often bureaucracy and lack of transparency have led to ignorance and disengagement. City administration should make key information easily accessible and invite citizens to become engaged in planning processes. On the flip side, to bring about these changes citizens can be supported in uncovering information that institutions and corporations try to hide from their constituents or consumers. Community organizations already play an important role in using citizens' spatial knowledge together with digital tools to participate in urban planning [6].

DIGITAL TOOLS FOR NEW FORMS OF PARTICIPATION

There is a broad spectrum of approaches towards bringing about a more socially just and sustainable city. What are some inspiring forms of urban intervention? To what degree are digital tools involved in these practices? What is then the role of the digital in the urban? Citizen participation in community organizations has been conceptualized before as a contradictory dualism between resistance and service [6]. In the following, we take a different perspective and characterize urban co-creation as the synthesis of three interrelated forms of participation: understanding urban reality, improving the city, and re-imagining underlying principles. The first part revolves around discussion of urban issues and as such primarily implies a transformation of perception. The second addresses the involvement of citizens in improving urban aspects. for example, by demanding change from authorities. The third component is about questioning fundamental principles and experimenting with new ways of relating to one another in the urban environment. These approaches implicitly assign roles to a citizen, such as observer, volunteer, and activist—admittedly blurry and overlapping. These roles are not for categorizing citizens

but rather describe a range of activities carried out to change the perception and reality of urban relations. The intent is to develop a better understanding of urban participation, gather a range of exemplary practices involving digital tools, and suggest opportunities for invention and intervention.

1) Deciphering the Urban Code

Like scraping information from web sites, citizens have to separate signal from noise to understand urban processes and issues. In this regard, the citizen can be seen as a literate observer making sense of a complex and dynamic phenomenon. City-related information is becoming ever more abundant as city inhabitants become more willing to share their experiences online, municipal institutions increasingly expose data publicly, and community groups collect spatial knowledge [6]. The digital tools that can help make sense of urban information streams range from monolithic geographic software environments to web sites that focus on specific aspects of urban life. For example, the projects Oakland Crimespotting[1] and Walk Score[2] map complex urban issues, here crime and walkability, to an interactive and visual representation. Such tools constitute lenses on the city that can be used by activists to advocate for crime prevention and more sustainable urban planning. On the other hand, more and more information pertaining to the city is collected each day where the purpose or benefit is not yet clear. For example, it has been shown how activity on mobile cellular networks across an entire city can be used to represent urban dynamics around certain events [4]. The daily activities and processes of urban dwellers and systems form a complex fabric not just manifested by its physical presence, but also by its digital counterpart continuously generated or collected. These abundant and diverse data streams can provide rich and powerful stories that can inform citizens' personal decisions, for example, about their mode of transport or energy usage, and more collective involvement, for example, about social programs within their neighbourhoods, districts, and city. The challenge for designers and activists is to create accessible representations that help citizens further their participation and engagement. Web-based data collection, visualization, and discussion tools such as Many Eyes [21] hint at a great potential for collectively making sense of data.

2) Filing Bug Reports and Feature Requests

The second participatory practice in the city can be compared to submitting bug reports and suggesting new features to a software developer. For this, the citizen remains within the roles allocated between institutions and individuals. Municipalities have been working on simplifying the way citizens can report issues through hotlines such as 311 and web-based forms. Similarly, the community site FixMyStreet[3] allows citizens to publicly report issues in their neighbourhood such as potholes or broken street lights. Compared to typical municipal feedback systems, where incoming complaints are not disclosed to the public, FixMyStreet increases the citizens' voice by turning the public's eyes on outstanding problems. It has been argued that such sites do not only put more pressure on city officials, but can "increase public own-

ership of services" and public participation in the process of urban improvement [11]. In order to change the city on a more general level a more sustained form of advocacy may be required. The website Streetsblog[4] is a good example following a general agenda around sustainable transportation and livable cities by discussing municipal news, producing video documentaries, and continuously advocating for general improvements. Both FixMyStreet and Streetsblog demonstrate the value of spatial knowledge and narrative to drive urban change [6]. By continuously building on the daily experiences of community members in their neighbourhoods they pressure institutions to implement improvements. In order to support participation, designers and technologists need to find ways to allow engaged citizens and community groups raise their concerns and advance their mission. The challenge is to help people and groups extend their impact and connect activists with related causes.

3) Hacking the City

As the open source community encourages users to become developers, the third participatory practice turns the conventional role allocation upside down and describes a pragmatic, yet principled attitude to shaping urban form and relations. Instead of asking for gradual improvements, activists engage in subversive and artistic practices that may run counter to the common wisdom of wage labour, and private property. These transgressing practices may come as spontaneous actions that question the modus operandi for a few hours or alternative projects that develop new ways of work and play in the interstices of capitalist relations [8]. Instead of creating a new urban operating system from the ground up, activists create prototypes of change and spread them like computer viruses throughout the city and around the world. While hacking carries the pejorative baggage of breaking into computer systems of large organizations, hacking the city similarly may comprise actions at the boundaries of legality. Urban hackers are willing to engage in civil disobedience to express their disregard of the status quo and reach out to the general public to re-imagine different versions of the future. There are many examples of creative practices questioning how the city is used[5]. Street art constitutes a particularly canonical form of creative practice that challenges private property, power relations, and institutionalized form of art. While street art can be framed around destruction and trespassing, it can also be seen as appropriating the urban world people live in. As street art is very transient an important component is its documentation on weblogs such as by the Wooster Collective[6] and photo-sharing sites. The Graffiti Archaeology[7] project addresses the transient nature of the art and provides historical records of graffiti walls representing their evolution. While denial-of-service attacks have been carried out as a form of protest against websites of governmental or financial institutions, there is a comparable action that one may call reversal-of-service during which intended functions of spaces are reversed. For example, Critical Mass is a monthly bike ride in many cities around the world during

---

[1] http://oakland.crimespotting.org

[2] http://www.walkscore.com

[3] http://www.fixmystreet.com

[4] http://www.streetsblog.org

[5] http://cca-actions.org

[6] http://www.woostercollective.com

[7] http://www.otherthings.com/grafarc

which cyclists take over streets in typically large groups providing a counter experience to the daily marginalization of human-powered transit in car-centred environments. Similarly, during the annual Park(ing) Day[8] parking spots in many North American cities are turned into temporary parks that invite for play and community to enact alternative visions of a more communal and sustainable city. For these types of events, activists already use listserv, blogs, cellphones, and social networking sites to organize and advertise these events and engage more citizens in urban participation.

Engaged citizens increasingly provide and satisfy basic needs in alternative practices beyond commercial transactions and wage labour. For example, there are more and more urban gardens and bike shops that are communally run allowing members to share resources and skills and contribute to people's nourishment and mobility. Typically these communities are horizontally organized on a volunteer basis using wikis and other digital tools to share information and organize tasks. Community websites such as Craigslist[9] and Freecycle[10] allow for trading and gifting among city inhabitants outside of the conventional economy. Time banks allow people of diverse backgrounds to exchange their time and skills in a voluntary and reciprocal way without relying on monetary bargaining. Any time invested can be retrieved as the service from another community member. It has been argued that is has the potential of "overcoming social exclusion and enabling community self-help" [20].

Compared to the scale of conventional urban relations that are largely determined by market forces and power structures, these progressive initiatives can be regarded as temporary and experimental glimpses into new ways of interacting with one another. Often these initiatives have common causes yet are part of a fragmented landscape of alternative practices. Digital tools are often used for orchestrating actions and organizing projects. The challenge is to bring these often disparate attempts closer together to form rich and resilient communities. New digital tools could be beneficial in facilitating communication and collaboration between a growing number of projects and initiatives.

CONCLUSIONS

In this paper, we have discussed different understandings of the city as layers of varying permanence and as complex actor networks of life and form. We argued that transformative agency within this layered entanglement of people and things should be understood as urban co-creation performed by engaged citizens rather than urban design carried out by professionals. We have raised four particular challenges (sustainability, place, community, and participation) that are already addressed by different forms of civic activism that rely on digital tools. We distinguished between decoding, debugging, and hacking the city as complimentary forms of participation involving the understanding, improvement, and subversion of urban relations. Much more innovative research and design is to be done to create digital tools that help citizen activists to make sense of their city, have their voice heard, and engage in urban experimentation.

---

[8] http://parkingday.org
[9] http://craigslist.ca
[10] http://www.freecycle.org

REFERENCES

1. Charter of the new urbanism. http://www.cnu.org/charter (Retrieved 2008-11-13), 1996.

2. W. Benjamin. *Reflections*, chapter Paris, Capital of the Nineteenth Century, pages 146–162. Harvest/HBJ, 1979.

3. T. Boddy. Underground and overhead: Building the analogous city. In M. Sorkin, editor, *Variations on a Theme Park: The New American City and the End of Public Space*, pages 123–153. Hill Wang, 1992.

4. F. Calabrese, M. Colonna, P. Lovisolo, D. Parata, and C. Ratti. Real-time urban monitoring using cell phones: A case study in rome. *Intelligent Transportation Systems, IEEE Transactions on*, PP(99):1–11, 2010.

5. M. Carmona, T. Heath, T. Oc, and S. Tiesdell. *Public Places - Urban Spaces: The Dimensions of Urban Design*, chapter The Communication Process. 2003.

6. S. Elwood. Beyond cooptation or resistance: Urban spatial politics, community organizations, and GIS-based spatial narratives. *Annals of the Association of American Geographers*, 96(2):323–341, 2006.

7. J. Gehl. *Life Between Buildings*, chapter "Three Types of Outdoor Activities" and "Life Between Buildings". 1987.

8. J. Holloway. *Crack Capitalism*. Pluto Press, May 2010.

9. A. Jacobs and D. Appleyard. Toward an urban design manifesto. *Journal of the American Planning Association*, 53(1):112–120, 1987.

10. J. Jacobs. The uses of sidewalks: Safety. In *The City Reader*, pages 114–118. Routledge, 1961.

11. S. F. King and P. Brown. Fix my street or else: using the Internet to voice local public service concerns. In *Proceedings of the 1st international conference on Theory and practice of electronic governance*, ICEGOV '07, pages 72–80. ACM, 2007.

12. B. Latour. Where are the missing masses? the sociology of a few mundane artifacts. *Shaping Technology/Building Society: Studies in Sociotechnical Change*, pages 225–258, 1992.

13. I. McHarg. The place of nature in the city of man. *Annals of the American Academy*, 352:1–12, March 1964.

14. L. Mumford. What is a city? *Architectural Record*, 1937. From The City Reader (Routledge).

15. R. Oldenburg. *The Great Good Place*, chapter The Problem of Place in America. 1989.

16. E. Robbins. *Shaping the City: Studies in History, Theory and Urban Design*, chapter 11 New Urbanism, pages 212–230. Routledge, 2004.

17. B. A. Sandalack and A. Nicolai. *The Calgary project : urban form/urban life*. University of Calgary Press, 2006.

18. S. Sassen. Towards a sociology of information technology. *Current Sociology*, 50(3):365, 2002.

19. B. C. Scheer. *Design Review: Challenging Urban Aesthetic Control*, chapter The Debate on Design Review. 1994.

20. G. Seyfang. Time banks: rewarding community self-help in the inner city? *Community Development Journal*, 39(1):62, 2004.

21. F. B. Viégas, M. Wattenberg, F. van Ham, J. Kriss, and M. McKeon. Many Eyes: A site for visualization at internet scale. *TVCG: Transactions on Visualization and Computer Graphics*, 13(6):1121–1128, Nov/Dec 2007.

22. W. H. Whyte. *The Social Life of Small Urban Spaces*, chapter "Introducton", "The Life of Plazas", "Sitting Space", and "Sun, Wind, Trees, and Water". 1980.